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Intermediate Level  
Reading Corpus

For Intermediate English Learners

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# Science & Technology

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200 articles



## Article 1: California Energy Deal Marks Big Step for Geothermal Power

Date: 2024-06-30T21:55:00+00:00 | 497 words | Source

No media source currently available

The method of making electricity from the Earth’s natural heat has been moving forward quietly for many years. Recently, that effort has reached a milestone with a big, new project.

Southern California Edison announced it will buy electricity from Fervo Energy, a company based in Houston, Texas. Fervo uses geothermal energy to produce electric power. The company is going to drill up to 125 geothermal wells in the southwestern state of Utah. The goal is to produce 400 megawatts of electricity. That is being described as enough to supply power to 400,000 homes.

Wilson Ricks is an energy systems researcher at Princeton University in New Jersey. He said if the business deal helps geothermal technology, it could be “massively impactful for global decarbonization.” The term decarbonization means using machines and methods that do not produce carbon-based substances when they are used.

New geothermal companies are using the drilling technology that oil and gas industries developed. They drill down into areas where underground rock is very hot to create steam, which can be used for power production. Engineers have been working on this technology for many years.

The United States is among the world’s leaders in geothermal energy. But the U.S. Energy Information Administration (EIA) says it accounts for less than half of one percent of the nation’s electricity.

Fervo is among the first companies to drill in what are called geothermal reservoirs. The EIA describes these as areas of very hot rock that are fairly close to the surface of the Earth — between one and three kilometers. In 2021, the company signed an agreement with Google to drill three wells in Nevada. The Associated Press (AP) reported that the project began supplying power to the Nevada electricity system, or grid, in November.

The new development in Utah is called the Cape Station project. It is about 320 kilometers south of Salt Lake City. It is expected to begin providing electricity as early as 2026.

California Energy Commission Chair David Hochschild said his state supports electricity that does not release carbon when it is produced. He said geothermal power works well with solar farms to provide steady electricity when the wind is not blowing, or clouds block the sun. He believes this is important to ensure reliable energy as California cuts the use of oil, gas and coal.

Sarah Jewett is vice president of Fervo. She called the deal “exciting.” Jewett said the deal “...isn’t a niche energy resource going to a niche use.” The word “niche” describes something that has very limited availability and limited use in the real world.

Jennifer McDermott reported this story for the Associated Press. Mario Ritter, Jr. adapted this report for VOA Learning English.

milestone—n.an event that marks progress in someone’s life or in the development of a company or organization

geothermal—adj.related to natural heat from beneath the Earth’s surface

megawatt—n.one million watt hours: a measure of electrical power

impact—n.something that causes a result

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## Article 2: Astronauts’ Return Delayed as Boeing Aims to Fix Starliner Spacecraft

*Date: 2024-06-30T22:05:00+00:00 | 690 words | Source*

No media source currently available

Two American astronauts have been delayed at the International Space Station (ISS) while engineers try to fix problems with Boeing’s Starliner spacecraft.

Starliner is a joint project between Boeing and the American space agency NASA. The capsule arrived at the ISS on June 6. It had launched a day earlier from Cape Canaveral in Florida.

The trip was a test flight that marked the first time the Starliner spacecraft successfully carried astronauts to space. It transported NASA’s Butch Wilmore and Suni Williams to the ISS. The two were expected to remain in space for about one week.

But problems affecting Starliner have already led Boeing and NASA officials to postpone the trip back to Earth several times. Reuters news agency reported one of its sources with knowledge of flight planning said NASA was targeting a return date of July 6.

Since its June 5 liftoff, Starliner has experienced at least five helium leaks. In addition, some of the capsule’s thrusters have failed.

NASA would like to use Starliner to support its future exploration activities on the moon as part of its Artemis program. But Boeing has struggled to complete the testing process before it gets approval for repeated trips to the ISS.

Why was Starliner’s return trip postponed?

NASA wants more time to examine problems with Starliner’s propulsion system. This system is attached to the capsule but is not designed to return to Earth for inspection. Instead, it is released during reentry and burns up in the atmosphere.

Steve Stich is NASA’s commercial crew program manager. He explained the return delay during a news conference last week. Stich said, “We’re just taking a little more extra time to review all the data and also learn as much as we can while we have this service module in orbit.” Starliner’s propulsion

system is part of what NASA describes as the spacecraft's "service module."

The space agency also noted that it did not want the return flight to conflict with spacewalks. A spacewalk was called off this week after water leaked from an astronaut's spacesuit. At least one other spacewalk is planned.

What problems are still being investigated?

Five of the capsule's 28 thrusters failed after Starliner arrived at the ISS. NASA said all but one thruster restarted, and they were found to be working during a later test firing.

Officials suspect heat from increased thruster use on arrival at the ISS caused the problem. Boeing said the one problematic thruster had been turned off and would not be an issue for the return trip.

The capsule launched with one small helium leak and four more were discovered by the time it reached the ISS. Helium is used to pressurize fuel for the thrusters. A rubberseal was suspected of failing, causing the problem.

Boeing and NASA say they will continue to consider landing dates once the spacewalks are completed.

Boeing has said the capsule can remain at the space station for 45 days or longer if needed. Mission leaders plan to keep examining the thruster problem and helium leaks.

With their extended stay, Wilmore and Williams have been helping with chores and research at the orbiting space laboratory. NASA has said there is no rush for the astronauts to leave and there are enough supplies to support their stay.

During his comments to reporters last week, NASA's Stich stated the agency's desire to safely return the astronauts as soon as possible. "So far, we don't see any scenario where Starliner is not going to be able to bring Butch and Suni home," he said.

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Reuters, Agence France-Presse, NASA and Boeing.

capsule—n. the part of a spacecraft that people live in

thruster—n. an engine that produces propulsion by releasing a jet of fluid or a stream of particles

propulsion—n. a force that pushes something forward

module—n. part of an object that can operate alone, especially part of a spacecraft

seal—n. an object of substance that stops liquid or air from leaving or entering a container

chore—n. a job or task that is necessary, but often not enjoyable

scenario—n. a possible situation that could develop in the future

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## Article 3: Study: Ancient Pig-like Animal Shows Early Brain Development

Date: 2024-07-01T21:55:00+00:00 | 592 words | Source

No media source currently available

Researchers say a new study on an ancient pig-like animal is helping them learn more about brain development in mammals.

The animal is known as *Gordonia*. It is believed to have lived more than 250 million years ago in what is present-day Scotland. Back then, Scotland was part of a sandy desert. Today, it receives a lot of rain and enjoys four seasons.

*Gordonia* was known as a protomammal – a predecessor of mammals. The creature lived during the Permian Period. Some protomammals kept some qualities of their reptile ancestors.

An international group of researchers used high-quality, 3D imaging equipment to examine a *Gordonia* fossil. This permitted the team to make a digital copy of the animal's brain. The researchers said this led them to learn new details about the size and shape of the brain in early mammal development.

The team recently released their findings about the fossil in a study published in the *Zoological Journal of the Linnean Society*.

The lead writer of the study was doctoral student Hady George, who attends Britain's University of Bristol. She told Reuters news agency, "Overall, *Gordonia*'s brain looks more like a reptile than a mammal despite it being more closely related to us than any modern living reptile."

The researchers noted that the animal's brain was very different from those of modern mammals. However, the size of its brain compared to its body seemed to suggest the beginning of gains in intelligence seen later on in mammals and humans. George said the front of *Gordonia*'s brain – called the forebrain – is comparatively much smaller than any other mammal.

Another leader of the research was Steve Brusatte, a scientist at the University of Edinburgh in Scotland. He told Reuters the brain the team studied was not as circular as a human brain. Rather, it is shaped more like "a long, arched tube."

Brusatte noted that upon close examination, the researchers realized the animal's brain was "pretty big compared to the size of the body."

He added that it is difficult to measure intelligence in modern-day humans. So it is even more difficult to measure this in long-disappeared animals. "But we can at least say generally that it would have been a smart creature for its time," Brusatte said.

The researchers estimated *Gordonia* was about one meter long, weighing 20 kilograms. The animal's head was tall and wide, with a pointed mouth and tusk to help it eat desert plant material. It had a pig-like build, but its legs were not as long as a pig's, they noted.

Gordonia belonged to a group of protomammals called dicynodonts. The group survived the worst mass extinction in Earth's history 252 million years ago at the end of the Permian Period. The extinction event is thought to have been caused by extreme volcanic activity.

Scientists believe the first dinosaurs began appearing about 230 million years ago, while mammals came about around 20 million years later.

Reuters reported this story. Bryan Lynn adapted the report for VOA Learning English.

mammal—n.an animal that feeds its babies on milk from its body

predecessor— n.a person or thing that existed before another

three-dimensional (3D)— adj.having or appearing to have length, depth and height

fossil— n.something (such as a leaf, skeleton, or footprint) from a plant or animal that lived in ancient times and that you can see in old rocks

tube— n.a long, thin container with a round center

arched— adj.something that has a curved shape like an arch

tusk— n.one of two long, pointed teeth that come out of the mouth of some animals

extinct— adj.not existing anymore

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## Article 4: Chinese Researchers Develop Robot Dogs to Assist the Blind

*Date: 2024-07-02T21:55:00+00:00 | 457 words | Source*

No media source currently available

Researchers in Shanghai are developing a robot “guide dog” that could help blind people.

The robot is currently being tested in Shanghai. The machine uses cameras and sensors to navigate its environment. It is able to recognize traffic light signals which traditional guide dogs are unable to recognize.

The robot can communicate. It is able to listen and speak with a blind operator. The robot also uses artificial intelligence (AI) to recognize voices, plan ways to go from place to place and identify traffic lights.

The robot dog is described as being about the size of an English bulldog but a little wider than a real dog. It has six legs instead of four because the researchers say the extra legs make it more stable, making its movements smoother.

Professor Gao Feng is the head of the research team that is developing the dog at Jiao Tong University's School of Mechanical Engineering. “When three legs are lifted, there are still three legs...It is the most stable shape,” he said.

Forty-one-year-old Li Fei and 42-year-old Zhu Sibin are among the people with vision problems who are helping the Jiao Tong University team. They are testing the dog using Chinese-language commands.

Li is completely blind while Zhu has limited eyesight. He normally uses a cane to walk.

Li said, “If this robot guide dog comes onto the market and I could use it, at least it could solve some of my problems in travelling alone.”

Robot guide dogs are also under development in Australia and Britain. But China has a big shortage of traditional guide dogs. Gao said there are just over 400 guide dogs in China for nearly 20 million blind people.

Pet ownership and service animals are a fairly new idea in the country. Many workplaces, restaurants and public areas do not welcome a usual service dog like a Labrador.

The supply of real dogs is limited by breeding and training needs. Gao said the production of robot guide dogs could be increased to an industrial level, especially in a manufacturing center like China.

“It’s a bit like cars. I can mass-produce them in the same way as cars, so [they] will become more affordable,” Gao said.

The researcher thinks there could be a large market for his robot dogs. “...There might be tens of millions of people in the world who need guide dogs,” he added.

I’m Mario Ritter, Jr.

Casey Hall and Xihao Jiang reported this story for Reuters. Mario Ritter, Jr. adapted this report for VOA Learning English.

stable—adj. not easily knocked over; firmly set

cane—n. a stick used to help a person walk

breeding—n. the practice of raising animals so they produce more animals like them

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## Article 5: South Sudan: Home to World's Largest Land Mammal Migration

Date: 2024-07-02T21:55:00+00:00 | 708 words | Source

No media source currently available

South Sudan is home to what some wildlife experts say is the world’s largest land animal migration, or seasonal movement of animals. But government officials fear illegal hunting threatens the animals and may hurt the development of a sustainable tourism industry.

An estimated 6 million antelope participated in a migration last year, the country's first major aerial wildlife study says.

The estimate from the nonprofit African Parks, which did the work along with the government, is far greater than estimates of other large animal movements around the world.

The recently released study used data collected over a two-week period in two national parks and nearby areas, covering a continuous area of 122,774 square kilometers.

But the group warned that the animals face a rising threat from illegal hunting. The country is filled with weapons but does not have strong law enforcement.

Mike Fay is a scientist who led the study.

Fay said, "Saving the last great migration of wildlife on the planet is an incredibly important thing." He added, "There's so much evidence that the world's ecosystems are collapsing..."

### Conflict and problems

The east African nation is still emerging from five years of fighting that started in 2013 and killed nearly 400,000 people. Elections scheduled for last year were delayed to this December, but few preparations are in place for those.

Violence continues in some areas, with some 2 million people displaced and 9 million — 75 percent of the population — depending on humanitarian aid, the United Nations says.

The migration is already being talked about as a point of national pride by a country trying to move beyond its past. Large advertisements of the migration recently went up in the capital city of Juba. And the government hopes the animals will bring many visitors to the country.

South Sudan has six national parks and over ten game reserves covering more than 13 percent of the land.

The migration stretches from east of the Nile River in Badingilo and Boma parks into neighboring Ethiopia. It includes four main antelope, the white-eared kob — of which there are some 5 million — the tiang, the Mongalla gazelle and the bohor reedbuck.

The study said some numbers of animals have increased since a more limited one in 2010. But it described a "catastrophic" decline of most non-migratory species in the last 40 years, such as the hippo, elephant and warthog.

Associated Press reporters flying over the migration of antelope in early June saw few giraffes and no elephants, lions or cheetahs.

Trying to protect the animals over such a large area is difficult.

In recent years, new roads have increased people's access to markets, leading to more illegal hunting. Years of flooding have meant crop failures that have left some people with little choice but to hunt for food. African Parks estimated some 30,000 animals were being killed each month between March and

May this year.

Villagers near the parks told AP they mostly hunted to feed their families or to exchange the animals for goods.

The government has not made protecting wildlife a main concern. Less than 1 percent of its budget is spent on the wildlife ministry, which said it has few cars to move rangers around to protect animals. Those rangers say they have not been paid since October. In addition, the rangers say that illegal hunters have more weapons than they do.

But South Sudan President Salva Kiir Mayardit said the country is committed to turning its wealth of wildlife into sustainable tourism. He said he wanted the Ministry of Wildlife to increase training and equip rangers to fight illegal hunting.

Sam Mednick reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

sustainable— adj.involving methods that do not completely use up natural resources

tourism— n.the activity of traveling to a place for fun or pleasure

antelope— n.an animal that looks like a deer and runs very fast

ecosystem— n.everything that exists in an environment or area

pride— n.a feeling of self-respect or happiness

catastrophic— adj.of or relating to disaster; describes great damage or a disaster

species— n.a group of animals or plants that can produce young animals or plants

access— n.a way of getting at, near, or to something

ranger— n.a person who protects part of a public forest

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## Article 6: Beryl May Mark Beginning of Dangerous Hurricane Season

*Date: 2024-07-03T21:55:00+00:00 | 562 words | Source*

No media source currently available

Weather experts say the storm Hurricane Beryl might represent the beginning of a very active and dangerous hurricane season.

"It's the earliest Category 5 hurricane on record in the Atlantic, Caribbean and Central American basin," a World Meteorological Organization (WMO) spokesperson said of Beryl.

A Category 5 hurricane brings winds of 252 kilometers an hour or higher. Such storms can cause huge damage, including destruction of homes, roads, and bridges.



The WMO spokesperson noted that destructive power, saying “it only takes one land-falling hurricane to set back decades of development.”

Beryl is on an unusually southern path, especially for a major hurricane, said Kristen Corbosiero of the University at Albany.

Colorado State University hurricane researcher Phil Klotzbach said Beryl is possibly a sign of “more interesting stuff” that could happen in the near future.

He added that there could be “several of these kinds of storms coming down later.”

The water temperature around Beryl is about 1 to 2 degrees Celsius above normal, at 29 Celsius, which “is great if you are a hurricane,” Klotzbach said.

Warm water acts as fuel for the thunderstorms and clouds that form hurricanes. The warmer the water and the air at the bottom of the storm, the better the chance it will rise higher in the atmosphere and create larger thunderstorms, said Corbosiero.

It is not just hot water at the surface that matters. The ocean heat content, which measures deeper water, is far above record levels for this time of year. The levels are currently at what the highest September levels should be, University of Miami researcher Brian McNoldy said.

This year, there is also a big difference between water temperature and upper air temperature throughout the tropics.

The greater that difference is, the more likely it becomes that storms will form and get bigger, said MIT hurricane expert Kerry Emanuel. “The Atlantic relative to the rest of the tropics is as warm as I’ve seen,” he said.

Atlantic waters have been unusually hot since March 2023 and record warm since April 2023. Klotzbach said a high-pressure system that normally sets up cooling trade winds collapsed then and has not returned.

Corbosiero said scientists are debating what exactly climate change does to hurricanes. But she said scientists have come to an agreement that climate change makes hurricanes more likely to become strong quickly, as Beryl did, and increases the strongest storms.

Emanuel said the slowing of Atlantic ocean currents, likely caused by climate change, may also be a factor in the warm water.

La Nina, which is a slight cooling of the Pacific that changes weather worldwide, also may be a factor. Experts say La Nina tends to reduce high-latitude winds that weaken hurricanes.

La Nina also usually means more hurricanes in the Atlantic and fewer in the Pacific. The Eastern Pacific had zero storms in May and June, something that has only happened twice before, Klotzbach said.

Globally, this may be a below average year for tropical cyclones, except in the Atlantic.

John Russell adapted this story from Associated Press and Reuters reports.

hurricane— n.a large, powerful storm that occurs especially in the western part of the Atlantic Ocean

decade— n.a period of ten years

tropics— n. plural the part of the world that is near the equator

factor— n. something that helps produce or influence a result

altitude— n. the height of something above the level of the sea

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## Article 7: US States to Train Workers on AI in Workplace

*Date: 2024-07-03T22:05:00+00:00 | 696 words | Source*

No media source currently available

Artificial intelligence (AI) tools continue to expand in the workplace. And some U.S. states have launched specialized programs to train workers on how to deal with the new technologies.

Many industries are expected to heavily depend on a series of tools known as generative AI. This technology includes systems designed to perform many jobs currently done by humans. Such systems have become increasingly smarter in recent years.

In Connecticut, officials have been working to create what they hope will be the country's first Citizens AI Academy. This will be a free, online collection of special classes designed to teach basic AI skills and provide certifications needed for employment.

Connecticut Democratic Senator James Maroney told the Associated Press that AI changes in the workplace are happening very quickly. "So we need to all learn what are the best sources for staying current," he said. "How can we update our skills? Who can be trusted sources?"

Gregory LaBlanc is a professor of Finance, Strategy and Law at the Haas School of Business at Berkeley Law School in California. He says workers should be taught how to use and manage generative AI.

LaBlanc said he thinks it makes more sense to center on teaching ways to support AI "as opposed to learning to be really bad imitators of AI." He added that employees should be trained in areas where AI does not perform well so that workers can make up the difference.

This year, at least four states proposed legislation that sought ways to deal with AI in the classroom. Those states included Connecticut, California, Mississippi and Maryland.

One bill in California would require a state working group to consider including AI literacy skills in math, science, history and social science studies.

The writer of the bill is California Assemblyman Marc Berman. He said in a statement that AI offers the possibility to improve parts of our lives. "But only if we know how to use it, and use it responsibly," he added.

Berman noted that all students should be taught about basic AI elements and systems. He said students should also learn “the skills to recognize when AI is employed...”

In Connecticut, Senator Maroney said his state’s planned AI Academy will also aim to provide studies on AI basics. He noted the importance for people to have the skills to understand, examine and effectively interact with a range of AI technologies.

A study released by the job-search company Indeed found that all U.S. jobs listed on the service had skills that could be performed or improved by generative AI tools.

Nearly 20 percent of the Indeed job listings were considered “highly exposed.” This means the technology is considered good or excellent at 80 percent of the skills the jobs require. Nearly 46 percent of jobs on the service were “moderately exposed.” This means that AI tools can perform 50 to 80 percent of the skills.

Maroney said he is concerned that AI will worsen existing equity problems related to a lack of high-speed internet, computers and smart phones in some underserved communities. Inequities have been identified between more digitally literate people, often living in cities, and those living in more rural areas without dependable internet and modern devices.

Marvin Venay shares that concern. He is with the Massachusetts-based group Bring Tech Home Advocates. The group has been working for years to narrow differences in computer literacy and high-speed internet availability.

Venay said, “Education must be included in order for this to really take off publicly...in a manner which is going to give people the ability to eliminate their barriers.”

Venay added, “And it has to be able to explain to the most common individual why it is not only a useful tool, but why this tool will be something that can be trusted.”

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

certification—n. the process of earning an official document that serves as proof of certain skills

update—v. to add new information to something

imitate—v. to behave in a similar way to someone or something else

literacy—n. knowledge of a particular subject

expose—v. to put someone at risk from something harmful or unpleasant

eliminate—v. to remove or take something away

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## Article 8: Researchers: Protecting 1% of Earth’s Surface Would Save Rare Wildlife

Date: 2024-07-04T21:57:00+00:00 | 630 words | Source

No media source currently available

A recent report by environmental researchers says that protecting 1.2 percent of the Earth's land surface could prevent most extinctions.

Extinction is the permanent disappearance of an animal or plant from the Earth.

The researchers estimated that such an expansion of nature preserves would cost about \$263 billion.

In 2022, United Nations delegates to the COP15 meeting in Montreal, Canada, promised to protect 30 percent of the Earth's surface by 2030. The U.N. calls the promise the "30-by-30 target." It aims to protect plants and animals severely affected by climate change, pollution, and habitat destruction.

In October, U.N. delegates will gather for a COP16 biodiversity meeting in Colombia to discuss plans for reaching the 30-by-30 goal.

The recent study was published in *Frontiers in Science*. In it, the researchers aimed to identify the highest value areas around the world. Carlos Peres said he hopes the areas identified will be included in protection plans. Peres was a co-writer of the study and is a conservation ecology expert at the University of East Anglia in Britain.

Peres said, "Most countries do not actually have a strategy."

He said, "The 30-by-30 targets still lack a lot of details because it doesn't actually say what 30 percent should be protected."

The study's proposed protections would cover an additional 1.6 million square kilometers. This is an area about one fifth the size of the United States. The study includes 16,825 sites that are home to rare and threatened wildlife.

It is estimated that nearly 16 percent of the world's surface already has some level of protection.

The study estimated that the cost of purchasing land by governments would be about \$263 billion. Many of these areas include private property and would be bought at current market values over the next five years.

"Time is not on our side," Peres said, "because it will become increasingly more expensive and more difficult to set aside additional protected areas."

Most of the cost of creating protected areas is in buying the land. The study did not consider the costs for policing and maintaining the nature preserves.

About three-quarters of the sites are tropical forests. The Philippines, Brazil, and Indonesia are home to more than half of the high-valued areas.

Russia is the one country with the most high-valued areas. The study said about 138,000 square kilometers should be the target of conservation.

Several African countries are also at the top of the list. Madagascar has the fourth-highest number of areas. And the Democratic Republic of Congo has the largest area targeted for conservation in Africa.

The United States is among the top 30 countries in the study. The study said about 0.6 percent of the U.S. should be targeted for conservation. That is an area about the size of the state of Delaware.

The researchers only considered land and freshwater areas. They did not consider oceans or marine protected areas. The study also did not include kinds of animals such as invertebrates, or animals without a backbone, like insects.

The U.S.-based nonprofit group One Earth paid for the study.

Jake Spring reported this story for Reuters. Anna Matteo adapted it for VOA Learning English.

preserve—n. a protected area for a special purpose

habitat—n. a place where wildlife naturally lives

biodiversity—n. the condition of having many different kinds of plants and animals in a place

conservation—n. efforts to preserve and maintain natural lands and resources

ecology—n. the study of relationships between living things

strategy—n. a long-term plan to reach a goal

expensive—adj. costly; requiring a lot of money

tropical—n. related to areas of the Earth between about 22 degrees north and 22 degrees south latitude

marine—adj. related to the sea or oceans

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## Article 9: UN Agency: China Leading AI Patents Race

*Date: 2024-07-07T21:56:00+00:00 | 362 words | Source*

No media source currently available

Recent United Nations data shows that China is ahead of other countries in filing patents for generative artificial intelligence (or GenAI) inventions.

China has filed six times more patents than the United States.

Generative AI produces text, images, computer code and even music from existing information. Generative AI is growing quickly with more than 50,000 patent applications filed in the past ten years, the World Intellectual Property Organization (or WIPO) says.

WIPO is a UN agency that oversees a system for countries to share recognition of patents. Around 25 percent of the patent applications were filed in 2023 alone, WIPO said.

"This is an area that is growing at increasing speed. And it's somewhere that we expect to grow even more," WIPO's Christopher Harrison told reporters recently.

China filed more than 38,000 GenAI inventions between 2014-2023. In comparison, the United States filed 6,276 over the same period, WIPO said.

Harrison said the Chinese patent applications covered several areas from autonomous driving to publishing to document management.

South Korea, Japan and India placed third, fourth and fifth respectively, with India growing at the fastest rate, the data showed.

Among the top applicants were China's ByteDance - which owns the video application TikTok - Chinese e-commerce company Alibaba Group, and Microsoft, a backer of OpenAI which created ChatGPT.

WIPO's Harrison said while chatbots with the ability to copy human communication are already being widely used to improve customer service, GenAI could change industries like science, publishing, transportation or security. For example, Harrison said data suggests GenAI-created molecules might help speed up drug development.

WIPO said it expects even more patents to be filed soon. And the agency plans to release a future update of the data, possibly using generative AI.

Emma Farge reported on this story for Reuters. John Russell adapted it for VOA Learning English.

patent-- n.a document that gives a person or company the right to be the only one that makes or sells a product for an amount of time

generative-- adj.describes using artificial intelligence algorithms to create complete units of content

application-- n.a formal, written request for something

autonomous-- adj.acting separately from other people or things

chatbot-- n.a program designed to chat with human beings

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## Article 10: Nigeria's Solar Projects Struggle to Power the Country

*Date: 2024-07-07T21:57:00+00:00 | 814 words | Source*

No media source currently available

About half of Nigeria's 200 million people cannot get enough electricity from the country's electrical grid.

Many poor, rural communities have no electrical service at all.

Nigeria has a lot of sunny weather and solar energy appears to be a good way of producing electricity there. But Nigeria has had problems getting solar projects completed.

Experts have produced studies that say Nigeria could generate more electricity than it needs from solar energy centers. But 14 large solar projects in the northern and central parts of the country have not gone

forward since contracts were signed in 2016. The projects reportedly could produce 1,125 megawatts of electricity if completed.

Supporters of solar energy in Nigeria blame high interest rates, which can be as high as 15 percent. The International Energy Agency says that is much higher than in developed economies and China. Borrowing costs increase total costs for solar companies working in Nigeria.

Other countries in Africa have also been slow to develop solar energy. Africa has one-fifth of the solar energy capacity of Germany. Just two percent of so-called clean energy investment goes to Africa.

Najim Animashaun is director of Nova Power, one of Nigeria's stalled solar projects. He said, "[If] the same project [is] put in Nigeria and Denmark; the Danish project will get funding for [a] 2 to 3 percent [interest rate]." He said his project struggles to get loans at interest rates of 10 percent or higher. He said this is the case although his "solar project can produce two- and [one]-half times more power..."

Nigeria does not set electricity prices that are high enough to recover the cost of generation. As a result, companies that distribute power cannot pay producers enough to cover the cost of generation. The power production industry depends on the government to supply the difference. This situation worries lenders.

Current estimates say the government owes power producers \$2.7 billion. This situation makes it difficult to get loans. Some have suggested that the World Bank should guarantee loans for solar projects. But Nigeria's government does not want to face possible large payments if electricity projects fail.

Edu Okeke is the managing director of Azura Power, which is involved in a stalled 100-megawatt solar project in Nigeria's northern Katsina State. He said without a World Bank guarantee, "...nobody will develop or finance a project with a government subsidy..." because it can disappear.

#### Electricity in Nigerian communities

The lack of electricity has real effects in places like Excellent Moral School in the city of Ibadan. The school has no electricity. Founder Muyideen Raji said, "The entire community is not connected, including the school." Raji said the lack of power means students "...can't learn how to use computers or the internet and can't study in the evenings."

Places that are connected to the grid often experience power outages. So they use power generators that run on diesel fuel. Last year, the government removed oil subsidies. Fuel prices went up.

The head of Lorat Nursery and Primary School in Ibadan, Abdulhakeem Adedaja, said the school stopped using its diesel generator because of the cost. He said the school can go for two weeks without power although it is connected to the grid. Adedaja added that students cannot complete their assignments at home.

Businesses are limited by the energy deficit too. Ebunola Akinwale owns Nature's Treat Café in Ibadan. She said she pays \$1,700 per month to operate emergency generators for her four stores. "If nothing changes, I probably would have to close one or two branches," she said.

#### A working grid 'cheaper and cleaner'

The government says that, if Nigerians paid full price for electricity, foreign investment would come in. However, labor groups recently went on strike to protest the price increases.

Businesspeople like Akinwale support the government's position. She said electricity from the grid is "cheaper and cleaner" than her diesel generators.

But former regulatory chief Sam Amadi doubts that Nigerians "can today pay for energy consumed without subsidy." He thinks the government should offer tax reductions, payment plans and support for private solar projects. Until then, he warned electricity outages will remain common.

I'm Mario Ritter, Jr.

Taiwo Adebay reported this story for the Associated Press. Mario Ritter, Jr. adapted this report for VOA Learning English.

grid—n. the system sends power from where it is generated to where it is used, which includes lines, transformers and other equipment

generate—v. to produce electricity for use by people and industry

stall—v. to stop suddenly because of a problem

distribute—v. to send out from a central place to widely separated places

subsidy—an effort by a government including support for an industry or payments that is meant to keep the cost of an important product lower than it would be if free market policies existed

generator—n. a machine that turns mechanical motion into alternating electrical current

cheaper—adj. less costly

consume—v. to use something

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## Article 11: NASA Chooses SpaceX to Build a Vehicle to Deorbit Space Station

Date: 2024-07-07T22:05:00+00:00 | 763 words | [Source](#)

No media source currently available

The U.S. space agency NASA has chosen SpaceX to produce a vehicle to take the International Space Station (ISS) out of orbit at the end of its service life.

NASA recently announced that SpaceX will design, develop, and build the spacecraft. The vehicle will aim to guide the ISS through a final reentry into Earth's atmosphere. NASA calls the spacecraft the U.S. Deorbit Vehicle. The agency said the deorbiting operation will take place sometime after the



station's "operational life," which has been set for 2030.

NASA said its contract with SpaceX to build the deorbit vehicle was worth \$843 million. This does not include costs to launch the vehicle. The agency said the launch would be part of a future contract.

California-based SpaceX has an existing relationship with NASA. The company has established itself as a dependable private partner of the agency since 2020. Since then, SpaceX has made regular trips to carry astronauts and supplies to the ISS.

NASA announced last year it had decided on a plan to deorbit the ISS after service ends in 2030. The agency and its international partners agreed that the orbiting laboratory would one day reach the end of its technical lifetime. The station has been continuously inhabited since November 2, 2000.

In a statement, NASA said it chose the method of deorbiting with a specially designed vehicle to provide a "safe and responsible deorbit of the ISS in a controlled manner."

The space agency did consider other choices, or options, to retire the ISS. One option would have involved the use of several Russian spacecraft in a deorbiting operation. Another plan called for taking apart the space station in space and transporting its pieces back to Earth. Still another option was to move the ISS to a higher orbit, where it would remain out-of-service.

But NASA officials have said none of those options met the agency's requirements for safety and effectiveness. The agency noted that while SpaceX will develop the deorbit spacecraft, NASA "will take ownership after development and operate it throughout its mission."

Neither NASA nor SpaceX have provided further information about the planned deorbit vehicle. But Bill Spetch, a leader of NASA's ISS program, recently spoke to reporters about it. He said the current plan is for the deorbit vehicle to be based on the design of SpaceX's Dragon spacecraft.

Versions of the Dragon spacecraft have been used to carry astronauts and supplies to the ISS. Spetch noted that while the new deorbit vehicle would be based on Dragon, its design would require "some modifications and changes."

Ken Bowersox is associate administrator for Space Operations at NASA's Mission Directorate in Washington D.C. He said in a statement that having a deorbit vehicle "will help NASA and its international partners ensure a safe and responsible transition in low Earth orbit at the end of station operations."

Bowersox noted that although the current ISS cannot continue forever, it will remain "a blueprint for science, exploration, and partnerships" until its service ends in 2030.

Once the ISS is retired, NASA plans to use privately developed space laboratories for its space research needs. The agency has already chosen several American companies to develop future space stations.

NASA has said a deorbiting operation would begin by slowly lowering the ISS's altitude level. Officials have said this will likely be carried out by the ISS and its systems without the need for additional spacecraft.

But the final part of the operation is reentry. This will require guiding the ISS into Earth's atmosphere to a target in an unpopulated area of the ocean.

The targeted landing spot has been identified as a place called Point Nemo in the South Pacific Ocean. This is a stretch of open water between New Zealand and the southernmost part of South America. The U.S. National Ocean Service identifies Point Nemo as the point in the ocean that is farthest from land.

NASA predicts that most ISS equipment will burn up or vaporizeduring the intense heat of atmospheric re-entry. But it says some dense or heat-resistant elements are expected to survive and land in the ocean.

Bryan Lynn wrote this story for VOA Learning English, based on reports from NASA, The Associated Press and Agence France-Presse.

inhabited—adj.describing a place where people live

modify—v.to change something in order to improve it

transition— n.a change from one system or method to another, often a slow one

blueprint— n.a plan that shows how someone will design, build or achieve something

altitude— n.the vertical distance of an object above a given level (as sea level)

vaporize— v.to turn, or cause something to turn, from a solid or liquid state into gas

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## Article 12: Researchers: Desert Moss Could Support Colonies on Mars

*Date: 2024-07-09T21:55:00+00:00 | 369 words | Source*

No media source currently available

Scientists have identified a kind of desert moss that could help support possible colonies on Mars, a study by the Chinese Academy of Sciences showed recently.

The moss -Syntrichia Caninervis- was able to survive Mars-like conditions of extreme dryness, very low temperatures and radiation, the research shows. The studyappeared recentlyin the publicationThe Innovation.

The moss could serve as the "basis for the establishment andmaintenanceof the ecosystem bycontributingto oxygen production,carbon sequestration, and soil fertility," the study said.

The paper added, "(It) can help drive the atmospheric, geological, and ecological processes required for other higher plants and animals" while helping to create new environments that could support long-term human settlement.

The study shows that the moss could return quickly to health even after losing more than 98 percent of its cellular water. The plant was able to recover its normal operation seconds after getting water.

The plant can also survive very low temperatures. It can recover or regenerate after being stored in a freezer at -80 degrees Celsius for five years. It can survive a month in liquid nitrogen, the researchers found.

Researchers collected the study plants from a desert in the Xinjiang Uygur Autonomous Region of China. The moss also grows in Tibet, the American state of California, the Middle East and polar areas.

China and the United States have announced a number of space exploration plans in recent years.

Chinese missions include launching a near-Earth asteroid probe Tianwen-2 next year, and Tianwen-3 around 2030 to collect material from Mars and bring it to Earth for study. Last month, a Chinese mission collected materials from the far side of the moon.

The American space agency NASA has developed a 20-year plan for Mars exploration. It is investigating whether the red planet could support human population.

Liz Lee and Ryan Woo reported on this story for Reuters. John Russell adapted it for VOA Learning English.

maintenance— n.the act of keeping property or equipment in good condition by making repairs

contribute— v.to give or supply (something, such as money or time) as a part or share

carbon sequestration— n.any of various methods for capturing and storing carbon dioxide

probe— n.an attempt to explore or learn about some unknown place

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## Article 13: Scientists Find World's Oldest Cave Painting in Indonesia

*Date: 2024-07-10T21:57:00+00:00 | 484 words | Source*

No media source currently available

On the Indonesian island of Sulawesi, scientists have discovered the world's oldest known cave painting. The researchers used a laser to date the painting. They found it was created at least 51,200 years ago.

The painting is inside a cave called Leang Karampuang in an area of South Sulawesi province. The scientists used the laser to date crystal structures of the mineral calcium carbonate that formed naturally on top of the painting.

Maxime Aubert is an expert in archaeology at Griffith University in Australia. He was one of the leaders of the research published in the journal *Nature*. He said the new dating method is an improvement over other ways of dating rock paintings.

The painting is a dark red color. It shows a pig that is 92 centimeters by 38 centimeters. Three human-like images are near the pig.

The researchers think the painting is likely the oldest-known evidence of storytelling in art.

Griffith University archeologist Adam Brumm was another leader of the research team. He thinks the position of the human images near the pig gives the painting a feeling of action. “There is something happening between these figures. A story is being told,” he said.

The researchers also used the laser to estimate the date from another cave painting on Sulawesi. That cave is called Leang Bulu' Sipong 4. The painting in it shows part-human, part-animal figures hunting pigs and small buffalo.

"We, as humans, define ourselves as a species that tells stories, and these are the oldest evidence of us doing that," Aubert said.

Little is known about the people who created the Sulawesi cave paintings. Aubert said the paintings might be older than the age found by the new testing. The paintings might date closer to the time humans first came to the area, around 65,000 years ago.

Until now, the oldest-known cave painting was from another cave in Sulawesi, from at least 45,500 years ago.

The researchers said the Leang Karampuang painting is older than the cave paintings of Europe. The oldest known painting found in Europe is at El Castillo in Spain, dating to about 40,800 years ago.

Before the discovery of cave paintings in South Sulawesi in 2014, some experts thought humans first created art in Europe.

"This discovery of very old cave art in Indonesia drives home the point that Europe was not the birthplace of cave art," Brumm said.

"The earliest Sulawesi rock art is not 'simple,'" Aubert added. "It is quite advanced and shows the mental capacity of people at the time."

Will Dunham reported this story for Reuters news agency. Andrew Smith adapted it for VOA Learning English with additional information from “Nature” and other Reuters reports.

crystal—n. a geometrical structure formed by a mineral under certain conditions

figure—n. the image of a person in a picture or art form

advanced—adj. showing development or intelligence

capacity—n. the ability to do a task or some kind of activity

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## Article 14: NASCAR Introduces Electric Racer to Explore Sustainable Technologies

*Date: 2024-07-10T22:05:00+00:00 | 702 words | Source*

No media source currently available

The American professional racing organization, NASCAR, recently rolled out its first electric vehicle model to the public.

Officials with the motorsports company say they hope to use the vehicle to explore the level of interest in electric vehicles (EVs) among racing fans. Development of the car is also part of NASCAR's efforts to expand its overall sustainability efforts.

NASCAR stands for the National Association for Stock Car Auto Racing. The company operates and supervises hundreds of races at numerous tracks across the United States, as well as events in Mexico, Canada and Europe.

NASCAR races involve stock cars. Stock cars are based on usual car models. But, their design is improved for racing performance. The cars are stronger, more powerful and specially fitted for operations on specialized, competitive racetracks.

The organization demonstrated the new EV model last weekend in the state of Illinois at NASCAR's Chicago Street Race.

So far, only one NASCAR driver, David Ragan, has driven the vehicle, worth \$1.5 million. He has tested it on racetracks and also was behind the wheel in Chicago on Sunday.

Ragan told reporters at the event that driving the EV provides a completely different experience for the driver. The vehicle does not have the same sounds and smells as gasoline-powered racecars. In those vehicles, the engine's sound, smell and heat overpower a driver's senses.

Ragan told local television station WGN about the EV driving experience.

"Now you get to hear the brakes squealing and roaring getting into the corner. You get to hear the tires making noise across the corner," Ragan said. And, the racer noted, he suffered none of the ringing in the ears that comes with driving the loud gas-powered cars.

NASCAR engineers partnered on the vehicle with automakers Chevrolet, Ford and Toyota, and electrical equipment company ABB. Europe-based ABB is currently NASCAR's official electrification partner. Company officials have said ABB aims to help NASCAR bring in more electricity from sustainable sources.

As one part of its wider sustainability efforts, NASCAR plans to team up with ABB to help establish more charging stations for EV drivers attending races at its 15 U.S. tracks.

NASCAR says longer-term plans include the use of sustainable racing fuel as well as recycling and using 100 percent renewable electricity at its events. The company also promises to cut its operating carbon output to "net zero" by 2035.

Riley Nelson is NASCAR's head of sustainability. He told Reuters the organization has no immediate plans to start an EV racing series. Rather, the EV model was built as a demonstration vehicle to explore new technologies.

Most NASCAR vehicles are based on normal sports models. But the new EV car is based on a larger "crossover" automobile. A large wing on the back of the vehicle is designed to help it compete with other race cars.

NASCAR officials have said the vehicle was built to produce 1,000 kilowatts at top power. This is equal to 1,340 horsepower, about twice the amount produced by NASCAR's latest engine technologies.

NASCAR is not the first motorsports organization to expand into electric car racing. Formula E is an international EV racing series that officially began 10 years ago. But that organization's fan base is much smaller than NASCAR's.

NASCAR officials said demonstrating the EV vehicle at its events could increase interest in expanding the technology, especially among younger fans.

John Probst is NASCAR's senior vice president and chief racing development officer. He told The Associated Press the technology might one day even help the group reinvent the whole fan experience.

"It's our goal to entertain our fans," Probst said. "If our fans tell us this is what they want to see, we know how to create a racing series around pretty much anything."

Bryan Lynn wrote this story for VOA Learning English, based on reports from NASCAR, The Associated Press, Reuters and WGN TV.

sustainable- adj.causing little or no damage to the environment over a period of time

brake- n.the part of a vehicle that makes it stop or go more slowly

corner- n.a projecting angle in a street or racing course

tire- n.a thick, round piece of rubber filled with air that fits around a wheel

entertain- v.to keep someone interested and help them to have an enjoyable time

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## Article 15: US Farmers Use Tree from India to Produce Proteins and Biofuel

*Date: 2024-07-11T21:55:00+00:00 | 680 words | Source*

No media source currently available

American farmers are using an ancient tree from India to produce beans for making protein-rich foods and biofuels.

The tree is called pongamia. It is native to India, Southeast Asia and Australia. But farmers in the southern state of Florida have found the tree grows well there too.

In some parts of Florida, pongamia trees have now replaced citrus trees, which have long faced major struggles with disease.

Pongamia trees produce a small brown bean known as a legume. The legume can be used in the production of several products, including cooking oil and protein-rich foods. The beans can also be used to produce a biofuel, mostly for airplanes.

Pongamia do well in Florida because the trees like hot temperatures and can survive in dry or rainy conditions. They also do not require special additives, called fertilizers, or chemicals to kill insects and other life that might threaten growth.

And unlike fruits like oranges and grapefruit, the beans do not require teams of workers to pick. Instead, they can be easily collected with a machine that shakes the trees and makes the legumes fall to the ground.

A San Francisco-based company, called Terviva, has invented a process that removes substances from the bean that gives it a bad taste so it can be used for food production.

The company's founder, Naveen Sikka, told The Associated Press that Terviva has been able to offer Florida farmers a new chance to replace their failed citrus crops. Pongamia, he said, "is the perfect fit" to help them rebuild their businesses.

Ron Edwards is the chairman of Terviva's board of directors. He is also a long-time Florida citrus grower. He told the AP that turning this wild tree into an agricultural success story was not easy. "There are no books to read on it, either, because no one else has ever done it," Edwards said.

In addition, he said bees and other pollinators that feed on the tree's flowers help support the local environment.

Edwards added that an estimated one half hectare of the trees could provide the same amount of oil as about 1.6 hectares of soy beans. The pongamia bean also produces a high-quality protein that can be used to make many plant-based products. "There's a lot of potential for the food industry and the oil and petroleum industry," Edwards said.

Experts say the problems linked to Florida's citrus crops – disease and climate issues – have also affected most of the world's top citrus-producing nations.

For example, this year's harvest in Brazil – the world's largest exporter of orange juice – is expected to be the worst in 36 years. The Brazilian citrus group Fundecitrus made that prediction after a period of major flooding and then extended dryness.

But Edwards noted that climate and disease have little effect on pongamia trees. "It's just tough, a jungle-tested tree" he said. "It stands up to a lot of abuse with very little caretaking."

Pongamia also grows well in Hawaii, where it is now being used on land where sugarcane once grew.

John Olson is a Florida farmer who replaced his grapefruit trees with 87 hectares of pongamia. He told the AP he felt he had little choice because, "For the most part, the citrus industry has died in Florida." Olson said his grapefruit business was a profitable operation throughout the 1980s and 1990s, although the farm was not large.

Edwards said he is happy that pongamia trees have replaced some citrus trees in Florida. And he said he likes that pongamia oil can replace some oils that are more environmentally damaging to produce.

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

citrus- n.a kind of fruit that includes oranges, lemons, grapefruits, etc.

pollinate- v.to carry pollen from a male part of a flower to the female part of another flower of the same kind

petroleum- n.a dark, thick oil that comes from the ground and is used to produce gasoline and other products

tough- adj.able to take great force

jungle- n.an impenetrable thicket or tangled mass of tropical vegetation

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## Article 16: Who Were the Denisovans, Ancestors of Modern Humans?

*Date: 2024-07-11T21:57:00+00:00 | 743 words | Source*

No media source currently available

Pieces of bones in a cave in the Tibetan highlands have given researchers new evidence of the mysterious human ancestors known as Denisovans.

International researchers examined more than 2,500 bones found inside Baishiya Karst Cave. Most of the bones were from animals hunted by the Denisovans. The scientists studied proteins found in the bones to learn more about the Denisovans and the animals they depended on for food.

Baishiya Karst Cave is at a high altitude, or height above sea level, of 3,280 meters in the Tibetan Plateau.

The researchers discovered that the Denisovans hunted many different kinds of animals for food including sheep and a large, hairy animal called a woolly rhinoceros. The scientists published their findings this month in *Nature*.

Most of the bones were identified as belonging to blue sheep that still live in the Himalayan Mountains. Other animals included the woolly rhinos, yaks, small mammals such as marmots, birds and the spotted hyena, a dog-like creature that lived in an area called the Ganjia Basin.

In the cave containing animal bones, the researchers also discovered a rib bone from a Denisovan individual believed to be from 48,000 to 32,000 years old. That would make it the most recent Denisovan remains yet discovered.

The researchers believe the Denisovans killed the animals for their meat. There was evidence found on the bones suggesting the cutting, or butchering, of meat and processing of animal skins. There was also evidence of animal bone tools.

Frido Welker, a molecular anthropologist with the University of Copenhagen in Denmark, was one of the leaders of the research. He said, “It is the first time we have gotten an understanding of the subsistence behaviors of Denisovans.” Welker added that these human ancestors were able to use “a



wide range of animal resources.”

Dongju Zhang, an archeologist with Lanzhou University in China was another study leader. He said, “I think the diverse animal remains found in Baishiya Karst Cave suggest that this location offered relatively better resources compared with the neighboring higher Tibetan Plateau to the west and the Chinese Loess Plateau to the north...”

Scientists did not publish evidence of Denisovans until 2010, when research identified a bone that came from Denisova Cave in Russia’s Siberia area. Genetic examination showed that Denisovans were closely related to Neanderthals, other human ancestors who lived in Eurasia. Both groups are believed to have interacted a lot with Homo sapiens, or modern man, and are believed to have interbred with modern humans.

Welker said, “From genetics, we know they diverged from Neanderthals around 400,000 years ago.”

Denisovans are known only from remains found in three places. They are Denisova Cave, Cobra Cave in Laos and Baishiya Karst Cave in Tibet. The wide separation suggests they lived in many different areas.

Zhang said their presence in such a wide area “implies that Denisovans had high flexibility to adapt to different environments.”

Another bone found in Baishiya Karst Cave is a lower jaw bone of a young Denisovan. It is believed to be 160,000 years old. The researchers said they thought the human ancestors lived there as early as 200,000 years ago. But the piece of rib suggests their presence was more recent.

“We don’t know if the rib was from an adult or a child, nor its genetic sex,” said Welker. He added it was the first time a Denisovan rib has ever been discovered.

Scientists say Homo sapiens did not populate the Tibetan Plateau until about 40,000 years ago and first appeared in Africa a little more than 300,000 years ago.

But what happened to the Denisovans seems to be a mystery.

“We know so little,” Welker noted, adding, “We know that Denisovans interbred with modern humans. We know that based on some Denisovan DNA that is present in the genomes of some modern humans living today.”

He then said, “But when, where and why Denisovans ultimately went extinct, that we don’t know anything about.”

I’m Mario Ritter, Jr.

Will Dunham reported this story for Reuters. Mario Ritter, Jr. adapted it for VOA Learning English.

anthropologist—n.a scientist who studies human race, society and behavior

subsistence—adj.related to the most basic needs for life such as food, shelter, protection and social structure

diverse—adj. involving many different kinds of related or similar things

interbreed—v. when two different species have mate and have babies

adapt—v. to change behavior to better meet the demands of new conditions

genome—n. to whole group of genetic information of a living thing

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## Article 17: Ants Can Perform Amputations to Save Lives

Date: 2024-07-14T21:55:00+00:00 | 647 words | Source

No media source currently available

Human doctors perform amputations, or removal of an arm, leg, or finger, after a serious injury. The purpose of this action is to prevent infection or disease. But humans are not alone in doing them.

New research shows that some ants perform amputations on injured ants to help them survive an injury. The behavior was documented in Florida carpenter ants, also known by their scientific name *Camponotus floridanus*. The reddish-brown insect is about 1.5 cm long. They live in parts of the southeastern United States.

Scientists said they observed these ants treating injured ants in the colony in two ways. They either cleaned the wound using their mouthparts or amputated the limb, or leg, by biting it off. The choice of care depended on the injury's location. When it was further up the leg, they always amputated. When it was further down, they never amputated.

Erik Frank of the University of Würzburg in Germany is the lead writer of the research. It appeared recently in the publication *Current Biology*. Frank said the study describes “for the first time how a non-human animal uses amputations on another individual to save their life.”

He believes “that the ants' 'medical system' to care for the injured is the most sophisticated in the animal kingdom,” and compares well to human medicine.

Decision made after injury

The researchers studied injuries to the upper part of the leg, the femur, and the lower part, the tibia. Such injuries are commonly found in different kinds of ants while fighting and hunting among insects and animals.

However, they watched the ants in a laboratory.

Frank said that the ants “decide between amputating the leg or spending more time caring for the wound. How they decide this, we do not know. But we do know why the treatment differs.”

It has to do with the flow of hemolymph, the bluish-green fluid equivalent to blood in most invertebrates, or animals without a backbone.

"Injuries further down the leg have an increased hemolymph flow," Frank said. So harmful bacteria can enter the body after only five minutes. An amputation would not help infection after that time.

He continued, "Injuries further up the leg have a much slower hemolymph flow, giving enough time for timely and effective amputations."

In either case, the ants first cleaned the wound using fluids from their mouth. The amputation process itself takes at least 40 minutes and sometimes more than three hours. The ants keep biting the patient at the shoulder.

The study found that after an upper leg injury, an ant who experiences amputation has a survival rate of 90 to 95 percent. For lower leg injuries in which just cleaning was performed, the survival rate was about 75 percent, compared to about 15 percent for injuries that received no care.

Ants can function well without one of their six legs. And only female ants perform the treatment of wounds by cleaning or amputation.

"All worker ants are female. Males play only a minor role in ant colonies," Frank said.

Why do the ants do this?

So why do ants do these amputations?

Frank said, "There is a very simple evolutionary reason for caring for the injured. It saves resources." He noted that if an ant could be saved with little effort to remain productive, "there is a very high value of doing so."

"At the same time, if an individual is too heavily injured, the ants will not care for her, but rather leave her behind to die," Frank added.

Will Dunham reported this story for Reuters. Jill Robbins adapted it for Learning English.

limb—n. a leg or arm

sophisticated—adj. highly developed and complex

invertebrate—n. a type of animal that does not have a backbone

role—n. the part that someone has in a family, society, or other group

evolution—n. a theory that the differences between modern plants and animals are because of changes that happened by a natural process over a very long time

## Article 18: NASA Researchers End One-year Mars Habitat Mission

Date: 2024-07-14T22:05:00+00:00 | 722 words | Source

No media source currently available

Four scientists have left a model Mars environment where they lived in isolation for more than a year.

The crew took part in the experiment for the American space agency NASA. Team members included commander Kelly Haston, medical officer Nathan Jones, flight engineer Ross Brockwell and science officer Anca Selariu. They ended their stay after 378 days on July 6.

The simulated Mars environment is called a habitat. NASA said the project “was designed to help scientists, engineers, and mission planners better understand how living on another world could affect human health and performance.”

Officials said the habitat also aimed to recreate certain environmental pressures that future astronauts could face while living in places like the moon and Mars.

The experiment took place inside a specially designed area at NASA’s Johnson Space Center in Houston, Texas. The 160-square-meter environment where the crew members lived was built using 3D printing technology.

The experiment involved the crew completing several research activities. These included taking part in robotic operations, looking after the habitat, doing physical exercise and growing crops. The members also took place in simulated “mars walks.”

The crew members are not NASA astronauts. They left their normal jobs to take part in the experiment. After leaving the habitat, the group was to complete a series of “post-mission data collection activities” over two weeks before returning home.

While inside the environment, NASA said the crew was subject to “Mars-realistic time delays” during communications with the outside world. This meant there could be delays of up to 44 minutes roundtrip for communication data.

In addition, the members had to deal with a limited food system, similar to what astronauts use on the International Space Station (ISS) or during future space deployments.

Commander Haston, a biologist, was the first to speak during a ceremony to mark the mission's end. “Hello. It's actually so wonderful just to be able to say hello to you,” she said with a laugh.

Jones – who works as an emergency room doctor – was overcome with emotion after leaving the habitat. “I really hope I don't cry standing up here in front of all of you,” he said.

Brockwell, a structural engineer, said the experience showed him the importance of living sustainably to help mankind on Earth. “I’m grateful for the chance to live the idea that we must utilize resources no faster than they can be replenished, and produce waste no faster than they can be processed back into resources,” he said.

Selariu, a microbiologist, explained that she had been asked by people many times why humans like her would even want to go to Mars. “Because it’s possible,” she said. “Because space can unite and bring out the best in us.” She added, “Because it’s one defining step that Earthlings will take to light the way into the next centuries.”

The NASA program is officially called the Crew Health and Performance Exploration Analog (CHAPEA). The agency says the latest experiment was the first of three it plans to carry out. The target for the next one will be sometime in 2025.

Steve Koerner is the deputy director of Johnson Space Center. He said most of the experiment centered on nutrition and how that affected the crew's performance. The work was "crucial science as we prepare to send people on to the red planet."

Koerner added, "They've been separated from their families, placed on a carefully prescribed meal plan and undergone a lot of observation." He noted that "Mars is our goal," and called the project an important step in America's ongoing efforts to be a leader in future world space exploration activities.

Under its Artemis program, NASA plans to send humans back to the moon in order to learn how to live in space for long periods. After that, the goal is to send astronauts to Mars.

Bryan Lynn wrote this story for VOA Learning English, based on reports from NASA, The Associated Press and Agence France-Presse.

isolate- v. separate someone or something from other people or things

simulate- v. do or make something that behaves or looks like something real but is not

sustainable- adj. something that is able to continue for a long period of time, especially relating to the environment

utilize- v. to use something in an effective way

replenish- v. to fill something or make it complete again

crucial- adj. extremely important or necessary

prescribe- v. to say officially what people must do

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## Article 19: S. Korean Beauty Industry Using AI to Develop New Products

*Date: 2024-07-16T21:55:00+00:00 | 491 words | Source*

No media source currently available

South Korean beauty products company AmorePacific has a new artificial intelligence (AI) laboratory that has become popular with customers.

At the lab, robots mix face products, and the latest technology recommends the best lipstick color for an individual.

Kwon You-jin is a 32-year-old customer at the company's skin cosmetic service.

"Everyone has their own specific skin tone, but usually they buy the most common color available over the counter," she said.

"Knowing more data about my own skin, and seeing the before-and-after firsthand, it's a very good experience," she said, after receiving an AI-created report on the condition of her skin.

A robot mixed a special makeup base, or foundation, that matched her skin color.

More cosmetics companies are using AI to increase sales. Internationally known brands such as L'Oréal and Sephora use the technology to make special products for customers.

Global beauty industry sales including cosmetics reached \$625.6 billion in 2023, climbing each year since dropping in 2020 during the COVID-19 pandemic.

That information comes from Statista Market Insights, a data and market research company.

AmorePacific said it uses AI to recommend the best choices for a customer from 205 different skin foundations or 366 different lip product colors.

Engineer Lee Young-jin, an adviser for AmorePacific's custom beauty business, said that developers used deep learning and machine learning methods to take the process that experts use to study data from many people's skins.

Experts said using AI instead of humans could speed up product development.

Yang Yong Suk, of South Korea's Electronics and Telecommunications Research Institute (ETRI), was co-developer of a deep learning model for a cosmetic product's texture.

"No matter how professional an expert is, individual deviations can be large, and evaluating cosmetics by consulting 30 to 40 experts all the time is difficult," Yang said.

"These days, product development time has shortened, and an ever-larger amount of new products are launched faster," Yang added.

The market for using AI in the beauty and cosmetics industries is predicted to more than double from \$3.27 billion in 2023 to \$8.1 billion in 2028.

The market research provider Business Research Company said in January that services such as personalized beauty recommendations, skin examinations, and virtual makeup artists will likely grow.

Hyun Young Yi and Daewoong Kim reported on this story for Reuters. John Russell adapted it for VOA Learning English.

customer—n. a person or group that pays for a product or service

lipstick—n. a usually colored cosmetic in stick form for the lips

cosmetics—n. (pl.) products that are put on the body, especially the face, with the aim of increasing beauty or improving appearance

specific—adj. relating to a particular instance, condition or thing

over the counter—adj. sold without prescription

match—v. to put two things together that have similar qualities

brand—n.the name under which a product is sold which can only be used by the company owning the brand name

texture— n.the visual or tactile surface characteristics of something

deviation— n.a departure or difference in something

evaluate— v.to determine the significance or condition of usually by careful study

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## Article 20: Scientists Find Cave on Moon That Could House Future Explorers

*Date: 2024-07-17T21:55:00+00:00 | 444 words | Source*

No media source currently available

Scientists have confirmed a cave on the moon, not far from where Neil Armstrong and Buzz Aldrin landed 55 years ago.

They suspect there are hundreds more that could house future astronauts.

An Italian-led team reported recently that there is evidence of a large cave that can be entered from the deepest known pit on the moon. It is located at the Sea of Tranquility, just 400 kilometers from Apollo 11's landing site.

The pit, like the more than 200 others discovered there, was created by the collapse of a lava tube.

Researchers examined radar measurements by NASA's Lunar Reconnaissance Orbiter, and compared the results with lava tubes on Earth. Their findings appeared in the scientific publication *Nature Astronomy*.

The radar data shows only the beginning part of the underground area, the scientists say. They estimate it is at least 40 meters wide and tens of meters long, probably more.

"Lunar caves have remained a mystery for over 50 years. So it was exciting to be able to finally prove the existence" of one, Leonardo Carrer and Lorenzo Bruzzone of Italy's University of Trento, wrote in an email.

Most of the pits seem to be in the moon's ancient lava plains, scientists say. There also could be some at the moon's south pole, the planned location of NASA's astronaut landings in the years to come. Permanently shadowed craters there are believed to hold frozen water that could provide drinking water and rocket fuel.

During NASA's Apollo program, 12 astronauts landed on the moon, beginning with Armstrong and Aldrin on July 20, 1969.

The findings suggest there could be hundreds of pits on the moon and thousands of lava tubes. Such places could serve as a natural shelter for astronauts, protecting them from cosmic rays and solar radiation as well as from very small meteorite strikes. The act of building living areas from nothing

would be more difficult and take more time, even when including the possible need of strengthening the cave walls to prevent a collapse, the team said.

Rocks and other material inside these caves — unchanged by the difficult surface conditions over the ages — also can help scientists better understand how the moon evolved, especially in terms of its volcanic activity.

Marcia Dunn reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

cave— n.a natural chamber or series of chambers in the ground

pit-- n.a hole in the ground, an area sunken below the surrounding surface

lava— n.molten rock that comes from a volcano or fissure in the surface of a planet

crater— n.a depression formed by an impact or collision

evolve-- v.to change or develop by natural processes

## Article 21: Rarest Whale in World Appears on New Zealand Beach

Date: 2024-07-17T21:57:00+00:00 | 452 words | Source

No media source currently available

No one has ever seen a live spade-toothed whale. It is the world's rarest kind of whale. No one knows how many exist, what they eat, or even where they live in the southern Pacific Ocean.

However, scientists in New Zealand may finally get to learn more about them.

The country's conservation agency said Monday it believes a dead spade-toothed whale washed up on a South Island beach earlier this month. Scientists identified the whale by its color patterns and the shape of its skull, beak and teeth.

Very little is known

Hannah Hendriks is a sea life expert for the Department of Conservation. She said, "This is going to lead to some amazing science and world-first information."

In the past, only a few other spade-toothed whales have appeared on New Zealand's beaches. Scientists did not have a chance to closely examine them. Now, they will be able to. They have moved the whale to a cold place for their investigation.

Tribal groups value whales

Researchers will work with local Māori, or tribal groups, to plan how to examine the whale, the conservation agency said.

New Zealand's Indigenous people consider whales *ataonga*— a sacred treasure. In April, Pacific Indigenous leaders signed a treaty recognizing whales as "legal persons." However, that is not



recognized in the laws of participating nations.

Spade-tooth whales live deep in the ocean. They come to the surface so rarely that scientists only know their general location in the southern Pacific Ocean. It is home to some of the world's deepest ocean areas, Hendriks said.

"It's very hard to do research on marine mammals if you don't see them at sea," she said. "You don't know where to look."

Kirsten Young is a senior lecturer at Britain's University of Exeter. She studies spade-toothed whales. She wrote in an email that it took "many years and an mammoth amount of effort by researchers and local people" to identify the whales.

The new discovery "makes me wonder — how many are out in the deep ocean and how do they live?" Young said.

Researchers studying the mammal could not confirm if the species went extinct. Then in 2010, two whole spade-toothed whales, both dead, appeared on a New Zealand beach. Samples of their tissue later showed they were spade-toothed whales.

Charlotte Graham-McLay reported on this story for the Associated Press. Jill Robbins adapted it for Learning English.

marine—adj. of or relating to the sea or the plants and animals that live in the sea

amazing—adj. causing great surprise or wonder

species—n. group of animals or plants that are similar and can produce young animals or plants : a group of related animals or plants that is smaller than a genus

mammoth—adj. something that is very large

extinct—adj. no longer existing

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## Article 22: Tech Tip: Password Manager Can Simplify Logins, Improve Security

*Date: 2024-07-17T22:05:00+00:00 | 781 words | Source*

No media source currently available

For most of us, using – and trying to remember – a collection of passwords is just a normal part of our digital lives. But it seems like the number of passwords we need for online activities just gets bigger and bigger.

Some passwords – especially for work-related systems – must be changed often. That makes passwords even harder to create and remember.

These difficulties can lead some people to reuse passwords to help simplify the process. But most security experts warn against this. Reusing passwords can make it easier for internet attackers, or

hackers, to digitally seize personal accounts.

One of the most suggested methods for effectively dealing with passwords is to employ a separate product called a password manager. These tools are not new. You have probably already heard of such tools and might have even tried one.

Here are some tips for deciding whether a password manager might be right for you.

How does a password manager work?

The general idea behind password managers is simple: Your passwords are stored securely in a digital vault. When you need to use a particular online service, the manager automatically enters login details and password fields for you.

The U.S. government's Cybersecurity & Infrastructure Security Agency notes, "When we use a password manager, we only need to remember one strong password – the one for the password manager itself."

Most password managers have a smartphone service, or app, that works with internet browsers and other apps. This means they can be set to open with a fingerprint or face identification. If on a computer, you can also sign into your password vault through a browser tool, called a plug-in, or by going to a website.

A good password manager should be able to create complex passwords using letters, numbers and special characters when setting up a new account. And, it should also recognize that you are signing into an online service for the first time and ask if you want to save the information you have entered.

Password managers can also protect against so-called phishing attempts. These usually appear as emails seeking to trick users into clicking onto a link to a false website designed to capture login details. A password manager can prevent such details from automatically being filling in if the web address is not the same as the one linked to the saved password.

Most password managers can store other information as well, such as bank and credit card PINs. Many also support passkeys, a new technology that companies like Google have launched as a safer method than passwords.

How do I choose the best one?

There are many different password managers on the market. Some of the best-known systems include 1Password, Bitwarden, Dashlane, Bitdefender, Nordpass, Keeper and Keepass.

One of the best ways to choose the right manager is to look at online reviews based on professional testing and ratings. Britain's National Cyber Security Centre has also established a buyer's guide to help users choose the right password manager.

Most services have free and paid versions. The free offerings come with restrictions, such as permitting only one device to be signed in at a time or limiting the number of passwords to store.

Apple also has its own Keychain service for Macs and iOS devices.

How secure are they?

Good password managers use strong encryption methods that aim to prevent any other parties from seeing your data.

Pieter Arntz is a security researcher at California-based cybersecurity company Malwarebytes. He told The Associated Press that many password managers use the most secure kind of encryption available.

Arntz noted this kind of encryption can protect users even when their computers, devices or password managers are hacked. This is because encryption ensures the saved passwords are stored in an encoded state. This means the attacker would need to know the main password in order to read any of the saved passwords.

Bryan Lynn wrote this story for VOA Learning English, based on a report from The Associated Press and government sources.

manager— n. something or someone that controls a system or operation

vault— n. a very secure location where valuable things are kept

particular— adj. used to describe one thing or person and not others

automatic— adj. working by itself with little human control

phishing— n. the practice of sending emails to people to trick them into giving personal information

character— n. a letter, sign or number that is used in writing or printing

review— n. a report in a newspaper, magazine or on the internet that gives an opinion about a new product or thing

encryption— n. the changing of information from one form to another, especially to hide its meaning

encode— v. to change something into a system for sending messages secretly, or to represent complex information in a simple or short way

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## Article 23: Climate Change Affects Traditional Spearfishing

*Date: 2024-07-18T21:57:00+00:00 | 949 words | Source*

No media source currently available

Cold nights, on Chippewa Flowage, a lake in the state of Wisconsin, do not stop 15-year-old Gabe Bisonette. He has been learning spearfishing, a tradition of the Ojibwe Native American tribe, for a long time. Ojibwe and other indigenous people are fighting to keep this way of fishing alive.

But the number of walleye fish in the lake is decreasing due to warming waters, seasonal changes and lake development. Losing this fish would mean losing a food source for community members and a deep connection to tradition and nature.

Many in the community say that with science and good management, they will be able to continue this tradition in the future. But there is also concern about the changes that are already happening.

“We’ve seen things here over the last couple of years that I’ve never seen before,” said Brian Bisonette, Gabe’s uncle. He and Gabe are both members of the Lac Courte Oreilles Tribe. The group is one of the bands of the Ojibwe people.

Bisonette is the conservation director of Lac Courte Oreilles Conservation Department. He said past tribal leaders understood the need for securing enough food to live in their homeland. So, they got the right to hunt, fish, and gather wild rice in certain areas as part of 19th-century treaties. These same treaties gave land to settlers.

But for a long time after that, the state of Wisconsin lessened treaty rights of tribes. In some cases, officials even arrested members for taking part in tribal activities.

A 1983 Supreme Court decision held up the rights of the Ojibwe people. As a result, angry locals showed up at lakes to trouble tribal members. They damaged vehicles, shouted racist comments and shot at spearfishers.

Today, officials guard every boat landing. But incidents still happen.

Tribes and local conservation teams are finding ways to protect walleye and the spearing tradition. Spearfishers are required to get permits that limit the number of fish they can take. And some lakes are filled with fish born in a hatchery and released into the lake. But still the goal in many cases is to increase natural reproduction.

“Whether it’s tribal or non-tribal, this is a concern for all of us,” Bisonette said.

Lake ecosystems in danger

On another lake, Lac Courte Oreilles, Department of Natural Resources (DNR) biologist Max Wolter and supervisor Angelena Sikora look for walleye, too.

They capture, measure, and record the size and sex of the fish. The goal is to get a clear picture of the fish populations of inland lakes, including Chippewa Flowage and Lac Courte Oreilles.

The DNR gathers this information in partnership with tribal conservation partners and the Great Lakes Indian Fish and Wildlife Commission.

After examining the numbers, experts across all groups are noticing signs of change.

Wolter said, “It’s not that the adult walleye are just dying out, it’s that the amount of reproduction isn’t happening at the same level that it used to, especially in certain water bodies.”

Climate change is affecting the home of the fish. Walleyes do best in unclear waters. But because of long periods of severely dry weather, or drought, the flow of rivers into the lake has lessened. This leads to clearer water.

In 2022, Wisconsin's Department of Natural Resources updated its conservation plan for walleye, with a focus on climate change. And in January 2023, the Great Lakes Indian Fish and Wildlife Commission released the updated version of its climate change vulnerability report. The report addresses many concerns that tribal members have.

Tribes are first to see change

Tribal member Kelly Martin has been spearfishing with his family for many years. He has seen changes firsthand. One year he was surprised by how early the season started. There was no ice on the lake.

Martin also has seen waters changed by land development. After the pandemic, he observed a great increase in the building of lakefront homes. Martin himself works as a roofing contractor.

Many northern Wisconsin tribal members have watched as more people have moved into their small community. Some come to vacation or for a "climate-proof" home. The area has a large supply of fresh water and is safe from rising sea levels.

But those newcomers and summer visitors are not the ones who depend on nature for food. And they are not the ones fighting for traditions that go back generations.

As inland lakes warm with climate change, tribal members experience the effects first. With their generational knowledge of the lakes, Bisonette and others invested in spearfishing will continue fighting to do so.

"Some of these people ... that's how they grew up. This is what their life is ... doing this. I just hope I get to be like that," Martin said.

I'm Anna Matteo. And I'm Caty Weaver.

Melina Walling And John Locher reported this story for the Associated Press from Wisconsin. Anna Matteo adapted it for VOA Learning English.

tribe— n.a social group composed chiefly of numerous families, clans, or generations having a shared ancestry and language

indigenous— produced, growing, living, or occurring natively or naturally in a particular region or environment

conservation— n.a careful preservation and protection of something, especially: planned management of a natural resource to prevent exploitation, destruction, or neglect

hatchery— n.a place for hatching eggs

reproduction— n.the process by which plants and animals give rise to offspring and which fundamentally consists of the segregation of a portion of the parental body by a sexual or an asexual process and its subsequent growth and differentiation into a new individual

inland—adj.of or relating to the interior of a country

level— n.an amount of something especially in comparison with typical or expected amounts

focus— n.a center of activity, attraction, or attention

vulnerability— n.open to attack or damage

roof— n.the upper covering part of a building

## Article 24: Japanese Scientists Make Robot Face ‘Smile’ with Lab-Grown Skin

Date: 2024-07-21T21:58:00+00:00 | 559 words | Source

No media source currently available

Japanese scientists have found a way to attach living skin tissue to robotic faces and make them "smile." This breakthrough could be helpful not only in robotics, but also in cosmetics and medicine.

Researchers at the University of Tokyo started the process by growing human skin cells in the shape of a face. Then, they used attachments that are similar to the ligaments in a human to pull the tissue into a wide smile.

First step to other breakthroughs

Lead researcher Shoji Takeuchi is a professor at the University of Tokyo. He said the result is an important step towards building more life-like robots. Using the attachments, he said, "it became possible to manipulate living skin for the first time."

The study about the smiling robot appeared last month in *Cell Reports Physical Science*. It represents 10 years of research by Takeuchi and his lab on how to best combine biological and artificial machines.

Living tissue is better for this application than metals and plastics, Takeuchi said. He noted that brains and muscles are more efficient in use of energy and the skin can repair itself.

In the future, the researchers aim to add more elements to the lab-grown skin, including a circulatory system and nerves. That could lead to safer testing methods for cosmetics and drugs absorbed, or taken in, through the skin.

It could also produce more realistic and functional coverings for robots. The remaining issue is how people react to machines that appear almost lifelike, but do not look exactly like humans.

"There's still a bit of that creepiness to it," Takeuchi said about the robot.

He added, "I think that making robots out of the same materials as humans and having them show the same expressions might be one key to overcoming the uncanny valley."

The "uncanny valley" is an idea that relates to how humans react to robots or other machines that act like humans. "Uncanny" is an adjective that means "being beyond what is normal or expected."

Japanese robotics scientist Masahiro Mori published a work, *Bukimi No Tani*, or "Uncanny Valley" in 1970. It proposed how people would react to lifelike robots, or androids.

Mori thought that at first, people would have positive feelings about robots that look a little bit like humans. But as robots got closer to being realistic human models, he believed those feelings would become more negative.

Those negative feelings are the so-called low point, or “valley,” in a chart that represents the relationship between the human-like appearance of robots and humans’ feelings toward and acceptance of such robots.

Rocky Swift reported this story for Reuters. Jill Robbins adapted it for Learning English with additional information from the Britannica Dictionary.

cosmetic—n. a substance (such as a cream, lotion, or powder) that you put on your face or body to improve your appearance

ligament—n. a tough piece of tissue in your body that holds bones together or keeps an organ in place

eerie—adj. strange and mysterious

manipulate—v. to move or control (something) with your hands or by using a machine

circulatory—adj. of or relating to the circulation of blood through the body

creepy—adj. producing a nervous shivery apprehension; annoyingly unpleasant

affinity—n. an attraction to or liking for something

uncanny valley—n. the unsettling feeling that comes when robots start to resemble humans a little too closely.

positive—adj. thinking about the good qualities of someone or something

negative—adj. thinking about the bad qualities of someone or something

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## Article 25: Evidence of ‘Rotten Egg’ Gas Found on Jupiter-like Exoplanet

Date: 2024-07-21T22:05:00+00:00 | 705 words | Source

No media source currently available

Scientists say they have found evidence that the smelly molecule hydrogen sulfide exists in the atmosphere of a Jupiter-like planet. Hydrogen sulfide is the chemical compound that gives rotten eggs their bad smell.

The planet is called HD 189733b. It is an exoplanet, a term used to describe planets that exist outside of our own solar system. It was discovered in 2005.

Scientists had already identified similarities between HD 189733b and Jupiter, the oldest and largest planet in our solar system. But the exoplanet was previously not thought to hold hydrogen sulfide.

Astronomers who study this gas giant have said it is deep blue in color and that severe conditions exist in the atmosphere.

It has winds that can blow up to two kilometers per second. The exoplanet is believed to reach temperatures up to 930 degrees Celsius on the side facing the star that it orbits. Scientists also say it rains glass, which can be blown by fierce winds.

The weather on HD 189733b is so extreme, the American space agency NASA once described the planet as a “nightmare world.”

New observations by NASA’s James Webb Space Telescope suggest that this is the first exoplanet where hydrogen sulfide has been identified. Scientists say the discovery has helped give them a better understanding of this stormy world.

The finding was recently explained in a study appearing in the publication *Nature*.

One of the leaders of the research was astrophysicist Guangwei Fu of Johns Hopkins University in Maryland. He told Reuters, “This is not a planet we humans want to visit, but a valuable target for furthering our understanding of planetary science.”

Fu said HD 189733b is known as a “hot Jupiter” planet. However, it orbits 170 times closer to its star than Jupiter does to the sun. It completes one orbit every two days. Jupiter takes about 12 years to orbit the sun.

Fu noted that hot Jupiters are not found often. “About less than one in 100 star systems have them,” he said.

Fu said he thinks the newly discovered “stinky smell” just adds another interesting element to what is already known about the planet. It is 64 light-years from Earth, in the constellation Vulpecula. A light-year is the distance light travels in a year, about 9.5 trillion kilometers.

It is closer to Earth than many exoplanets. This makes it “bright and easy for detailed studies,” Fu said. He noted, for example, that hydrogen sulfide would have been much harder to find on planets that are further away.

The Webb telescope – which became operational in 2022 – is able to observe a wide range of radiation wavelengths than earlier telescopes. This permits more detailed examinations of exoplanet atmospheres.

“Our research finds that HD 189733b is more similar to Jupiter than previously known,” said Arizona State University astrophysicist Luis Welbanks. He was a member of the research team. “This planet is very much like Jupiter, but just hotter.”

Jupiter, too, has small amounts of hydrogen sulfide in its atmosphere. But the exoplanet is about 10 percent larger than Jupiter in diameter and mass.

The Webb observations also confirmed earlier evidence showing the exoplanet has water and carbon dioxide in its atmosphere.



"With these three molecules, we are able to count the amount of oxygen, carbon and sulfur the planet has," Welbanks said. That information, he added, gives scientists a chance to learn more about how the planet may have formed. It should also provide data on whether it is different from planets in our solar system.

Welbanks said the scientists are clearly not searching for life on such a hot,harshplanet. However, he noted that understanding its atmosphere permits them to "understand how physics and chemistry behave under different environments and to begin to put together the 'recipe' for forming planets."

Reuters reported this story. Bryan Lynn adapted the report for VOA Learning English.

rotten- adj.suffering from decay

nightmare- v.a frightening or unpleasant experience

stinky- adj.having or producing an unpleasant smell

constellation- adj.a group of stars that forms a particular shape in the sky and has been given a name

range-n.a series of numbers or values that include the highest and lowest

harsh- adj.unpleasant, unkind or more severe than is necessary

recipe- n.a set of instructions explaining how to prepare and cook food

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## Article 26: Ukrainian Companies Develop Robotic Vehicles to Fight Russia

*Date: 2024-07-22T21:55:00+00:00 | 688 words | Source*

No media source currently available

Many new Ukrainian businesses are reportedly developing unmanned military vehicles for the country's war against Russia.

The operations often happen in emptywarehousesor secret, underground factories, the Associated Press (AP) reports.

The weaponized vehicles reportedly aim to ease shortages of soldiers and equipment.

Workers at laboratories in hundreds of workshops are using technology tools to build robot fighters to battle Russian forces, the AP said.

The AP reported that an estimated 250 new defense companies are currently involved in the production of war vehicles across Ukraine. The news agency noted that such operations can look similar to rural car repair shops.

Andrii Denysenko heads one of the new companies, or startups. He told the AP his employees can put together an unmanned ground vehicle, called the Odyssey, in just four days. The vehicle has a selling price of \$35,000, which is about 10 percent less than an imported model.

Denysenko asked the AP not to publish details about his business to protect the operation and the people working there.

The work area is divided into small rooms for welding and body work. Workers produce the main structure, paint the vehicles green and then fit them with basic electronics, power systems and cameras and sensors.

Ukraine's military is considering several different models of new unmanned air, ground and sea vehicles produced by the startups. A fourth branch of Ukraine's military – the Unmanned Systems Forces – joined the army, navy and air force in May.

Engineers get production ideas from stories in defense magazines or online videos to produce less costly models. Weapons or smart elements can be added later.

“We are fighting a huge country, and they don't have any resource limits,” said Denysenko. “We understand that we cannot spend a lot of human lives. War is mathematics.”

Reporters from the AP watched the car-sized Odyssey vehicle spin and kick up dust as it rolled through a field of corn during a demonstration in the north of the country last month.

The 800-kilogram test model, or prototype, looks like a small tank. Developers of the vehicle say it can travel up to 30 kilometers on one battery charge. The prototype acts as a rescue-and-supply vehicle but could be changed to carry a remotely operated heavy machine gun or to clear landmines.

A Ukrainian government fundraising website for the Unmanned Systems Forces states that teams of robots “will become logistics devices, tow trucks, minelayers and deminers, as well as self-destructive robots.” “The first robots are already proving their effectiveness on the battlefield,” the statement adds.

Mykhailo Fedorov is Ukraine's deputy prime minister for digital transformation. He is urging citizens to take free online courses and build military drones at home. Fedorov has called on Ukrainians to make a million drone flying machines per year.

“There will be more of them soon,” the Unmanned Systems Forces website said. “Many more.”

Denysenko's company is working on other projects as well. One is a motorized exoskeleton designed to increase a soldier's strength. Another carrier vehicle would be able to transport a soldier's equipment and even help him move uphill. “We will do everything to make unmanned technologies develop even faster. (Russia's) murderers use their soldiers as cannon fodder, while we lose our best people,” Fedorov wrote in a message published online.

Human Rights Watch and other international rights groups are calling for a ban on weapons that do not involve human decision making. This concern has been shared by others, including the U.N. General Assembly, American businessman Elon Musk and the founders of the Google-owned, London-based startup DeepMind.

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

warehouse—n.a large building that provides centralized storage for a lot of goods and products that are then shipped to customers

weldv.to join pieces of metal together by heating them until they almost melt and then pressing them together

remote— adj.happening from far away

logistics— n.the practical arrangements for something

transformation— n.to completely change from one system to another, usually in an effort to improve it

drone— n.an unmanned, flying vehicle

exoskeleton— n.an artificial external supporting structure

fodder— n.people or things that are useful for the stated purpose

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## Article 27: Groups Warn of Conflict Between Loggers, Tribe in Peru

*Date: 2024-07-23T21:55:00+00:00 | 606 words | Source*

No media source currently available

An advocacy group for Indigenous peoples has released images of a reclusive Peruvian Amazon tribe's members searching for food outside of their usual area.

The group calls the pictures evidence that industrial tree cutting operations are “dangerously close” to the tribe’s territory. The industry is also known as logging.

The group, Survival International, said the photographs and video it posted recently show members of the Mashco Piro looking for food near the community of Monte Salvado, on the Las Piedras River in Madre de Dios.

Several logging companies hold timber agreements inside territory the tribe lives in, Survival International says. The group has long worked to protect what it says is the largest “uncontacted” tribe in the world. The nearness of logging operations raises fears of conflict between loggers and tribal members, as well as the possibility that loggers could bring dangerous diseases to the Mashco Piro, the group said.

Two loggers, one of whom died, were shot with arrows while fishing in 2022 in a reported fight with tribal members.

Cesar Ipenza is a lawyer who specializes in environmental law in Peru. He is not connected with Survival International.

Ipenza said the new images are evidence of a “worrying situation because we do not know exactly what is the reason for their departure (from the rainforest) to the beaches.”

Isolated Indigenous tribes may travel in August to collect turtle eggs to eat, he said.

“But we also see with great concern that some illegal activity may be taking place in the areas where they live and lead them to leave and be under pressure,” he said. “We cannot deny the presence of a logging concession kilometers away from where they live.”

Survival International called for the Forest Stewardship Council (FSC), a group that confirms sustainable forestry, to remove its approval of the operations of one of those companies, Peru-based Canales Tahuamanu. The FSC responded in a statement that it would do “a comprehensive review” of the company’s operations to ensure it is protecting the rights of Indigenous peoples.

Canales Tahuamanu, also known as Catahua, has said in the past that it is operating with official permission. The company did not immediately answer a message seeking comment on its operations and the tribe.

A 2023 report by the United Nations’ special reporter on the rights of Indigenous peoples said Peru’s government had recognized in 2016 that the Mashco Piro and other isolated tribes were using territories that had been opened to logging.

The report expressed concern that the territory of Indigenous peoples had not been marked out “despite reasonable evidence of their presence since 1999.”

Survival International said the photos were taken June 26-27 and show about 53 male Mashco Piro on the beach. The group estimated as many as 100 to 150 tribal members would have been in the area with women and children nearby.

“It is very unusual that you see such a large group together,” Survival International researcher Teresa Mayo said in a talk with the Associated Press.

Ipenza, the lawyer, said Indigenous people usually move in smaller groups, and a larger group might be a “situation of alarm” even in the case of legal logging.

Steven Grattan reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

advocacy— n. the act or process of supporting a cause

reclusive— adj. withdrawn or separate from society

arrow— n. a sharp object with a slender shaft that is shot from a bow

sustainable— adj. of or relating to a method of using a resource so that the resource is not permanently damaged

concession— n. a grant of land or property in return for services or for a particular use

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## Article 28: Researchers in Brazil Say Rain Uncovered Fossil of Old Dinosaur

Date: 2024-07-23T21:57:00+00:00 | 657 words | Source

No media source currently available

Scientists in Brazil say heavy rains helped them discover a fossil they believe came from one of the world's oldest dinosaurs.

Researchers found the fossil in May in Brazil's southern state of Rio Grande do Sul. They said the fossilized bones make up nearly a complete dinosaur skeleton.

A leader of the team, paleontologist Rodrigo Temp Müller, said the fossil is believed to be about 233 million years old. It was discovered next to a body of water in the area of Sao Joao do Polesine.

Müller is with Brazil's Federal University of Santa Maria in Rio Grande do Sul. He said heavy rains in the area had helped speed up the natural process of erosion that led to the discovery. Fossils are more likely to be exposed after rains because water washes away the dirt that covers them.

Details of the discovery have not yet been confirmed by other scientists or published in any scientific publications.

The researchers believe the dinosaur lived during the Triassic Period. The first dinosaurs are thought to have appeared at that time after Earth's largest mass extinction event about 252 million years ago. During the Triassic Period, all continents were part of a single land mass called Pangea.

The team thinks the dinosaur belonged to a group known as Herrerasauridae. A document received by The Associated Press explains this family of creatures once lived on land that now makes up present-day Brazil and Argentina. The document said the size of the bones suggests the dinosaur would have been around 2.5 meters long.

After about four days of excavation work, researchers transported a large piece of rock containing the fossil back to their laboratory. There, they carried out tests.

At first, Müller said he thought the team had only collected "a few isolated bones." But after detailed testing, the researchers said they had almost a complete skeleton.

Müller told the AP his team was "very excited and surprised" by the discovery. He said the new find might be the second most complete skeleton found for this kind of dinosaur.

The researchers are carrying out studies to see whether the fossil belongs to an already-known species or a new kind. The effort is expected to take several months.

Brazil's Rio Grande do Sul state reported record rainfall earlier this year. Officials said the rain caused widespread flooding in May that led to at least 182 deaths. Some weather experts say climate change makes extreme weather events more likely. They say the burning of oil, gas and coal affects the climate.

Müller said other fossils appeared after the heavy rains. He noted these finds had launched a race against time to rescue the materials before they are ruined. For example, team members in the field said they had observed what appeared to be a leg bone and a pelvis bone. But they said these were in danger of being destroyed because of the rain.

Müller hopes the new discovery can help further explain the origins of dinosaurs. “Having new fossils that are so well preserved certainly helps us better understand this topic that is still much debated,” he said.

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

**fossil**—n. something (such as a leaf, skeleton, or footprint) that is from a plant or animal which lived in ancient times and that you can be seen in rocks

**paleontologist**— n. a person who studies fossils as a way of getting information about the history of life on Earth

**erode**— v. to slowly decay over time

**extinction**— n. a situation in which something no longer exists

**excavate**— v. to remove earth covering very old objects buried in the ground in order to discover things about the past

**isolated**— adj. not near to other places

**species**— n. a group of animals or plants that are similar and can produce young animals or plants

**expose**— v. to remove what is covering something so that it can be seen

**origin**— n. where something begins or comes from

**preserve**— v. to keep something from decaying, being damaged or destroyed

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## Article 29: Climate Agency Again Reports Hottest Day Record on Earth

*Date: 2024-07-24T21:57:00+00:00 | 474 words | Source*

No media source currently available

The European climate change service Copernicus said Monday broke the world’s hottest day record that was just set a day earlier.

The European Union’s Copernicus Climate Change Service said the daily global average temperature reached 17.15 degrees Celsius on Monday. Earlier satellite data published by Copernicus on Wednesday showed that Monday’s temperature broke the previous day’s record by 0.06 degrees Celsius.

Countries around the world from Japan to Bolivia to the United States are said to be having hot conditions.

Climate scientists say the world is now as warm as it was 125,000 years ago. They blame human-caused climate change for the warm temperatures.

Scientists cannot be certain that Monday was the hottest day in more than 100,000 years since data does not go back that far. But average temperatures have not been this high since long before humans

developed agriculture, the Associated Press reports.

The temperature rise in recent years supports what climate scientists predicted would happen if humans kept burning oil, natural gas, and coal at an increasing rate.

Roxy Mathew Koll is a climate scientist at the Indian Institute of Tropical Meteorology in western India. Koll said, “We are in an age where weather and climate records are frequently stretched beyond our tolerance levels, resulting in insurmountable loss of lives and livelihood.”

Copernicus’ early data shows the global average temperature on Monday, July 22, was 17.15 degrees Celsius. Before last summer, the previous recorded hottest day was in 2016 when the average temperature reached 16.8 degrees Celsius.

The European agency said what caused this week’s high temperatures was a warmer-than-usual Antarctic winter. The same thing happened last year when a record was set in early July.

Copernicus records go back to 1940. Other global measurements by the United States and British governments go back to 1880. Many scientists also consider tree growth rings and ice samples. They say that information suggests that last year’s record high temperatures were the hottest in about 120,000 years.

Now, temperatures reported in the first six months of 2024 have broken the earlier records.

Without human-caused climate change, scientists say that extreme temperature records would not be broken nearly as often.

Former head of U.N. climate negotiations Christiana Figueres said “We all scorch and fry” if the world does not immediately change course.

“One third of global electricity can be produced by solar and wind alone, but targeted national policies have to enable that transformation,” she said.

Seth Borenstein and Sibi Arasu reported this story for the Associated Press. Mario Ritter, Jr. adapted it for VOA Learning English.

frequently—adv. taking place often

tolerance—n. the ability to survive or withstand some event or pressure

insurmountable—adj. impossible to recover from

sample—n. an amount of something that is taken for study usually in a laboratory

scorch—v. to burn with a flame or high heat

fry—v. to cook using hot oil

We want to hear from you.

Our comment policy is here.

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## Article 30: Businesses Recover from Major Worldwide Tech Outage

Date: 2024-07-24T22:05:00+00:00 | 759 words | Source

No media source currently available

A major computer system outage affected a wide range of businesses around the world beginning late last week. But the cause of the outage was quickly identified and fixes were deployed to bring most businesses back online.

The problems were linked to a software update provided by cybersecurity company CrowdStrike. The outage affected computers using Microsoft's Windows operating system. The incident caused major flight delays and cancellations. It also affected banking, health care, media and other businesses.

Computers affected by the outage showed what is known in the technology industry as the "blue screen of death." This warning tool is designed to inform Windows users that there is a problem and to block further activity to prevent wider system damage.

Officials at Texas-based CrowdStrike were quick to admit a software update containing a programming mistake was sent to customers and caused the outage. Once the problem was identified and a fix deployed, CrowdStrike said it centered on assisting customers to get systems back up as soon as possible.

Technology experts noted one issue with the latest outage was that the problematic software update could not be corrected remotely. Instead, individual machines had to be fixed, with bad files removed by technology workers.

CrowdStrike's main business is to provide solutions to help companies prevent internet attacks. However, company leaders made clear that the latest outage was only related to the software update and not part of any cybersecurity attack.

CrowdStrike continued to inform the public about its latest correction efforts and provided guidance for some businesses to attempt to deal with the issue themselves.

Disruptions around the world

The outage disrupted operations at airlines, banks, hospitals and organizations around the world.

Among U.S. airlines, Delta officials said Monday it was forced to cancel more than 4,000 flights since the outage began last Friday. But other major carriers, including American Airlines and United, reported they had largely ended any flight disruptions.

Delta chief Ed Bastian apologized to the airline's customers for the continuing delays and cancellations. He said the company was working around the clock to fix all affected systems. Delta said about 60 percent of its main systems run on Microsoft Windows and therefore were left inoperable by the outage.

Some technology experts expressed concern that such outages can be extremely disruptive because the systems built to run most of the world's computers are provided by only a small number of companies.



Gregory Falco is an assistant professor of engineering at Cornell University in New York. He studies internet security issues. Falco told The Associated Press it is a problem that so many computers worldwide depend on the same technologies and providers. “We rely on very few companies, and everybody uses the same folks, so everyone goes down at the same time,” Falco said.

CrowdStrike is one of the largest cybersecurity service providers, especially in transportation, health care, banking and media. This is the reason it affected so many businesses in those industries. An irony of the outage was that companies normally look to CrowdStrike’s tools to help prevent internet attacks that could bring their systems down and cause costly disruptions.

Falco noted that while fears of such a widespread outage have long existed, he thinks too few providers are becoming “even more entrenched” with certain technologies. “We like to think that we have a lot of players available. But at the end of the day, the biggest companies use all the same stuff.”

Richard Stiennon is a cybersecurity expert who has followed industry developments for 24 years. He told the AP he sees the software issue as a historic mistake by CrowdStrike. “This is easily the worst faux pas, technical faux pas or glitch of any security software provider ever,” Stiennon said.

He added that while the problem had an easy technical fix, it could still have lasting effects for some companies. This is because the outage required hands-on efforts to fix each affected computer and this can severely disrupt business operations.

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Reuters and CrowdStrike.

update- n.to add new information to an existing thing

customer- n.a person who buys goods or services

remote- adv.happening from far away

disruption- n.to interrupt something and stop it from continuing as it should

irony- adj.a situation in which the opposite happens than what was expected

entrenched- adj.ideas or things that have existed for a long time

faux pas- n.words or behavior that represent a social mistake or something not polite

glitch- n.a small problem or issue that prevents something from being successful or working as well as it should

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## Article 31: Indonesia's Nickel Mining Hurting Forests

Date: 2024-07-25T21:55:00+00:00 | 840 words | Source

No media source currently available

Indonesia aims to be the world’s top nickel supplier. But its efforts to produce nickel have seriously harmed the country’s forests, nonprofit groups say.

Indonesia is the world's third most rainforest-covered country, home to giant forest flowers and rare wild animals such as orangutans and elephants.

Indonesia also has the largest reserves of nickel in the world. The metal lies in shallow deposits in the rain forest. Mining it is easy when the rainforest is cut down.

Until recently, Indonesia mostly sold its nickel deposits in untreated form. It did not have factories to process the metal. Unprocessed nickel sells for less than the processed product.

Ten years ago, Indonesian officials decided the country should stop selling its resources at such a low cost. Instead, officials said Indonesia would process the metal so it would sell at a higher price. This would result in more job openings, also, officials said.

A large nickel-processing project began. Indonesian President Joko Widodo pushed the project further by building nickel factories, or smelters, near electric vehicle battery factories. In addition to the new nickel plants, coal power plants were built also to serve the new industrial sites.

More than 740,000 square kilometers of Indonesian rainforest have been logged, burned or degraded, since 1950, reports the non-profit research group Global Forest Watch.

But at the sites where developers are building these smelters, the surrounding forest disappears twice as fast, a new study by the Indonesian nonprofit Auriga says.

The new study of rainforest loss, based on government data, shows deforestation rose from an average of 33 square kilometers around each nickel processing plant, or smelter, to 63 square kilometers.

Indonesia plans to build as many as 22 new plants. If plans go through deforestation will likely greatly increase.

"The damage to the environment is devastating," said Timer Manurung of Auriga. "...Rivers are polluted, mangroves are cut to develop smelter areas, coastal areas and coral are being damaged by the smelters."

The waste from coal power plants is another problem, he said. The Associated Press verified the methodology used in the Auriga report.

The area of Weda Bay is now one of the world's largest nickel production centers. Smelters and coal-fired power plants burn to process nickel ore into material for batteries and steel.

The village of Lelilef Sawai is now surrounded by the Weda Bay Industrial Park. There, the deforestation and its effects are clear. Local farmer Librek Loha remains in Lelilef Sawai, refusing to sell the land he has taken care of for forty years. Now orange dust often covers his plants and clean water is often lacking. The plants also grow more slowly, he said.

From his land, he can hear building sounds and see bright orange material flow into the sea. Research shows landslides are far more likely in deforested areas.

Max Sigoro, 54, is a traditional hunter and farmer. Bright lights and noise from construction scare the deer he used to hunt at night. He says he has lost nearly all the means he had to earn a living since the

industrial park's growth.

PT Indonesia Weda Bay officials declined to speak to the Associated Press.

The company says it has planted more than 10 square kilometers of new trees. It says it plays an active part in supporting the living standards of local people, offering economic development. And, the industrial zone meets all environmental standards, PT Indonesia Weda Bay says.

The company also says it works to protect water and has launched coral and mangrove planting programs.

The Weda Bay project is just one of the industrial parks criticized by locals nearby. An industrial park on the island of Borneo and other projects in North Maluku are also under community protests.

Perhaps related to these public objections, European companies may be losing interest in nickel from Indonesia.

In recent weeks, the French mining company Eramet and German chemical giant BASF announced they were canceling plans to build a \$2.6 billion nickel plant in Indonesia.

Indonesia has been seeking to work more with Tesla, which uses twice as much metal in its total production of batteries than the next highest auto competitor. The amount of nickel Tesla used in 2023 was up a third over the year before. Only 13 percent came from Indonesia last year. But Tesla's 2023 impact report noted Indonesia 18 times and warned the country's nickel will be very important.

Tesla did not answer an AP email requesting information about its use of nickel from Indonesia and deforestation.

Questions to Indonesia's Ministry of Environment and Forestry, Coordinating Ministry of Maritime and Investment Affairs and Ministry of Energy and Natural Resources also went unanswered.

And I'm Ashley Thompson.

Victoria Milko, Ed Davey, and Camille Fassett reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

shallow— adj.having little depth

deposit— n.a natural accumulation of something (ore, oil, etc.)

battery— n.a cell that gives electricity

devastating— adj.causing great damage or harm

mangrove— n.tropical maritime trees or shrubs that send out many roots and form dense masses

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## **Article 32: Study: New Evidence Suggests Earth-like Exoplanet may Hold Liquid Ocean**

*Date: 2024-07-28T22:05:00+00:00 | 701 words | Source*

No media source currently available

Researchers say new telescope observations suggest an Earth-like planet outside our solar system may hold a large liquid ocean.

The exoplanet is known as LHS 1140 b. Astronomers believe it sits about 48 light years away from Earth. A light year is the distance light travels in a year – about 9.5 trillion kilometers.

The research – led by astronomers at the University of Montreal in Canada – shows the possibility the exoplanet might hold the right conditions to support some form of life. A study explaining the findings recently appeared in *The Astrophysical Journal Letters*.

The study is based on observations collected in December 2023 by the James Webb Space Telescope. The American space agency NASA operates the orbiting observatory.

Researchers combined the information from the James Webb with existing data to make new estimates for the exoplanet's mass and size. These suggest that LHS 1140 b is “a promising super-Earth ice or water world,” the University of Montreal said in a statement.

Some past studies had suggested the exoplanet might be a gas giant, also known as a mini-Neptune. But the researchers said the new study provides evidence that LHS 1140 b is more likely a super-Earth, a rocky planet bigger than Earth.

The new research supports a NASA-led study from October 2023 that suggested at least 17 observed exoplanets could hold oceans of liquid water. That study noted that sometimes water from these oceans likely breaks through large pieces of ice to form geysers.

Scientists had already identified LHS 1140 b as being within its star's “habitable zone.” Exoplanets found within this zone are believed to have temperatures that would permit water to exist in liquid form.

Measurements made by the James Webb data suggest the exoplanet “is less dense” than expected for a rocky, Earth-like body. The researchers estimated that 10 to 20 percent of LHS 1140 b's mass might be made up of water. The possibility of a large liquid ocean would be found on the side of the planet always facing the star that it orbits.

The new data collected by the James Webb showed the exoplanet might also have a nitrogen-rich atmosphere. This differs from earlier research that suggested a possible atmosphere that was mostly hydrogen.

Charles Cadieux is a doctoral student at the University of Montreal's Trottier Institute for Research on Exoplanets. He was the lead writer of the study.

Cadieux said in a statement, “Of all currently known temperate exoplanets, LHS 1140 b could well be our best bet to one day indirectly confirm liquid water on the surface of an alien world beyond our solar system.” He noted that if the study's findings can be confirmed, the data would represent “a major milestone” in the search for exoplanets that could possibly support life.

René Doyon is a project scientist at the University of Montreal. He helped lead the research. Hesaidmore observations will be needed to confirm the current study’s findings. “The currenthintof a nitrogen-rich atmospherebegsfor confirmation with more data,” Doyon said.

He estimated that at least one more year of observations will be needed “to confirm that LHS 1140 b has an atmosphere.”

The process of confirming whether carbon dioxide is present in the atmosphere and liquid water exists on the surface would likely require several years of observations, Doyon noted.

Ryan MacDonald is a NASA Sagan Fellow in the University of Michigan’s Department of Astronomy who helped examine the James Webb data. Hesaid, “This is the first time we have ever seen a hint of an atmosphere on a habitable zone rocky or ice-rich exoplanet.”

With further data collection and investigation, MacDonald noted there is a good possibility “we might just have found evidence of air on this world.”

Bryan Lynn wrote this story for VOA Learning English, based on reports from the University of Montreal, the University of Michigan and NASA.

geyser- n.a hole in the ground from which hot water and steam come out

habitable– adj.able to support life

best bet– idiom.the action that is most likely to be successful

alien– n.relatng to creatures from another planet

milestone– n.an important event in the development or history of something

hint– n.to suggest or indicate something in an indirect way

beg– v.to make a very strong and urgent request

## Article 33: First Online Child Safety Bill Passes US Senate

Date: 2024-07-31T22:05:00+00:00 | 719 words | Source

No media source currently available

The U.S. Senate has approved the nation’s first major legislation aimed at protecting children from internet harms.

Two bills passed the Senate by a vote of 91-3 on Tuesday. But the measures will also need to be passed by the U.S. House of Representatives to become law. It is currently unclear whether the House will approve the bills in the future.

One bill is known as the Kids Online Safety Act, or KOSA. The other is called the Children’s Online Privacy Protection Act (COPPA 2.0).

What do the measures do?

The KOSA bill requires technology companies to take steps to provide a “duty of care” to protect young users. This legal term covers a range of steps businesses need to take in an effort to “prevent and mitigate” harm to children. Such harms include bullying and violence, as well as online information related to suicide, eating disorders and substance and sexual abuse.

The bill known as COPPA 2.0 is designed to increase privacy rules related to children. The bill bans some targeted advertising to kids online. It also bars data collection on children without their knowledge or approval. And it gives parents and young users the ability to remove personal information from social media services.

In addition, the bills would require companies to permit minors to opt out of product tools that use activity history to predict and suggest additional content to keep users online for long periods.

How will they be enforced?

The bill empowers state attorney general representatives to enforce most parts of the laws. However, the “duty of care” part cannot be enforced by state attorneys general. That change was made after concerns were raised that some states may seek to block information related to LGBTQ issues or reproductive rights.

Wider enforcement will be dealt with by the Federal Trade Commission (FTC), which will help decide what kinds of content is “harmful” to children.

Who supports the measures?

KOSA and COPPA 2.0 are being supported by a wide range of nonprofits, technology accountability organizations and parental rights groups. In addition, the bills have been supported by major groups representing American doctors and teachers.

Some well-known technology companies – including Microsoft, X and Snap – have also expressed support. Meta, which owns Facebook, Instagram and WhatsApp, has not publicly expressed strong support or opposition to the measures. Meta has said in the past it is not completely against some government regulation of social media.

Who opposes the legislation?

Some technology industry groups and the American Civil Liberties Union (ACLU) have criticized the measures. They have suggested that differing definitions of what is considered harmful to children could result in minors being blocked from important information. Such information could include LGBTQ issues, reproductive rights or vaccines.

Some changes were made earlier to the legislation in an effort to overcome these concerns, but some critics said those did not go far enough. “They made improvements, but not enough,” said Democratic Senator Ron Wyden of Oregon. He was one of three senators who voted against the bills. He recently told reporters, “I still think it is going to harm a lot of LGBTQ kids because of the way it's going to make it difficult for them to get information.”

Can the legislation pass the House?

Josh Golin is executive director of Fairplay, a nonprofit group working to protect children from online marketing and other possible harms. He told The Associated Press before the Senate vote that he is “very hopeful” the bills will eventually be passed by both houses of Congress.

“The reason it has not come to a vote yet is that passing legislation is really hard, particularly when you’re trying to regulate one of the, if not the most powerful industry in the world,” Golin said.

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Reuters, Agence France-Presse and the European Commission.

mitigate- v.to reduce the harmful effects of something

bully- v.to purposefully frighten someone who is smaller or weaker than you

opt out- v.to choose not to be part of an activity or to stop being part of it

LGBTQ- n.lesbian, gay, bisexual, transgender, and queer/questioning one's sexual or gender identity

accountable-adj.being responsible for one’s own actions and being able to explain those actions

regulate-v.to control an activity or process, especially by using rules or laws

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## Article 34: Study: ‘Super Jupiter’ Planet Takes 100 Years to Orbit Star

*Date: 2024-08-01T21:57:00+00:00 | 595 words | Source*

No media source currently available

Astronomers say they have observed a new exoplanet that orbits far away from its star although it is a large and massive planet.

An international group of researchers said they learned new things about the planet after examining data from the James Webb Space Telescope. The telescope is operated by the American space agency NASA.

The gas giant, which has been named Epsilon Indi A b, was first discovered in 2019. It is also known as a “super Jupiter,” meaning it is similar to Jupiter in our own solar system, but more massive.

Scientists estimate the exoplanet’s diameter is about the same as Jupiter’s, but it is about six times more massive. The team said the planet has an atmosphere rich in hydrogen like Jupiter’s.

Epsilon Indi A b is estimated to be about 12 light-years away from Earth. A light year is the distance light travels in a year – about 9.5 trillion kilometers.

International researchers led by Germany’s Max Planck Institute examined new telescope images of Epsilon Indi A b. They said they learned the massive exoplanet orbits the star Epsilon Indi A, which is part of a three-star system.

The scientists said one surprising discovery was that the exoplanet seems to take at least 100 years to orbit its star and possibly as many as 250 years. The research shows Epsilon Indi A b orbits its star at a distance equal to 15 times the distance from the Earth to our own sun.

The researchers said they were able to “directly” observe the gas giant by using a tool on the James Webb to block the light of the planet’s main star. The team was then able to identify the exoplanet as a bright spot of infrared light.

The new findings recently appeared in a study in the publication *Nature*.

Scientists estimate the planet and star are about 3.5 billion years old. That is 1 billion years younger than our own solar system.

Elisabeth Matthews is an astrophysicist at the Max Planck Institute for Astronomy. Matthews led the research. She told The Associated Press in an email the exoplanet appears to be older and brighter than had been thought.

The team noted the planet’s star is so bright that it can be seen with the unaided eye from the Southern Hemisphere.

But Matthews noted that nothing in the newly collected data suggests that Epsilon Indi A b has the right conditions to support life. “This is a gas giant with no hard surface or liquid water oceans,” she said.

Matthews said studying worlds similar to Jupiter can help scientists understand “how these planets evolve” over many, many years.

The first exoplanets outside our solar system were confirmed in the early 1990s. NASA’s total count today stands at about 5,690. The majority of these exoplanets were identified through the so-called “transit” method. This involves repeatedly observing drops in starlight that might happen when a planet partly blocks light from its star.

Land- and space-based telescopes also search for new data on exoplanets, especially ones that might be similar to Earth.

NASA launched the James Webb Space Telescope in 2021. It is currently the largest and most powerful astronomical observatory ever placed in space.

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

exoplanet- n.a planet of a star that sits outside the solar system

diameter- n.the length of a straight line through the center of an object or space

evolve- v.to develop gradually over time

transit- v.to pass through or across a place, area of country, on the way to someplace else

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## Article 35: NASA Rover Captures Rock Showing Possible Signs of Microbial Life

Date: 2024-08-04T22:05:00+00:00 | 623 words | Source

No media source currently available

A Mars explorer operated by the American space agency NASA has captured a rock that scientists say shows possible signs of ancient microbial life.

NASA said in a recent statement that the Perseverance explorer, or rover, collected the rock on July 21. Scientists working on the Perseverance team nicknamed the rock “Cheyava Falls,” after the tallest waterfall in the Grand Canyon.

The rover’s exploration area is believed to include a former river valley measuring about 400 meters wide. The valley is thought to have formed by water rushing into Jezero Crater billions of years ago. Scientists believe the area around Jezero Crater contained large bodies of water in the distant past.

NASA’s statement says the rock shows signs of “chemical signatures and structures that could possibly have been formed by life billions of years ago...”

NASA team members based their findings on examinations of the rock with imaging equipment and multiple scientific instruments. But they noted that additional research is needed to confirm a history of microbial life.

The examinations did suggest the rock contains “organic compounds,” NASA said. But the statement added, “While such carbon-based molecules are considered the building blocks of life, they also can be formed by non-biological processes.”

Perseverance uses its robotic arm and drilling equipment to capture rock and soil samples from the Martian surface. So far, it has collected 22 samples. The rover has secured the samples in special containers and they are to be picked up and returned to Earth during a future mission.

Ken Farley is a project scientist with the Perseverance team at Caltech in Pasadena, California. He said, “Cheyava Falls is the most puzzling, complex, and potentially important rock yet investigated by Perseverance.”

Farley said unusual color spots and other structural elements in the samples suggest “chemical reactions” that might have given energy to ancient microbial life. But he noted that so far, scientists have not been able to identify exactly how the rock formed.

The team described the rock as containing white veins that may have been created by the substance calcium sulfate. Between the veins, examiners found lines of material with a reddish color. These lines suggest the presence of hematite, a common substance found in many rocks on Earth.

David Flannery is an astrobiologist and member of the Perseverance science team from the Queensland University of Technology in Australia. He said that on Earth, these kinds of rock elements are often linked “with the fossilized record of microbes living in the subsurface.”

The scientists said the new findings strengthen existing evidence that such rocks may have been created or were changed by flowing water on Mars billions of years ago.

Caltech's Farley said the rock sample had already been imaged and examined with lasers, X-ray equipment and other instruments as much as possible in recent weeks. He noted that Perseverance has done as much as it can to examine the newly discovered samples.

Farley added, "To fully understand what really happened in that Martian river valley at Jezero Crater billions of years ago, we'd want to bring the Cheyava Falls sample back to Earth." That way, he said, "it can be studied with the powerful instruments available in laboratories."

Bryan Lynn wrote this story for VOA Learning English, based on reports from NASA and Agence-France Presse.

nickname -n.a name used informally instead of an official name

crater- n.a hole left in the ground by an object that hits it with a huge force

signature- n.a feature in the appearance or qualities of a natural object

drill- v.to make a hole in a hard substance using a special tool

puzzling- adj.difficult to understand or figure out

vein- n.one of the thin lines found on an object

fossil- n.part of a plant or animal from many years ago that has been preserved in rock

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## Article 36: Taiwanese Company Seeks to Launch Rocket from Japan

*Date: 2024-08-05T21:55:00+00:00 | 536 words | Source*

No media source currently available

A Taiwanese business is seeking to become the first foreign company to launch a rocket from Japan.

The planned launch comes as Japan keeps on a path to invest \$26 billion in its space agency over the next 10 years. The idea is to create a spacehubfor other nations in Asia.

The private Taiwanese company is called TiSpace. It was started in 2016 by current and former officials from the country's space agency. It has not yet completed a successful rocket launch.

TiSpace's most recent launch attempt came in 2022. The effort was in cooperation with Australian company AtSpace. The launch attempt failed because of a fuel-related issue. The rocket to be launched in Japan is a different design.

There has been some opposition in Japan to the country's plans to contract with foreign businesses for space activities. But TiSpace chairman Yen-sen Chen told Reuters he thinks the planned launch should make "a very good case" for Japan's government.

Chen said his company was waiting on one last government approval before the rocket launch can be set. The launch will involve a sounding rocket that could happen by early 2025. A sounding rocket can fly to space but does not reach orbit.

Some industry experts have suggested that China could oppose the launching of a Taiwanese rocket from Japan. China claims Taiwan as its own territory. But Chen said he had not yet heard any concerns from China.

A representative from China's foreign ministry told Reuters it did not have detailed information about the planned rocket launch.

In Japan, the government's Cabinet Office said "free economic and research activities are guaranteed in Japan" within the structure of the country's existing laws and regulations.

TiSpace is the only Taiwanese company seeking rocket launches in Japan. One of the company's other co-founders, Wu Jong-shinn, is currently head of Taiwan's space agency. Agency officials had no comment on TiSpace's plans and said all its launch services are carried out through government contracts.

The company's launch plans have won support among some Japanese space businesses, especially in the rural town of Taiki. That is where TiSpace's launch will take place.

Space officials and industry experts say it is a good thing that Japan is inviting foreign companies to use its space services.

Yuko Nakagawa is a ruling-party lawmaker who represents Taiki and neighboring communities. She said she sees the TiSpace project as "a symbol of Taiwan-Japan friendship." She noted that the addition of more international businesses to the area can help create a large space complex to serve a number of nations.

Japanese officials have said they want the country's private space industry to be worth more than \$50 billion by the early 2030s. The space program could include up to 30 rocket launches a year.

Reuters reported that Japan is negotiating a space technology agreement with the United States that could open the door for private American rocket launches in Japan.

Reuters reported this story. Bryan Lynn adapted the report for VOA Learning English.

hub- n.a place that is the center of a particular activity

regulation- n.an official rule meant to control an activity or process

symbol- n.a sign or object that is used to represent something

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## Article 37: Ancient Egyptian Woman's Suffering Frozen in Final Scream

Date: 2024-08-05T21:57:00+00:00 | 602 words | Source

No media source currently available

Scientists now have an explanation for the mysterious remains of an ancient Egyptian woman who has her mouth open in what appears to be a scream.

Scientists used a special computer aided X-ray, or CT scan, of the woman's body. What they found suggested that the so-called "Screaming Woman" mummy may have died in pain and experienced a form of muscular hardening known as a cadaveric spasm. This rare kind of spasm happens at the moment of death.

The examination found that the woman was about 48 years old when she died. Cairo University's Sahar Saleem said she had lived with mild arthritis of the spine and had lost some teeth.

Saleem led the study that appeared recently in the publication *Frontiers in Medicine*.

The woman's body was well-preserved although it had been embalmed 3,500 years ago. Embalmers used costly imported materials such as juniper oil and frankincense resin, Saleem added.

The ancient Egyptians considered preservation of the body after death important for securing a good existence in the afterlife. It was a custom to remove the internal organs during the mummification process. But the organ removals had not taken place with this woman.

Saleem said, "In ancient Egypt, the embalmers took care of the dead body, so it would look beautiful for the afterlife."

She explained that embalmers were interested in closing the mouth of the dead. Embalmers kept the jaw in place by tying the jaw to the head. This prevented the normal jaw drop that occurs after death.

But the embalmers were likely not careless with the so-called "Screaming Woman." They used high quality materials and gave her costly jewelry and a wig, Saleem said.

She added that this evidence "opened the way to other explanations of the widely opened mouth."

The woman may have died screaming from pain. And the muscles of the face may have become tense to preserve this appearance "at the time of death due to cadaveric spasm," Saleem explained.

She said that the full history of the woman's death is unknown, adding the cause of her facial appearance cannot be known "with certainty."

Cadaveric spasm is a poorly understood condition. It is thought to happen after severe physical or emotional suffering. The contracted facial muscles become tense and unmoving immediately following death.

Saleem explained that unlike the stiffening of muscles and joints that happens after death - "cadaveric spasm affects only one group of muscles, not the entire body."

Asked whether the woman may have been embalmed while alive, Saleem added, "I don't believe that this is possible."

Saleem was unable to find out how the woman died.

The "Screaming Woman" was found in the ancient city of Thebes during a scientific search of the burial of a high-ranking official named Senmut in 1935.

The mummy was inside a wooden coffin in a room beneath Senmut's family burial area. Her identity is unknown, but her costly jewelry shows her important position.

"She was likely a close family member to be buried and share the family's eternal resting place," Saleem said.

Will Dunham reported on this story for Reuters. John Russell adapted it for VOA Learning English.

scream—n.to shout in a high voice or high pitch

mummy— n.a body embalmed or treated for burial with preservatives in the manner of the ancient Egyptians

spasm— n.an involuntary and abnormal muscular contraction

arthritis— n.inflammation of joints

preserve— v.to keep free from decay or decomposition

embalm—v.to treat (a dead body) so as to protect from decay

jaw—n.the bones that form the lower part of the mouth and which hold the lower teeth

contract—v.to increase in tension and become shorter or smaller

coffin— n.a box for burying a body

eternal—adj.lasting forever

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## Article 38: Algae Blamed for Sickening California Sea Lions

*Date: 2024-08-06T21:55:00+00:00 | 347 words | Source*

No media source currently available

A California wildlife organization says it has been rescuing sick sea lions in recent weeks showing signs of algal poisoning.

On August 1, the Santa Barbara-based Channel Islands Marine & Wildlife Institute said teams had rescued at least 23 animals. The U.S. Vandenberg Space Force Base recently released photos on social media of sea lions being taken from one of its beaches.

The institute said that since July 26, it had received numerous reports daily of sick lions along a 250-kilometer stretch of coastline in Santa Barbara and Ventura counties.

The group said in a statement the sea creatures were found to be suffering from the effects of domoic acid, a poison that can harm the brain and heart. The release of the acid in a large ocean event is known as an algal bloom.

The poison is produced by microscopic algae eaten by shellfish or small fish. Those shellfish or fish are often then eaten by sea lions, dolphins or birds. The algae can also sicken humans.

Among the signs of sickness experienced by affected sea lions are unusual head movements, disorientation, foaming at the mouth and seizures.

In a message published on Facebook August 4, the institute said the poisoning event was “heating up,” with new cases of sick sea lions still appearing at multiple beaches. It explained that rescue teams first try to get the animals in a net so they can be transported for treatment and then returned to the sea.

The U.S. National Oceanic and Atmospheric Administration (NOAA) says poisoning events linked to domoic acid are common along the California coast. Experts said the latest poisoning event seems to mostly be affecting adult female sea lions.

Last year, an especially severe poisoning event killed hundreds of sea lions and a number of dolphins during the first weeks of June.

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

algae- n.a plant with no stem or leaves that grows in or near water

bloom- v.to become densely populated with microorganisms such as algae

disorient- v.to make someone confused or unsure

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## Article 39: Severe Drought Returns to the Amazon Earlier Than Expected

*Date: 2024-08-06T21:57:00+00:00 | 565 words | Source*

No media source currently available

The Amazon Basin is facing one of the most severe droughts in recent years, the Amazon Cooperation Treaty Organization (or ACTO) said.

As the dry season begins in August, many of its rivers are already at very low levels. And several South American countries are preparing to deal with increasing forest fires, water shortages and higher food prices.

In several rivers in the southwestern Amazon, water levels are the lowest on record for this time of year. August and September are usually the driest months. That is also when most fires happen. The ACTO says the most affected countries so far this year are Bolivia, Peru and Brazil.

Recently, Brazil’s federal water agency declared a water shortage in two major basins, Madeira and Purus. Together, they cover an area nearly the size of Mexico. And in Brazil’s Acre state, the drought has already caused water shortages in the city of Rio Branco. In June, neighboring Amazonas state declared a water shortage in 20 of its communities.

The declared shortages came more than two months earlier than last year when most of the Amazon Basin suffered its worst drought on record.

The 2023 drought isolated people who depend on water for transportation. Smoke from forest fires made the air in cities unhealthy to breathe. And high water temperatures killed more than 100 river dolphins.

The Madeira River is one of the largest rivers in the Basin. It is also an important waterway for soybeans and fuel. The river's level dropped below three meters near Porto Velho on July 20. In 2023, that happened nearly a month later on August 15.

The low water level means fewer boats could travel the river at night. And two of Brazil's largest hydroelectric plants may halt production, as happened last year.

In the Amazonas town of Envira, nearby rivers have become too shallow to travel by boat. Local officials have asked old people and pregnant women to move from communities by the river to the city center. This is because medical help may not be able to reach them.

The low water is also affecting food prices. Farmers who produce cassava flour cannot get it to market. As a result, this important Amazon food has more than doubled in price, local government says.

Another worry is fire. There were around 25,000 fires from January until late July — the highest number for this period in almost twenty years. In the Amazon, fires are mostly human-made. People use the fires to manage fields and clear areas where trees have been cut down.

Drought is not the only weather event affecting areas in Brazil's Acre state. Severe flooding hit 19 of the state's 22 communities last year.

"It's been two years in a row of extreme events," said Julie Messias, Acre's secretary of environment. She added, "The result is that we are facing a threat of food shortage. First, the crops were flooded, and now the planting period is very dry."

The Amazon is the world's largest river system, carrying 20 percent of the world's river water into the oceans each year.

Fabiano Maisonnave wrote this story for The Associated Press. Andrew Smith adapted it for VOA Learning English.

basin-n. the land around a river and the area from which water flows into it

drought-n. an extended period of very dry weather

isolate-v. to keep physically separated and away from other people or things

shallow-adj. not deep

in a row-prep. phrase consecutively

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## Article 40: Ecuador's Galapagos Islands Face Many Threats

Date: 2024-08-07T21:57:00+00:00 | 725 words | Source

No media source currently available

The Galapagos, a group of islands in the Eastern Pacific Ocean, are coming under increased pressure.

Observers say climate change and invasive species threaten wildlife on and around the islands, which are part of the South American country of Ecuador.

Warming ocean waters affect the food sources of many of the sea animals around the Galapagos.

Marine iguanas are one of many species that are unique to the Galapagos. Thereptiles have a harder time finding the food they prefer - red and green algae. A recent Associated Press (AP) report said sea turtles struggle to nest in warmer temperatures. Raising young gets harder as water warms and fewer nutrients are available.

“We have something of everything here – that’s why people say the Galapagos is so diverse– but we have a small number of each thing,” said Natasha Cabezas, a naturalist guide.

The Galapagos Islands are famous for animals that were studied by Charles Darwin in the 1800s. He developed the theory that living things change over large amounts of time.

The group of islands is where major ocean currents meet — cool water from the south, warm water from the north, and a cold current from the west. In addition to those, there is El Niño, the periodic and natural Pacific Ocean warming that affects weather worldwide.

While temperatures depend on the season and other natural climate events, scientists say ocean temperatures have been rising. They blame climate change caused by human activities.

Some scientists say the ocean has reached its warmest level since at least the 1800s within the last 10 years. The U.S. space agency NASA says 2023 was the ocean’s warmest year on record.

In the Southern Hemisphere, June is the first month of winter. One of the ocean currents, the Cromwell current, brings sea creatures like whale sharks, hammerheads, and sunfish to the surface. It also provides nutrients for penguins, marine iguanas and sea lions in search of food.

Scientists are studying how the past year’s El Niño affected those creatures.

El Niño can bring food shortages for some species like marine iguanas and sea turtles. Scientists observing the species have noted a decrease in their populations during El Niño events.

Marine iguanas were “one of the most affected species from El Niño last year and right now they are still recovering,” said Galapagos Conservancy Director Jorge Carrión.

As rising ocean temperatures threaten sea life, on land there is a different problem. Animals — cats, dogs, pigs, goats and cattle, none of them native — are threatening the unique species of the islands.

After the COVID-19 pandemic, many people left dogs and cats they had been taking care of, Cabezas said.

“If you don’t take care of them, they become a problem and now it’s a shame to see dogs everywhere. We have a big problem right now I don’t know what we’re going to do,” she said.



The non-native animals are a special threat to the giant tortoises of the Galapagos. The tortoises almost disappeared in the 1800s because of hunting. Officials have tried to protect them from humans. It has been illegal to kill a giant tortoise since 1933.

“In one night, a feral pig can destroy all nesting sites in an area,” Carrión said. Park rangers try to visit areas with nesting sites once a day and kill pigs when they find them. But the pigs are difficult to find, Carrión said.

Feral cats feed on young marine iguanas, and both pigs and cats compete for food with the tortoises.

Plastic is also a widespread problem in the world’s oceans. One recent study reported microplastics in the bellies of Galapagos penguins.

“There are no animals in the Galapagos that do not have microplastics in their food,” Carrión said.

Alie Skowronski reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

species— n.a class of creatures having common attributes and designated by a common name

source—n.the place from which something, such as food, comes

unique— adj.being the only one; being without a like or equal

reptile—n.an animal with scales that lays eggs and needs sunlight to increase its body temperature to become active

nest—v.to make a place where eggs can be laid or where young can be raised

diverse—adj.containing many different kinds of things, such as plants and animals

shame— n.something to be regretted

feral—adj.having escaped from domestication and become wild

## Article 41: Judge Rules Google Has Illegal Monopoly over Search

Date: 2024-08-07T22:05:00+00:00 | 634 words | Source

No media source currently available

An American judge has ruled that Google violates U.S. trade laws by operating its search engine as an illegal monopoly.

The ruling accuses Google of paying smartphone makers to ensure that Google’s search engine is set as the default system on new devices. The U.S. Justice Department brought the antitrust case against Google’s parent company, Alphabet.

U.S. District Judge Amit Mehta said his decision took into account all evidence and statements presented during the trial, which ended in May. When the first part of the trial ended, it was up to Mehta to decide whether any of Google’s operations were illegal.

Mehta wrote in his ruling, “Google is a monopolist, and it has acted as one to maintain its monopoly.” Technology experts have estimated Google enjoys control of about 90 percent of the online search market and about 95 percent of smartphones.

A recent study by the California-based investment company BOND found that Google's search engine processes an estimated 8.5 billion requests per day worldwide. That result was nearly double the number of daily search requests recorded in 2012. Google's online advertising business helps fuel the majority of Alphabet's \$307 billion in yearly revenue.

The ruling could open the door for a second trial for the court to establish ways for Google to fix its operations to obey current laws. Some experts say one possible fix could be for Google's current business structure to be broken up. Such changes could greatly reshape the current systems for online advertising.

Alphabet criticized the court's ruling and said it plans to appeal. "This decision recognizes that Google offers the best search engine," the company said in a statement. It added, however, that the ruling does not permit the company "to make it easily available."

U.S. Attorney General Merrick Garland called the decision "a historic win for the American people." He noted, "no company, no matter how large or influential" should remain above the law.

White House press secretary Karine Jean-Pierre called the decision a "pro-competition ruling" and "a victory for the American people." She said she believes all people "deserve an internet that is free, fair, and open for competition."

In explaining his ruling, Mehta noted Google had paid \$26.3 billion in 2021 alone to make sure its search engine was included as the default system on smartphones and browsers.

Such payments, the judge wrote, have permitted Google to keep its strong market share over worldwide internet search. Keeping the default position represents a huge business advantage for Google over its competitors, Mehta added.

The judge noted that under the current system, it would be nearly impossible for any other company to secure the same kind of default agreement with smartphone makers. Such a deal would require a company willing "to pay partners upwards of billions of dollars in revenue sharing," Mehta said.

Discussions in court about how Google's operations should change are set to begin on September 6 in Washington D.C.

The ruling is the first major decision in a series of cases brought against big technology companies in recent years, including Google, Apple, Meta and Amazon. Those cases involve antitrust, privacy and other issues.

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Reuters and Agence France-Presse.

monopoly— n. complete control of the entire supply of goods or of a service in a certain area or market

default— n.what exists or usually happens if no changes are made

antitrust— adj.related to efforts to prevent companies from working together to unfairly control prices or create a monopoly

maintain— v.keep something going

revenue— n.income a government or company regularly receives

deserve— v.to earn or be given something because of things you do or qualities you have

dominant— adj.more important or notable than anything else of the same kind

advantage— n.a condition that provides a greater chance of success

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## Article 42: Are Microplastics Harmful?

*Date: 2024-08-08T21:55:00+00:00 | 466 words | Source*

No media source currently available

Extremely small pieces of plastic called microplastics are in the ocean and the air, as well as in our food and water. Scientific study has discovered microplastics in human body tissues also, including the heart, liver and kidneys.

Some researchers worry that microplastics harm human health, although they say that science has not found clear evidence of that. Still, they say questions remain about the possible health effects of microplastics.

Manufacturers mostly use oil or other petroleum products to make plastic. The material is used to make a huge number of different products: water bottles, car parts, children's playthings, clothing, electronics and more. Heat, weather, and even animal digestion break down plastic into smaller and smaller pieces.

Microplastics can be 5 millimeters long at most or as small as one micrometer. A micrometer is one-one thousandth of a millimeter. Microplastics have been found in salt, sugar, honey, rice and seafood. They have also been found in milk, soil, and drinking water.

Risks to the human body

Researchers disagree about how much plastic people might be breathing in or taking in as food and drink. Still, many studies find evidence of plastics in body tissues.

Tracey Woodruff is a researcher at the University of California at San Francisco. She said, "Microplastics have been measured in pretty much all of the body tissues that have been evaluated."

Scientists are still trying to answer the question of how harmful microplastics might be. In 2022, a World Health Organization report found no clear risk to human health, based on the available evidence.

There is also not clear evidence of widespread public health effects.

However, researchers only recently began to measure plastic levels in the human body and learn about their possible effects. Woodruff of U.C. San Francisco said it makes sense that microplastics are harmful because they contain poisonous chemicals. The researcher was part of an investigative team that examined nearly 2,000 studies about microplastics at the request of California state lawmakers.

Some evidence suggests plastics can increase inflammation and other changes in the body. Such changes could increase the risk of heart attack and stroke.

Reducing exposure to microplastics

Researchers say there are ways to reduce possible contact with microplastics.

Take off your shoes before you go into your home. This helps prevent the spread of microplastics inside. Eat foods — especially fresh fruits and vegetables — that you prepare at home. Do not heat foods in plastic containers, Woodruff said. And, she added, use metal or glass water bottles, instead of plastic.

Mike Stobbe wrote this story for The Associated Press. Andrew Smith adapted it for VOA Learning English.

digestion-n.the breaking down and absorption of food in the body

evaluate-v.to measure, judge, or analyze

inflammation-n.an increase in size of body tissues that results from infection, injury, or illness

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## Article 43: Researchers Discover Very Small Human Ancestors

*Date: 2024-08-08T21:55:00+00:00 | 415 words | Source*

No media source currently available

Twenty years ago on an Indonesian island, scientists discovered ancient bone remains of an early human species that stood about one meter tall.

These early humans became popularly known as “hobbits.” The name comes from the small humanlike creatures that appear in books by English writer J.R.R. Tolkien.

Now a new study suggests ancestors of the “hobbits” were even shorter.

Yousuke Kaifu of the University of Tokyo was a co-writer of the study. Kaifu said in an email, “We did not expect that we would find smaller individuals from such an old site.”

The discoverers of the first hobbit fossils named them after characters in the *The Lord of the Rings* books. The fossils date back to between 60,000 and 100,000 years ago.

Researchers found the new fossils at a place called Mata Menge, about 70 kilometers from the cave where researchers found the first hobbit remains.

In 2016, researchers suspected the earlier relatives could be shorter than the hobbits after studying a jawbone and teeth collected from the new site. Additional examination of a small arm bone piece and teeth suggests the ancestors were 6 centimeters shorter and existed 700,000 years ago.

Dean Falk of Florida State University was not involved with the research. Falk said that the researchers in the study have “convincingly shown that these were very small individuals.”

The findings appeared recently in the publication *Nature Communications*.

Researchers have debated how the hobbits – named *Homo floresiensis* after the Indonesian island of Flores – developed to be so small and where they fall in the human evolutionary story. *Homo floresiensis* are thought to be among the last early human species to die off.

Scientists do not yet know whether the hobbits shrank from an earlier, taller human species called *Homo erectus* that lived in the area, or from an even more primitive human ancestor. Scientists need more study, and more fossils, to learn the hobbits’ place in human evolution, said Matt Tocheri of Canada’s Lakehead University.

In an email, Tocheri, who was not involved in the research, wrote, “This question remains unanswered and will continue to be a focus of research for some time to come.”

Adithi Ramakrishnan reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

species– n.a class of individuals having common attributes and designated by a common name

site– n.the place point of an occurrence or event; the spatial location of something

character– n.someone who appears in a book, play, etc

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## Article 44: Study: Andean Glacier Shrinking at Speed Not Seen Before

*Date: 2024-08-11T21:55:00+00:00 | 456 words | Source*

No media source currently available

A new study finds that the glaciers across the Andes in South America are shrinking at a speed not seen before in the history of human civilization.

This discovery surprised scientists. At first, they only planned to study the current conditions of glaciers and how they changed through history.

"We thought this result was decades away," said Andrew Gorin. As lead writer of the study, he first thought the results were an accident. But later he and his team confirmed the results with more samples.

Gorin said that the shrinking of glaciers is happening even faster than experts had thought.

He and a team of scientists carbon-dated bedrock that had been recently exposed by shrinking glaciers. They measured beryllium-10 and carbon-14 nuclide levels and found that concentrations were nearly

zero.

He explained that if the rock can “see the sky” it collects these nuclides. He added that the decay rate of these nuclides shows that the rock had not been exposed during the Holocene Era. This era dates back 11,700 years but could go back even further.

"I would bet my whole life savings that in fact, these glaciers are smaller than they've been since the last interglacial period," Gorin said. The last interglacial period ended about 115,000 years ago.

The study collected data at four glaciers across the Andes. These glaciers make up 99 percent of the world's tropical glaciers. They are more affected by changing weather because they are regularly at or near freezing point.

"We think this is the canary in the coal mine, that this is going to happen everywhere before long and maybe sooner than we thought," Gorin said. (Canary in the coal mine is an expression that warns of danger. Coal miners would use a canary to tell if the oxygen levels in a coal mine were dangerous.)

Researchers published the new study in the journal *Science* on August 1.

Alexander Villegas reported this story for Reuters with additional reporting by Jake Spring. Anna Matteo adapted it for VOA Learning English.

decade— n.a period of 10 years

sample— n.a part or thing that shows the quality of the whole or group

expose— v.to submit or make accessible to a particular action or influence

level— n.an amount of something especially in comparison with typical or expected amounts

concentration— n.the amount of an ingredient or part in relation to that of others

decay— v.to decline in health, strength, or vigor

canary in the coal mine- an expression that warns of danger. Coal miners would use a canary to tell if the oxygen levels in a coal mine were dangerous.

We want to hear from you. What are your thoughts on this topic? In the Comments section, you can also practice using any of the expressions from the story. Our comment policy is [here](#).

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## Article 45: Spacecraft Problems Could Keep NASA Astronauts at Space Station until February

*Date: 2024-08-11T22:05:00+00:00 | 637 words | Source*

No media source currently available

Two American astronauts could remain at the International Space Station (ISS) until February if the spacecraft that transported them cannot be fixed to safely bring them home.

The U.S. space agency NASA said last week it had not yet made return plans for astronauts Butch Wilmore and Suni Williams. The two have been aboard the ISS since June 6.

The American astronauts were expected to stay in space for only a week. But technical issues with the Boeing-built Starliner spacecraft have so far prevented a return trip.

The trip that carried Wilmore and Williams was a test flight for Starliner that marked the first time the spacecraft successfully carried astronauts to space.

NASA looking for a solution

NASA officials held a news conference Wednesday to discuss the ongoing situation with Starliner and the astronauts at the ISS. They said the agency is still working with Boeing to find a solution for the spacecraft's technical difficulties. Investigations have centered on helium leaks and thruster problems with Starliner.

But if those issues cannot be resolved in the coming weeks, NASA said it could decide to use SpaceX's Crew Dragon spacecraft to bring the astronauts back to Earth. NASA has been using SpaceX's Crew Dragon to regularly carry astronauts and supplies to the ISS since 2020.

If NASA decides to use Crew Dragon, it said it would leave two of four seats open during the spacecraft's next planned launch to the ISS in late September. Wilmore and Williams would then make the trip back to Earth with Crew Dragon.

NASA officials told reporters they had brought in additional experts to examine Starliner's leak issues and thruster failures. At the same time, the space agency is looking more closely at SpaceX as a backup solution to get the astronauts back home.

The agency's space operations mission chief, Ken Bowersox, said NASA's current thinking is that "we could take either path." He added that during a recent meeting, "We heard from a lot of folks that had concern, and the decision was not clear." NASA has said a final decision should be made by mid-August.

Boeing representatives did not take part in the news conference. But the company issued a brief statement Wednesday repeating its position that Starliner could still be fixed to safely transport the astronauts. "We still believe in Starliner's capability and its flight rationale," Boeing said.

The Boeing statement said if NASA did decide to change Starliner's mission, the company would "take the actions necessary to configure Starliner for an uncrewed return."

Steve Stich is the commercial crew program manager for NASA. He said the agency was not seriously considering launching a separate SpaceX flight to pick up Wilmore and Williams.

Problems with thruster's seals

Officials said tests run by Boeing and NASA on Earth have reproduced Starliner's thruster problems. This has suggested to engineers a possible issue with the thruster's seals. But Stich noted it was not clear what is causing the seal issues.

The thrusters are important for permitting Starliner to back away from the ISS during its separation operations. At the same time, engineers are seeking to find the cause of helium leaks in the spacecraft's propulsion system. The first leak happened before the launch, but more appeared during flight.

Boeing has faced repeated delays as it struggles to complete NASA's flight testing process before it can receive approval to start running official trips to the ISS.

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Reuters, Agence France-Presse and NASA.

thruster- n. an engine that produces propulsion by releasing a jet of fluid or a stream of particles

rationale- n. a group of reasons for a particular decision or belief

configure- v. to arrange something or put its parts together in a particular form or pattern

propulsion- n. a force that pushes something forward

## Article 46: World's Largest 3D Printed Community Nears Completion

Date: 2024-08-12T21:55:00+00:00 | 582 words | Source

No media source currently available

Like other 3D printers, the Vulcan printer puts down layer by layer of materials to build an object. However, this printer is more than 13.7 meters wide and prints homes for people to live in.

This summer, the robotic printer from the homebuilder ICON will complete the last of the 100 3D-printed houses in Wolf Ranch, a community about 48 kilometers from Austin, Texas.

ICON began printing the walls of what it says is the world's largest 3D-printed community in November 2022.

Compared to traditional homebuilding, the company says 3D printing is faster, less costly, requires fewer workers, and reduces waste.

Conner Jenkins, a project leader, said, "It brings a lot of efficiency to the trade market... So, when there were maybe five different crews coming in to build a wall system, we now have one crew and one robot."

After concrete powder, water, sand and other additives are mixed together and put into the printer, a device called a nozzle releases the concrete mixture. The process looks like toothpaste being put onto a toothbrush, as the printer builds up the house layer by layer along an exact path.

The three- to four-bedroom homes take about three weeks to finish printing, with the foundation and metal roofs put in place with traditional building methods.

Jenkins said the concrete walls are designed to be resistant to water, mold, insects and extreme weather.



Lawrence Nourzad, 32, and his girlfriend Angela Hontas, 29, purchased a Wolf Ranch home earlier this summer.

"It feels like a fortress," Nourzad said, adding that he was confident the home would hold up to severe weather conditions.

The walls also provide strong insulation from the Texas heat, the couple said. The materials keep the inside temperature cool even when the air conditioner is not put on high levels.

There was one other thing the 3D-printed walls seemed to protect against, however: a solid wireless internet connection.

Nourzad said, "Obviously these are really strong, thick walls. And that's what provides a lot of value for us as homeowners and keeps this thing really well-insulated in a Texas summer, but signal doesn't transfer through these walls very well."

To deal with this issue, an ICON spokeswoman said most Wolf Ranch homeowners use mesh internet routers. These routers broadcast a signal from several units placed throughout a home, whereas a traditional router sends a signal from one device.

The 3D-printed homes at Wolf Ranch cost from \$450,000 to nearly \$600,000. Developers said a little more than one quarter of the 100 homes have been sold.

ICON, which 3D-printed its first home in Austin in 2018, hopes to one day take its technology to the Moon.

NASA, as part of its Artemis Moon exploration program, has an agreement for ICON to develop a system capable of building landing pads, shelters, and other structures on the moon's surface.

I'm Ashley Thompson.

Evan Garcia reported on this story for Reuters. John Russell adapted it for VOA Learning English.

3D printer— n. a device used to manufacture objects by depositing material in layers according to a pattern or model

layer— n. a quantity of material covering a surface

efficiency— n. the capability of producing desired results with little or no waste

foundation-- n. a body or ground upon which something is built up

mold— n. a growth produced especially on damp or decaying organic matter

fortress— n. a large and permanent fortification

insulation— n. special material that prevents transfer of electricity, heat, or sound

transfer-- v. to move or convey from one place or situation to another

## Article 47: Study: Moon's Thin Atmosphere Likely Formed by Meteorite Strikes

Date: 2024-08-12T21:57:00+00:00 | 648 words | Source

No media source currently available

Scientists say new examinations of soil collected on the moon suggest its atmosphere might have been created by repeated meteorite strikes.

Researchers studying the moon first used instruments to confirm it had an atmosphere in the early 1970s. The American space agency NASA explains the moon's atmosphere is "very thin and weak." It is technically considered an "exosphere."

The newly examined soil was collected by NASA astronauts during America's Apollo program from 1969 to 1972. The trips resulted in astronauts capturing about 382 kilograms of rocks and soil, called samples.

Instead of attempting to measure the moon's atmosphere in a direct way, investigators looked to the old soil material. They theorized that the soil should contain residue material from atoms released into the lunar atmosphere over billions of years.

The research was led by scientists at the University of Chicago and Massachusetts Institute of Technology (MIT). Their results recently appeared in a study in the publication *Science Advances*. Nicole Nie was the lead writer of the study. She is a planetary scientist at MIT.

Nie said that when meteorites impact, or hit, an object like the moon, they create very high temperatures. Such strikes can heat up the surface by 2,000 to 6,000 degrees Celsius. These extreme temperatures melt and vaporize rocks at the surface and release atoms contained in dust and soil into the atmosphere.

Some of the atoms end up being pushed into space, while others remain just above the surface. The researchers said the soil examinations led to the discovery that the moon's atmosphere was formed through a process known as "impact vaporization."

Nie and her team centered their examinations on two main elements – potassium and rubidium. These substances were chosen because they can easily be vaporized by meteorite hits. The process involved studying the behaviors of different kinds of isotopes found in potassium and rubidium. That study persuaded the team that repeated meteorite strikes formed the atmosphere.

In the past, studies have shown the moon's atmosphere might have been created by either meteor activity or the solar wind. Solar wind describes a continuous flow of charged particles from the sun that spreads across the solar system.

The researchers said the latest study provides new evidence that most of the lunar atmosphere was likely formed by repeated meteorite hits over billions of years. After testing 10 samples of lunar soil, the team concluded that much more of the atmosphere is due to meteor activity than to the solar wind.

“At least 70 percent of the lunar atmosphere is created by these meteorite impacts,” Niesaidin a statement. “A much smaller percentage is created by the solar wind abrasion of the surface,” she added.

Nicolas Dauphas is a professor of geophysical sciences at the University of Chicago. He helped lead the research. Dauphas said, “It turns out the answer to this longstanding question was right in front of us—preserved in lunar soil brought back to Earth by the Apollo missions.”

Nie said understanding such processes can be extremely valuable to planning future missions to the moon, Mars and beyond. “If humans want to move to different planetary bodies someday, we will have to understand what’s going on at the surface to be able to prepare.” She added, “Each planetary body is different, and the more we understand about these processes, the more complete picture we’ll have.”

Reuters, the University of Chicago and MIT reported this story. Bryan Lynn adapted the reports for VOA Learning English.

meteorite— n.a piece of rock from outer space that has fallen to a planet’s surface

exosphere— n.the outermost layer of a planet’s atmosphere

residue— n.something that remains after most of a substance has disappeared or been removed

vaporize— v.to turn, or cause something to turn, from a solid or liquid state into a gas

abrasion— n.the process of rubbing away the surface of something

preserve— v.to keep something the same or prevent it from being damaged or destroyed

## Article 48: Chinese Rocket Breaks Up in Space, Releasing Hundreds of Debris Pieces

Date: 2024-08-13T21:55:00+00:00 | 543 words | Source

No media source currently available

Experts say a Chinese rocket that recently helped launch 18 satellites broke apart in space and created hundreds of pieces of debris.

Space traffic observation organizations said data showed part of a Chinese rocket came apart soon after making the satellite deployments. State media in China reported the satellites were carried to space aboard a Long March-6 rocket and reached orbit on August 6.

The satellites are part of a Chinese government-backed effort that seeks to provide high-speed internet services to people around the world. Such satellites operate from between 300 and 2,000 kilometers above Earth. The area is known as low Earth orbit.

The project is expected to become a competitor to American technology company SpaceX, which offers its own satellite-based internet service. SpaceX has so far deployed about 5,500 satellites for its Starlink service, Reuters news agency reports.

Several groups that continuously observe satellite and spacecraft traffic said the Chinese rocket stage that broke apart in space created at least 700 pieces of debris. The floating debris is also known as space junk. It can harm active spacecraft, other satellites and even the International Space Station (ISS).

The group that launched the satellites is state-financed Shanghai Spacecom Satellite Technology. The company did not answer requests from Reuters for comment about the situation.

Some experts said the high level of debris had placed more than 1,000 satellites and other orbiting objects at risk.

U.S. space-tracking company LeoLabs told Reuters it estimates the number of debris pieces created is likely over 900. The collection of debris sitting about 800 kilometers above Earth's surface is expected to last several years, LeoLabs added.

Experts said it was not clear whether the rocket body's breakup was caused by a crash into another object or by an explosion of unused rocket fuel. The U.S. Space Command said early on in the event that at least 300 pieces of debris had been created.

Audrey Schaffer is the vice president of strategy at space-tracking company Slingshot Aerospace. She told Reuters her team had estimated over 1,100 satellites and other space objects were likely at risk of hitting the Chinese rocket debris.

Schaffer noted, however, that about one-third of at-risk objects are active spacecraft and could probably move out of the way. The rest are believed to be uncontrollable pieces of existing space junk that would have no way of avoiding new debris.

In 2022, a Long March 6A rocket stage similarly broke apart in space and created hundreds of pieces of debris. That event led to criticism of China from Western countries and space sustainability campaigners. The groups have called on China to establish better controls for how it retires used rocket bodies.

"It's disappointing that the rocket had the same issue again," Schaffer said. She added, "These kinds of debris-generating events that are potentially avoidable should not occur anymore."

Reuters and The Associated Press reported on this story. Bryan Lynn adapted the reports for VOA Learning English.

debris— n. broken pieces of something

junk— n. material that is no longer working or useful

stage— n. a certain period of development

track— v. to closely follow the movements of something

strategy— n. a plan used to achieve something

sustainable— adj. causing little or no damage to the environment over a period of time

disappoint— v.to fail to fulfill the hopes or expectations of someone

## Article 49: Study: Hottest Oceans in 400 Years Endanger Great Barrier Reef

Date: 2024-08-14T21:55:00+00:00 | 512 words | Source

No media source currently available

New research shows that water temperatures in and around Australia's Great Barrier Reef have risen to their warmest in 400 years over the past 10 years. The rising temperatures have put the world's largest reef under threat.

The Great Barrier Reef is the world's largest living ecosystem. It stretches for 2,400 kilometers off the coast of the northern state of Queensland.

A group of scientists at universities across Australia removed core samples from the coral. They examined the samples to measure summer ocean temperatures going back to the year 1618. The scientists combined information from core samples with ship and satellite data going back around 100 years.

The results show that ocean temperatures were unchanged for hundreds of years. But starting in 1900, the ocean temperatures began to rise. The research found that this is the result of human influence.

From 1960 to 2024, the study's writers observed an average yearly warming for January to March of 0.12 degrees Celsius per decade.

Since 2016, the reef has experienced five summers of mass coral bleaching. This is when large parts of the reef turn white due to heat stress. This also puts the coral at greater risk of death. The mass bleaching events happened during five of the six warmest years in the last four centuries, the study showed.

This research appeared on August 8 in the publication *Nature*.

"The world is losing one of its icons," said Benjamin Henley. He is with the University of Melbourne and is one of the study's co-writers.

"I find that to be an absolute tragedy. It's hard to understand how that can happen on our watch in our lifetime. So it's very sad," Henley added.

The last temperature measurement, from January to March of this year, was the highest on record. Henley added that it was "head and shoulders" above any other year, meaning it was much higher.

Coral reefs are important for many reasons. They protect shorelines from erosion. They are home to thousands of kinds of fish. And they are an important part of the tourism industry in many countries. In Australia, the Great Barrier Reef adds \$4.2 billion to the economy each year.

At least 54 countries and areas have experienced mass bleaching of their reefs since February 2023, as climate change warms the ocean's surface waters. That information comes from the U.S. National

Oceanic and Atmospheric Administration.

Alasdair Pal reported this story for Reuters News Agency from Sydney, Australia. Anna Matteo adapted it for VOA Learning English.

ecosystem— n. a system made up of an ecological community of living things interacting with their environment especially under natural conditions

data— n. factual information (such as measurements or statistics) used as a basis for reasoning, discussion, or calculation

decade— n. a period of 10 years

heat stress— n. sustained, warmer-than-average ocean temperatures

icon— n. a person or thing widely admired especially for having great influence or significance in a particular sphere

absolute— adj. free from doubt : having no exceptions

erosion— n. the process of wearing away by the action of water, wind, or glacial ice

tourism— n. the practice and business of traveling for recreation

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## Article 50: Tech Tip: Google Wallet Now Creates Digital IDs from Photos

*Date: 2024-08-14T22:05:00+00:00 | 732 words | Source*

No media source currently available

Google has added a new tool that permits Android users to create digital versions of many kinds of identification (ID) cards and event passes for device wallets.

The tool is part of the Google Wallet app. It was first announced in May along with other changes to the latest operating system, Android 15. The change is explained on a Google Wallet help website. The tool is now available for Android users in the United States who have the latest update of Google Wallet.

Digital wallets are designed to permit users to save non-physical versions of credit cards, personal IDs, membership passes and event tickets to their smartphones or other devices. Credit cards in wallets are linked directly to the banks that offer them and can be used to pay for things just like with a physical credit card.

The use of digital wallets has expanded over the years as people depend more on digital IDs and other documents. Supporters say this reduces the need to carry a lot of cards in a physical wallet.

Until now, Google Wallet divided its digital document offerings into categories. Examples of these categories would be payment or gift cards, transportation passes for bus, train or air travel as well as official IDs.

Google's new tool is designed to permit device users to easily add many more kinds of documents to its Wallet service. These could include the kinds of passes many people carry in their physical wallets, such as gym memberships and medical insurance cards.

These digital versions can be created by the user taking a picture of the physical document or by doing a screen capture of a digital version from a device. Some documents have an electronic barcode or QR code that can be entered into the Wallet app.

Google Wallet then uses artificial intelligence (AI) technology to use information from the photo to create a new digital pass.

The process of creating these digital documents is similar to adding new documents to Google Wallet. Users open the app and then click on "Add to Google Wallet (+)." The app then gives users a choice of what kind of card or pass to create. These include groups like "Payment Card," "Transit Pass" or "ID Card."

The new Google Wallet has a new category, called "Everything Else." This offering was created to permit users to make digital copies of just about any card, pass or document they want to keep in their devices.

Google offers additional security steps to users storing official documents on Android devices. These "private passes" can also be added to Google Wallet. Google says data contained in official digital documents is only saved on the device as an extra security measure.

People in some American states can create a digital ID to be used to officially prove their identity. Google explains that this service is currently only available in Arizona, Colorado, Georgia and Maryland.

There is a process users must follow to have their digital IDs verified by each state. The Transportation Security Administration (TSA) even accepts this form of state ID at many major U.S. airports.

Online technology website Android Authority recently reported Google Wallet will soon be equipped to also create digital versions of American passports. To create this official digital document, users would need to be holders of a U.S. government issued passport.

The online publication said one of its writers discovered the Google Wallet passport is still in development at Google. Android Authority noted that having a passport saved in Google Wallet might remove the need to present an actual passport in some cases. However, the digital version is not designed to replace the physical passport, which the user should continue to carry.

Bryan Lynn wrote this story for VOA Learning English, based on reports from Google and Android Authority.

wallet—n.a small container used to carry money and credit cards, or a digital version used for the same purpose

app—n.a computer program that is designed to do one task or set of tasks and is usually aimed at use on mobile devices

category— n.a group of people or things that are similar in some way

gym (gymnasium)—n. a business where people go to exercise or play sports

insurance— n.an agreement in which you pay a company to cover necessary costs in case there is an accident that causes damage or injuries

barcode— n.a small, printed pattern of thick and thin black lines that is printed on products and documents

verify— v.to prove that something exists or is true

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## Article 51: Scientists Propose Idea to Warm Mars

*Date: 2024-08-15T21:57:00+00:00 | 614 words | Source*

No media source currently available

The idea of turning Mars into a livable world for humans is a common element of science fiction. But could such an action be done in real life?

Scientists are now proposing a new method to warm up Earth's planetary neighbor. The idea involves putting engineered particles made of iron or aluminum into the atmosphere. The goal is to trap escaping heat and direct sunlight toward the Martian surface.

The proposed idea would be to increase the natural greenhouse effect on Mars and raise its surface temperature by around 28 degrees Celsius over ten years.

Such a change alone would not make Mars livable for people. But the scientists who developed the idea see it as a possible first step.

Edwin Kite of the University of Chicago helped lead the study that appeared recently in the publication *Science Advances*.

Kite described the process of terraforming – meaning to change a planet's environment to be more like Earth. "For Mars, warming the planet is a necessary, but insufficient, first step. Previous concepts have focused on releasing greenhouse gases, but these require large amounts of resources that are scarce on Mars," he said.

Kite added that climate modeling suggests the new idea of using engineered particles to warm Mars' atmosphere could work better than previous ideas. Kite explained that the work is important because it presents a possible method that could help future exploration plans.

NASA has sent robotic vehicles to explore the Martian surface and the InSight Lander to study the planet's interior. The U.S. space agency's Artemis program aims to put astronauts in the coming years on the moon's surface for the first time since 1972 in preparation for possible future human missions to Mars.



There are several barriers to human settlements on Mars. They include a lack of breathable oxygen, harmful ultraviolet radiation, salty soil, and dust storms that sometimes cover much of the planet. And Mars' cold temperatures are a serious issue.

The median Martian surface temperature is about minus-65 degrees Celsius. With its thin atmosphere, solar heat on the Martian surface easily escapes into space. The proposal would aim to permit liquid water to exist on the surface of Mars, which has water in the form of ice at its polar areas and its subsurface.

The scientists proposed continuously releasing tiny particles, called nanorods, into the atmosphere at a rate of about 30 liters per second for years.

Samaneh Ansari of Northwestern University in Illinois is the study's lead writer. Ansari said, "The idea is to either ship the material or better yet, ship the manufacturing tool and make the nanorods on the planet since iron and aluminum are abundant on the surface of Mars."

The researchers are mindful of the possibility of unintended consequences in terraforming another world. Scientists, for instance, are eager to learn whether Mars has held life in the past - or perhaps currently, in the form of subsurface microbes.

Kite suggested that the costs and benefits of releasing nanorods are uncertain. For example, he said if Mars' soil has compounds that are harmful to life from Earth, then the benefit of warming Mars is zero.

Will Dunham reported on this story for Reuters. John Russell adapted it for VOA Learning English.

fiction— n.an invented story

greenhouse effect— n.warming of the surface and lower atmosphere of a planet that is caused by conversion of solar radiation into heat

insufficient— adj.not enough, inadequate

concept—n.an abstract or generic idea

focus— v.to concentrate attention or effort

median-- n.the middle value of a range of values

polar— adj.of or relating to a geographic pole

abundant-- adj.existing or occurring in large amounts

consequence-- n.something produced by a cause

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## Article 52: New Study Suggests Mars Has Large Underground Ocean

Date: 2024-08-18T22:05:00+00:00 | 752 words | Source

No media source currently available

A new study provides evidence that Mars contains a large ocean deep beneath its surface.

The finding is based on data collected by the InSight Lander, a robotic explorer operated by the American space agency NASA. InSight, which landed in 2018, was designed to capture data from within the planet's interior. The lander ended its operations on Mars in late 2022.

For the current study, researchers used seismic data collected by InSight. The team examined the data to study Martian quake activity. Seismic activity on Mars happens in the form of "marsquakes." NASA says InSight had recorded more than 1,300 marsquakes.

The device InSight uses to measure ground movements is called a seismometer. NASA specially designed the lander and its instruments to be extremely sensitive for the Martian environment. The seismic data suggests liquid water exists deep beneath the ground where InSight operated from.

Since water is considered necessary to support life, scientists say the presence of it on Mars leaves open the possibility that some form of life might exist, or existed there in the past.

Numerous past studies have also provided evidence that liquid water could exist on Mars. Scientists have already uncovered evidence that about 3 billion years ago, the surface of Mars likely had an active system of lakes, rivers and oceans.

Mars is believed to have lost its surface water as its atmosphere thinned. This likely turned the planet into the dry, dusty world it is today. Scientists have theorized that much of the ancient water escaped out into space or remained buried under the surface.

#### Water below Martian crust

Vashan Wright is an assistant professor of Geophysics at the University of California San Diego's Scripps Institution of Oceanography. He helped lead the research. Wright told The Associated Press the data suggests liquid water sits between 11 to 20 kilometers down in the Martian crust. He added that the water likely moved down from the surface billions of years ago when water is believed to have flowed freely on Mars.

The researchers combined computer models with the seismic data collected by InSight to reach their findings. They said the data showed the water is likely contained in a deep layer of igneous rock beneath the Martian surface. Igneous rock is formed from magma, a very hot liquid rock that has cooled.

Wright and his team recently reported their results in a study published in *Proceedings of the National Academy of Sciences*.

In a statement to Reuters news agency, Wright said, "On Earth what we know is where it is wet enough and there are enough sources of energy, there is microbial life very deep in Earth's subsurface." He added that the data suggests "the ingredients for life as we know it" may exist in the Martian subsurface.

The researchers said the InSight lander operated around the planet's Elysium Planitia area, near the equator. They believe the area is representative of the rest of Mars. The study suggests enough water exists below the surface to form a planet-wide ocean about 1 to 2 kilometers deep.

### Better understanding of Martian water cycles

There is currently no way to confirm the study's suggested existence of liquid water because it sits so far beneath the Martian surface. Such a confirmation would require large drills and other specialized equipment.

But Wright said in a statement that for now, researchers can use the newly examined data to gain a better understanding of Martian water cycles. This can help scientists improve their knowledge about the planet's climate as well as the development of the Martian surface and interior. Wright noted the latest findings could also help guide researchers in where to look for further evidence of possible life forms on Mars.

"I'm inspired and I hope the public is also inspired," Wright said about the study results. "Humans can work together to put instruments on a planet... and try to understand what's going on there."

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Reuters, UC Berkeley News and Proceedings of the National Academy of Sciences.

interior— n. the inside part of something

seismic— adj. relating to or caused by an earthquake

crust— n. a hard, dry layer of the surface of something

layer— n. an amount of something covering a surface

ingredient— n. a part of something that makes it successful

drill— v. to use a tool or machine to make holes in a hard substance

cycle— n. a series of events that happen in a particular order and are often repeated

inspire— v. to make someone feel that they want to do something and can do it

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## Article 53: US Reporter Caught Using AI to Create False Quotes for Stories

*Date: 2024-08-19T21:55:00+00:00 | 701 words | Source*

No media source currently available

An American newspaper reporter has resigned from his job after it was discovered that he used an artificial intelligence (AI) tool to create false quotes for stories.

Aaron Pelczar worked for the Cody Enterprise, a newspaper based in the town of Cody, Wyoming. A reporter from a competing newspaper became suspicious about Pelczar's stories and asked to meet with him. Pelczar admitted to using AI to create parts of stories. He later quit his position with the Enterprise.

The reporter who discovered the AI-assisted stories was CJ Baker. He works for the Powell Tribune, a newspaper in the neighboring town of Powell.

Baker told The Associated Press he discovered several writing examples that made him suspicious about Pelczar's work. He said some of the writing sounded unnatural or robotic. But one part of a story stood out as possibly being false. It was contained in a June 26 article about comedian Larry the Cable Guy being chosen to lead a local parade.

The story ended with a very unusual line that had nothing to do with the story's subject. Rather, it seemed to provide an explanation of the method it used to build the story. The line read, "This structure ensures that the most critical information is presented first, making it easier for readers to grasp the main points quickly."

Baker, who has been a reporter for more than 15 years, said after reading the story he decided to do additional research on other pieces written by Pelczar. He later decided to set up a meeting with Pelczar to discuss his concerns. He was able to meet with Pelczar and the editor of the Enterprise, Chris Bacon.

Baker wrote an article in his own newspaper about his findings. He described his meeting with Pelczar and Bacon as uncomfortable, but friendly. Baker wrote that when asked about suspicions surrounding his work, Pelczar answered, "Obviously I've never intentionally tried to misquote anybody."

When asked whether any of the disputed statements in his writings had been created by an AI tool, Pelczar said, "That could be the case." Baker said Pelczar then added, "But again, if there are issues I will correct them and issue apologies and say they are misstatements."

After closely examining Pelczar's articles, Bacon and the publisher of the Enterprise discovered the use of AI and apologized for his actions. In an editorial published recently, Enterprise Editor Chris Bacon admitted he had "failed to catch" the AI-written copy and false quotes. He added that the mistake had permitted AI "to put words that were never spoken into stories."

Bacon said the Enterprise discovered at least seven stories that included AI-created quotes. Two of the questioned stories included false quotes from Wyoming Governor Mark Gordon.

Bacon said some of the quotes appeared "very believable." He noted that the people he spoke with during his investigation said the quotes sounded like something they might have said. But they never personally spoke to Pelczar.

Other reporters have had their careers hurt or ended for making up facts or quotes in articles. There are also others who have been accused of plagiarism, which involves a reporter publishing the writings of others without giving those reporters credit for the material.

But media experts say the recent incident involving Pelczar demonstrates the possible dangers that exist when reporters and editors depend on AI tools in the news production process.

Megan Barton is publisher of the Cody Enterprise. She wrote an editorial that described AI as "the new, advanced form of plagiarism and in the field of media and writing."

Barton noted the newspaper now has a system in place to recognize AI-generated stories and will "have longer conversations about how AI-generated stories are not acceptable."

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

quote— n.a written statement of what someone has said

article— n.a piece of writing other than fiction or poetry that forms an independent part of a publication (as a magazine)

grasp— v.to understand something

editor— n.someone who revises and prepares stories or the person who is in charge of a newspaper or other news operation

obvious— adj.easy to see or understand

intentional— adj.somethingdone on purpose

editorial— n.a piece of writing that expresses opinions

plagiarism— n.copying someone else’s work or ideas

advanced— adj.having developed or progressed to a late stage

conversation— n.a discussion between two or more people

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## Article 54: Tech Tip: How to Keep Your Chatbot Activity More Private

*Date: 2024-08-21T22:05:00+00:00 | 785 words | Source*

No media source currently available

Operators of artificial intelligence (AI)chatbottools have made it clear that users’ requests can be saved and used to further develop the AI systems.

But what if a user does not want that? Some tools permit users to request that personal information used in chatbot requests not be saved or used to develop or train AI systems.

Technology experts say it could be too late for users who have already provided information to these tools to have the data removed. But the Associated Press is offering the following advice for users who want to increase their privacy protections.

Google saves chatbot interactions, known as conversations,with its Gemini tool. The company says it uses the data to train its machine learning systems. But the company does give users a way to limit the information captured and to remove past conversations.

For users 18 or older, requests are kept for 18 months, although this can be changed in user settings. Human workers are sometimes used by Google to examine some user conversations as part of efforts to improve Gemini’s systems. In general, Google warns Gemini users not to enter any sensitive information they do not want human workers to see.

Gemini users can change or “opt-out” of thesedefaultsettings. From the main Gemini websitepage, users should find and click on the “Activity” button toward the bottom left of the page. From there, they

can click the “Turn off” button next to the heading “Gemini Apps Activity.” Users then have the chance to block future conversations from being saved. They can also choose to have all previous conversations removed.

Whether a user chooses to turn their activity off or leave it on, Google notes that all conversations with Gemini are saved for 72 hours to “provide the service and process any feedback.”

Meta has an AI chatbot used across its social media services Facebook, WhatsApp and Instagram. The company says its AI models are trained on information shared by users including social media posts and photos. Meta says it does not train its AI systems on private messages sent by users to friends or family.

Not everyone can opt out of this policy. People in the 27-nation European Union and Britain – both of which have strong privacy rules – can. This process can be completed from Meta’s main Privacy Center. Click “Other Policies and Articles” from the list near the bottom on the left side, then click the part related to AI. Users can then find a link to a form to opt out.

People in the United States and other countries without national data privacy laws do not have this ability.

Meta's Privacy Center does link to a form where users can request that their data captured by third parties not be used to "develop and improve AI at Meta." But the company says these requests are examined before being acted upon and might be rejected based on local laws.

With Microsoft’s Copilot chatbot, personal users cannot opt out of having their data used to develop the company’s AI models. The best a user can do is to remove conversations with the chatbot by going to Microsoft account's settings and privacy page. Find the drop-down choice called “Copilot interaction history” or “Copilot activity history” to find the button to remove the history.

Users of OpenAI’s ChatGPT service can make privacy changes from the tool’s settings page. Find the “data controls” setting and remove the choice called "Improve the model for everyone." If a user does not have an account, they can click on the small question mark at the bottom right of the page. Then click “Settings” to see the same choice to opt out of AI training.

OpenAI explains on its data controls “help page” that when users opt out, their conversations will still appear in the history but will not be used for training. The company says these temporary conversations will be kept for 30 days.

### Anthropic's Claude AI

Anthropic is an AI research company based in San Francisco. The company says its Claude AI tool is not trained on personal data. However, users can request permission for specific conversations to be used in training or not. Users can do this by giving the conversation a “thumbs up” or “thumbs down” or by emailing the company.

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Google, Meta and other online sources.

chatbot— n. a computer program designed to interact with humans

default— n. what exists or usually happens if no changes are made

button— n. an image, or icon, that appears on a computer screen which the user can click to cause software to perform some kind of action

feedback— n. information or statements of opinion about something

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## Article 55: Astronomy Group Joins Effort to Establish Time Zone on the Moon

*Date: 2024-08-22T21:55:00+00:00 | 455 words | Source*

No media source currently available

An international group of astronomers has joined efforts seeking to establish a separate time zone for the moon.

The French-based International Astronomical Union (IAU) recently approved a resolution on the matter during the group's General Assembly meeting in Cape Town, South Africa.

The resolution calls on space organizations around the world to cooperate on establishing a standard clock for the moon.

The moon's orbital movements around Earth make one day on the lunar surface equal to 29.5 Earth days. And because the moon has less gravity compared to Earth, time moves slightly faster there, about 58.7 microseconds quicker each day.

Susan Stewart is an astronomer with the U.S. Naval Observatory. She helped create the resolution at the IAU conference. Stewart told The Associated Press the aim of the measure is quite simple: "To work together to establish (a) standard time."

Currently, moon operations run on the time of the country that is launching spacecraft. But supporters of creating a separate time zone say this method will have to change; more countries and private space companies are starting to launch their own moon missions.

Last year, the European Space Agency (ESA) pushed for the creation of a lunar clock. And earlier this year, the White House directed the U.S. space agency NASA and other agencies to come up with a timekeeping plan for the moon by the end of 2026.

ESA noted communication and navigation systems built for the moon will perform much better if they use "the same timescale." In addition, a separate time zone will support "the many other crewed and uncrewed missions" planned for the future, ESA said.

In the past, NASA also considered establishing a separate time zone for the International Space Station (ISS). But the agency decided against it. Instead, the ISS runs on Coordinated Universal Time, or UTC, which is based on time kept by atomic clocks. NASA officials say this system helps ease the time

difference between NASA and the Canadian Space Agency, as well as other space partners in Russia, Japan and Europe.

The international team looking at establishing a lunar time zone has said it is still deciding whether a single organization should be chosen to set and keep time on the moon.

Bijunath Patla is a physicist at the U.S. Commerce Department's National Institute of Standards and Technology. He told the AP that astronomers are still deciding on how a lunar clock would work. Patla said, "I think the community has realized that this needs to be done. And this is the beginning."

The Associated Press and Reuters reported on this story. Bryan Lynn adapted the reports for VOA Learning English.

standard— n.a particular level of quality that is set for multiple things

## Article 56: Instrument Launched to Measure World's Carbon, Methane

Date: 2024-08-25T22:05:00+00:00 | 702 words | Source

No media source currently available

An instrument has launched from the United States to measure the world's carbon and methane levels in an effort to help fight climate change.

The instrument is attached to a satellite called Tanager-1. It was launched August 16 by a public-private partnership called the Carbon Mapper Coalition. The satellite was carried to space aboard a SpaceX Falcon 9 rocket from the Vandenberg Space Force Base in California. Ground controllers reported they successfully established communications with the satellite shortly after launch.

A statement from NASA said the satellite is equipped with a gas-seeking instrument powered with "imaging spectrometer technology." A spectrometer is an instrument used to study the chemical composition and structures of substances.

NASA's Jet Propulsion Laboratory (JPL) developed the imaging spectrometer instrument. The joint project also involved other organizations, including Planet Labs PBC. The private company helped build the Tanager-1 satellite.

Tanager-1 is one of two satellites developed by the Carbon Mapper Coalition. The other satellite has not yet been launched.

The coalition says it aims to support the collection of detailed data on methane and carbon dioxide emissions worldwide. The coalition hopes to use the data to drive reductions in methane and carbon pollution. Scientists have linked carbon and methane emissions to warming temperatures on Earth. Many climate experts blame most of the warming on pollution caused by human activities.

NASA says the instrument aboard Tanager-1 measures "hundreds of wavelengths of light that are reflected by Earth's surface." This method permits the instrument to find sources of carbon and



methane based on the light wavelengths they show.

The process produces “fingerprints” that the imaging spectrometer can identify, NASA said. This data can be used to provide highly detailed information on where the world’s carbon and methane come from. The level of detail is so exact, it can even identify “individual facilities and equipment,” the space agency added.

Laurie Leshin is director of the JPL, which is based in Pasadena, California. She said in a statement the imaging spectrometer technology is the product of more than 40 years of development at NASA. Leshin said such detailed emissions data can help policymakers, governments and environmental organizations worldwide.

When fully operational, Tanager-1 will aim to capture data across 130,000 square kilometers of Earth’s surface each day. This will permit scientists to identify specific gas clouds releasing carbon dioxide and methane. NASA said the collected data will be publicly available online at the Carbon Mapper data portal.

NASA says about half of methane emissions worldwide are caused by human activities. The biggest polluters are called “superemitters,” said Carbon Mapper Coalition chief executive Riley Duren. He told the Reuters news agency that super emitters produce more than 100 kilograms of methane per hour. This level of release could add up to 20 to 60 percent of an area’s total emissions in some industries, Duren said.

In addition, the agency noted, “There is now 50 percent more carbon dioxide in the atmosphere than there was in 1750, an increase largely due to the extraction and burning of coal, oil, and (natural) gas.”

Duren said in a statement the Carbon Mapper Coalition is a good example “of how organizations from different sectors are uniting around a common goal of addressing climate change.” He added that having the ability to exactly identify the sources of carbon and methane “can drive significant action around the world to cut emissions now.”

The launch of Tanager-1 came after NASA’s February deployment of the PACE satellite. It is designed to closely study the world’s oceans and atmosphere. PACE stands for Plankton, Aerosol, Cloud, Ocean Ecosystem. The satellite will spend at least three years studying the environment from an orbit 676 kilometers above the Earth’s surface.

Bryan Lynn wrote this story for VOA Learning English, based on reports from Reuters, NASA and the Carbon Mapper Coalition.

Editor’s note: This story has been corrected to clarify that the Tanager-1 satellite was launched by the Carbon Mapper Coalition, not NASA.

emission— n. the act of sending something out such as a gas, heat, or light

reflect— n. to send back or bounce off of something

facility— n. the place where a particular activity happens

emit— v.to send out gas, heat, light etc. into the air

extract— v.to take something out, especially by force

sector— n.one part of a country's economy

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## Article 57: Telegram Chief Pavel Durov Arrested in France

*Date: 2024-08-26T21:55:00+00:00 | 686 words | Source*

No media source currently available

The founder and chief executive of the Telegram messaging service, Pavel Durov, was arrested in France over the weekend.

The reports said police detained Durov Saturday night at Le Bourget airport in Paris. Durov holds citizenship in both France and Russia. He landed in France after a flight from Azerbaijan, French broadcasters LCI and TF1 reported.

French media reported on Monday that Durov's arrest was linked to a French investigation that found evidence that Telegram had failed to reduce the spread of illegal material on its service.

French President Emmanuel Macron said the arrest was "in no way a political decision." He said on the social media service X that France "is deeply committed" to freedom of expression. But he added, "Freedoms are upheld within a legal framework."

The arrest of the 39-year-old Durov was reportedly sought by a French investigative agency that examines crimes against minors. The French media says officials are investigating crimes including money laundering, drug trafficking and other offenses.

In a statement issued Monday, Telegram said the company obeys all European Union laws, including the Digital Services Act. It added that Telegram's moderation methods operate within industry standards and are always being improved.

Durov "has nothing to hide and travels frequently in Europe," the company said. The statement added, "It is absurd to claim that a platform or its owner are responsible for abuse of that platform."

Representatives for Durov could not be immediately reached for comment. French law enforcement officials also offered no comment because the investigation is ongoing.

Durov founded Telegram with his brother in reaction to Russian government efforts to crush large pro-democracy protests that took place in Moscow at the end of 2011 and 2012. The demonstrations led the Russian government to introduce new restrictions on internet operations in the country. Durov left Russia in 2014.

Russia's agency that governs technology companies at one time tried to block Telegram but was unsuccessful in fully restricting the service. In March, the government said it was working with Telegram to remove content that violated Russian laws.

The messaging service is currently a popular source of news in Ukraine, The Associated Press (AP) reports. Telegram is reportedly used by both government officials and the media to share information on Ukraine's war with Russia. It has also been used to send missile and air raid warnings to citizens during the conflict.

Western governments have criticized Telegram for having weak moderation policies that are supposed to identify and remove illegal material. Experts say the lack of enforcement makes it easier for individuals to commit crimes such as money laundering and drug trafficking on the service.

David Thiel is a researcher at Stanford University in California. He has investigated the use of online services to carry out childexploitation. Thiel told the AP that compared to other messaging services, Telegram is "less secure (and) morelax" in identifying and removing illegal content.

In addition, Telegram "appears basicallyunresponsiveto law enforcement," he added. As an example, Thiel said that while the messaging service WhatsApp registered 1.3 million reports of possible child exploitation in 2023, Telegram did not send any.

In a statement to the AP earlier this month, Telegram said it actively works to fight the misuse of its service. The company said it uses a combination ofmonitoringmethods and user reports in order to remove banned content. "Each day, millions of pieces of harmful content are removed," it added.

The Associated Press, Reuters and Agence France-Presse reported on this story. Bryan Lynn adapted the reports for VOA Learning English.

framework—n. the supporting structure of something

money laundering— n.the crime of moving money that has been obtained illegally through banks and other businesses in order to make it seem like the money operations are legal

moderate— v.to make sure the rules of an internet discussion are not broken

absurd— adj.unreasonable or outrageous

platform— n.a company or service that permits someone to tell a large number of people about ideas or products

exploit— v.to use someone or something unfairly for your own advantage

lax— adj.without much care, attention or control

unresponsive— adj.not reacting in a quick or positive way

monitor— v.to carefully watch something

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## Article 58: Scientists Study Amazon Dolphins in Effort to Prevent Deaths

Date: 2024-08-28T21:55:00+00:00 | 558 words | Source

No media source currently available

About 200 freshwater dolphins were found dead in Lake Tefé of the Amazon River in Brazil during a period of severe dry weather last year.

That is why a team of biologists, animal doctors, and fishermen temporarily captured some river dolphins recently to study their health. The researchers hope the findings will help protect the dolphins from another weather disaster.

One of the captured dolphins was a female with her offspring nearby. Fishermen were careful not to injure her and kept her close to her offspring to avoid stressing the animals.

"She relaxed and we could do all the tests. She appeared in good health," said project leader Miriam Marmontel. She is a researcher at the Mamirauá Institute of Sustainable Development based in Tefé, Brazil. The organization planned the temporary capture of up to 20 dolphins.

The team took blood from the animals and performed other medical tests. The work included removing a small amount of fat to see if harmful chemicals were in the dolphin's body. They also put microchips in the animals to follow their movements.

The Solimões River feeds water into Lake Tefé. Unusually dry weather last year caused water levels in the river to drop. As a result, the water became warmer than usual. Thousands of fish also died in the Amazon rivers because of a lack of oxygen in the water.

Many Amazon river dolphins are the color pink. They are found only in the rivers of South America, and they are among only a few kinds of freshwater dolphins still living in the world. Because they reproduce slowly, threats to their environment can more easily reduce their populations.

Marmontel said researchers hope to better understand what caused last year's deaths, so that experts and officials can react faster to the effects of this year's dry weather.

"We aim to learn more about the health of the dolphins at a time when water begins to go down and temperatures start to rise, so we can identify the changes and know whether they are due to higher temperatures or a toxin or pollutant in the water," she told Reuters.

The river dolphin research project received financial support from the National Marine Mammal Foundation of California in the United States. That organization's researchers helped examine the dolphins using ultrasound technology.

Marmontel said most of the dolphins that died last year were in Lake Tefé. The lake is very close to the Solimões River.

The lake's waters reached 40.9 degrees Celsius during the 2023 dry season, more than 10 degrees higher than the average for that time of year. The water is now at 30 degrees Celsius, said Ayan Fleischmann. He is a geosciences researcher at the Mamirauá Institute.

Environmental activists have blamed climate change for the severe dry weather that made the river water warmer than normal. However, El Niño, the periodic and natural Pacific Ocean warming weather event could also have brought about last year's dry weather in the Amazon.

Bruno Kelly reported this story for Reuters. Andrew Smith adapted the report for VOA Learning English.

offspring-n.an animal or child as related to its parent

stress-v.to cause worry or anxiety

level-n.the height of the surface of a body of water or other substance

toxin-n.a poisonous substance produced by animals, plants, or bacteria

ultrasound-n.sound waves that are used to get images of the inside of a human or animal body

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## Article 59: Humans Show Birds How to Fly South for Winter

*Date: 2024-08-28T21:55:00+00:00 | 662 words | Source*

No media source currently available

Humans hunted and killed almost all northern bald ibis birds by the 17th century. But breeding and rewilding efforts over the last 20 years helped grow the bird population.

However, the birds do not know which direction to fly to migrate without the guidance of wild-born birds. So, humans are helping the birds learn their migration path.

The northern bald ibis once flew over North Africa, the Arabian Peninsula and much of Europe, including southern Germany's Bavaria. People liked eating the migratory birds, and they disappeared from Europe. A few groups of the birds survived in other places.

In 2002, a conservation and research group based in Austria stepped in to help. The group is called Waldrapp team; the birds are called Waldrapp in German. Scientists at Waldrapp team raise the birds and teach them how to fly to warmer areas.

Johannes Fritz is a biologist working with the team. He said, "We have to teach them the migration route."

Fritz and the Waldrapp team have increased the number of northern ibis in Central Europe from zero to almost 300 since the start of their project in 2002.

Fritz said the group's work is the first attempt to reintroduce a continentally extinct migratory bird species. He said his team found that, when released, the birds raised by humans flew in the wrong direction and died in the winter. The humans have led the birds now for 17 years to places like Tuscany, Italy. Due to climate change, they have had to change their route to a winter home. Now they help the birds fly to Andalusia in southern Spain.

To prepare them for travel, the humans begin working with the baby birds, or chicks, when they are just a few days old. The foster parent humans want the birds to connect with them so they will trust them along the migration route.

Barbara Steininger is one Waldrapp team foster mother. She said she acts like "their bird mom."

"We feed them, we clean them, we clean their nests. We take good care of them and see that they are healthy birds," she said. "But also we interact with them."

Steininger and the other foster parents then sit on the back of a very small aircraft, waving and cheering for the birds as they fly.

Fritz knew his work would be possible because he saw the work of Canadian inventor and naturalist Bill Lishman. Lishman taught Canadian geese to fly alongside his small plane beginning in 1988. He later guided endangered whooping cranes through safe routes.

Fritz's team efforts have worked. The first bird independently migrated back to Bavaria from Tuscany in 2011. The team hopes the Central European population will be more than 350 birds by 2028 and will not need human help to migrate.

This year, the route to Spain is longer than last year's path. Earlier this month from an airfield in upper Bavaria, the team guided 36 birds along one stage through blue skies and a wind from behind them that increased their speed.

The full journey to Spain could take up to 50 days. Fritz said the effort is bigger than just the northern bald ibises. He hopes the group's work offers a possibility for helping other threatened migratory species to fly.

Bobby Hardy and Stefanie Dazio reported this story for the Associated Press. Jill Robbins adapted it for Learning English.

breeding—n. the activity of keeping and caring for animals or plants in order to produce more animals or plants of a particular kind

migrate—v. of a bird or animal. to move from one area to another at different times of the year

extinct—adj. no longer living

route—n. a way to get from one place to another place

foster—v. to provide the care that a parent usually gives to a child; to be or become the foster parent of a child

interact—v. to talk or do things with others

journey—n. an act of traveling from one place to another

species—n. biology. a group of animals or plants that are similar and can produce young animals or plants

## Article 60: X Changes AI tool after Pressure to Reduce Misinformation

Date: 2024-08-28T22:05:00+00:00 | 647 words | Source

No media source currently available

The social media service X has changed its artificial intelligence (AI) tool after several U.S. states warned that it was spreading election misinformation.

Earlier this month, secretaries of state in five states sent the owner of X, Elon Musk, a letter requesting the change to its Grok AI tool.

X explains on its Help Center that Grok is designed to be used as an AI search assistant to help users find information online. Such tools are also known as chatbots or generative AI. Grok is only available to paid users of X's Premium and Premium+ services.

In their letter, the secretaries of state expressed concern that the Grok tool was returning results that included misinformation about the U.S. presidential election process. The officials said that shortly after President Joe Biden ended his run for re-election, the Grok tool provided false information on state ballot requirements.

The misinformation included a statement that the deadline had passed in several states to make ballot changes for the nation's presidential election. The secretaries' wrote that the statement was completely false. In all the states identified by Grok, it was still possible for ballot changes to be made, the letter said.

The ballot changes increased in importance when the Democratic Party chose a new nominee, Vice President Kamala Harris, after Biden withdrew.

Former President Donald Trump is the Republican Party's nominee.

The letter recognized that Grok does warn its users that the AI tool might return false information. And it noted that the tool urges users not to depend completely on Grok for news and information.

However, the secretaries of state wrote, the false information about ballot deadlines was "captured and shared repeatedly in multiple posts - reaching millions of people." In addition, they noted, Grok continued to repeat this false information for more than a week until it was corrected on July 31, 2024."

The secretaries of state requested that Grok instead direct users who enter search requests about election-related questions to an official government-run website for the latest voting information. The request aimed to send Grok users immediately and directly to an official election-related website.

The secretaries recently sent out a press release confirming that Grok had made such a change. Before providing results to search requests about election matters, the tool now offers new user guidance. "For accurate and up-to-date information about the 2024 U.S. Elections, please visit [Vote.gov](https://www.vote.gov)," Grok now says.

The state secretaries explained that [Vote.gov](https://www.vote.gov) is a politically neutral, "trustworthy" website operated by the U.S. government in partnership with state election officials. The website also receives support from government organizations that seek to prevent internet attacks that can block sites or take them offline.

All elections in the United States are operated by local officials supported and led by a state agency. Experts say because each state sets its own requirements and deadlines, it is important for voters to be connected to the most dependable information available.

Musk bought Twitter in 2022 and later renamed the service X. Activist groups have repeatedly raised concerns about a large increase in hate speech and misinformation appearing on the service after Musk became the owner. Some X critics have also said major employee cuts had left the company with ineffective content moderation methods that do not catch misinformation.

In their latest press release, the secretaries of state thanked X for agreeing to the change and said they hope the company will remain open to additional improvements to protect its users. They added, "Elections are a team effort, and we need and welcome any partners who are committed to ensuring free, fair, secure, and accurate elections."

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Reuters and Agence France-Presse and the Minnesota Secretary of State.

deadline— n.a date or time by which something must be completed

moderate— v.to make sure the rules of an internet discussion are not broken

accurate—adj.correct or exact

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## Article 61: UN Chief Issues Urgent Warning of Danger from Rising Pacific Sea Levels

*Date: 2024-08-29T21:55:00+00:00 | 404 words | Source*

No media source currently available

United Nations Secretary-General Antonio Guterres says that rising ocean temperatures present urgent risks for people living in the Pacific Islands.

Guterres made the comment while at the Pacific Islands Forum taking place in Tonga. The country is a collection of about 170 islands in the southwestern Pacific Ocean.

The U.N. chief said studies suggest the southwestern Pacific faces more extreme sea level rise than other parts of the world. The problem, he added, is linked to sea temperatures in the area that in some cases are three times higher than worldwide levels.

Warmer temperatures cause water to expand and this can cause sea level rise.

"I am in Tonga to issue a global SOS – Save Our Seas – on rising sea levels," Guterres said.

The U.N. leader said that rising seas were "amplifying" the number and severity of storms and coastal flooding across the area. He said such flooding can destroy fisheries, damage crops and poison water. "All this puts Pacific Island nations in grave danger," he said.

A report recently released by the U.N.'s World Meteorological Organization showed ocean temperatures in the southwestern Pacific are increasing at up to three times the worldwide rate.

Guterres said the Pacific islands are especially at risk because much of their land is "just one to two meters above sea level."



And, he added, "Half the infrastructure is within 500 meters of the sea."

Many scientists blame the planet's rising temperatures on pollution from fossil fuel use. Guterres said the Pacific Islands can expect additional sea level rise of 15 centimeters by 2050 if the pollution levels do not drop.

Guterres urged world leaders to greatly increase the level of climate-related investments, especially for at-risk countries, to help fight the problem.

Delegates to the 2023 U.N. climate change conference approved the establishment of a "loss and damage" fund to help poor nations deal with climate disasters.

"Developed countries must deliver on their finance commitments," Guterres said. He added that one commitment calls for doubling financing to at least \$40 billion a year by 2025.

Reuters reported this story. Bryan Lynn adapted the report for VOA Learning English.

amplify— v.to make a feeling or opinion stronger or clearer

grave— adj.very serious

infrastructure—n.the basic equipment and structures (such as roads and bridges) needed for a country or area to operate

fund— n.a sum of money for a special purpose

deliver— v.to make something happen

commitment—n.a promise or strong decision to do something

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## Article 62: Experts Question Boeing's Space Business after Starliner Failures

*Date: 2024-09-01T22:05:00+00:00 | 1093 words | Source*

No media source currently available

Experts and people in the space industry say NASA's decision to send Boeing's Starliner capsule home without astronauts was not unexpected. They also said it follows years of problems with Boeing's space business.

Taking NASA astronauts Butch Wilmore and Suni Williams to the International Space Station (ISS) was supposed to have been a turning point for Starliner. The operation had suffered years of delays and technical problems.

Reuters news agency examined financial securities reports for Boeing and reported on what it had found. Reuters estimated that Starliner has cost Boeing \$1.6 billion in cost overruns since 2016.

The Starliner spacecraft was launched from Cape Canaveral, Florida, on June 5. Astronauts Wilmore and Williams were to stay at the ISS for about eight days. But problems with Starliner have extended

that NASA mission to eight months.

Starliner's propulsion system failed, and NASA judged the thrusters were not safe to attempt a return to Earth with a crew.

Instead, NASA announced that a SpaceX Crew Dragon capsule will return Wilmore and Williams to Earth in early 2025. SpaceX, led by Elon Musk, is the other company that NASA has contracted to develop crewed space vehicles. The June mission was meant to be a final test for NASA to approve Starliner for normal spaceflights.

#### Questions for Boeing and its leadership

Boeing's new leader Kelly Ortberg now must decide whether to continue developing the program or sell it. Ortberg also faces problems from failures by the company's airplane manufacturing business.

NASA administrator Bill Nelson said he spoke to Ortberg recently. Nelson reported that the talk left him completely sure that Starliner would fly astronauts again.

Reuters asked Boeing representatives if the company would stay in the program after Starliner's current operation. A Boeing spokesperson chose not to comment on the question, telling Reuters that the company is centering its attention on getting the spacecraft back safely.

"I am not sure the decision will ultimately be NASA's," said Lori Garver. Garver is a former NASA deputy administrator and a main designer of NASA's Commercial Crew Program.

Ortberg started as Boeing's leader on August 8. He is trying to persuade Boeing workers, investors, airlines and the public that safety problems at the company are now under control.

Experts say Boeing will probably keep Starliner in operation. They say this is partly because Boeing has experienced similar cost overruns in its defense business.

In the future, Starliner could serve customers other than NASA. These could include operators of private space stations meant to replace the ISS after 2030.

#### NASA faces decisions

NASA considers Boeing an important backup to Musk's SpaceX.

Boeing has spent more than half of its \$4.5 billion NASA contract, which was given in 2014. Starliner has not yet received certification, or final approval for normal use. The contract includes six Starliner missions after the capsule is certified. Although the contract has a fixed price, NASA increased its value by \$300 million.

SpaceX's Crew Dragon was certified in 2020. It has carried out 10 missions for NASA with a crew. The company's first contract was worth \$2.6 billion. NASA bought more Crew Dragon missions to take the place of Boeing's delayed missions. As a result, the value of SpaceX's contract rose to \$4.9 billion.

Boeing may have to carry out the same astronaut mission to the ISS again in order to get NASA certification for the capsule. The company already had to repeat an uncrewed 2022 mission at a cost of

nearly \$500 million. It has been five years since Starliner's first uncrewed test failed because of several important software problems.

In 2019, NASA's inspector general's office estimated both companies' cost per mission. It said Crew Dragon's mission price of carrying one astronaut into space was about \$55 million while Starliner's cost was \$90 million.

#### Questions about workforce and suppliers

For years, Boeing's space business has been losing skilled employees. Many former employees joined competitors SpaceX and Jeff Bezos' Blue Origin. Ten people who spoke to Reuters and who worked for Boeing's space business said the company's structure made designing spacecraft more complex than it is for SpaceX.

Boeing, in a statement to Reuters, said the company is proud of its Starliner workforce. It also said that it has admitted problems with its workforce and with suppliers when reporting on its earnings to shareholders.

Throughout Starliner's development, the propulsion system and sometimes the software have failed. New problems were found just hours before the spacecraft made its first attempt to launch this summer. Helium gas, used to pressurize the propellant, was leaking through a small opening.

NASA considered the leak low risk. The agency permitted Starliner to launch. But officials said the propulsion system had a "design vulnerability" that Boeing must deal with before its next mission.

The Space Launch System, or SLS, is another problem for Boeing's space division. The SLS is expected to be the launch vehicle for America's program to return to the moon. But the program has faced years of delays and is billions of dollars over budget.

NASA's inspector general's August report said there were deep problems with quality control at Boeing. The report added that Boeing's SLS workforce in Michoud, Louisiana, lacks enough "aerospace production experience, training, and instruction."

A Boeing representative said the company disagrees with much of the report, "including any suggestion that our Michoud workforce is unqualified."

Unlike Starliner, NASA pays the cost of delays and development problems with SLS. Inspector general reports have repeatedly said that the cost overruns are not fully known because NASA does not account for them correctly.

NASA is trying to give ownership of SLS to Boeing and co-contractor Northrop Grumman to bring the costs down. However, experts say such a deal is unlikely.

Richard Aboulafia is an aerospace business adviser. He said Boeing's other businesses are strong, but he wonders about its space division. He thinks Ortberg will negotiate with NASA to make Starliner workable. However, he is not persuaded that that move is the right one.

Joey Roulette reported this story for Reuters. Caty Weaver adapted it for VOA Learning English.

capsule—n.a part of a spacecraft that carries astronauts or the most important equipment in the vehicle system

overrun—n.a situation when more money is needed to complete a project than had been planned

mission—n.a space flight (or an official task) which has a specific set of goals and requirements

propulsion—n.a system that causes a vehicle to move

thruster—n.a device that helps control a spacecraft in space

backup—n.another choice that can be used if something fails

vulnerability—n.a weakness

instruction—n.things that need to be taught to a person so they can complete a task

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## Article 63: Tech Tip: How to Make your Smartphone Last Longer

*Date: 2024-09-04T22:05:00+00:00 | 757 words | Source*

No media source currently available

Many people are now holding onto their smartphones longer than in the past. This is true for several reasons. The cost of phones has been rising for years. And device updates are no longer as meaningful as before.

This has made it even more important for smartphone users to take good care of their devices. But how long can a smartphone user expect their device to last? Many experts say if they are cared for effectively, phones can last up to five years, possibly even longer.

Chris Hauk is a technology expert with the website Pixel Privacy. He told The Associated Press (AP), “As long as you take care of your phone and keep it updated, you’re going to get at least four or five good years of use out of it.”

The AP offers these additional tips for smartphone users looking to keep their devices for as long as possible.

One of the most important elements affecting smartphone life is the battery.

iPhone maker Apple says a rechargeable battery’s age has little to do with when it was manufactured. Instead, it depends on a complex mix of things, including temperature and charging history. “As lithium-ion batteries chemically age, the amount of charge they can hold diminishes, resulting in reduced battery life and reduced peak performance,” Apple says.

Samsung, which uses the Android operating system in its smartphones, says its lithium-ion batteries perform best when kept above a 50 percent charge. The company advises against running the battery completely down

In an online guide, Samsung also said that repeatedly letting the battery go to zero percent may shorten its life and decrease overall performance. “If this happens, you’ll need to charge the battery more frequently and it may last only a few hours before needing a charge.”

#### Avoid extreme temperatures

Apple says its batteries already warm up as they charge, so phones should not be charged in very hot temperatures. Charging an iPhone in heat above 35 degrees Celsius, for example, “can permanently reduce battery lifespan.”

Samsung also says extreme heat or cold can damage batteries. It warns users not to leave their phones inside vehicles or other contained spaces in very hot or cold weather.

Google created the Android operating system and makes Pixel smartphones. It warns that hot batteries lose power faster, even when not being used.

#### Change your power settings

Look at changing your smartphone settings so apps and other device operations use less power. Doing this can extend your battery’s daily life and give more time between charges.

Examples include turning down the phone’s screen brightness, changing to a dark theme and making the screen power off sooner. You can also look at battery usage in the device’s settings to identify power-hungry apps that can be turned off or removed.

Also, if an iPhone’s power level drops below 10 percent, users can turn on the low power setting to stretch battery life before the next charge. Android phones have a similar “power saving mode.” But while this setting can be left on all the time, experts say doing so can affect the phone’s overall performance.

Samsung says another power-saving move is to turn off Bluetooth or Wi-Fi when they are not being used. Apple, however, advises iPhone users to leave these on because they use very little power when not connected.

Many smartphone users already know the benefits of using screen protectors and device cases. Experts advise not using plastic versions, which can damage the phone’s face. Device website iFixit suggests choosing ones made with either Thermoplastic polyurethane (TPU) material – which combines both plastic and rubber – or tempered glass. Both offer more solid protection.

#### Keep your device clean

Smartphones can collect dirt and other materials that can block port openings and hurt performance. Experts say a toothpick or toothbrush can be used to get rid of much of these substances. But they advise users to make sure the process is removing the material, not pushing it deeper inside.

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

update— n. when new information or features are added to an existing thing

battery— n.a device that chemically stores electricity so it can be used as direct current in electrical circuits such as computers and motors

diminish—v.to become less or to make something become less

peak— adj.the highest level or value of something

app— n.a computer program that is designed to do one task or set of tasks and is usually aimed at use on mobile devices

tempered—adj.treated with material to increase the strength and effectiveness of something

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## Article 64: Scientists Question if Melting Ice in Antarctica Will Continue to Increase

*Date: 2024-09-05T21:58:00+00:00 | 636 words | Source*

No media source currently available

Increasing amounts of ice have been melting on the continent of Antarctica over the past ten years. Now, scientists are wondering if the increase in melting is temporary or if it will continue—and perhaps melt even faster—for years into the future.

Nearly 1,500 experts who study Antarctica gathered in southern Chile last week to share results of their research. They discussed the extreme weather events that struck parts of the continent this year: heavy rainfall, unusually warm temperatures, and strong dry winds.

The researchers say these events added to recent increases in melting. However, detailed weather data for Antarctica dates back only about 40 years. That is one reason climate scientists are unsure if the current melting is temporary or the beginning of a longertrend.

NASA estimates show a possible 58-meter rise in the average worldwide sea level if all Antarctic ice melted. Studies have shown that about a third of the world's population lives below 100 vertical meters of sea level.

Liz Keller is a paleoclimate specialist from the Victoria University of Wellington in New Zealand. She says scientists have never before seen Antarctic ice melting so quickly. She also spoke about the increasing amounts of carbon dioxide gas, CO<sub>2</sub>, in the earth's atmosphere.

"You might see the same rise in CO<sub>2</sub> over thousands of years, and now it's happened in 100 years," Keller said. Carbon dioxide traps heat in the atmosphere.

Mike Weber is a paleoceanographer from the University of Bonn in Germany. He studies the movements of Antarctic ice over thousands of years. He said records dating back 21,000 years show at least eight times when the ice melted quickly. He added that the data show the periods of ice loss sometimes lasted for hundreds of years. This led to much higher sea levels around the world.

Weber said scientists want to know if the melting seen during the last ten years has started a melting trend that will last for centuries.

"Maybe we're entering such a phase right now," he said. "If we are, at least for now, there will be no stopping it."

Some of the scientists in Chile agreed that the most harmful rise in sea level can still be avoided if fossil fuel emissions decrease. Weber noted that when glaciers melt, the earth's land can rise because there is less weight pushing it down. Recent research suggests that if the melting does not happen too quickly, the rising land could nearly equal the rise in sea level. But if the melting happens too quickly, the rise in land could not meet the increase in sea level.

"If we keep emissions low, we can stop this eventually," said Weber. "If we keep them high, we have a runaway situation and we cannot do anything."

Mathieu Casado is a paleoclimate and polar meteorologist at France's Climate and Environment Sciences Laboratory. He has examined ice from all over Antarctica to estimate temperatures dating back 800,000 years.

Casado said that the last time the Earth was this warm was 125,000 years ago and that sea levels then were 6 to 9 meters higher. He and other scientists said the speed and amount at which carbon is entering the atmosphere has never been so high.

Gino Casassa is a glaciologist and head of the Chilean Antarctic Institute. He said that current estimates show sea levels rising by 4 meters by 2100 and more if emissions continue to grow.

"What happens in Antarctica doesn't stay in Antarctica," said Casassa, adding that global atmospheric, ocean and weather systems are linked to the continent.

Alexander Villegas reported this story for Reuters news agency. Andrew Smith adapted it for VOA Learning English.

trend-n.a tendency or development continuing over a period of time

phase-n.a particular stage or period of time in a process

emissions-n.gases released into the atmosphere

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## Article 65: Could Electricity for Bitcoin Mining Become Energy for AI?

Date: 2024-09-08T21:57:00+00:00 | 747 words | Source

No media source currently available

U.S. technology companies are increasingly purchasing or leasing energy assets held by bitcoin miners.

These moves come as technology companies hurry to secure a supply of electricity for their growing artificial intelligence (AI) and cloud computing data centers.

Those data centers are driving the fastest increase in U.S. electricity demand since 2000. The demand is growing faster than the electricity grid. That means big technology companies, like Amazon and Microsoft, are aiming to secure large amounts of electricity.

Growing power demand is affecting the cryptocurrency mining industry – an industry that uses a lot of energy.

Some miners are making a profit by leasing or selling their power-connected infrastructure and centers. But other miners cannot get enough electricity to stay in business.

Greg Beard is chief of Stronghold Digital Mining, a publicly traded bitcoin mining company based in Pennsylvania.

"The AI battle for dominance is a battle being had by the biggest and best-capitalized companies in the world and they care like their lives depend on it that they win," he said. "Do they care about what they pay for power? Probably not."

Electric Power Research Institute is a non-profit energy research company based in Palo Alto, California. It said in May that data centers could use up to nine percent of total electricity produced in the U.S. by 2030. That is more than double their current use. This change comes as technology companies are paying a lot to grow their computing centers.

The International Energy Agency (IEA) says that data centers currently account for about 1 to 1.3 percent of world electricity use. Crypto mining uses 0.4 percent. The IEA says that difference is expected to grow.

Experts expect 20 percent of bitcoin mining power capacity to move to AI by the end of 2027. Over the past year, bitcoin miners have increasingly competed with AI data center owners for the same power production centers and business deals. That is what heads of more than six publicly traded U.S. crypto mining companies told Reuters.

One example took place in Pennsylvania. Marathon Digital Holdings is the world's biggest publicly traded bitcoin miner. Two sources who know about the situation said the company was among those considering a nuclear-powered data center owned by Talen Energy in Pennsylvania. But technology company Amazon bought the center in a deal announced in March.

Many large miners that own land and are connected to power centers are changing the way they do business. They are marketing their property and energy services to AI and cloud computing companies and doing less crypto mining.

"We've gotten a lot of interest from everyone from an Amazon or Google," said Kerri Langlais. He is an official for bitcoin miner TeraWulf. The company has a center in New York that can produce 770 megawatts of electricity.

Core Scientific is a crypto miner that a court recently permitted to restructure after its earlier financial failure. In June, Core Scientific became the first bitcoin miner to announce a major agreement. The deal was to lease its power-connected production centers to the company CoreWeave, which is supported by



Nvidia. The deals are estimated to be worth more than \$6.7 billion over 12 years.

Several miners have since said they would lease or act as subcontractors to develop AI data centers.

Morgan Stanley said providing electricity for AI and cloud computing could be profitable for big crypto miners. The investment bank said it could make their centers as much as five times more valuable.

Morgan Stanley also said technology companies could save billions of dollars by buying or leasing space from a miner with at least 100 megawatts of electricity production. It said such deals could cut the wait times for a data center to launch by about 3.5 years.

Laila Kearney and Mrinalika Roy reported on this story for Reuters. John Russell adapted it for VOA Learning English.

lease— v.to use (something) for a period of time in return for payment

asset—n.something that is of value that can usually be exchanged for money

bitcoin—n.a digital currency created for use in online transactions

electricity grid—n.the system of electricity generation, transmission and distribution that covers a large area of a country

infrastructure— n.the resources (such as buildings or equipment) required for an activity

dominance—n.the ability to control

capitalized— adj.to have a lot of money or to possess the ability to borrow or get money from investors easily

capacity— n.power to produce, perform, or deploy

source—n.the provider of information about a subject

subcontractor— n.an individual or business contracting to perform part or all of another's contract

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## Article 66: SpaceX Mission to Include First Spacewalk for Private Citizens

*Date: 2024-09-08T22:05:00+00:00 | 726 words | Source*

No media source currently available

A private space mission will seek to launch non-astronauts to a high orbit and include the first private spacewalks in history.

The American space company SpaceX's flight is cleared to launch from Florida's Kennedy Space Center beginning September 7. The American space agency NASA operates the center. The exact launch date will depend on weather conditions.

American businessman Jared Isaacman organized and paid for the mission, called Polaris Dawn. He and three people will crew the mission. Isaacman is the head of payment processing company Shift4Payments. He has an estimated personal worth of \$2 billion. But he has not said publicly how much he paid SpaceX for the Polaris Dawn mission.

The crewmembers will travel in SpaceX's Crew Dragon spacecraft on a SpaceX Falcon 9 rocket. The company expects the spacecraft to reach an altitude of about 1,400 kilometers. That would be the highest any crewed mission has reached since NASA's Apollo program ended in the early 1970s.

Isaacman is the mission commander for Polaris Dawn. Also taking part in the flight will be Scott Poteet, a retired U.S. Air Force Colonel and two SpaceX employees, Sarah Gillis and Anna Menon. Gillis is a mission specialist at SpaceX, while Menon is a lead space operations engineer. The crew is expected to spend five days in orbit.

Polaris Dawn will reach its highest altitude on its first day. The Crew Dragon will briefly enter the Van Allen radiation belt, an area filled with high-energy charged particles that can present health risks to humans over extended periods.

This will provide a chance to test the effectiveness of SpaceX's newly designed spacesuits. SpaceX says the clothing is equipped with data instruments, cameras and improved mobility systems. SpaceX says tests of the spacesuit will help the company design and develop future space missions to the moon and Mars.

A statement by SpaceX said one main goal of Polaris Dawn will be to carry out research "with the aim of better understanding the effects of spaceflight and space radiation on human health."

Speaking about the mission's risks, Isaacman told reporters, "Whatever risk is associated with it, it is worth it." He added, "We have no idea what it could do to really change the trajectory of humankind ... there has to be some first steps in this direction."

The crew will orbit nearly three times higher than the International Space Station (ISS). But this is far short of the record-breaking distance of over 399,117 kilometers set by NASA's Apollo 13 crew in 1970.

Isaacman is expected to guide the other crew members on the mission's planned spacewalk on day three of the mission. Each member is expected to spend about 20 minutes in space.

So far, only government astronauts from the U.S., former Soviet Union and Russia, the European Space Agency, Canada and China have carried out spacewalks. More than 270 spacewalks, using American and Russian spacesuits, have been carried out from the ISS since its launch in 2000, Reuters news agency reports.

The next day will be spent testing laser-based satellite communication between the spacecraft and Starlink, SpaceX's internet satellite system. The laser method – which has also been tested by NASA – is designed to greatly increase space communication speeds.

The crew also plans to carry out 40 experiments aimed at improving our understanding of human health during long space missions. Among these will be tests with special contact lenses containing microelectronics that can continuously identify changes in eye pressure and shape.

At the end of the mission, Crew Dragon will aim for a parachute landing off the coast of Florida. A SpaceX recovery ship will be waiting for the crew's arrival.

Polaris Dawn is the first of three planned missions under the Polaris program. The second Polaris mission will also use a Dragon capsule, while the third and final is expected to use SpaceX's Starship rocket. SpaceX chief Elon Musk has said his company plans to use Starship to carry future space travelers to the moon and Mars.

Bryan Lynn wrote this story for VOA Learning English, based on reports from Reuters, Agence France-Presse, SpaceX and Polaris.

mission— n.an important project or trip, especially involving space travel

mobility— n.the ability to walk and move freely

associate—v.to connect someone or something in your mind with someone or something else

trajectory— n.the curved path an object follows after it has been thrown or shot into the air

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## Article 67: Climate Group: Summer 2024 Was Hottest on Record

*Date: 2024-09-09T21:57:00+00:00 | 649 words | Source*

No media source currently available

A European climate service says summer 2024 was the hottest on record. The declaration makes it even more likely that this year will also turn out to be the warmest ever measured.

The summer heat data came from the European Union's Copernicus Climate Change Service. Copernicus aims to provide detailed data on "past, present and future climate in Europe and the rest of the world."

The service said that during the months of June, July and August, temperatures worldwide averaged 16.8 degrees Celsius. That was 0.03 degrees warmer than in 2023.

Copernicus records only date back to 1940. But American, British and Japanese records go back to the mid-19th century. Those records suggest the last 10 years have been the hottest since official climate data measurements started.

Copernicus Director Carlo Buontempo told The Associated Press the Augusts in both 2024 and 2023 tied for the hottest Augusts at 16.82 degrees Celsius. The service reported July was the first time in more than a year that the world did not set a record. But because June 2024 was so much hotter than June 2023, this summer as a whole was the hottest, it said.

Buontempo noted that the high temperatures also likely pushed air humidity levels to record highs during the past summer.

The Copernicus chief said all the latest data suggests 2024 will likely break the record for the warmest year ever recorded. “In order for 2024 not to become the warmest on record, we need to see very significant landscape cooling for the remaining few months,” Buontempo added. But he noted, that “doesn't look likely.”

Climate scientists say the record temperatures have real consequences for many people around the planet.

Jonathan Overpeck is a climate scientist at the University of Michigan. He told the AP the continued warming will lead to “more misery around the world” in places seeing the most extreme temperatures.

Overpeck suggested Phoenix, Arizona as an example. The southwestern American city has already experienced more than 100 days of temperatures over 37.8 degrees Celsius this year.

“With longer and more severe heat waves come more severe droughts in some places, and more intense rains and flooding in others,” he said. “Climate change is becoming too obvious, and too costly, to ignore,” Overpeck added.

Jennifer Francis is a climate scientist at the Woodwell Climate Research Center in Cape Cod, Massachusetts. She said more communities worldwide are now having to deal with “violent and dangerous” conditions that include extreme heat, floods, wildfires and high winds.

In an email to the AP, Francis compared people living in areas with extreme climate to those living in conflict areas. She said that in both cases, people get so used to the situation they can become “deaf” to the severe conditions surrounding them every day.

Copernicus chief Buontempo noted an El Niño weather system fueled part of last year's record heat. El Niño is a warming of surface temperatures in the eastern and central Pacific Ocean. The event usually causes hot, dry weather in Asia and Australia. It can also drive weather changes in other parts of the world.

But the El Niño effect has ended, Buontempo said. Now, human-caused climate change from fossil fuel use is again the main driver of increased temperatures, he said.

“It's really not surprising that we see this, this heat wave, that we see these temperature extremes,” Buontempo said. “We are bound to see more.”

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

humidity— n. a measurement of how much water there is in the air

landscape— n. the appearance of an area of land

consequence— n. the result of an action or situation, especially one with a bad result

drought— n. a long period when there is little or no rain and people do not have enough water

obvious— adj.easy to understand or see

deaf— adj.to ignore something because it is too often seen or heard

bound— adj.very likely

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## Article 68: World Produces 52 Million Metric Tons of Plastic Pollution Yearly

*Date: 2024-09-11T21:57:00+00:00 | 717 words | Source*

No media source currently available

The world creates about 52 million metric tons of plastic pollution every year, a new study says.

More than two-thirds of that plastic comes from the Global South – a term that loosely describes developing countries.

The amount of pollution is enough to fill New York City’s Central Park with plastic waste as high as the Empire State Building, researchers at the University of Leeds in Britain say.

They examined waste produced on the local level at more than 50,000 cities and towns across the world for a study recently released in the publication *Nature*.

The study examined plastic that goes into the open environment. It did not examine plastic that goes into landfills or is properly burned. For 15 percent of the world’s population, government fails to collect and dispose of waste, the study said.

This lack of collection and disposal is a big reason Southeast Asia and Sub-Saharan Africa produce the most plastic waste.

Lagos, Nigeria, released the most plastic pollution of any city, said Costas Velis, the study’s lead writer. The other biggest plastic-polluting cities are New Delhi in India, Luanda in Angola, Karachi in Pakistan, and Cairo, in Egypt.

India leads the world in producing plastic pollution, with more than 9.3 million metric tons a year. That number is far more than double the next big-polluting nations, Nigeria and Indonesia. China, often criticized for pollution, is in fourth place but is making big improvements in reducing waste, Velis said. Other top plastic polluters are Pakistan, Bangladesh, Russia and Brazil. The top eight nations are responsible for more than half of the world’s plastic pollution, the study’s data suggests.

The United States takes 90th place in plastic pollution with more than 47,600 metric tons. And Britain takes 135th place with nearly 4,600 metric tons, the study says.

In 2022, most of the world’s nations agreed to make the first legally binding treaty on plastic pollution, including in the oceans. Final treaty negotiations take place in South Korea in November.

The study used artificial intelligence to research plastics that were improperly burned — about 57 percent of the pollution — or just dumped. In both cases, very small microplastics, or nanoplastics, are

what change the issue from a marine life problem to a human health threat, Velis said.

Several studies this year have looked at how common microplastics are in our drinking water and in people's tissue, such as hearts, brains and testicles. Doctors and scientists are still not quite sure how microplastics threaten human health.

Velis called the spread of microplastics "everybody's problem" and one that will be an issue for future generations.

"We shouldn't put the blame, any blame, on the Global South," Velis said. "And we shouldn't praise ourselves about what we do in the Global North in any way."

The problem is a lack of resources and ability of government to provide the necessary services to citizens, Velis said.

Outside experts worried that the study's attention on pollution, rather than overall plastic production, means the plastic industry is not held responsible.

The United Nations Environment Program estimates that plastic production is likely to rise from about 400 million metric tons a year to more than 1.1 billion metric tons. And many scientists believe plastic production releases large amounts of greenhouse gas that contribute to climate change.

Neil Tangri is senior director of science and policy at GAIA, a group of international organizations working on waste and environmental programs.

Tangri said of the study's researchers, "These guys have defined plastic pollution in a much narrower way, as really just macroplastics that are emitted into the environment after the consumer, and it risks us losing our focus on the upstream and saying, hey now all we need to do is manage the waste better."

Tangri added, "It's necessary but it's not the whole story."

Seth Borenstein reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

landfill— n.a system of trash and garbage disposal in which the waste is buried between layers of earth

dispose of— v.to get rid of

bind-- v.to put under an obligation

dump— v.to get rid of something in a careless way

emit-- v.to give off or to throw out; to release

focus— n.a center of activity or attention  
upstream—n.in or to a position within the production stream closer to manufacturing processes

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## Article 69: Apple Launches New iPhone 'Built for AI'

Date: 2024-09-11T22:05:00+00:00 | 712 words | Source

No media source currently available

Apple has launched its latest device, the iPhone 16. The company said it designed the new phone with the latest artificial intelligence (AI) technology.

Apple announced four new iPhone 16 models during a launch event September 9 from its headquarters in Cupertino, California. It said the new models are equipped with special chip to support the increased power needed for AI operations.

Apple says the AI built into the devices is part of its newly developed Apple Intelligence technology. Apple leader Tim Cook spoke at the launch event. He said the new iPhone 16 models had been “designed for Apple Intelligence from the ground up.”

Apple Intelligence is available to users of the new iPhone 16 models, as well as the 15 Pro and 15 Pro Max. Users must also be running iOS 18.1, which is expected to launch in October. Apple Intelligence can also be used with iPads and Macs.

The company describes the technology as a “personal intelligence system” designed to help users “communicate, work, and express” themselves.

The new AI tools, or features, are designed to improve on past ones, including the company’s 13-year-old Siri digital assistant. Company officials say they aim to get Siri to better understand requests and actions of the user.

One new feature of iPhone 16 models lets users search for pictures in their images collection by describing what an image looks like. AI tools can also help users create personal emojis and can organize and provide brief descriptions of emails. Other AI features include improved camera and video production functions.

The new iPhone models are also equipped with a new button that reacts to clicks and hand movements to make it easier and faster to set up shots, capture images and start video recording.

The company says the iPhone 16 models will be available for pre-order on September 13. But since the new AI tools require the iOS 18 update, users will have to wait until they receive that to use the features. Apple has said the iOS 18 release will roll out from October through December. American English will be the first available language, followed by more to be added next year.

The price for an iPhone 16 will start at just under \$800. The top model will cost almost \$1200.

Apple’s push to include AI tools in its new devices is partly seen as a reaction to moves by competitors like Samsung and Google. Both of those companies have already offered users powerful new AI tools in their latest smartphone models.

In addition to the new AI features offered, Apple has also teamed up with ChatGPT developer OpenAI to give users the chance to use that company’s technology for more complex operations. In June, Apple announced it was working with OpenAI to create a series of AI tools for iPhones and other personal devices.

Apple officials have noted that all users have the ability to turn off any AI tools they do not want. The company has long claimed it highly values personal privacy and says it has built tools into its operating systems to protect user data. Apple said it took the same steps to provide privacy protections for its new AI tools.

Besides announcing the new AI-equipped devices, Apple also introduced new models of its Apple Watch and AirPods headphones.

The Apple Watch Series 10 has a larger and brighter display that aims to improve views from any position. The changes to Apple Watch also include additional health features, such as a sleep monitor tool that aims to identify the disorder sleep apnea.

Apple says the new AirPods 4 come with an improved chip for better audio quality, as well as more active noise cancellation. The devices are also equipped with a tool to help users find lost AirPods. It plays a sound when Apple's Find Me app is used to find lost devices.

Bryan Lynn wrote this story for VOA Learning English, based on reports from Apple, The Associated Press and Reuters.

chip— n.a small part of a computer that stores and helps process information

function— v.to work or operate in a particular way

button— v.a switch that is pressed to control an operation or piece of equipment

display— n.an electronic device that shows information from a computer

monitor— v.to watch something carefully and record the results

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## Article 70: Why Is Helium Causing Problems with Spacecraft?

*Date: 2024-09-12T21:55:00+00:00 | 710 words | Source*

No media source currently available

Helium leaks have been a major problem for spacecraft and rockets.

Recent reports about Boeing's Starliner and SpaceX's Polaris Dawn mission have involved problems controlling helium. Recently, the Starliner had a helium leak in a propulsion system. Polaris Dawn also had helium issues on its ground equipment.

Helium leaks have affected past missions including the Indian Space Research Organization's Chandrayaan 2 and the European Space Agency's Ariane 5.

Recently, Reuters news agency explored why spacecraft and rockets use helium, and why it can cause problems:

Why is helium used on spacecraft?



Helium is inert, meaning it does not chemically react with other substances. It also does not burn. Helium's atomic number is 2, making it the second lightest element after hydrogen.

Rockets need to reach exact speeds and altitudes to maintain their orbits. Heavier rockets need more energy to fly and use more fuel. They also require more powerful engines, which are costlier to develop, test, and maintain.

Helium has an extremely low boiling point of -268.9 degrees Celsius. This means that it remains a gas even in extremely cold environments like space. That is an important quality because many rocket fuels are stored at low temperatures.

Helium is nontoxic. But it cannot be breathed on its own because it displaces oxygen. Humans need oxygen to live.

How is helium used in rockets?

Because of its special qualities, helium is used to pressurize fuel tanks. It helps ensure fuel flows to the rocket's engines without stopping. Helium is also used for cooling systems.

As fuel and oxidizer are burned in the rocket's engines, helium fills the resulting empty space in the tanks, maintaining the correct pressure inside.

Because it is non-reactive, it can safely mix with other contents in the tanks.

Is helium more likely to leak?

Helium's small atomic size and low molecular weight mean its atoms can escape through small spaces or seals in storage tanks and fuel systems.

However, because there is very little helium in the Earth's atmosphere, leaks can be easily detected. This makes the gas important for identifying possible problems in a rocket or spacecraft's fuel systems.

In May, hours before Boeing's Starliner spacecraft made its first attempt to launch an astronaut crew, sensors inside the spacecraft detected a small helium leak. The American space agency NASA spent several days studying the leak before deciding it was low risk.

Additional leaks were detected in space after Starliner launched in June. Such discoveries played a part in NASA's decision to bring Starliner back to Earth without its crew.

As a result, two NASA astronauts who flew to the International Space Station aboard a Starliner capsule will need to return to Earth on a SpaceX vehicle early next year.

The frequency of helium leaks across space-related systems, some engineers say, has shown an industry-wide need for innovation. Innovation is needed in the design of valves and the mechanisms that tighten them. A valve is a mechanical device that controls the flow of a gas or fluid.

Can another gas be used?

Some rocket scientists have experimented with gases such as argon and nitrogen, which are also inert and can sometimes be less costly. Helium, however, is much more common in the space industry.

In Europe's new Ariane 6 rocket, designers replaced the helium that was used in the rocket's predecessor Ariane 5. The Ariane 6 has a new pressurization system. The new system changes a small amount of liquid oxygen and hydrogen propellant to gas, which then pressurizes those fluids for the rocket engine.

That system failed in space, however, during the final part of Ariane 6's otherwise successful launch in July. The failure of the new system added to the international rocket industry's list of pressurization difficulties.

Nivedita Bhattacharjee reported on this story for Reuters. John Russell adapted it for VOA Learning English.

propulsion— n. the act of driving forward or onward

mission— n. a flight by an aircraft or spacecraft which has a specific goal

altitude— n. the vertical elevation of an object above a surface (such as sea level or land)

toxic— adj. containing or being poisonous material

detect— v. to discover or find

frequency— n. the proportion or percentage of items in a particular category in a set of data

innovation— n. the introduction of something new

predecessor— n. one that precedes or comes before

propellant— n. something that drives forward or onward

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## Article 71: In Greece, Village Appears when Lake Dries Up

*Date: 2024-09-14T21:55:00+00:00 | 504 words | Source*

No media source currently available

A sunken Greek village has begun to reappear after water levels dropped in the lake that covered it. Extreme hot, dry weather is blamed for the disappearing Lake Mornos.

The village of Kallio was flooded in 1980 to create the lake. The plan aimed to help supply the ever-increasing water demands of the national capital about 200 kilometers away. Now, long stretches of dried soil mixed with old bricks surround the ruins of the Kallio.

"Day by day, the water goes down," said Dimitris Giannopoulos, mayor of central Greece's Dorida area. Reuters news agency reports Lake Mornos supplies water to nearly half of Greece's population.

Last winter brought little snow to Greece. This summer brought heatwaves but little rain to the country. Last winter was Greece's warmest on record.

Greece's dry climate makes it especially susceptible to the effects of a warming planet. The conditions worsened summer wildfires including some that reached outer areas of Athens last month. Scientists

say extreme weather is now driving the dropping lake level.

"It is an alarm bell," said Efthymis Lekkas, a professor of disaster management at the University of Athens. "We don't know what will happen in the coming period. If we have a rainless winter, things will get difficult."

Giannopoulos noted that the Mount Giona mountain that rises up from the lake used to be snow-covered. But it saw none last winter. Around the lake, some trees have taken on a yellowish color. "They lack water. This has never happened before," Giannopoulos said.

Wells in the area are now drying up, he added. And surrounding villages – which do not take water from the lake – suffered water cuts this summer. A local firefighter chief said the risk of wildfires increases as the forests become drier.

Satellite images suggest the lake's surface area shrank from around 16.8 square kilometers in August 2022 to just 12 this year.

In addition, water supplies at three other water bodies dropped to 700 million cubic meters in August. This water supplies Attica, an area of around 4 million people that includes Athens. That was down from 1.2 billion cubic meters in 2022, the country's environment ministry said.

The Greek government says the state-run Athens water company had begun supplying those areas with additional sources of water. Former residents of Kallio were surprised to see the village again. But some said they were saddened by its current state.

"I used to see it full and say it was a beach. Now all you see is dryness," said 90-year-old Konstantinos Gerodimos.

His 77-year-old wife Maria added: "If it continues like this, the entire village will appear, all the way to the bottom, where the church and our home was."

Reuters reported this story. Bryan Lynn adapted the report for VOA Learning English.

susceptible— adj.easily influenced or harmed by something

alarm— n.a loud noise or a public announcement that warns of danger

bell—n.a hollow, metal object, shaped like a cup, with a piece of metal inside that makes a ringing sound

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## Article 72: The Debate: Will AI Take Away Many Human Jobs?

Date: 2024-09-15T21:55:00+00:00 | 868 words | Source

No media source currently available

ChatGPT and other generative AI tools have raised concerns that chatbots will replace many kinds of workers. Writers, editors, and customer service representatives are among the jobs that could be affected.

But some people are suggesting that AI might not reduce jobs as many people fear. Instead, the technology might turn out to be more like the technological developments of the past, such as the steam

engine, electricity or the internet.

Supporters reason that AI might destroy some jobs while creating others. They also say that the technology will probably make workers more productive, benefiting themselves, their employers and the economy.

Looking for lessons from history

Nick Bunker is an economist at the Indeed Hiring Lab, part of a job search website. He said he thinks AI “will affect many, many jobs — maybe every job indirectly” to some degree.

Bunker added that he does not believe the technology is going to lead to a lot of unemployment. “We have seen other big technological events in our history, and those didn’t lead to a large rise in unemployment. Technology destroys but also creates. There will be new jobs that come about,” he said.

Artificial intelligence gives machines the ability to perform tasks once thought to require human intelligence. The basic technology has existed in early versions for many years.

Some reports say it began with a problem-solving computer program called Logic Theorist. The program was developed in the 1950s at what is now Carnegie Mellon University in Pittsburgh, Pennsylvania. More recent examples include voice assistants like Apple’s Siri, Amazon’s Alexa, or IBM’s chess-playing computer, Deep Blue, which defeated then-world champion Garry Kasparov in 1997.

Predictions and current evidence

Sam Altman is the chief of OpenAI, the creator of ChatGPT. Altman said in a discussion at the Massachusetts Institute of Technology (MIT) in May that he believes, “AI is going to eliminate a lot of current jobs, and this is going to change the way that a lot of current jobs function.”

Some people say that AI chatbots are not replacing human workers in a widespread way. Challenger, Gray & Christmas, a company that tracks job cuts, said it has yet to see much evidence of job losses caused by AI.

However, the fear that AI is a threat to some kinds of jobs has a basis in reality.

Suomit Shah is an Indian business owner who announced last year that he had replaced 90 percent of his customer support workers with a chatbot named Lina. Shah’s company, Dukaan, helps customers set up e-commerce sites to sell goods online. Shah said the average amount of time it took to answer a customer’s question shrank from 1 minute, 44 seconds to “instant.” The chatbot also cut the time needed to resolve problems from more than two hours to just over three minutes.

A 2023 study by researchers at Princeton University, the University of Pennsylvania and New York University identified jobs most exposed to AI models. The jobs included telemarketers and teachers of English and foreign languages. But being affected by AI does not necessarily mean losing your job to it. AI can free people to do more creative jobs.

The Swedish company IKEA introduced a customer-service chatbot in 2021 to deal with simple questions. Instead of cutting jobs, IKEA kept 8,500 customer-service workers to advise buyers on interior design and to deal with complex customer calls.

Chatbots can also make workers more efficient. Erik Brynjolfsson of Stanford University, Danielle Li and Lindsey Raymond of MIT studied 5,200 customer-support agents at a large company. The agents used a generative AI-based assistant. The AI tool provided valuable suggestions. It also supplied links to useful company documents.

The researchers found that those who used the chatbot were 14 percent more productive than workers who did not use the chatbot. The workers who used AI took more calls and completed them faster. The biggest productivity gains — 34 percent — came from the least-experienced, least-skilled workers.

Alorica is a company in Irvine, California, that runs customer-service centers around the world. The company has introduced an artificial intelligence translation tool that lets its representatives communicate with customers who speak any of 200 different languages and 75 dialects.

The Real-time Voice Language Translation tool also lets customers and Alorica agents speak and hear each other in their own languages.

“It allows (Alorica reps) to handle every call they get,” said Rene Paiz, a vice president of customer service. Paiz added, “I don’t have to hire externally” just to find someone who speaks a specific language.

Alorica said it is not cutting jobs. It continues to seek new employees who are comfortable with new technology.

“We are still actively hiring,” Paiz says. “We have a lot that needs to be done out there.”

Paul Wiseman reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

generative AI– n.artificial intelligence that is capable of generating new material (such as images or writing)

chatbot– n.a program that is designed to carry out a discussion with human beings

editor–n.a person who prepares writing, so it is ready for publication

customer–n.a person or group that pays for goods or services

benefit– v.to produce good or helpful results or effects

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## Article 73: NASA Rocket Confirms Existence of Earth’s Hidden Electric Field

Date: 2024-09-15T22:05:00+00:00 | 714 words | Source

No media source currently available

The American space agency NASA says it has confirmed the long-suspected existence of an electric field that surrounds Earth.

A rocket named Endurance gathered the information that led to the confirmation. Endurance launched from Norway on May 11, 2022. The launch site was the closest possible to the North Pole.

Endurance reached a top altitude of 768 kilometers. The rocket captured data on the electric field during its 19-minute flight before splashing down in the sea, off the coast of Greenland.

NASA says that since the 1960s, spacecraft flying over Earth's poles have recorded collections of particles flowing from the planet's atmosphere into space. But the cause of these outflows long remained a mystery. Scientists lacked the technology and tools to confirm an electric field and further explore it.

But the development in recent years of new observation methods and instruments led NASA to plan the Endurance mission. So the agency built the rocket and a new data instrument and planned the launch.

NASA scientist Glyn Collinson, an expert in space instrument design, led the Endurance mission.

Collinson explains in a video that scientists believe the electric field they searched for was one of three energy fields affecting Earth. The others are gravitational and magnetic. Scientists are calling the third energy field the "ambipolar electric field."

A NASA statement says scientists believe the ambipolar field is an influential driver of the "polar wind." They described the wind as "a steady outflow of charged particles into space that occurs above Earth's poles." Scientists believe the ambipolar electric field counteracts some of the effects of gravity.

This electric field lifts the charged particles in Earth's upper atmosphere "to greater heights than they would otherwise reach," NASA said. Scientists had theorized this electric field began at around 250 kilometers high. This is where atoms in our atmosphere break apart into negatively charged electrons and positively charged ions. This activity helps form a part of Earth's atmosphere known as the ionosphere.

NASA noted the Endurance mission permitted researchers to successfully identify and measure "a planet-wide electric field thought to be as fundamental to Earth as its gravity and magnetic fields." A study describing the team's results recently appeared in the publication *Nature*.

NASA said studying the ambipolar electric field is important because it "may have shaped our planet's evolution in ways yet to be explored." In addition, the agency said further study of this field can help scientists better understand other planets and possibly find ones with conditions that may support life.

Leader Collinson said that, during the mission, the instrument on the rocket was able to measure an electrical voltage of 0.55 volts. He said this level is very low, about the same voltage used to power a watch battery. But, he noted that 0.55 volts was "just the right amount" to explain the outflows of particles driving the polar wind.

Collinson said he finds the results “incredibly important” because the newly confirmed electric field can counter the effects of gravity and “basically lifts the skies up.” He described the field as a kind of “conveyor belt that’s lifting this atmosphere up into space.”

Alex Glocer is a project scientist for the Endurance mission and was a co-writer of the study. He said he agrees with those findings. “That’s more than enough to counter gravity – in fact, it’s enough to launch them upwards into space at supersonic speeds,” Glocer said. Supersonic describes speeds that are greater than the speed of sound.

The team said the study results suggest the ambipolar electric field also greatly increases the density of the ionosphere at higher atmospheric positions.

Collinson said, “Any planet with an atmosphere should have an ambipolar field. Now that we’ve finally measured it, we can begin learning how it’s shaped our planet as well as others over time.”

Bryan Lynn wrote this story for VOA Learning English, based on reports from NASA.

pole– n.either part of an axis of a sphere and especially of Earth's axis

counteract– v.the reduce a bad effect of something else

fundamental– adj.relating to the most important or main part of something

evolution– n.a gradual process of change and development

battery– n.an object that provides electricity for things such as radios, toys, cars, etc.

conveyor belt– n.a continuous moving piece of rubber or metal that is used to transport objects from one place to another

## Article 74: SpaceX Crew Returns to Earth after First Private Spacewalks

Date: 2024-09-16T21:55:00+00:00 | 581 words | Source

No media source currently available

The four-member crew of a private space flight has returned to Earth after a trip that included the first-ever spacewalks by non-professional astronauts.

American business leader Jared Isaacman organized and paid for the five-day mission, called Polaris Dawn. The American company SpaceX was a partner in the operation. It built both the Crew Dragon capsule and the Falcon 9 rocket that carried it to space.

The capsule dropped into the Gulf of Mexico near Florida early Sunday as planned.

The mission is historic for two reasons. First, Crew Dragon reached a top altitude of more than 1,400 kilometers. That was the highest level any crewed mission has reached since the American space agency NASA’s Apollo program ended in the early 1970s.

Second, two crew members completed spacewalks during the mission. Isaacman was first to pop his head out of the Crew Dragon capsule on September 12. He spent about 10 minutes with the top half of his body outside the capsule as the spacecraft orbited hundreds of kilometers above Earth.

A video camera captured Isaacman saying at the time, "Back at home we all have a lot of work to do. But from here, Earth sure looks like a perfect world."

SpaceX engineer Sarah Gillis took a turn after Isaacman returned.

During each spacewalk, the astronauts kept their feet positioned inside the spacecraft. They moved their bodies in several exercises to test their spacesuits.

Until Polaris Dawn, only government astronauts and cosmonauts in government service had completed spacewalks.

The other Polaris Dawn crewmembers were SpaceX engineer Anna Menon, and Scott Poteet, a retired American Air Force officer. They did not leave the spacecraft. However, they wore the same kind of spacesuits as Isaacman and Gillis. They needed the protection as the capsule environment was depressurized for the space walks.

Isaacman had said a main goal of the mission would be to test the new spacesuit design in preparation for long-term stays in space. SpaceX has said the suits are equipped with the latest data-gathering instruments, as well as cameras and improved mobility systems.

Before the mission launched, SpaceX said the crew planned to carry out a series of experiments aboard the Crew Dragon capsule. Among these were a test of laser-based satellite communication between the spacecraft and Starlink, SpaceX's internet satellite system. The laser method – which has also been tested by NASA – is designed to greatly increase space communication speeds.

Many of the experiments dealt with observations of how human health is affected during long space missions. Among these will be tests with special contact lenses containing microelectronics that can continuously identify changes in eye pressure and shape.

Isaacman is the head of payment processing company Shift4Payments. He has an estimated personal worth of \$2 billion. Isaacman has not said publicly how much he paid SpaceX for its service.

Polaris Dawn is the first of three planned missions under the Polaris program. The second will also use a Dragon capsule, while the third and final is expected to use SpaceX's Starship rocket. SpaceX chief Elon Musk has said his company plans to use Starship to carry future space travelers to the moon and Mars.

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Reuters, Agence France-Presse and SpaceX.

mission— n.an important project or trip, especially involving space travel

capsule— n.the part of a spacecraft that people live in

altitude— n.the height of something above sea level



mobility— n.the ability to walk and move freely

## Article 75: Companies Grow Cocoa Beans in Lab to Produce Chocolate

Date: 2024-09-17T21:55:00+00:00 | 648 words | Source

No media source currently available

Climate change pressures have led some companies to try growing cocoa in new environments to produce chocolate.

Some of the companies have set up growing operations in laboratories to produce cocoa from cellcultures. Others are experimenting with non-cocoa substances in an effort to create chocolatealternatives.

Higher temperatures worldwide have made it harder to grow cocoa beans in traditional rainforest environments. But worldwide demand remains high for chocolate. So, scientists and businesses are looking to create new products to meet that demand.

California Cultured is a plant cell culture company based in West Sacramento, California. It is growing cocoa from cell cultures inside a lab and plans to start selling its products next year. The process involves putting cocoa bean cells in a container with sugar water. This helps them quickly reproduce andmature.

Alan Perlstein, chief executive of California Cultured, spoke to the Associated Press. He said his company's process can produce a harvest in just one week. This compares to six to eight weeks for a traditional harvest. He said the method also uses a lot less water and labor than harvesting cocoa beans in a field.

Perlstein said he sees the demand for chocolate continuing to increase, while the supply decreases. Using alternative processing methods might be the only way to increase the supply of cocoa without causing environmental harm or greatly increasing costs, he said.

Cocoa trees grow about 20 degrees north and south of the equator in areas with warm weather and a lot of rain. But scientists fear further climate change will dry out the land in such areas.

The worldwide market for chocolate is huge. The chocolate market forcandyworldwide reached \$238.5 billion in 2023, research websiteStatistareports.Sales in the United States alone reached more than \$25 billion in 2023, the National Confectioners Association said. The trade organization represents the candy industry.

The price of cocoa increased earlier this year because of rising demand and West African crop losses from plant disease and weather changes. West Africa produces most of the world's cocoa.

Carla D. Martin is executive director of the U.S.-based Fine Cacao and Chocolate Institute. She told the AP that drops in the world cocoa supply have led some companies to look for ways to replace

the ingredient that produces the taste of chocolate.

Planet A Foods is once such company in Planegg, Germany. It believes the taste of mass market chocolate is created not only by the bean itself, but also how it is fermented and cooked.

The company has tested out many ingredients, from olives to seaweed, to find a possible substitute. It is currently using a mix of oats and sunflower seeds as the best tasting chocolate alternative, said company spokesperson Jessica Karch. Planet A Foods calls the product “ChoViva,” which can be used in place of other ingredients in baked goods.

“The idea is not to replace the high quality, 80 percent dark chocolate, but really to have a lot of different products in the mass market,” Karch told the AP.

Similar efforts can be found in Israel. One company there, Celleste Bio, is taking cocoa bean cells and growing them indoors to produce cocoa powder and cocoa butter.

The company’s co-founder, Hanne Volpin, said that within a few years the company aims to be able to produce cocoa no matter what the situation is with climate change and disease. Volpin added, “We only have a small field, but eventually, we will have a farm of bioreactors.”

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

culture— n.the process of growing things, especially bacteria, for scientific purposes

alternative— n.one of two or more things you can choose between

mature—v.completely grow or develop

ingredient— n.one of the different foods used to make other foods

ferment— v.when a substance is stored and the sugar in it changes into alcohol because of a chemical process

## Article 76: US Police Try AI for Help with Crime Reports

Date: 2024-09-18T22:05:00+00:00 | 791 words | Source

No media source currently available

Some police departments in the United States are experimenting with artificial intelligence (AI) tools to help them produce incident reports. Police officers who have tried the AI chatbots praise the technology as a time-saver.

Yet some government lawyers, legal experts, and others have expressed concerns about the AI-produced reports.

One chatbot police are testing uses the same technology as ChatGPT. The company that sells it, Axon, is best known for developing the electroshock weapon called the Taser. It is also the leading supplier of body cameras in the U.S.

Matt Gilmore is a police officer in Oklahoma's capital, Oklahoma City. He describes the AI chatbot as a "game changer" for police work.

Recently, Gilmore and his police dog, Gunner, searched for a group of suspects for almost an hour. In the past, after completing a search, the officer would spend another 30 to 45 minutes writing up a report about the incident. But this time he used AI.

The tool considered all the sounds and radio talk recorded by the microphone attached to Gilmore's body camera. Then it produced a report.

The process took eight seconds.

"It was a better report than I could have ever written, and it was 100 percent accurate. It flowed better," Gilmore said. The report even documented an event he did not remember: Another officer identifying the color of the car from which the suspects fled.

The new AI product is called Draft One. Axon's founder and CEO Rick Smith said it received the "most positive reaction" of any tool the company has offered.

"They become police officers because they want to do police work, and spending half their day doing data entry is just a tedious part of the job that they hate," Smith said.

But he also noted legal and ethical concerns about the tool.

He said government lawyers prosecuting criminal cases want to be sure that police officers are responsible for writing their reports. Sometimes, officers are called to testify in court about cases they worked on.

Prosecutors "never want to get an officer on the stand who says, well, 'The AI wrote that, I didn't,'" Smith said.

### AI technology concerns

AI technology is not new to police agencies. American police already use such tools to read license plates, identify suspects' faces, recognize the sounds of gunshots, and predict where crimes will happen.

In Oklahoma City, police showed the tool to local prosecutors before using it for criminal cases. The lawyers advised the police to be careful with the tool. For now, it is used only for minor incident reports that do not lead to arrests.

"So no arrests, no felonies, no violent crimes," said Oklahoma City police Captain Jason Bussert, the head of information technology for the 1,170-officer department.

Police in the city of Lafayette, Indiana, have a different policy on the new tool. Police Chief Scott Galloway told the Associated Press that officers can use Draft One for every incident. He said the tool is very popular with the city force. It began using the tool earlier this year.

Police in Fort Collins, Colorado, are also permitted to use the AI tool on any kind of report. However, the head of the force’s technology department said the tool does not work well in very noisy parts of the city.

Axon will not say how many police departments are using Draft One. Other companies including Policereports.ai and Truleo offer similar tools. Experts and police officials expect AI-generated reports to become more common in the coming months and years.

Some experts and observers are calling for public discussion about the use of AI tools to write police reports. Chatbots that use AI technology are not mistake-free. Sometimes these chatbots can produce false information.

That issue worries Andrew Ferguson, a law professor at American University.

“I am concerned that automation and the ease of the technology would cause police officers to be sort of less careful with their writing,” he said..

Ferguson said a police report is important in determining whether an officer’s suspicion supports “someone’s loss of liberty.” It is sometimes the only testimony a judge sees in a court case, particularly for minor crimes known as misdemeanors.

Human-created police reports also have problems, Ferguson noted. He said it is not yet known which kind of report writer, human or AI, is more dependable.

Sean Murphy and Matt O’Brien reported on this story for the Associated Press.

prosecutor– n.an attorney who conducts proceedings in a court on behalf of the government

tedious– adj.tiresome, boring

felony– n.a serious crime for which the punishment in federal law may be death or imprisonment for more than one year

automation– n.automatically controlled operation of a process, or system by electronic devices that take the place of human labor

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## Article 77: Black Women Mathematicians Receive Congressional Medals for Space Program Work

*Date: 2024-09-19T21:55:00+00:00 | 475 words | Source*

No media source currently available

The United States Congress has honored four women known as the “hidden figures” of the space race with its highest civilian award.

The Congressional Gold Medal was presented Wednesday to the families of Katherine Johnson, Dorothy Vaughan, Mary Jackson and Christine Darden at the U.S. Capitol. Only Darden is still living. The 82-year-old watched the ceremony from her Connecticut home.

Lawmakers recognized the four Black mathematicians for their critical work early in the space program.

They also presented a medal to all the women who worked as mathematicians, engineers and "human computers" in the American space program from the 1930s to 1970s.

Margot Lee Shetterly wrote the 2016 book *Hidden Figures* about the Black women mathematicians who supported the space program in the 1960s. It was made into a movie of the same name in 2017.

"By honoring them, we honor the very best of our country's spirit," Shetterly said at the ceremony.

The early space program employed hundreds of women to work as mathematicians at what is now NASA's Langley Research Center in Virginia. But, the Black mathematicians were not permitted to work with the white mathematicians because of racial separation policies at the time. The Black researchers' work went unrecognized for years.

The team used pencils, slide rules and mechanical calculating machines to calculate the paths of rockets and orbiters in the atmosphere and in space. The path is called the trajectory.

"Our office computed all the trajectories," Katherine Johnson told *The Virginian-Pilot* newspaper in 2012. "You tell me when and where you want it to come down, and I will tell you where and when and how to launch it," she explained.

In 1961, Johnson did trajectory research for the Freedom 7 Mission, the first to carry an American into space. The next year, she checked the calculations made by a new NASA computer for astronaut John Glenn's planned orbits around the planet.

John Glenn did not trust the new computer. Days before the launch, he told NASA, "Get the girl to check the numbers." John Glenn became the first American to orbit the Earth in 1962.

Johnson was awarded the Presidential Medal of Freedom in 2015 – the nation's highest civilian honor. Her work at NASA helped open doors for many other women to take part in the space program.

Dorothy Vaughan rose to become NASA's first Black female supervisor. Mary Jackson was NASA's first Black female engineer. And Christine Darden is best known for her sonic boom research.

Adithi Ramakrishnan reported this story for the Associated Press. Jill Robbins adapted it for Learning English.

figure—n. a digit representing an amount (as of money earned or points scored) also, a bodily shape or form especially of a person

calculate—v. to find (a number, answer, or the like) by using mathematical processes

sonic boom—n. a loud explosive noise caused by the shock wave from an aircraft traveling faster than the speed of sound.

## Article 78: NASA Spacecraft to Look for Signs of Life on Jupiter's Moon Europa

Date: 2024-09-22T22:05:00+00:00 | 705 words | Source

No media source currently available

The American space agency NASA has cleared a spacecraft to launch next month to look for possible signs of life on Jupiter's moon Europa.

Agency officials announced plans for the Europa Clipper spacecraft at a press briefing last week. The launch window for the mission will open October 10. The spacecraft is to launch from NASA's Kennedy Space Center in Florida. It will be carried to space aboard a Falcon Heavy rocket built by SpaceX.

The main goal of the mission is for the spacecraft to collect data on whether Jupiter's icy moon could possibly support life. Scientists have identified Europa as a good candidate for holding the right conditions to support life. Several studies have suggested it likely contains a very large ocean beneath its icy surface.

In an online description, NASA says liquid water is necessary for planets or moons to support the "complex chemistry" processes that can make life possible. A huge, salty ocean likely lies beneath Europa's surface and could hold "more water than Earth's oceans combined," the space agency added.

Scientists have also discovered evidence of chemical compounds and energy forces – including very strong gravity – that could provide the right conditions to support life.

Europa is a little smaller than Earth's moon but is still one of the largest moons in our solar system. It is one of many moons orbiting Jupiter. Astronomers announced in 2023 they had discovered 12 additional moons orbiting Jupiter. NASA says the planet now has a total of 95 confirmed moons.

It is estimated to take six years for the robotic, solar-powered spacecraft to reach Europa. The orbiter is the largest spacecraft built by NASA to investigate another planet. It reaches about 30 meters when fully open. The orbiter is expected to perform many flybys of Europa. Some may get as close as 25 kilometers away from the moon.

After launching, NASA says Europa Clipper will fly past Mars, then back toward Earth, "using the gravity of each planet to increase its momentum." These kinds of "gravity assists" are expected to provide the needed push to get the spacecraft to Jupiter by 2030.

After reaching Jupiter, Europa Clipper will then spend about one year preparing for the flybys of Europa.

NASA says the spacecraft is equipped with nine different scientific instruments. They are designed to collect data from all areas of the moon. None of the instruments themselves were built with the ability to confirm the existence of life forms. But they are designed to investigate Europa's icy surface and the composition of the moon's underground ocean for signs of possible life.

Team leaders say Europa Clipper will also use several cameras – including two using infrared technology – to map the moon in greater detail than in the past. Radar technology will also be used to collect data on the moon’s interior and to measure gravity. Together, the instruments and cameras will seek information about Europa’s current and past chemistry and geology.

Gina DiBraccio is the acting director of NASA’s planetary science division in Washington. She told the press briefing the agency is pleased to finally be moving the mission forward after years of planning and preparation. “As an ocean world, Europa is very intriguing. And this mission is going to help us to understand a complex piece of our solar system.”

Jordan Evans is Europa Clipper’s project manager. He said the last part of the preparation process involved testing of electronic transistors widely used on the spacecraft. His team wanted to make sure the transistors could survive the large amounts of radiation Europa Clipper is expected to be hit with in space.

After the tests, Evans said mission leaders were persuaded that the transistors could recover from the effects of heavy radiation during breaks from flybys of the moon. He said this meant all elements of the mission should be able to be carried out as planned.

Evans added, “We are ready for Jupiter.”

Bryan Lynn wrote this story for VOA Learning English, based on reports from NASA and The Associated Press.

momentum– n.the force that makes something continue to move

geology– n.the study of rocks and soil and the physical structure of Earth

intriguing– adj.very interesting

transistor– n.a small piece of electrical equipment used in radios, televisions, etc.

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## Article 79: Scientists Find Energy Jets Among the Universe’s Largest Structures

*Date: 2024-09-25T21:55:00+00:00 | 648 words | Source*

No media source currently available

Scientists say they have found the largest jets of energy ever observed shooting out of a black hole in a distant galaxy.

The jets extend 23 million light years from end to end. That is about 140 times the width of our Milky Way Galaxy. The galaxy responsible is estimated to be 7.5 billion light years from Earth.

The scientists observed the structures using the Low-Frequency Array, or LOFAR, radio telescope network centered in the Netherlands.

Violent, highly energetic events around a black hole in the galaxy are the cause of the jets. A black hole is often the remains of a super-massive star that collapses. It is so massive that even light cannot escape its powerful gravity.

Researchers have named the energy jets Porphyryon after a giant in ancient Greek mythology. Porphyryon is 30 percent longer than any other known energy jet.

Martijn Oei of Caltech is an astrophysicist and lead writer of the study published in *Nature*. Oei said, “Jet systems like Porphyryon appear to be among the most energetic spectacles that have occurred in the universe since the Big Bang.”

The Big Bang is the event that scientists say marked the beginning of the universe.

Astrophysicist Martin Hardcastle of the University of Hertfordshire in England was also a writer of the study. He explained how scientists believe the jets formed.

“The general understanding is that jets are formed when magnetized material falls onto a rotating black hole,” he said.

He said the jets “need to be sustained by a continued infall of matter into the black hole, something on the order of one solar mass (the mass of the sun) a year of material.”

However, although they are huge, the jets cannot be seen in visible light. Scientists used radio telescopes to find them. They start small and grow over time, the scientists say.

“We’ve known for a while that black holes can generate these jets. But what is interesting is that to generate a large structure like this, the jets must stay on for a long time — about a billion years,” Hardcastle said.

The Porphyryon jets reach far beyond their home galaxy. Their total output of energy is equal to trillions of stars like the sun.

Oei said that amount of energy is similar to when two clusters of galaxies crash into one another, each containing thousands of galaxies.

Hardcastle said the discovery could increase knowledge of magnetic fields in the universe.

He said: “The fact that it extends so far from its parent black hole means that it may be carrying energy, particles and magnetic fields into the voids in the cosmic web...”

Such jets also could heat up gas in interstellar space, suppressing the formation of new stars or could damage planets that could hold life, the researchers said.

Scientists say our Milky Way Galaxy has a black hole at its center, but it does not have a jet, and it is not active.

However, the researchers noted that the most important finding of the study might be that black holes can create some of the largest structures in the universe.



“This means that individual black holes can have a sphere of influence that extends way beyond the galaxy in which they reside,” Oei added.

I’m Mario Ritter, Jr.

Will Dunham reported this story for Reuters news agency. Mario Ritter, Jr. adapted it for VOA Learning English.

jet—n.a forceful rush of liquid, gas, or vapor especially through a narrow opening

mythology—n.ancient stories of a culture which are often the source of names in astronomy and other sciences

astrophysicist—n.a scientist who studies stars and their physical and chemical qualities

spectacle—n.something that is seen that creates wonder and amazement

rotate—v.to turn (around an axis or center)

generate—v.to create electromagnetic, electric or heat energy

cluster—n.a number of related objects that form a group and which influence each other in some ways

reside—v.to be in, on or at a place

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## Article 80: New California Laws Aim to Prevent AI Harm during Elections

Date: 2024-09-25T22:05:00+00:00 | 710 words | [Source](#)

No media source currently available

California recently enacted three legislative measures that ban the use of artificial intelligence (AI) tools to create false images and videos during election campaigns.

The laws – which are among the strongest in the U.S. – aim to reduce the use of AI to produce fake materials that could mislead voters during elections. California Governor Gavin Newsom signed the bills into law last week.

One of the main goals of the California measures is to fight the use of so-called deepfakes. A deepfake is a piece of video or audio created to make it appear that people in it are saying or doing things that they never said. Deepfakes have already been used in political campaigns around the world.

One of the laws requires large online publishers to either remove or identify content that has been digitally created or changed in an effort to mislead voters during specific election periods.

Another requires any election advertisements that have been created or changed using AI methods to include a message informing the public that the material has been changed.

The third bill bans the publishing of certain kinds of misleading information about campaign activities within 120 days of an election.

All the California measures permit state law enforcement officials to take different forms of action against violators of the laws.

In a statement issued after he signed the bills, Newsom said the measures were aimed at “safeguarding the integrity of elections.” He added, “It’s critical that we ensure AI is not deployed to undermine the public’s trust through disinformation – especially in today’s fraught political climate.”

State lawmakers in several other U.S. states have passed similar measures in recent years to prevent deepfakes and misinformation during election campaigns. But critics argue that the laws are difficult to enforce and face numerous legal actions aimed at overturning them.

The Associated Press (AP) reports two of the new California measures immediately faced legal action seeking to block the legislation. One of the lawsuits argues that one of the measures censor expressions of free speech and permits anyone to take legal action against material they do not agree with.

That lawsuit was brought by an individual who created parody videos that received public attention online. This included changed audio of Vice President and Democratic presidential nominee Kamala Harris. At least one of the creator’s videos was shared by Elon Musk, who owns the social media service X.

The governor’s office told the AP the law does not ban satire and parody content. Instead, it requires material changed through AI methods to be clearly identified in videos, audio or images. A spokesman for Newsom, Izzy Gardon, said in a statement, “It’s unclear why this conservative activist is suing California.” Gardon added that California’s measure is nearly the same as laws passed in other states.

But critics – such as free speech activists and Musk – have called the new laws unconstitutional. They have argued they violate the U.S. Constitution’s First Amendment, which protects speech and other personal freedoms.

Ilana Beller is with Public Citizen, a nonprofit group that seeks to protect individual rights. She told the AP she does not know how effective such laws will be in stopping election deepfakes. Beller noted her group closely follows U.S. measures related to deepfakes and none of them have yet been tested in court.

Some technology experts warn that the laws’ effectiveness could be limited by the slow process of court actions. Misleading content, including deepfakes, might not be removed before harm has been done, the experts say. Even if it only takes a court a few days to act against such material, candidates and the election process may have already been hurt, Beller said.

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Reuters and the California Governor’s office.

fake— adj.false or not real

integrity— n.the quality of being honest and having strong moral principles that you refuse to change

undermine— v.to make someone less confident or make something weaker

fraught— adj.full of danger or difficulties

censor— v.to examine books, documents or films in an attempt to remove part that are offensive or not permitted by rules

parody— n.a kind of content that copies someone's else's style in a funny way

satire— n.the use of jokes and humor to criticize people or ideas

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## Article 81: Study: Water Sources on Moon More Widespread than Thought

*Date: 2024-09-29T22:05:00+00:00 | 643 words | Source*

No media source currently available

A new study suggests sources of water on the moon are more widespread than previously thought.

The study was based on new examinations of data collected by India's Chandrayaan-1 spacecraft. It launched in October 2008 and collected data while orbiting the moon for about a year.

Chandrayaan-1 has already provided evidence of water on the moon. In September 2009, scientists published a study based on data from the Indian space mission. The data showed the presence of molecules linked to water, as well as the substance hydroxyl.

The American space agency NASA describes hydroxyl (OH) as “a molecule made up of one hydrogen atom and one oxygen atom with a free (unpaired) electron.” It notes it is “one of the most reactive gases in the atmosphere” and can help break down other gases in the air.

The 2009 study suggested the water molecules identified by Chandrayaan-1 data were mainly found in the moon's extreme northern and southern areas, known as the poles. Scientists said the data from that study showed most of the water probably existed in large craters near the poles where sunlight is blocked.

But new examinations of the data show that water and hydroxyl molecules likely exist over much wider areas of the moon. In addition, the research suggests water is even present in areas of the moon receiving direct sunlight.

The instrument aboard Chandrayaan-1 that captured the molecule data is called the Moon Mineralogy Mapper (M3). NASA built and operated the instrument. The space agency describes M3 as an “imaging spectrometer.” A spectrometer is an instrument used to study the chemical composition and structures of substances.

On the Chandrayaan-1 mission, the spectrometer aimed to map the mineral composition of materials on the moon's surface. Researchers examined this data and centered their search on areas outside the lunar poles. They found that the sources of water and hydroxyl are believed to be contained in minerals on or just below the moon's surface.

Scientists involved in the research recently reported their results in a study published in the Planetary Science Journal.

The research was led by Roger Clark, a senior scientist at the Planetary Science Institute.

In a press release announcing the findings, the researchers noted their discovery was made possible by data that the M3 instrument collected. They explained the instrument provides highly detailed data using imaging and infrared technologies.

The M3 instrument, for example, can identify 85 different colors in its examinations of mineral compositions. This compares to normal digital cameras, which generally only record three colors.

The researchers said, "Just like we see different colors from different materials, the infrared spectrometer can see many (infrared) colors to better determine the composition, including the water and hydroxyl."

The team noted the water might have resulted from heating of rocks and soil or from chemical reactions that combined different hydroxyls to produce water, as well as oxygen.

Clark, from the Planetary Science Institute, said both cratering and volcanic activity can bring water-rich materials to the surface. He noted that both are observed in the newly examined data. "We see a lunar surface with complex geology with significant water in the sub-surface and a surface layer of hydroxyl."

The discovery, Clark said, can be helpful to future exploration efforts on the moon. "Future astronauts may be able to find water even near the equator by exploiting these water-rich areas."

He added, "Knowing where water is located not only helps to understand lunar geologic history, but also where astronauts may find water in the future."

Bryan Lynn wrote this story for VOA Learning English, based on reports from the Planetary Science Institute and NASA.

crater— n. a hole left in the ground by an object that hits it with a huge force

composition— n. the parts, substances, etc. that something is made up of

geology— v. the study of rocks and soil and the physical structure of Earth

exploit— v. to use or develop something for your advantage

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## Article 82: Everest Growing Taller than Expected

Date: 2024-10-02T21:58:00+00:00 | 677 words | Source

No media source currently available

Mount Everest, standing 8.85 kilometers above sea level, is Earth's tallest mountain.

And Mount Everest is still growing.

Mount Everest and the rest of the Himalayas are continuing on an upward movement that began at their birth around 50 million years ago. The mountains are a product of a collision between Eurasia and the Indian subcontinent.

But Everest is growing more than expected. And, scientists now think they know the reason why.

Everest's growth has to do with the major joining, or merger, of two nearby river systems. The Kosi river joined with the Arun river around 89,000 years ago, the researchers estimated.

This change in the area's river system has led to Everest gaining around 15-50 meters in height.

That suggests an upward movement rate of about 0.2-0.5 millimeters per year.

The geological process at work, researchers said, is called isostatic rebound.

Isostatic rebound involves the rise of land masses on Earth's crust when the weight of the surface declines. The crust, Earth's outermost part, floats atop hot, semi-liquid rock.

In this case, the joining of the rivers resulted in increased erosion which carried off large amounts of rock and soil. This reduced the weight of the area near Everest.

"Isostatic rebound can be likened to a floating object adjusting its position when weight is removed," said Jin-Gen Dai of China University of Geosciences in Beijing.

Dai is one of the leaders of the study published recently in *Nature Geoscience*.

"When a heavy load, such as ice or eroded rock, is removed from the Earth's crust, the land beneath slowly rises in response, much like a boat rising in water when cargo is unloaded," Dai added.

The researchers, who used numerical models to study the development of the river system, estimated that isostatic rebound accounts for about 10 percent of Everest's yearly upward movement, or uplift rate.

This geological process is seen in other places around the world.

"A classic example is in Scandinavia, where the land is still rising in response to the melting of thick ice sheets that covered the region during the last Ice Age. This process continues today, affecting coastlines and landscapes, thousands of years after the ice retreated," Dai said.

Study co-writer Adam Smith, a University College London doctoral student, said GPS measurements show the continued rising of Everest and the rest of the Himalayas.

This uplift is faster than the continued surface erosion caused by wind, rain and river flow. As this erosion continues, Everest's uplift rate from isostatic rebound may increase, Smith said.

Neighboring mountains, including Lhotse, the world's fourth highest, and Makalu, the fifth highest, also get a boost from the same process. Lhotse is experiencing an uplift rate similar to Everest. Makalu has a slightly higher uplift rate.

Dai said that the research shows our planet's changing nature. Even a seemingly unchanging element like Mount Everest is "subject to ongoing geological processes, reminding us that Earth is constantly changing, often in ways imperceptible in our daily lives."

Earth's rigid outer part is divided into large plates that move slowly over time. The Himalayas rose following a collision between two plates.

Everest is located on the border between Nepal and the Tibet Autonomous Region of China. It was named for George Everest, a 19th century British surveyor in India.

"Mount Everest occupies a unique place in human consciousness," Dai said.

"Physically, it represents Earth's highest point," giving it a lot of importance simply because of its size, Dai explained.

He added that Everest has cultural importance to local Sherpa and Tibetan communities. Worldwide, Dai said, the mountain represents a big test for human endurance.

Will Dunham reported on this story for Reuters. John Russell adapted it for VOA Learning English.

crust— n.the outer part of a planet, moon, or asteroid

erosion— n.the process of diminishment or destruction by degrees

response— n.something constituting a reply or reaction

region— n.a broad geographic area distinguished by similar features

imperceptible— adj.extremely slight, gradual, or subtle

surveyor— n.one who determines and delineate the form, extent, and position of a tract of land by taking measurements

unique— adj.being without like or equal

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## Article 83: US Seeks Ban on Chinese, Russian Tech for Self-Driving Vehicles

Date: 2024-10-02T22:05:00+00:00 | 789 words | Source

No media source currently available

The administration of U.S. President Joe Biden has proposed a ban on the sale of self-driving vehicles in the U.S. using Chinese or Russian technologies.

The proposal was recently announced by the U.S. Commerce Department. The ban would bar sales of internet-connected and self-driving vehicles equipped with software or hardware provided by China or

Russia.

The purpose of the measure is to protect national security and American drivers, the Commerce Department said. A press release called the connectivity and autonomous vehicle technologies “critical systems” that need strong protection.

The department noted that providing access to such systems through software or hardware could lead some foreign governments to “collect our most sensitive data” and seek to control vehicles on American roads.

U.S. Commerce Secretary Gina Raimondo spoke to reporters from The Associated Press (AP) and other media organizations last week about the proposal. She described a possible extreme situation in which a foreign enemy could shut down or take control of multiple vehicles operating in the U.S. Such an incident could cause major crashes and huge traffic problems, Raimondo said.

“This is not about trade or economic advantage. This is a strictly national security action,” Raimondo said. She added, “The good news is right now, we don’t have many Chinese or Russian cars on our road.”

Raimondo said leaders in Europe and other parts of the world had raised security concerns about the large number of Chinese vehicles already on the roads in their areas. Imported Chinese-owned vehicle models captured 7.6 percent of Europe’s electric car market in 2023, the European Automobile Manufacturers’ Association said. That was up from 2.9 percent in 2020.

Janka Oertel is director of the Asia program at the European Council on Foreign Relations. She wrote on the council’s website that the security concerns in Europe included “matters of national security, cybersecurity and individual privacy.”

Raimondo noted the U.S. cannot wait until the nation’s roads are already populated with vehicles containing Chinese or Russian technology. “We’re issuing a proposed rule to address these new national security threats before suppliers, automakers and car components linked to China or Russia become commonplace and widespread in the U.S.,” she said.

Commerce Department officials said the proposed ban on software would take effect with 2027 vehicle model years. A ban on hardware would take effect beginning with 2030 models. The officials said the different dates were set because software is much easier to change than physical hardware parts.

The software and hardware bans would cover vehicles equipped to communicate through Bluetooth, cellular, satellite or Wi-Fi systems. It would also ban the sale or import of software made in Russia or China that permits self-driving vehicles to operate without a driver in control. The ban would also cover vehicles made in the U.S. using Chinese and Russian technology.

The proposed rule would be for all vehicles except those not used on public roads, such as vehicles used for agricultural or mining purposes.

American automakers have said they share the government’s national security goal. But currently, they say the need for such a measure is low. That is because there is very little software and hardware

technology coming to American vehicles from China and Russia.

But the industry group Alliance for Automotive Innovation said the new rules will force some automakers to immediately search for new parts suppliers. “You can't just flip a switch and change the world's most complex supply chain overnight,” said the organization’s chief, John Bozzella.

Bozzella noted the timetables to begin the ban should be long enough for some automakers to make changes, “but may be too short for others.”

Administration officials told the AP that Commerce Department representatives met with officials from all major auto companies around the world while preparing the proposals. The officials also met with different industry organizations in an effort to understand the current supply chain issues.

The Commerce Department is currently taking public comments on the ban. This process generally lasts for 30 days after a rule is published. Agency officials said the finalization of the measure should happen by the end of the Biden Administration.

The Associated Press, Reuters and Agence France-Presse reported on this story. Bryan Lynn adapted the reports for VOA Learning English.

autonomous— v. acting separately from other people or things

advantage— n. a condition that provides a greater chance of success

access— n. the right or chance to use or see something

strict— v. strong or complete

advantage— n. something good about a situation that helps you

component— adj. one of the parts of something, especially a piece of electronic equipment

cellular— n. relating to cellular phones

flip a switch— phr idiom. to completely change something or make something happen quickly and easily

supply chain— n. the system of people and things that gets a product from its place of manufacture to the person who buys it

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## Article 84: Argentine Town Struggles with Parrot Invasion

*Date: 2024-10-03T21:55:00+00:00 | 397 words | Source*

No media source currently available

The Argentine town of Hilario Ascasubi near the country’s Atlantic coast has a problem not many places have ever had.

It has too many parrots.



Biologists say thousands of the green-yellow-and-red birds have invaded the town. These experts say deforestation has driven the birds' migration.

The problem is that the birds bite the town's electric cables. This is causing electricity outages. People living in the town are also unhappy about the birds' noise making and the birds' droppings, or waste that is getting everywhere.

Daiana Lera is a biologist. She said much of Argentina's forestland has been lost over the years. As a result, the parrots are going into the cities.

"The hillsides are disappearing, and this is causing them to come closer to the cities to find food, shelter and water," Lera said.

In the past few years, the parrots have started to arrive in the autumn and winter to seek refuge. Local people say, at times, there are up to 10 parrots for each of the town's 5,000 human inhabitants. Only during the summer do the birds migrate south to the cliffs of Patagonia for breeding season.

Images show hundreds of birds perched on electric cables, buildings and churches.

Ramón Alvarez is a local reporter for Radio Taxi Fm. About the parrots, he said, "They bite and damage the cables, water can get into the wires when it rains...."

That affects Alvarez directly. "It goes without saying that when the power goes out, there is no radio," he said.

The locals have tried different methods to scare away the birds, such as noise and even laser light. But nothing has worked.

"We need to start to restore our natural environments," Lera said. "But until that happens, we have to think of strategies that allow us to live together in the most harmonious way possible in our towns."

I'm Mario Ritter, Jr.

Miguel Bianco and Agustin Marcarian reported this story for Reuters news agency. Mario Ritter, Jr. adapted it for VOA Learning English.

cable—n. thick wires usually covered by plastic that carry electricity

inhabitant—n. a person who lives in a particular place or area

cliff—n. a high steep surface of rock, earth, or ice

breeding—adj. the producing and raising of plants or animals by sexual reproduction

perch—v. to sit or stand on a high place, especially for birds

harmonious—adj. marked by agreement in feeling or action; agreeable

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## Article 85: Study: Replanting Same Trees Cannot Replace Burned Forests

Date: 2024-10-06T21:58:00+00:00 | 753 words | Source

No media source currently available

Camille Stevens-Rumann recently sat on the ground and measured small trees to see how much they had grown in seven months.

She found they had grown five to 10 centimeters. Her team had planted several different kinds of trees, known as evergreens, two years ago in an area of the Rocky Mountains in Colorado, which had burned in a fire in 2020.

Stevens-Rumann and other researchers want to learn the relationship between tree growth and elevation.

Researchers say there are not enough small trees or seeds from living trees to replace burned trees. Even if there were enough, they say the U.S. does not have the workers to plant and care for them.

The Forest Service said the biggest delays they meet while replanting on public land are preparing environmental and cultural studies and preparing burned areas, so they are safe to plant. That can take years.

Stevens-Rumann said, "We're in a place of such drastic climate change that we are not talking about whether or not some of these places will be a different kind of forest, but whether or not they will be forests at all."

In the past, the U.S. was able to replant burned forests. But the researchers say larger, more intense fires are destroying trees that normally provide seeds. They say the fires leave burn scars so large trees cannot naturally regrow.

Solomon Z. Dobrowski is a University of Montana forest management expert. He said more areas in the West need replanting after fires than can be replanted. He said at least 1.5 million hectares need to be replanted but officials are unable to do so. He said that number could triple by 2050.

### Targeted tree planting

Matthew Hurteau is a forest ecologist at the University of New Mexico. He studied the way scarred forests had been replanted after a fire in 2011 at Los Conchas. That fire destroyed huge areas of ponderosa pine trees. Hurteau found most of the seedlings, or very young trees, had died from earlier replanting.

As a result, he planted seedlings of different species at several elevations and on hillsides facing different directions. Now he is watching carefully for changes in the soil and water.

Researchers say seedling survival is less likely at lower elevations. It is hotter, drier and more open there. Replanting the same trees in the same areas is likely to fail.

Jason Sieg is acting supervisor of the Arapaho and Roosevelt National Forests & Pawnee National Grassland. He said the Forest Service rules require planting the same species at the same elevations as before a fire. But, he said, it is clear the agency will "need to be flexible moving forward."

For now, that might mean replanting at different elevations or collecting seeds from another place. Over time, researchers say it could require planting trees that are not native to the area. The idea has been debated but is gaining support.

"I've seen people go from saying, 'Absolutely, we cannot move trees around' to, 'Well, let's maybe let's try it at least, and do a few experiments to see if this will work,'" said Stevens-Rumann.

Environmental groups are working on private land burned by the Cameron Peak fire. They are replanting ponderosa pines 150 meters higher than where they used to grow, said Megan Maiolo-Heath. Maiolo-Heath is a spokesperson for the Coalition for the Poudre River Watershed.

So far, 84 percent of trees planted there last year are still alive.

#### Problems with replanting

The Forest Service is modernizing how it grows young trees. It is also studying ways to grow more or work with private industry, states and groups like the New Mexico Reforestation Center.

Experts say trees might never return to some areas. But it is important that the U.S. does as much as possible in a thoughtful way.

"Trees live for hundreds of years so we need to be thinking about what's right as we plant trees today," Hurteau said.

Tammy Webber, Brittany Peterson and Camille Fassett reported this story for the Associated Press. Jill Robbins adapted it for Learning English.

various—adj. used to refer to several different or many different things or people

elevation—n. the height of a place in relation to the level of the sea

drastic—adj. extreme in effect or action; severe or serious

triple—v. to become three times as great or as many

species—n. a group of animals or plants that are similar and can produce young animals or plants

scar—n. a mark on something showing where it has been damaged

flexible—adj. able to change or to do different things

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## Article 86: NASA Follows Asteroid Moving Closer to Earth from Sun's Orbit

Date: 2024-10-06T22:05:00+00:00 | 681 words | Source

No media source currently available

Scientists have discovered a small asteroid that recently moved closer to Earth's orbit. The object was first observed August 7 by two astronomers from Spain's Complutense University of Madrid.

The asteroid, named 2024 PT5, is believed to be about 10 meters long. It usually orbits around the sun. But Earth's gravitational forces recently pulled the object closer to our planet.

Scientists sometimes call such objects "mini-moons." This is because they behave similarly to the permanent moon orbiting Earth when they are captured by gravity. But they are much smaller and only temporarily stay in Earth's orbit.

The American space agency NASA said in a statement that 2024 PT5 is "not quite a mini-moon" because it will never be fully captured by Earth's gravity. However, it described the asteroid as "an interesting object" the agency plans to follow, or track, with radar-equipped telescopes. NASA noted the traveling asteroid presented no danger to Earth.

NASA and its international partners continuously search the skies for what scientists call near-Earth objects. Such objects include asteroids and comets that come within 50 million kilometers of Earth's orbit.

The search system, called ATLAS, involves four different telescopes. Two of the telescopes are based in Hawaii. Another operates in Chile and the other sits in South Africa. NASA explained that ATLAS is designed to search the whole sky several times each night looking for moving objects.

2024 PT5 was identified by the telescope observing station in Sutherland, South Africa. The discovery was made by two astronomers from Complutense University of Madrid – Carlos de la Fuente Marcos and Raúl de la Fuente Marcos. They recently described the find in the publication *Research Notes of the American Astronomical Society*.

The Spanish astronomers said it appeared 2024 PT5 is part of a group of near-Earth objects belonging to the Arjuna asteroid belt. The objects in this asteroid belt are believed to be "surrounding the path followed by the Earth-moon system," they wrote.

Such objects are likely more common than we think, said Richard Binzel, an astronomer at the Massachusetts Institute of Technology (MIT). He was not involved in the latest research.

Binzel told The Associated Press, "This happens with some frequency, but we rarely see them because they're very small and very hard to detect." But he noted that in recent years, progress in space observation technologies had made it possible to identify more of these moon-like objects.

Binzel added that currently, it is not known whether the asteroid broke off from a larger asteroid. He said the space rock might even be a piece of our moon "that got blasted out." NASA said such an asteroid could have been created by our moon being struck by an asteroid a very long time ago.

One of the discovering scientists, Carlos de la Fuente Marcos, told the AP in an email that because of its size and brightness, 2024 PT5 can only be seen from Earth with special equipment.

NASA said teams at the agency's Center for Near Earth Object Studies are continually tracking the movements of 2024 PT5. The center expects the asteroid to remain at a distance about nine times

farther away from Earth than the moon. Scientists say it will remain gravitationally linked to Earth until November 25.

NASA plans to use its large Goldstone Solar System Radar observer to follow the asteroid. The object is set to make another close pass of Earth in January 2025, when it should stay about five times the distance between Earth and the moon. 2024 PT5 is then expected to turn away from Earth “as it continues its orbit around the sun,” NASA said.

After that, the asteroid is not expected to pass close by Earth until 2055.

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, NASA and Research Notes of the American Astronomical Society.

asteroid– n.a rocky object that goes around the sun like a planet

comet– n.an object in space that leaves a bright line behind it in the sky

frequency– n.how often something happens

detect– v.to discover or identify something, especially something that is difficult to see hear, smell, etc.

blast– n.an explosion

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## Article 87: Two Americans Win Nobel Prize in Medicine for microRNA Discovery

*Date: 2024-10-07T21:58:00+00:00 | 576 words | Source*

No media source currently available

Two Americans have won the 2024 Nobel Prize in Physiology or Medicine for their discovery of genetic material called microRNA.

Victor Ambros is a professor at the University of Massachusetts and Gary Ruvkun is a Harvard University professor.

The Nobel Assembly at the Karolinska Institute, a group of 50 professors, decided to award the two for identifying genetic molecules that help control how genes work.

The Nobel Assembly said the discovery is “proving to be fundamentally important for how organisms develop and function.”

In explaining the importance of the work, the group said it “revealed a completely new principle of gene regulation that turned out to be essential for multicellular organisms, including humans.”

RNA takes genetic information from DNA through a process called transcription. RNA then becomes involved in protein production or other activities within the cell.

Ambros and Ruvkun found that microRNA, or very short chains of molecules, are needed for normal genetic development. The committee said changes in the way that microRNA functions can lead to

major genetic changes, or mutations, over time. Nobel's website said the changes can lead to diseases such as cancer, diabetes and autoimmune diseases.

Ambros carried out research that helped lead to the discovery at Harvard University. Ruvkun researched at Massachusetts General Hospital and Harvard Medical School.

At first, Ambros and Ruvkun were interested in genes that control when genetic developments take place. These developments ensure that different kinds of cells develop at the right time.

The scientists studied the genetic material of a one-millimeter-long worm *C. elegans* which is commonly used for research. They studied two mutant strains of worms that displayed defects in the timing of activation of genetic programs during development. They wanted to identify the mutated genes in the worms and what the genes did.

After some time, they finally found that microRNA controlled the mutation. They also believe that this mutation has permitted organisms to change, or evolve, over hundreds of millions of years.

Dr. Claire Fletcher is a cancer researcher with Imperial College London. Fletcher said the discovery of microRNA has opened new ways for treating cancer.

Fletcher said that microRNA provides genetic instructions that tell cells to make new proteins. "MicroRNA alters how genes in the cell work," said Fletcher, who is not associated with the Nobel prize.

"We can take a microRNA that we know alters the activity of that gene and we can deliver that particular microRNA to cancer cells to stop that mutated gene from having its effect," Fletcher added.

Last year's Nobel Prize in Medicine or Physiology was also awarded for developments related to RNA. Hungarian-American Katalin Karikó and American Drew Weissman were recognized for discoveries that enabled messenger RNA, or mRNA, vaccines for COVID-19.

The Nobel Prize in Physiology or Medicine is valued at about \$1 million. Swedish inventor Alfred Nobel established the Nobel Prizes to recognize important discoveries that have aided humanity.

Thomas Perlmann is the Secretary-General of the Nobel Committee. He said it took a long time before Ruvkun came to the phone, but he was "happy, when he understood what it was all about."

I'm Mario Ritter, Jr.

Daniel Niemann, Mike Corder and Maria Cheng reported this story for the Associated Press. Mario Ritter, Jr. adapted it for VOA Learning English.

fundamentally—adv. forming the most basic or important part of something

function—n. the job that something does

principle—n. a fact or law of nature that explains how something works

essential—adj. very important

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## Article 88: In Changing Climate, Scientists Develop Stronger Seeds for India

Date: 2024-10-08T21:55:00+00:00 | 619 words | Source

No media source currently available

Unpredictable rains and increasing heat are making life more difficult for the people of Rayanpet, a village in southern India. The conditions are also damaging the rice crops grown there.

P. Ravinder Reddy, a former soldier, started farming on his family's land 16 years ago. He said, "We used to know when it would rain and for how long."

That meant they used to know when to plant. Now, he said, it is not so predictable. Sometimes there is too much rain. Sometimes there is no rain at all.

Agricultural research organizations in India have been working for years to engineer rice seeds that can survive in a changing climate. Reddy has been experimenting with new kinds of rice for the past five years. The new rice plants are producing more grain with less water. They are also more disease resistant.

Reddy says he has planted them across part of his 10-hectare field. He still grows some of the older kinds because there is a demand for them. But he said, "I think in a few years, we will use only these tougher seeds."

India is one of the world's largest producers and consumers of wheat and rice. Research organizations in that country and around the world have worked for years to produce seeds that are better able to handle drought, unseasonal rains, plant diseases and more.

Earlier this year, a United Nations report said more than 700 million people suffered from hunger last year. More than one-third of the worldwide population does not have the money to buy healthy foods.

Defending against climate shocks

India has nearly 120 million farmers. Most have less than two hectares of land. Unpredictable rainfall, rising temperatures and increased pest problems all threaten their ability to grow food.

Experts say the dangers to rice include increasing salt content in groundwater, heavy rainfall over short periods, long periods of drought and increasing nighttime temperatures.

Some farmers are turning to methods of natural farming to deal with climate change. But that can mean reduced yields. India's federal government is also urging the use of climate-resilient seeds that result in better yields.

Government research support

Ashok Kumar Singh is former director of New Delhi-based Indian Agriculture Research Institute. He has overseen the creation of many successful rice varieties that withstand pests and plant diseases. His organization has helped release more than 2,000 climate-resilient kinds of seed in the last 10 years.

"We really need these seeds to deal with these multiple issues created by global warming," Singh said.

Earlier this year, Indian Prime Minister Narendra Modi released 109 climate-resilient seeds for several different crops. India's federal government has announced plans to make sure at least 25 percent of rice-growing fields in the country will be planted with climate-resilient seeds in the coming winter crop season.

In Rayanpet village, Reddy is preparing to plant rice seeds for the winter season in a few weeks.

"It is good to keep trying new seeds, as after some time all of them will have some issue or the other," Reddy said. "If the government can also make sure we get good prices for our crops after harvest, that would help farmers like us a great deal."

Sibi Aras reported this story for the Associated Press. Jill Robbins adapted it for Learning English.

tough—adj. strong and not easily broken or damaged

consumer—n. a person who buys goods and services

drought—n. a long period of time during which there is very little or no rain

pest—n. an animal or insect that causes problems for people

yield—n. the amount of something that is produced by a plant, farm, or the like

issue —n. problem or concern

especially by damaging crops

resilient—adj. able to become strong, healthy, or successful again after something bad happens

## Article 89: Developers of AI Methods Win Nobel Prize in Physics

Date: 2024-10-08T21:58:00+00:00 | 720 words | Source

No media source currently available

Two early developers of artificial intelligence (AI) have won this year's Nobel Prize in Physics.

American John Hopfield is with Princeton University in New Jersey. Geoffrey Hinton is a citizen of Canada and Britain who works at the University of Toronto.

The Royal Swedish Academy of Sciences honored them for helping "to develop methods that are the foundation of today's powerful machine learning."

The 76-year-old Hinton is known as the Godfather of artificial intelligence for his part in developing machine learning. However, he also has warned that AI has created threats to humanity.



Ellen Moons is a member of the Nobel committee at the Royal Swedish Academy of Sciences. Moons said the two scientists “used fundamental concepts from statistical physics to design artificial neural networks that function as associative memories and find patterns in large data sets.”

Moons added that their research has been used to make progress in physics but has also become part of people’s daily lives. Technologies like facial recognition and language translation are used every day.

Hinton predicted that AI would have a “huge influence” on civilization and will bring improvements to productivity and health care. He told reporters and Royal Academy officials that, “It would be comparable to the Industrial Revolution.”

The Industrial Revolution was a period of intensive development of machines and manufacturing that started more than 250 years ago in Britain.

Hinton said, “Instead of exceeding people in physical strength, it’s going to exceed people in intellectual ability.” But Hinton also expressed concern about the possible bad results of AI, especially noting, in his words, “the threat of these things getting out of control.”

The Nobel committee also recognized the possible damage the discoveries that it was honoring could cause. Moons said AI’s “development has also raised concerns about our future. Collectively, humans carry the responsibility for using this new technology in a safe and ethical way for the greatest benefit of humankind.”

In the 1980s, Hinton helped to develop a method known as backpropagation, which is used to “train” computers to learn.

Later, he headed a team at the University of Toronto that won the ImageNet computer competition in 2012 for designing a “neural network.”

Hinton and AI scientists Yoshua Bengio and Yann LeCun won the Turing Award in 2019. It is the top award in computer science. That year, Hinton told the Associated Press about the reaction he and his fellow researchers received over their work.

“They thought we were very misguided and what we were doing was a very surprising thing for apparently intelligent people to waste their time on. My message to young researchers is, don’t be put off if everyone tells you what you are doing is silly.”

Hopfield is now 91 years old. The Nobel committee said he “invented a network that uses a method for saving and recreating patterns.”

Hinton used Hopfield’s network to create a new network using a different method known as the Boltzmann machine. The committee said this “machine” can learn to recognize elements in a particular kind of data.

“What fascinates me most is still this question of how mind comes from machine,” Hopfield said in a video posted online by The Franklin Institute after it awarded him a physics prize in 2019.

The Nobel Prize in Physics is valued at \$1 million. Swedish inventor Alfred Nobel created the prizes to honor discoveries that help humanity. The first prizes were awarded in 1901.

On Wednesday, the prize in chemistry will be announced, on Thursday, the prize for literature, and Friday, the peace prize. And, the Nobel for economics will be announced on Monday.

The winners receive their prizes in ceremonies held on December 10.

I'm Ashley Thompson.

Daniel Niemann and Mike Corder reported this story for the Associated Press. Mario Ritter, Jr. adapted it for VOA Learning English.

concept—n.a general idea

statistical—adj.related to facts or information that is in the form of numbers

associative—adj.of or relating to association, connection or linkage

memory—n.the power or process of reproducing or recalling what has been learned and retained especially through associative mechanisms

neural—adj.like a brain or nerve cells

function—n.the job or task that something does

pattern—n.images, objects or elements that are repeated in a recognizable way

translation—n.to take writing in one language and recreate its meaning in another language

consequence—n.the results of an action

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## Article 90: Study: US Hurricanes Much Deadlier Than Government Estimates

*Date: 2024-10-09T21:55:00+00:00 | 601 words | Source*

No media source currently available

A new study says hurricanes in the United States are hundreds of times deadlier than government estimates say. In fact, the research finds, they result in more American deaths over the long term than car accidents or wars.

The study found the average storm that hits the U.S. contributes to the early deaths of 7,000 to 11,000 people over a 15-year period.

Solomon Hsiang is a climate economist at Stanford University in California. Hsiang co-wrote the study with Rachel Young of the University of California Berkeley.

“After each storm there is sort of this surge of additional mortality in a state that’s been impacted that has not been previously documented or associated with hurricanes in any way,” Hsiang said.

Nature magazine published the study.

Researchers take a wider look

The research considers hurricane deaths in a new way: through examination of long-term public health and economic effects of what is called excess mortality. The investigators looked at individual state death rates following 501 separate storms in the United States between 1930 and 2015. Their research shows a sudden rise or “bump” in death rates after each storm.

Similar examinations are done for heat waves and other health threats like pollution and disease, Hsiang said. They compare death rates to pre-storm times while accounting for other influences that could be causing change to those rates, he said.

Hsiang said additional research is needed to learn how storms contribute to deaths after the bad weather passes. But he theorized that storms cause major stress as well as environmental changes, including the spread of poisonous substances. He also said the economic cost of storms can leave people unable to pay for health care and other necessities.

“When someone dies a few years after a hurricane hit them, the cause will be recorded as a heart attack, stroke or respiratory failure,” said Texas A&M University climate scientist Andrew Dessler. He was not part of the study but has done similar research on heat and cold deaths.

Hsiang said he and Young were surprised when they examined hundreds of bumps and found they stretch out over 15 years.

It's “almost like a trickle of mortality, like each month we're talking about five to 10 individuals who are dying earlier than they would have otherwise,” Hsiang said.

These deaths are of people who did not realize their health issues were connected to storms that took place years earlier. But, Hsiang said, that is what the data shows: “They would not have died at those times had the storm not arrived.”

The numbers proved so high that the researchers kept looking for mistakes in their work. “It took years for us to really fully accept that this was happening,” Hsiang said.

How big are the numbers?

Storms are a factor in between 55,000 to 88,000 excess deaths each year, the study found. Over the 85 years included in the study, the team found that between 3.6 million and 5.2 million people died in connection with storm experience. That is more than the two million car accident deaths over that same period, the study said.

Hsiang said he and Young saw a trend of increasing hurricane-connected deaths, mostly as a result of population growth. Beginning in 2000, there was a big jump in the total volume of storms hitting large populations, he said.

The Associated Press reported this story. Caty Weaver adapted it for VOA Learning English.

contribute— v.to have a part in bringing about something

mortality— n.the death of large numbers (as of people or animals)

previously— adv.going before in time or order

associate— v.to link or connect

trickle— n.to move or go one by one or little by little

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## Article 91: Scientists Win Nobel in Chemistry for Predicting, Designing Proteins

*Date: 2024-10-09T21:58:00+00:00 | 731 words | Source*

No media source currently available

Three scientists who developed methods to predict the structure of proteins and build new ones have won the Nobel Prize in Chemistry.

The winners were American David Baker, a professor at the University of Washington; Briton Demis Hassabis, head of Google’s DeepMind research laboratory in London; and American John Jumper, a top researcher at DeepMind. The lab centers on artificial intelligence (AI) methods.

Protein is one of the most important substances to life on Earth. Baker succeeded in building new kinds of proteins. Hassabis and Jumper solved a problem that had existed for 50 years. They were finally able to use AI to predict the structure of proteins.

The Nobel Committee for Chemistry said the discoveries “hold enormous potential.”

For example, committee members said the ability to build new proteins could lead to the discovery of new drugs and vaccines. It could also help scientists develop extremely small materials, called nanomaterials, and small sensors.

Heiner Linke is Chair of the Nobel Committee for Chemistry. He said the award honored research that made connections for the first time between amino acid sequences and protein structures.

“That was actually a grand challenge in chemistry, and in particular biochemistry” for many years, Linke said.

Designing and predicting proteins

Baker first designed a new protein in 2003. Since then, his research group has produced many different proteins. “It seems that you can almost construct any type of protein now with this technology,” said Professor Johan Aqvist of the Nobel committee.

The committee said Hassabis and Jumper created an AI model called AlphaFold2. It has been able to predict the structure of nearly all 200 million proteins researchers have identified.

Linke said, “Proteins are the molecules that enable life. Proteins are building blocks that form bones, skin, hair and tissue.” He added, “To understand how life works, we first need to understand the shape of proteins.”

Linke said that in 2020, Hassabis and Jumper were able to use AI methods to finally “crack the code.” That made it possible to predict the complex structure of “any known protein in nature.”

There are many possible uses for the technology. Researchers should be able to use it to better understand how organisms develop resistance to antibiotics. They might also be able to create images of chemical substances called enzymes that can break down plastic.

The committee said Baker had developed “computational tools” that enable scientists to design new proteins with new shapes and functions.

Baker noted that Hassabis and Jumper’s work in AI had greatly helped his team.

“The breakthroughs made by Demis and John on protein structure prediction really highlighted to us the power that AI could have,” he said. “And that led us to apply these AI methods to protein design and that has greatly increased the power and accuracy.”

Baker was asked during a phone call with Nobel officials and reporters if he had a favorite protein. He said it would be difficult to choose. But he noted that one designed during the pandemic proved to be effective in protecting against the coronavirus.

“And I’ve been very excited about the idea of an nasal spray, of little designed proteins, that would protect against all possible pandemic viruses.” Baker said.

Hassabis is a leader in Britain’s technology industry. He received a knighthood earlier this year for his work in AI. He helped establish DeepMind in 2010. Google later bought the lab.

DeepMind first gained wide attention by developing an AI system that was able to defeat the human world champion in the Chinese game of Go faster than expected.

This year’s Nobel Prize in Chemistry is worth about \$1 million. Half of the prize will go to Baker. Hassabis and Jumper will share the other half.

Award ceremonies for the 2024 Nobel Prize winners will be held on December 10.

Daniel Niemann and Mike Corder reported this story for the Associated Press. Mario Ritter, Jr. adapted it for VOA Learning English.

to crack the code—idiom to discover something that is hidden or very difficult to know

function—n. the job that something does

breakthrough—n. a sudden jump in knowledge or ability

apply—v. to use a method or practice to carry out a task or operation

accuracy—n. exactly showing the true value or condition of something

nasal spray—n. a liquid that is sprayed into the nose to ease discomfort or support health

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## Article 92: Tech Tip: Instagram's New Tools to Protect Young Users

*Date: 2024-10-09T22:05:00+00:00 | 712 words | Source*

No media source currently available

Meta's Instagram service recently introduced some built-in tools designed to protect young users. The changes also give parents more control over their children's accounts to improve safety and limit the amount of time spent on the social networking app.

Instagram says the new tools aim to "reassure parents that teens are having safe experiences." The main change was the establishment of Teen Accounts, which Meta says was developed "with parents and teens in mind."

The Associated Press offers the following tips as a guide for parents to get the most out of the new tools.

What limits will young users have?

Instagram already restricts anyone under 13 from signing up for the service. Now, teen accounts will automatically be set to private. That means they will have to accept or reject requests from new followers. Other users will not be able to see a teen user's posts and videos or communicate with the account.

Teens will also face messaging restrictions. They can only receive direct messages from people they are following or who follow them. But they can still send messages to other accounts.

Teen Accounts will also restrict certain kinds of material, or content. This will include sensitive subjects such as videos of people fighting or content that pushes methods to improve appearance. In addition, Instagram's anti-bullying tools will be set to the highest level to prevent offensive words and phrases in comments and direct message requests.

To restrict usage time, teens will get a message to stop using the app after it has been open for more than an hour. This message can be ignored, however.

Can the new limits be changed?

The new limits will be turned on automatically for all teens. But 16 and 17-year-olds will have the ability to turn them off. Children under 16 will need parental permission to do so.

Teens might also seek to lie about their age to get around the restrictions. But Meta has made it more difficult for them to do so. Young users are required to confirm their ages by uploading an identification card or by sending a short video of themselves.

Instagram says it will also begin testing artificial intelligence (AI) software early next year that will aim to prevent false birth dates from being accepted.

#### New controls for parents

If a parent does not think the limits for their child are strong enough, they can add more protective controls. For example, a parent has the ability to see who their teen has traded messages with within the past seven days.

The new tools also provide controls for parents to set daily limits for Instagram use. A parent can also block a teen from using Instagram during specific times of the day and follow subjects they are seeing.

#### How to set up parental controls

To set up additional controls, a parent first needs to set up family supervision on his or her account. On the mobile app, this can be done by going into settings and scrolling to find the family center to activate the tools.

Next, the Teen Account will have to invite a parent. This will be in the form of a link the teen can send by text message to the parent. After accepting the invite, the teen user has 48 hours to confirm the parent's response.

#### Can I use the teen settings right away?

The restrictive tools will be automatically activated for anyone under 18 who now signs up for Instagram in the U.S., Britain, Canada and Australia. For existing accounts, the restrictions will be put in place by mid-November.

The protections will be available for teens in the European Union's 27 countries beginning later this year. And the rest of the world will get Teen Accounts for Instagram in January. Meta says it will also bring the changes to other services like Facebook next year.

The Associated Press reported on this story. Bryan Lynn adapted the report for VOA Learning English, with additional information from Meta.

app— n.a small computer program that can be put onto a mobile phone or other electronic device

reassure— v.to say something to stop someone from worrying

automatic— adj.working by itself with little human control

supervise— v.to watch a person or activity to make sure things are being done correctly, safely, etc.

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## Article 93: Weather Experts: 'We Cannot Control Hurricanes'

Date: 2024-10-11T21:55:00+00:00 | 634 words | Source

No media source currently available

A series of powerful hurricanes have affected millions of people in the United States in recent weeks.

Some people are wondering if scientists could control extreme weather events. However, experts say hurricanes are far too powerful for humans to control.

Climate change is leading to increasingly powerful storms. This has led to greater attention on the possibilities of geoengineering.

Geoengineering involves futuristic ideas for reversing or lessening climate change. But many scientists have serious concerns about unwanted results.

Hurricanes are an example of the uncontrollable, disordered power of Earth's weather. Experts say there is no clear evidence from research to show humans might be able to control such strong storms.

Kristen Corbosiero is a professor of atmospheric and environmental sciences at the University at Albany. Corbosiero is a weather expert, or meteorologist. She said: "If meteorologists could stop hurricanes, we would stop hurricanes. If we could control the weather, we would not want the kind of death and destruction that's happened."

Weather experts' opinions on controlling hurricanes

National Hurricane Center tropical analysis chief Chris Landsea said that a fully developed hurricane releases heat energy that is the equal to a 10-megaton nuclear bomb every 20 minutes. That is more than all the energy used at a given time by human beings.

Chris Field is director of the Stanford Woods Institute for the Environment in California. He said scientists are learning of the many ways that climate change is making hurricanes more powerful and destructive. Warmer oceans add energy and more water to the warming atmosphere. That water becomes strong rainfall.

Colorado State University hurricane researcher Phil Klotzbach said the amount of energy a hurricane generates is much more than humans have the power to control. But people have still made attempts to control the storms.

Historical efforts to control hurricanes

Jim Fleming is a professor at Colby College in Maine. He has studied historical efforts to control the weather. He said humans do not even come close to having the practical technology to successfully control the weather.

Fleming described one attempt in 1947. The General Electric company partnered with the U.S. military to drop dry ice from Air Force planes into the path of a hurricane to try to weaken it. It did not work.

Some attempts or ideas could even make the storms worse or cause greater harm. One especially dangerous idea was to use a nuclear bomb, which would cause radiation and not be strong enough to change the storm, Kristen Corbosiero said.

Bringing cooling icebergs or adding chemicals to cause rain also are ideas that do not work, scientists say.

Engineering the climate



Modern geoengineers would operate differently. Today's geoengineers are thinking about how to reverse the damage humans have already caused.

Scientists in the field say one of the most promising ideas they see based on computer models is solar geoengineering. The method would involve lifting small particles into the upper atmosphere to return some of the sunlight back into space, cooling the planet a little. Still, supporters of the idea know that it comes with risks.

Two years ago, the American Geophysical Union (AGU) announced it was forming an ethics agreement for climate intervention. The AGU is the largest society of scientists who study climate issues.

Melina Walling and Seth Borenstein reported this story for the Associated Press. Jill Robbins adapted it for Learning English.

**geoengineering**—n. large-scale manipulation of a specific process central to controlling Earth's climate for the purpose of obtaining a specific benefit

**reverse**—v. to change (something) to an opposite state or condition

**analysis**—n. a careful study of something to learn about its parts, what they do, and how they are related to each other

**iceberg**—n. a very large piece of ice floating in the ocean

**solar**—n. of or relating to the sun

**ethics**—n. an area of study that deals with ideas about what is good and bad behavior

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## Article 94: Study: 610 Kinds of Birds Have Disappeared in Past 130,000 Years

Date: 2024-10-13T21:57:00+00:00 | 636 words | [Source](#)

No media source currently available

New research says that 610 bird species have died off over the past 130,000 years.

For instance, the Kaua'i 'Ā'Ā, a Hawaiian songbird, was declared extinct just last year.

The recent research also suggested that an “ongoing biodiversity crisis” that requires urgent study is taking place.

Bird species have a special purpose within the environment. When a bird species disappears, nothing remains to do its job, suggested Tom Matthews of the University of Birmingham in England. Matthews was the lead writer of the study that appeared recently in the publication *Science*.

Matthews said that birds do many important jobs in an environment. These jobs include spreading seeds, eating insects, or reusing dead material. Vultures, for example, eat the flesh of dead animals.

Matthews said a good example of the importance of birds is "on the islands of Mauritius and Hawaii, where all or almost all the native...birds that eat fruit...have gone extinct."

He explained, "In eating the fruits and then moving around, birds will disperse the seeds of the plants the fruits belong to." The lack of seed spreading can have secondary effects, Matthews said. For example, Mauritius now has many threatened tree species.

Most of the documented extinctions have taken place on islands.

The loss of living areas for birds can have big effects given the limited area involved. Many island birds are flightless, meaning they cannot fly away to escape predators.

As a result, flightless birds are easily hurt by new predators, such as rats or cats, Matthews suggested.

Human hunting of birds was a big reason behind the disappearance of different bird species in the past. Bird hunting remains a big problem in some areas. Capturing birds for the songbird trade is a big problem, particularly in Southeast Asia, Matthews said.

Some areas and species had more exact reasons for bird disappearances. For example, avian malaria, introduced by people, has resulted in large numbers of extinctions in Hawaii where the birds possessed no natural immunity.

Matthews suggested that the effects of a changing climate on birds remains a "big unknown."

Many birds have been lost over time.

The large flightless "elephant birds" were native to Madagascar. The bird is believed to have disappeared after people arrived. That includes *Aepyornis maximus*. It was about 3 meters tall and was possibly the largest bird that ever existed.

The flightless moa birds, native to New Zealand, including the South Island giant moa, also disappeared after humans came to the islands.

North America's passenger pigeon numbered in the billions but was hunted to extinction.

The researchers said the 610 bird species combined represented 3 billion years of evolutionary history. Each lost species is like cutting off a branch from the tree of life.

The number 610 is "likely a large underestimate" of avian extinctions, Matthews said. This is because of a lack of data from some areas and the fact some lost species may not have left behind bones or other evidence.

Matthews added, "the vast majority of extinctions over the last 50,000 years are attributable to human actions."

About 11,000 bird species now exist. The researchers projected future extinctions of more than 1,000 species over the next two hundred years.

"So even if you don't care about the moral and ethical concerns regarding the loss of species, these extinctions are important for other reasons, such as the loss of species that helped the environment

to function effectively," Matthews added.

Will Dunham reported on this story for Reuters. John Russell adapted it for VOA Learning English.

species— n.a class of animals having common attributes and designated by a common name

extinct— adj.no longer existing

disperse— v.to cause to become spread widely

predator—n.an animal that hunts and eats other animals

vast—adj.very great in size or extent

attributable— adj.to be explained by indicating a cause

ethical—adj.related to questions of right or wrong

function— v.to operate or be in action

## Article 95: Europe Launches Spacecraft to Explore Asteroid Hit by NASA

*Date: 2024-10-13T22:05:00+00:00 | 650 words | Source*

No media source currently available

A European spacecraft has been launched to explore an asteroid struck in an earlier planetary defense mission by the American space agency NASA.

The European Space Agency (ESA's) Hera spacecraft launched October 7 from NASA's Cape Canaveral in Florida. The spacecraft, or probe, was carried to space aboard a SpaceX Falcon 9 rocket.

Hera is headed to the asteroid Dimorphos. NASA crashed its DART spacecraft into the space rock in 2022 in an area about 11 million kilometers from Earth. The NASA mission was an experiment to test a method for changing the orbit of asteroids that might one day threaten Earth.

NASA has said its own studies of the crash showed it was successful because the force of the strike changed the asteroid's orbit around a larger asteroid, called Didymos. Data showed the strike reduced the orbital period of Dimorphos by 33 minutes.

But the Hera mission seeks to closely examine Dimorphos to get more details on how the asteroid was changed in the strike by DART. Data collected by the ESA spacecraft will be used together with information gathered by NASA to develop future planetary defense plans.

American astronomer Derek Richardson, from the University of Maryland, told reporters before the launch, "The more detail we can glean the better as it may be important for planning a future deflection mission should one be needed."

Officials from ESA have described the \$400 million mission as a "crash scene investigation." Hera project manager Ian Carnelli said the spacecraft was "going back to the crime site and getting all the

scientific and technical information.”

Hera’s trip to the asteroid is expected to take about two years. Next year, the probe plans to get a big gravitational push as it flies past Mars. It should arrive in the area around Dimorphos in December 2026.

Before it was hit by DART, Dimorphos circled a larger asteroid from about 1,189 meters out. Scientists believe the orbit is now closer and that Dimorphos changed its shape. Astronomers have also found evidence the asteroid is likely moving differently.

Examinations of the DART mission have suggested that rather than being a single hard rock, Dimorphos was more of a collection of rubble pieces held together by gravity. Investigators have said they believe the DART crash might have “completely deformed” the asteroid.

Ignacio Tanco is the flight director for the Hera mission. He told The Associated Press that some large rocks and other materials could still be following the asteroid. This, he said, could present a damage risk to the spacecraft.

“We don’t really know very well the environment in which we are going to operate,” Tanco said. “But that’s the whole point of the mission is to go there and find out.”

Hera will be equipped with two nanosatellites. One will land on Dimorphos and capture data on the asteroid with radar. The other will study the makeup of Dimorphos from farther out.

ESA and NASA will use the data to create plans for a possible asteroid strike that could cause wide destruction on Earth. Astronomers believe an asteroid wider than one kilometer – which could cause a worldwide disaster – is estimated to strike Earth about every 500,000 years.

An asteroid around 140 meters – which is a little smaller than Dimorphos but could still take out a major city – is predicted to hit Earth around every 20,000 years.

Currently there are no known 140-meter asteroids on a path to strike Earth. However, scientists have said only 40 percent of those space rocks are believed to have been identified.

Bryan Lynn wrote this story for VOA Learning English, based on reports from

asteroid– n.a rocky object that goes around the sun like a planet

glean– v.to discover something slowly or with difficulty

deflect– v.to make something change direction by hitting or touching it

scene– n.the place where something happens

rubble– n.pieces of broken rocks or bricks from a destroyed building or structure

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## Article 96: Scientists Map Fruit Fly Brain to Learn Its Functions

Date: 2024-10-14T21:55:00+00:00 | 580 words | Source

No media source currently available

A group of international scientists recently announced they had made a map of the whole “brain” of an adult fruit fly.

They said the milestone would provide new knowledge about the brains of all animals including humans.

The research gives details of more than 50 million connections between 139,000 neurons, which are nerve cells in the brain of the fruit fly.

The scientific name of the animal is *Drosophila melanogaster*. It is often used in scientific experiments, especially studies of nerve cells.

The researchers wanted to find out exactly how the brain cells operate when they are healthy and normal.

Sebastian Seung was one of the leaders of the research, which was published as a series of studies in *Nature*. Seung is a professor at Princeton University in New Jersey. He said, “You might be asking why we should care about the brain of a fruit fly. My simple answer is that if we can truly understand how any brain functions, it’s bound to tell us something about all brains.”

The brain of a fruit fly is small — less than one millimeter wide. But some scientists are very interested in them. “It’s beautiful,” said Cambridge researcher Gregory Jefferis.

The researchers created what they called a “wiring diagram” of an adult fruit fly. It is also called a “connectome” map. The goal was to create a map that shows how neurons connect to one another and how they operate.

Similar research has been done with simpler forms of life. For example, scientists have mapped the “brain” of a worm called *Caenorhabditis elegans*. They have also mapped the neural material of the larval form of the fruit fly. But the adult fruit fly was more complex. The idea was to link the neural connections to the behavior of the animal.

Mala Murthy was another co-leader of the research from Princeton. Murthy said, “One of the major questions we’re addressing is how the wiring in the brain, its neurons and connections, can give rise to animal behavior.”

One of the studies in the series examined the brain circuits involved in walking. It discovered how flies halt. Another studied the fly’s network of neurons associated with tasting and also grooming circuits. These circuits are behind the behavior in which a fly uses its leg to remove dirt from its antennae on its head.

One of the studies examined how a fly processes motion and color information. And still another looked closely at how parts of the fly’s brain were connected. That study discovered that a large group of neurons called “hub neurons” might help speed up the flow of information.

The researchers created the map by following how both sides of the brain were organized and linked the circuits they identified to behaviors. They also identified classes of cells in the fly’s brain and

examined the chemical connections between neurons known as synapses.

The international collaboration of scientists called FlyWire Consortium carried out the research.

I'm Mario Ritter, Jr.

Will Dunham reported this story for Reuters. Mario Ritter, Jr. adapted it for VOA Learning English.

milestone—n.a sign that a major goal has been reached

function—n.to purpose for something and the job that it does

diagram—n. a simplified picture that shows how something works

give rise to—v. (phrasal)to cause; to bring about

circuit—n.a complete path by which electricity travels away from and returns to its source

antenna (antennae pl.)—n.the long structures attached to the heads of insects that help them feel and sense

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## Article 97: Fossil Discovery in Brazil Could Help Explain Rise of Dinosaurs

*Date: 2024-10-16T21:55:00+00:00 | 440 words | Source*

No media source currently available

Scientists in Brazil recently announced the discovery of one of the world's oldest reptile remains. They say the bones – dating back to around 237 million years ago – may help explain the rise of the dinosaurs.

The four-legged reptile species is called Gondwanax paraisensis, researchers recently announced in a statement. The animal is believed to have been near the size of a small dog, with a long tail.

The small reptile would have lived in the Triassic Period on land which is today southern Brazil. During this period – from 252 million to 201 million years ago – the world was much hotter.

The fossil was identified as a new silesaurid, a group of reptiles believed to have died off in a mass extinction event. Experts have debated whether silesaurids were true dinosaurs or if they came before dinosaurs.

"Understanding the characteristics of these precursors could shed light on what was crucial for the dinosaurs' evolutionary success," a statement from the researchers said.

In 2014, Pedro Lucas Porcela Aurelio, a medical doctor, found the remains in a piece of rock in the town of Paraiso do Sul. The town sits in Brazil's southernmost state of Rio Grande do Sul.

The *Gondwanax paraisensis* fossil comes from a time when dinosaurs as well as mammals, crocodiles, turtles and frogs first appeared.

Aurelio gave the remains to a local university in 2021, beginning three years of research.

"Being the first human to touch something from 237 million years ago is extraordinary," Aurelio told Reuters. "It's an indescribable feeling."

The research was led by Brazilian scientist Rodrigo Temp Müller, a paleontologist. His findings recently appeared in an article in the publication *Gondwana Research*.

Müller said, "The most important part of this finding is its age. Because it's so old, it gives us clues as to how dinosaurs came to be."

Müller added that when Aurelio gave researchers the remains, they were covered by a thick layer of rock. At first, only parts of the backbone could be seen.

*Gondwanax* means "lord of Gondwana." The name suggests the Gondwana landmass in the southern area of the supercontinent Pangaea. Pangaea later broke apart into continents. The name *paraisensis* honors the town of Paraiso do Sul.

Sergio Queiroz and Diego Vara reported on this story for Reuters. John Russell adapted it for VOA Learning English.

fossil— n.a remnant of an organism that has been preserved in the earth's crust

extinction— n.a situation in which a kind of animal no longer exists

characteristic— n.a distinguishing trait, quality, or property

precursor— n.one that comes before and indicates the approach of another; an animal from which another animal evolves from

extraordinary— adj.going beyond what is usual or regular

## Article 98: Scientists Recreate Head of Largest Ancient Bug

Date: 2024-10-16T21:57:00+00:00 | 599 words | Source

No media source currently available

The largest bug to ever live was about 2.6 meters long and had many legs. However, the look and shape of its head remained a mystery until now.

The fossils of these creatures are often headless shells. When bugs drop their shells, a process called shedding, they move out of the head opening, leaving behind their exoskeleton but very little of the head.

Recently, scientists solved that mystery by re-creating the creature's head. They were able to do this after studying complete and well-kept fossils of younger bugs. The researchers published the new findings on October 10 in *Science Advances*.

What did the heads look like?

The huge bug's head was round with two short bell-shaped antennae. It had two eyes that stuck out like crab's eyes. Its mouth was fairly small and made for eating leaves and the outer covering of trees.

Its name is *Arthropleura*. This bug belonged to a group of crabs, spiders and insects called arthropods. But the bug was much, much bigger. It could grow as big as 2.6 meters and weigh as much as 50 kilograms.

The co-writer of the study is Mickael Lheritier. He is a paleobiologist at the University Claude Bernard Lyon in Villeurbanne, France. He said, "We discovered that it had the body of a millipede, but head of a centipede."

This large *Arthropleura* may have been the biggest bug to ever live. Although, not all scientists agree. Some say *Arthropleura* may be a close second to an extinct giant sea scorpion.

Researchers in Europe and North America have been collecting pieces and footprints of the huge bugs since the late 1800s.

"We have been wanting to see what the head of this animal looked like for a really long time," said James Lamsdell. He is a paleobiologist at West Virginia University and was not involved in the study.

To produce a model of the head, researchers first used CT scans to study full-body fossils of younger bugs. These fossils were found in a French coal field in the 1980s.

This method permitted researchers to look closely for "hidden details like bits of the head" still in the rock without hurting the fossil, Lamsdell said.

The fossils are easily broken. He added that when you dig in the rock to remove the fossil, you do not know what part of the fossil "may have been lost or damaged."

The fossils of younger bugs only measured about 6 centimeters. And it is possible they were a kind of *Arthropleura* that did not grow to a really large size.

But still, researchers said they are close enough to the huge *Arthropleura* to provide a picture of what adults looked like when they were alive 300 million years ago.

Christina Larson reported this story for the Associated Press. Anna Matteo adapted it for VOA Learning English.

fossil-n. a trace or print or the remains of a plant or animal of a past age preserved in earth or rock

exoskeleton-n. a hard supporting or protective structure (as of an insect, spider, or crustacean) on the outside of the body

antenna-n. one of a pair of slender movable organs of sensation on the head of an arthropod (as an insect or a crab) that are made up of segments

paleobiologist-n. a branch of paleontology concerned with the biology of fossil organisms



extinct-adj.no longer existing

CT scan-n.cross-sectional, three-dimensional image of an internal body part produced by computed tomography chiefly for diagnostic purposes

bit-n.a small piece or amount

We want to hear from you. Do you have a similar expression in your language? In the Comments section, you can also practice using any of the expressions from the story. Our comment policy is here.

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## Article 99: SpaceX Calls New Starship Test a Success, Captures Rocket at Landing

Date: 2024-10-16T22:05:00+00:00 | 733 words | Source

No media source currently available

SpaceX has successfully completed a fifth test of its Starship rocket system. The uncrewed test was carried out Sunday at the American space company's launch center in Boca Chica, Texas.

During the flight, the 121-meter-tall Starship was successfully pushed into space by a SpaceX Super Heavy booster rocket. After reaching a height, or altitude, of about 70 kilometers, the booster separated from Starship's second stage, or top half, as planned.

The reusable booster was then directed by ground controllers to return to the launch center. Before touching down on the landing pad, the rocket re-lit three of its 33 Raptor engines in order to slow the booster for a controlled landing.

The Super Heavy then positioned itself to land. For the first time, the booster was "caught" and secured in place by a huge structure that includes large metal arms. Video of the landing provided by SpaceX showed the booster rocket being captured by the structure exactly as planned.

A short time later, Starship's second stage safely splashed down in the Indian Ocean. The test flight and successful landings demonstrated progress for SpaceX's Starship system.

The American space agency NASA is planning to use Starship to carry the next U.S. astronauts to the moon. Such a landing would be the first since NASA's Apollo 17 mission in 1972.

The next planned moon landing – which NASA officials have set for September 2026 – is part of NASA's Artemis program. Artemis will also seek to establish a permanent base around the moon to support ongoing lunar visits and possible future trips to Mars.

SpaceX was chosen to lead NASA's planned moon landing after numerous successful demonstrations and missions in recent years. The company's rockets and spacecraft have been dependably transporting astronauts and materials to the International Space Station (ISS) since 2020.

NASA also chose American aerospace company Boeing to serve as a possible partner in its Artemis program. But the company's Starliner rocket has faced major delays and difficulties during past test

flights.

In the last one, Starliner successfully transported two American astronauts – Butch Wilmore and Suni Williams – to the ISS in early June. The two were expected to stay in space for only a week. But ongoing technical issues with the Starliner spacecraft prevented a return trip.

NASA recently decided to have Starliner return to Earth without the astronauts. The plan is for Wilmore and Williams to return home from the ISS in February on a SpaceX Dragon spacecraft.

Before SpaceX's latest mission, several Starship rockets exploded during the test flights. The last non-exploding test happened in June. During that flight, SpaceX reported some damage to heat-resisting tiles on the outside of Starship. But improvements made since then appeared to have succeeded.

After Sunday's flight, SpaceX chief Elon Musk said the rockets appeared to be generally in good condition, with just minor warping of some outer engine parts from intense heat. He noted that those parts could be fixed easily.

Musk is also chief of the social media service X. On the service, he expressed excitement when the Starship booster rocket returned to the launch area and was "caught" by the structure. SpaceX calls the huge metal arms that capture and secure the booster rocket on land "chopsticks" because they move similarly to the eating instruments.

"The tower has caught the rocket!!" Musk wrote in a message on X. "Big step towards making life multiplanetary was made today," he added.

The successful test flight was also praised on X by NASA Administrator Bill Nelson. "Congratulations to @SpaceX on its successful booster catch and fifth Starship flight test today!" Nelson wrote. He added that "continued testing" will prepare NASA and its partners for a series of "bold missions" to come in the future.

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Reuters, AFP and SpaceX.

booster– n. an engine on a spacecraft that gives extra power for the first part of a flight

pad– n. a flat structure that is used by flying vehicles like rockets or helicopters to launch or to land

splash down– v. (phrasal) when a spacecraft lands in the sea after returning from space

tile– n. a flat piece of material that is used to cover surfaces such as floors, roofs or walls

warp– v. to become bent into the wrong shape

chopsticks– n. Think sticks used for eating food in many parts of the world

tower– n. a very tall building or part of a building

bold– adj. not frightened of taking risks

## Article 100: A Chinese Laboratory Aims to Study Neutrinos

Date: 2024-10-20T21:57:00+00:00 | 911 words | Source

No media source currently available

China plans to start operations of a huge experiment next year that aims to observe subatomic particles called neutrinos.

The goal is to gather information that will help physicists better understand matter itself. That information will help solve one of the biggest mysteries in particle physics.

The Jiangmen Underground Neutrino Observatory, or JUNO, is in China's southern Guangdong province. It is expected to begin operations in 2025.

Reporters with the Reuters news agency recently reported on the laboratory in China. It also reported on similar efforts in the United States.

The JUNO center has cost more than \$300 million to build. Part of it is a 35-meter-tall sphere that is 700 meters underground. A huge pool of water holds the sphere. The JUNO center also contains tens of thousands of tubes, which can sense and intensify light. They will be put in place in the coming months.

Chinese physicists and scientists from around the world are expected to study data on neutrinos from the center for up to six years. They will be hoping to find neutrinos that are produced by two nearby nuclear power stations.

JUNO is also expected to be able to observe neutrinos from the sun and from radioactive materials in the Earth. The hope is that studying such neutrinos will add to knowledge of solar processes and the forces that move the Earth's surface.

JUNO is expected to go into operation before a similar but much larger project in the United States. That project is called the Deep Underground Neutrino Experiment, or DUNE.

DUNE is part of an effort overseen by Fermilab, the top particle physics laboratory of the U.S. Department of Energy, or DOE. The whole experiment is known as the Long-Baseline Neutrino Facility, or LBNF.

The LBNF has two main parts: one in South Dakota and the other in Illinois. However, DUNE is not expected to be complete until 2030. The experiment has had several delays and its estimated cost has gone past \$3 billion.

Wang Yifang is chief scientist and project manager of JUNO. Wang recently spoke to Reuters during a media event supported by the Chinese government.

Wang said, "China had supported Fermilab's LBNF at the time, but later the cooperation could not continue." Wang added that "Around 2018-2019, the U.S. DOE asked all national laboratories not to cooperate with China, so Fermilab was forced to stop working with us."

The DOE did not answer Reuters' request for comment.

## Sino-U.S. relations affected

Tensions between China and the U.S. have increased in recent years. In August, a science and technology agreement between China and the U.S. lapsed. The agreement dated back to when the U.S. recognized mainland China in 1979.

Supporters are concerned that the current situation will create duplication of research. They also say more scientists will seek different partners or miss out on chances to cooperate that could have led to useful discoveries.

Reuters says that institutions from France, Germany, Italy, Russia, the U.S. and Taiwan are involved in JUNO.

Neutrino observatories are also being built in other places.

Wang told Reuters, "The one in the U.S. will be six years behind us. And the one in the France and in Japan, they will be two or three years later than us. So we believe that we can get the result of mass hierarchy (of neutrinos) ahead of everybody."

"Mass hierarchy" is a complex question behind neutrinos that has to do with the mass of different kinds of neutrinos. The question of the mass states of neutrinos is considered a major mystery in particle physics.

So far, real-life neutrino use remains a distant possibility. Some scientists say neutrinos could be used to send long-distance messages because they can pass through solid matter at nearly the speed of light.

One U.S. group remains in JUNO. The group's leader says it has support from the National Science Foundation.

There were more than 12 U.S. organizations involved in an earlier neutrino project in China called the Daya Bay experiment.

Pedro Ochoa-Ricoux is with the University of California, Irvine. He said, "I believe that through our collaboration on this scientific endeavor, we are setting a positive example that may contribute, even in a small way, to bringing our countries closer together."

## How data from JUNO will be shared

JUNO aims to record neutrinos passing from nuclear power stations in Guangdong. An official with JUNO said the information will be sent to Beijing and electronically relayed to Russia, France and Italy at the same time. The official said there is a system to make sure no data is missing.

Ochoa-Ricoux worked with China on the earlier Daya Bay experiment. He will lead the data analysis for JUNO. He also will be involved in the analysis for DUNE when it is available.

Wang, who is also head of China's version of Fermilab, said, "We welcome the Americans."

Ryan Woo reported this story for Reuters. Mario Ritter, Jr. adapted it for VOA Learning English.

sphere—n. a circle with height, width, and length like a globe

lapse—v. to fall into disuse; to no longer be in effect

duplication—v. to do something that is the same as something else and results in a copy

collaboration—n. cooperative labor towards a goal

contribute—v. to provide some aid in an effort that involves the many people providing help and materials

relay—v. to pass something from one place to another through a device

analysis—n. a careful study of information to learn something from it

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## Article 101: Scientists Say They Have Bred Corals to Better Resist Warm Oceans

*Date: 2024-10-20T22:05:00+00:00 | 750 words | Source*

No media source currently available

Scientists say they have successfully reproduced coral to improve their resistance to warmer ocean temperatures.

The latest effort is one of many that seeks to prevent major coral destruction events known as bleaching. The scientists blame the bleaching on ocean warming caused by climate change.

Coral bleaching happens when the small ocean animals react to climate pressures by releasing algae organisms that provide them with energy and give them their color. If the bleaching is severe and long-lasting, corals can get sick and die.

Scientists and environmental officials have warned major bleaching events are currently affecting ocean coral collections in many areas across the world. Many researchers link the continued warming of Earth's oceans to climate changes related to human activities.

In April, the U.S. National Oceanic and Atmospheric Administration (NOAA) and International Coral Reef Initiative said at least 53 countries, territories, or local economies reported ongoing bleaching events since February 2023.

The latest research aimed to reproduce corals that can become more resistant to warm ocean temperatures. To do this, the researchers used a method known as selective breeding. Scientists have long used this method to produce animals and plants with more desirable characteristics.

This process can produce living things that are better able to deal with, or tolerate, different environmental conditions. Selective breeding is now a main method used by scientists to study how the process can prevent ocean warming from killing off corals.

The new research was led by scientists at Britain's Newcastle University. The team recently reported their findings in a study appearing in the publication *Nature Communications*. The study said their selective breeding methods resulted in improved heat tolerance of adult corals, even within a single generation.

Scientists have for years been observing corals that show more heat-resistant qualities. These corals are used as the parents for new corals.

The researchers said their experiments showed that breeding heat-tolerant characteristics into different corals could be a useful tool "to improve population resilience." However, the team noted the method would likely not be enough by itself to effectively protect corals. This is because increasingly intense ocean warming is expected to continue if additional steps are not taken to reduce the worldwide effects of climate change.

The scientists noted, therefore, that methods to reproduce heat-resistant corals must be a part of overall efforts that require "urgent climate action."

The research team's experiments were carried out during a five-year project launched by Newcastle's James Guest. The effort received financial support from the European Research Council.

The team said it carried out selective breeding tests involving two different characteristics. The first sought to improve the tolerance to the release of a short, intense heat event – over 10 days with a temperature rise of 3.5 degrees Celsius. The second tested results for a less intense, but long-term temperature rise of 2.5 degrees Celsius over one month.

The study found that "selecting parent colonies for high rather than low heat tolerance increased the tolerance of adult offspring." The result was observed for corals experiencing either a short, intense heat event or a long-term temperature rise.

The team estimated that about 25 percent of the increased heat tolerance was linked to genes passed down from parents of the corals. These genes can also be influenced by other selective breeding methods to produce heat-tolerance characteristics, the researchers said.

Newcastle researcher Liam Lachs helped lead the study. He said in a statement the research clearly demonstrated that selective breeding can be a valuable tool in improving the health of corals influenced by warming oceans. However, he noted the tested methods are not a complete solution and that "more research is needed to maximize" breeding results.

The researchers said they plan next to lead efforts to carry out large experiments on corals in the wild to confirm the study results. These efforts would involve seeding selectively bred corals directly on ocean reefs, or deploying corals raised in a laboratory.

Bryan Lynn wrote this story for VOA Learning English, based on reports from Newcastle University, *Nature* and *The Conversation*.

coral– n.a hard, usually pink or white substance produced by a type of very small sea animal

algae– n.usually small plants that grow in or near water and do not have typical leaves or roots

characteristic— n.a typical quality that makes one person or thing different from others

resilient— adj.strong enough to get better quickly after suffering damage from illness, shock, etc.

maximize— v.to increase something as much as you can

reef— n.a collection of rocks or coral or a ridge of sand at or near the surface of water

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## Article 102: AI Can Improve Weather Predictions if Used with Traditional Methods

*Date: 2024-10-21T21:55:00+00:00 | 638 words | Source*

No media source currently available

Weather researchers are using artificial intelligence (AI) systems to improve existing weather prediction methods. But, experts say the AI tools currently face limitations and should be used along with traditional prediction methods to be most effective.

AI systems trained to predict, or forecast, weather events are now being used by many government agencies and organizations worldwide. Such systems aim to produce weather predictions faster and at a lower cost than traditional forecasting methods.

One weather predicting system that has shown promise is the Google-financedGraphCastmethod. This machine learning-based system trains directly on weather data that has already been collected and examined. Such methods have demonstrated an ability to outperform traditional forecasting systems.

The system works by combining past weather predictions with modern forecasting models to provide the most complete picture of weather and climate.

In Europe, the European Center for Medium-Range Weather Forecasts (ECMWF) has been using AI prediction tools since January. The organization provides detailed weather forecasts four times per day to nations across Europe.

The ECMWF technology is called the Artificial Intelligence/Integrated Forecasting System (AIFS). The groupdescribesthe system as a “data-driven” forecasting model. It is designed to make many predictions quickly, including for extreme events involving powerful storms and heatwaves.

AI-supported data from the ECMWF correctly predicted intense rains last month across parts of Europe that resulted in widespread flooding. But while the predictions were right, destruction caused by the flooding could not be avoided.

Experts told Reuters this is largely because it is still difficult to gather and fullyutilizesome collected weather data. In addition, there is a need to strengthen and improve current AI models used to predict weather.

Andrew Charlton-Perez is a professor of meteorology – the scientific study of weather processes – at the University of Reading in Britain. He told Reuters, "In some cases and for somevariables, AI models

can beat physics-based models, but in other cases vice versa."

Charlton-Perez said one problem is that the effectiveness of an AI model is based on the information it is given. Weather disasters can be harder to predict if there is too little data to enter into AI systems. This can also be true if extreme events happen repeatedly at different times of the year or in different areas.

Charlton-Perez said he thinks the best use of AI-based weather forecasts would be to use them in combination with traditional weather predicting tools. This, he noted, could utilize AI data to produce weather predictions based on large sets of information collected from multiple sources.

Thomas Wostal is with the weather observatory GeoSphere in Austria. He told Reuters his group's models correctly predicted 300 to 400 millimeters of local rains in September. And records show that same amount actually fell in the storms.

But scientists say even in cases where predictions are correct, effective communication is needed to get the information out to communities and local officials so they can effectively prepare.

Shruti Nath is a research assistant in weather prediction and climate at Britain's Oxford University. She told Reuters, "I think what happened with (the recent floods) ... is that it's so rare - a one in 150- to 200-year event - that even if the weather models capture it, there's a reasonable degree of uncertainty."

Nath said AI-supported forecasts need to be clearly communicated to the public in a way that warns of the severity and possible destruction of extreme events. This way, people might see the importance of taking action before severe weather happens in order to prevent costly cleanup and recovery efforts.

Reuters reported this story. Bryan Lynn adapted the report for VOA Learning English.

utilize— v.to use something in an effective way

variable—n.a number, amount or situation that can change

vice versa—adv.used to say that what you have just said is also the true in the opposite way

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## Article 103: Scientists Expect More Solar Storms, Northern Lights

Date: 2024-10-21T21:57:00+00:00 | 644 words | [Source](#)

No media source currently available

Space scientists say unusual lights in the sky, known as the northern lights, are more likely to appear because of intense activity on the sun.

The cause is the 11-year solar cycle. During a period of about 11 years, the sun's activity changes. The U.S. space agency, NASA, says changes in the sun's magnetic field cause the activity, which can result in sunspots.

Strong storms on the sun this year have created these "lights" in the sky called auroras. They look like moving waves of color filling the skies similar to what happens at dawn and night. Now, space scientists say



these “light shows” are likely to be seen much farther south than usual.

The colors in the sky that people might see may be pink, purple, green or blue. The auroras are called the northern lights because they can usually only be seen in areas in the extreme north of the world near the Arctic Circle.

Space scientists who observe the sun through a special telescope can sometimes see darker places, called sunspots. The sunspots are areas where magnetic fields are stronger than in other places on the sun, NASA says.

The energy released from the interaction of these magnetic fields may cause a flare, a bright spot, which is an explosion of radiation from the sun. It shows up as a flash of light to observers.

Sometimes a large amount of solar material shoots away from the sun. This is called a coronal mass ejection, and it results in a geomagnetic storm when it arrives at the Earth.

The solar cycle at a high point

The sun is currently at the highest part of its 11-year cycle, making solar flares and northern lights more common. NASA and the U.S. National Oceanic and Atmospheric Administration, known as NOAA, say they expect this active period to last for at least another year. But they will not know until months later when solar activity was at its highest.

Kelly Korreck studies the stream of particles that come from the sun called the solar wind. Korreck led a project to develop an instrument to study the solar wind that was on NASA’s Parker Solar Probe that got close to the sun in 2021.

The Parker Solar probe collected material and measured magnetic activity on the sun. Korreck said this solar cycle has provided more colorful auroras farther south and even more are likely. “We still could possibly get some good shows in the next few months,” she added.

Solar storms affect Earth

Solar storms are powerful. They can temporarily disrupt electricity service and communications on Earth. NOAA follows space weather and warns operators of power stations and spacecraft in orbit.

In May, NOAA issued a rare severe geomagnetic storm warning. The radiation from the storm that arrived on Earth was the strongest in more than 20 years. It produced northern lights that people could see in many places in the Northern Hemisphere. That same month, scientists recorded the biggest flare erupting from the sun, but Earth was not in its path.

Earlier solar cycles have produced storms more intense than the one in May. Bill Murtagh is the Program Coordinator for the Space Weather Prediction Center at NOAA. He said space weather experts are keeping a close watch on the sun to prepare for any major problems.

Recently, a powerful solar storm gave those watching the sky a beautiful show far from the Arctic Circle. People could see auroras in Germany, Britain, and also in New England and New York City.

Adithi Ramakrishnan reported this story for the Associated Press. Jill Robbins adapted it for Learning English with additional information from NOAA and NASA.

solar-adj. of or relating to the sun

cycle-n. repeated or regular events that happen over a set period of time

dawn-n. when the sun rises above the horizon

disrupt-v. to interfere with normal activities or processes

erupt-v. to explode or shoot out

## Article 104: Study: Deep Ocean Heatwaves Highly 'Under-reported'

Date: 2024-10-22T21:55:00+00:00 | 434 words | Source

No media source currently available

Periods of very high temperatures, or heatwaves, deep in the ocean might be highly “under-reported,” a recent study says. The study suggests such heatwaves could have worrying effects in the future.

Australia’s national science agency (CSIRO) and the Chinese Academy of Sciences worked together to do the research, which appeared recently in the scientific publication *Nature*.

Researchers found that 80 percent of marine heatwaves below 100 meters are independent of surface events.

CSIRO scientist Ming Feng said, “These findings deepen our understanding of the frequency and intensity of extreme temperature events under the ocean surface and possible implications.”

Marine heatwaves are temperature events that can cause severe damage to marine living environments. Such effects include damage to coral reefs and species displacement, the study said.

These heatwave events are becoming more common due to global warming, causing major environmental and socioeconomic effects, the study suggested.

The majority of previous studies on marine heatwaves have depended on surface signals based on widely available satellite observations of sea-surface temperature.

For this study, researchers used data from eight mooring sites. These locations permit a direct estimate of the occurrence of ocean temperature extremes.

The study also used observational data from more than two million ocean temperature profiles from global oceans.

The finding of separate, deeper warming was particularly worrying, the research found. Such warming is of concern because it affects the living area, or habitat, of so many creatures and the food they eat.

"Extreme temperature events below the sea surface are of greater ecological concern because they affect the habitat of most marine primary producers and consumers," the study said.

The research also highlighted the effects of ocean currents on marine heatwaves, in particular eddies.

Eddies are circular currents of water that are likely a major driver of subsurface events, CSIRO suggested.

Ocean eddies can affect acidity levels, oxygen levels and nutrient concentrations in the ocean.

The study suggested that understanding the drivers of subsurface marine heatwaves can help to improve assessment of these events in a warming climate and help to predict them in the future.

Farah Master reported on this story for Reuters. John Russell adapted it for VOA Learning English.

frequency— n.the number of repetitions of a periodic process in a unit of time

intensity— n.the magnitude of a quantity (such as force or energy) per unit (as of area, charge, mass, or time)

implication-- n. a possible significance

species— n. a class of individuals having common attributes and designated by a common name

mooring— n.a place where or an object to which something (such as a craft or measuring device) can be fixed in place (or moored)

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## Article 105: Big Tech Companies Aim to Develop Small Nuclear Reactors

*Date: 2024-10-22T21:58:00+00:00 | 798 words | Source*

No media source currently available

Technology company Amazon recently said it is investing in small nuclear reactors to meet its increasing need for electricity.

Amazon's announcement came two days after a similar statement from technology company Google.

Nuclear power is gaining attention as the owner of the Three Mile Island nuclear power station in Pennsylvania announced last month that it will restart the reactor there.

The goal is to sell the energy from the nuclear station to Microsoft to power its huge data centers.

All three companies, Microsoft, Amazon and Google, operate large data centers. They have been spending a lot of money on solar and wind power to create and use electricity that does not produce greenhouse gases. However, their energy needs are so great that they need to find other ways to produce clean energy. Nuclear energy does not create greenhouse gases.

The International Energy Agency in Paris predicts that data centers will use 1,000 terawatts of electricity in 2026. One terawatt is equal to 1 million megawatts. That is double the amount from 2022.

Data centers are important to artificial intelligence or AI systems. AI tools use huge amounts of information to “learn” to do things in a way that is almost human.

Kevin Miller is an official with Amazon Web Services. Miller told the Associated Press, “AI is driving a significant increase in the amount of data centers and power that are required on the grid.” He said adding nuclear power was very important.

#### Small modular reactors

Small modular reactors can generate up to one third of the power that a traditional nuclear reactor can. Recently, U.S. Energy Secretary Jennifer Granholm spoke at Amazon’s second headquarters in Virginia. Speaking of energy production, Granholm said modular reactors are a “huge piece of how we’re going to solve this puzzle.” Granholm said the department will provide \$900 million to produce more reactors.

Developers say small reactors can be built faster and at a lower cost than large reactors. The developers say they will be able to produce electricity by the early 2030s if the Nuclear Regulatory Commission gives them permission.

Kathryn Huff is a nuclear engineering professor at the University of Illinois Urbana-Champaign and former official at the U.S. Department of Energy. Huff said, if new, clean power is not added as data centers expand, the U.S. risks “browning the grid,” or including more power from sources that are not clean: coal, oil and gas.

Small modular reactors are currently under development. They reportedly do not provide power to the U.S. grid. However, big investors can help them develop. Huff said the recent announcements could be an “inflection point” or a sign that things are changing.

A professor of nuclear engineering at the Massachusetts Institute of Technology, Jacopo Buongiorno, said the industry needs buyers who value dependable and clean energy. They only have to be willing to pay more for it at first until the cost comes down.

On October 14, Google said it signed an agreement with Kairos Power based in Alameda, California. Google said it would buy energy from several small, modular reactors.

Google said it expects the first modular reactors to start operations by 2030 with additional ones coming through the year 2035. The deal is expected to generate 500 megawatts of electricity. However, Google’s own environmental report estimated that the company used 24 terawatts of electricity last year.

Amazon’s October 16 announcement said the company was working with Dominion Energy to study building modular reactors near the North Anna nuclear station in Virginia. The company said it is investing in X-energy, a reactor developer based in Maryland. Amazon is also working with Energy Northwest in Washington state.

The combined deals could produce 5000 megawatts of power by the late 2030s. However, that is likely a small part of Amazon’s total power use, which it does not release to the public.

Doug True is an official with the Nuclear Energy Institute, an industry group. He said new reactor designs could meet industrial needs because of their small size and dependability.

“It seems like a really good fit to support those facilities, and for a lot of different applications depending upon the amount of power that’s needed by the customer,” True said.

I’m Mario Ritter, Jr.

Alexa St. John and Jennifer McDermott reported this story for the Associated Press. Mario Ritter, Jr. adapted it for VOA Learning English.

greenhouse gas—n.a carbon-based gas that comes from burning or the breakdown of waste that scientists say can warm the atmosphere

megawatt—n.a measure of power that is 1 million watts

grid—n.the network of lines, production stations and equipment that provide electricity for a large area

generate—v.to create something, especially electricity and power

puzzle—n.a problem that requires thought and effort

facilities—n. (pl.)buildings and equipment for industrial use

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## Article 106: Caribbean Island of Anguilla Gets Big Lift from AI

Date: 2024-10-23T22:05:00+00:00 | 609 words | Source

No media source currently available

The Caribbean island of Anguilla is getting a economic lift from companies registering internet addresses through the British territory.

The companies are seeking to show they are involved in the artificial intelligence (AI) industry. One way to do this is to secure an internet address that ends in .ai. Anguilla owns the right to issue the .ai domain ending to organizations. It gained that right in the 1990s, based on the territory’s name.

Other nations and territories have similar control over domain registrations with letters with links to their name. For Anguilla, the popular rise of AI has permitted the territory to make a lot of money from new registrations ending in .ai.

Some examples from the technology world include Google, which uses google.ai for its AI offerings. The chief of social media service X, Elon Musk, chose to register x.ai as the homepage for X’s Grok AI tool. And AI search engine Perplexity uses perplexity.ai.

In Anguilla, earnings from web domain registration increased by four times last year to \$32 million as the rise in AI systems increased sharply. The earnings now account for about 20 percent of the total

amount the government brings in. Before the increased interest in AI, the amount remained at about five percent.

Anguilla's government – which uses the gov.ai domain – collects money each time an .ai web address is re-registered. It also gets paid when new addresses are registered and expired ones are sold off to new buyers. Some registrations have brought in tens of thousands of dollars.

Anguilla is 91 square kilometers and has a population of about 16,000. Its ocean areas and natural offerings bring in foreign visitors. But the island has faced economic difficulties since the COVID-19 pandemic, and it can be hit by powerful storms.

Anguilla does not have its own AI industry. But the territory's premier, Ellis Webster, hopes that will one day change. He told the Associated Press it was just luck that Anguilla was assigned the .ai domain. It could also have gone to nearby Antigua, which has the same letters in its name.

Webster said the money from domain registrations eases pressure on government finances and helps support several important projects. But, he said the territory must be careful not to completely depend on it.

“You can't predict how long this is going to last,” Webster told the AP. “So I don't want to have our economy and our country and all our programs just based on this.”

To help keep up with the explosive growth in .ai registrations, Anguilla signed a deal with a U.S.-based company, Identity Digital, to manage the process. The company has said it plans to add all .ai domain services to its systems by the start of next year.

There are currently more than 533,000 .ai web domains, an increase of more than 10 times since 2018. Webster predicts domain-related earnings will keep rising, possibly even doubling this year from last year's \$32 million.

He noted the money can finance the expansion of the territory's airport, provide free medical care for older citizens and complete a technology job training center for high school students.

The income also provides “budget support” for other projects the government plans to launch, Webster said. One of those is a national development program that includes money for hurricane recovery efforts.

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

domain– n.a subdivision of the internet that links websites with digital addresses

expire–v.to become no longer effective

manage–v.to do something or deal with something successfully

assign–v. to officially give something through a process to someone else such as a domain name

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## Article 107: US Agency Issues Final Rules for Flying Air Taxis

Date: 2024-10-26T21:00:00+00:00 | 586 words | Source

No media source currently available

The U.S. government has issued final rules for operating air taxis. It has also set training and approval requirements for pilots.

The U.S. Federal Aviation Administration (FAA) announced the new rules. They were announced October 22.

The FAA explains that air taxis belong to a kind of aircraft known as Advanced Air Mobility (AAM) flyers. These aircraft are generally highly automated and electrically powered. They also have vertical take-off and landing abilities, the agency said.

Air taxis are part of the AAM group, or category. But they are also considered “power-lift” vehicles. The aircraft have elements of both airplanes and helicopters, the FAA said. Other power-lift vehicles are designed to transport goods rather than people.

These aircraft take off and land vertically but can fly like fixed-wing planes. Many companies have designed and built such models and are working to get them to market. But the efforts have been delayed because of a lack of final requirements, or regulations, governing their use.

FAA Administrator Mike Whitaker said powered-lift aircraft represent “the first new category of aircraft in nearly 80 years.” He added that the new rules are meant to open the door to supporting widespread AAM operations in the U.S. in the future.

Whitaker said the new rules aim to make sure “this new generation of aircraft maintain the high level of safety that defines modern aviation.” The goal is to establish requirements to ensure that AAMs “are able to safely operate in our National Airspace System alongside existing aircraft.”

The FAA has said air taxi operations will begin slowly. In the beginning, air taxis will use existing travel paths and landing structures currently used by helicopters. The new rules will permit pilots to train with a single set of flight controls. Past FAA rules required two flight controls – one for the student and one for the flight instructor.

Air taxi supporters call the aircraft a cleaner choice compared to passenger airplanes, which burn jet fuel. Supporters have called for widespread expansion of the flyers beginning as early as 2025. But experts say current technology limitations make it likely air taxis will only be able to operate at first in large cities.

One company developing AAMs is California-based Joby Aviation. It praised the new FAA rules. Company chief Joe Ben Bevirt said the rules “will ensure the U.S. continues to play a global leadership role in the development and adoption of clean flight.”

Some airline companies have said they see air taxis as a way to transport passengers to airports. In 2022, Delta Air Lines said it would invest \$60 million in Joby. And this month, Toyota announced a

\$500 million investment in the company. United Airlines is backing another California-based company, Archer Aviation. The Associated Press reports that United has ordered 200 aircraft, which Archer said could be worth up to \$1 billion.

Former acting FAA Administrator Billy Nolen is currently Archer's chief safety officer. He told the Reuters news agency that the new FAA rules represent a big step forward for the future deployment of flying air taxis.

"Now we've got a roadmap," Nolen said.

The Associated Press, Reuters and the Federal Aviation Administration reported on this story. Bryan Lynn adapted the reports for VOA Learning English.

automated— adj.when something is controlled by machines rather than people

vertical— adj.pointing straight up from a surface

open the door— idiom.to make something easier or more likely to happen

maintain— v.to make something continue in the same way

instructor— n.a person who trains others how to do something

adopt— v.to accept or start something new

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## Article 108: Study Finds How Egg and Sperm Connect

*Date: 2024-10-27T21:55:00+00:00 | 466 words | Source*

No media source currently available

How a sperm and an egg come together has long been a mystery.

Now, new research by scientists in Austria provides interesting insight. It shows that fertilization works like a lock and key in animals that have a backbone -- from fish to people. Such animals are called vertebrates.

"We discovered this mechanism that's really fundamental across all vertebrates as far as we can tell," said co-author Andrea Pauli. He spoke to the Associated Press from the Research Institute of Molecular Pathology in Vienna, Austria.

The team found that three proteins in sperm join to form a sort of key that unlocks the egg. The process permits the sperm to attach to the egg.

The research findings come from studies in zebrafish, mice, and human cells. They show how this process has continued over millions of years of evolution.

The findings appear in the science magazine, *Cell*.

Scientists already knew about two proteins -- one on the surface of the sperm and another in the tissue of the egg. Working with an international team, Pauli's lab used Google DeepMind's artificial



intelligence tool AlphaFold to help them find and identify a new protein. The protein permits the first molecular connection between sperm and egg.

The developers of AlphaFold won a Nobel Prize earlier this month.

However, what the researchers did not know until now was how the proteins worked together as a team to get the sperm and egg to recognize each other, Pauli said.

Scientists still do not know how the sperm gets inside the egg after it attaches. They say they hope to explore that next.

Pauli said such research could help other scientists understand infertility better or develop new birth control methods, also called contraceptives.

The work provides targets for the development of male contraceptives said David Greenstein in an email to AP. Greenstein is a genetics and cell biology expert at the University of Minnesota and was not involved in the study. The latest study also highlights the importance of this year's Nobel Prize in chemistry, he said in the email.

Laura Ungar reported this story for the Associated Press. Anna Matteo adapted it for VOA Learning English.

lock— n.a fastening (as for a door) in which a bolt is operated (as by a key)

key— n.a usually metal instrument that is used to open a lock or to start or access a mechanism

mechanism— n.a process, technique, or system for achieving a result

fundamental— adj.serving as a basis supporting existence or determining essential structure or function

evolution— n.the process by which new species or populations of living things develop from preexisting forms through successive generations

We want to hear from you. What your thoughts on this topic? In the Comments section, you can also practice using any of the expressions from the story. Our comment policy is here.

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## Article 109: Ancient Meteorite Was a 'Fertilizer Bomb' for Life on Earth

*Date: 2024-10-27T21:55:00+00:00 | 580 words | Source*

No media source currently available

The space rock that hit Earth 66 million years ago and caused the deaths of many life forms – including dinosaurs - was not the largest object to ever strike our planet.

One meteorite up to 200 times bigger hit the planet 3.26 billion years ago, causing worldwide destruction. But, as new research shows, that event may have been helpful for the early development of life.

The meteorite may have served as "giant fertilizer bomb." In other words, it may have supplied the key nutrients phosphorus and iron for the bacteria and other organisms that existed at the time.

Researchers studied the effects of this meteorite strike using evidence from ancient rocks in an area in northeastern South Africa. The area is called the Barberton Greenstone Belt.

Researchers found many signs that life quickly came back after the strike.

"Life not only recovered quickly once conditions returned to normal within a few years to decades, it actually thrived," said Nadja Drabon of Harvard University.

Drabon was the lead writer of the study that appeared recently in the scientific publication *Proceedings of the National Academy of Sciences*.

Earth was a much different place when the meteorite strike took place.

At the time, during the Paleoproterozoic Era, meteorite strikes were larger and more common.

"At this time, Earth was something of a water world... There was essentially no oxygen gas in the atmosphere and oceans, and no cells with nuclei," said study co-writer Andrew Knoll.

The meteorite was rich in carbon and also contained phosphorus. Its diameter was around 37-58 kilometers, Drabon said, meaning its mass was 50 to 200 times the mass of the asteroid that killed the dinosaurs.

The effects of the hit, or impact, would have been quick and serious, Drabon suggested.

The impact force would have caused a dust storm that circled the world and turned the sky black within hours, she explained. It also would have likely had a big effect on the ocean and created a lot of heat, possibly boiling the upper part of the oceans.

Drabon said it probably would have taken years for the dust to settle and for the atmosphere to cool enough for the water vapor to return to the ocean.

But the meteorite would have contained a large amount of phosphorus. It is an important nutrient for molecules central to storing and sharing genetic information.

Powerful ocean waves also would have mixed iron-rich deep waters into shallower waters, creating a good environment for many kinds of microbes. Iron provides microbes with an energy source.

"Imagine these impacts to be giant fertilizer bombs," Drabon said.

"We think of meteorite impacts as being disastrous," Drabon said. "But 3.2 billion years ago, life was a lot simpler."

"Microorganisms are relatively simple, versatile, and they reproduce at fast rates," Drabon added.

The evidence of the hit included chemical signatures of the meteorite, small circular structures formed from rock melted by the impact, and pieces of seabed mixed with other debris in sedimentary rock.

"Early life was resilient in the face of a giant impact," Drabon said.

Will Dunham reported on this story for Reuters. John Russell adapted it for VOA Learning English.

meteorite—n.a meteor that reaches the surface of the earth without being completely destroyed

giant— adj.unusually large and/or powerful

decade— n.a period of ten years

thrive— v.to flourish, to grow vigorously

vapor— n.a substance in the gaseous state as distinguished from the liquid or solid state

versatile— adj.easily changing, having many uses

resilient— adj.adjusting easily to change or misfortune

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## Article 110: Scientists Discover a Brown Dwarf Identified 30 Years Ago Is Two Objects

*Date: 2024-10-27T22:05:00+00:00 | 725 words | Source*

No media source currently available

Astronomers have made a surprising discovery about the first brown dwarf ever identified. New observations suggest the object is actually two brown dwarfs orbiting each other.

The American space agency NASA describes a brown dwarf as an object that “straddle the dividing line between stars and planets.”

Brown dwarfs form like stars. This means they can grow dense and hot enough to collapse under their own gravity. But they never grow dense or hot enough to begin the process of nuclear fusion needed to turn into a star, NASA said. Because of this, brown dwarfs are sometimes called failed stars.

Many brown dwarfs are similar to gas giant planets and weigh just a few times more than the mass of Jupiter. Others can be much larger.

The first brown dwarf was discovered in 1995 by researchers from the California Institute of Technology (Caltech). The discovery was made with the help of the institute’s Palomar Observatory near San Diego, California.

But after many years of studying the object, known as Gliese 229B, scientists wondered why its brightness was less than expected for an object of its size.

New research now shows that the brown dwarf is actually two objects. The observations came from the Very Large Telescope, which sits in a desert area of northern Chile. Those observations showed that one of the brown dwarfs is about 38 times the mass of Jupiter, while the other is 34 times Jupiter’s mass.

In a statement, the researchers said data collected by the telescope suggests the two objects orbit each other every 12 days. That is less than half the time it takes for the moon to orbit the Earth. “The

observed brightness levels of the pair match what is expected for two small dim brown dwarfs in this mass range,” the statement added.

The two brown dwarfs are gravitationally linked to each other in what is known as a binary system. Such a situation is commonly observed among stars but is rare for brown dwarfs.

After the new discovery, the two objects were given new names – Gliese 229Ba and Gliese 229Bb. The brown dwarfs are believed to orbit a star called a red dwarf. The two sit about 19 light-years away from our solar system. A light-year is the distance light travels in one year – about 9.5 trillion kilometers.

The research was co-led by Jerry Xuan, a graduate student at Caltech. He said in a statement that Gliese 229B was always considered “the poster child” for a brown dwarf.

“And now we know we were wrong all along about the nature of the object,” he added. “It’s not one but two. We just weren’t able to probe separations this close until now.”

Astronomers had identified brown dwarf pairs before, but never any that orbited each other so closely. The research results recently appeared in a study in the publication *Nature*.

The team that discovered Gliese 229B in 1995 included Rebecca Oppenheimer. At the time, she was a Caltech graduate student. She is now an astrophysicist at the American Museum of Natural History in New York City. She was also a member of the latest research team.

Oppenheimer said, “It shows you how weird the universe is, and how different solar systems are from our own.” She added that she sees the new finding as “the most exciting and fascinating discovery” in this area of astrophysics in many years.

Caltech’s Jerry Xuan said the discovery suggests there might be other brown dwarfs closely orbiting each other. He added that he hopes the latest finding can lead to a greater understanding of brown dwarf development.

“We still don’t really know how different brown dwarfs form, and what the transition between a giant planet and a brown dwarf is,” Xuan said.

He added, “This goes to show how complex and messy the star formation process is. We should always be open to surprises.”

Bryan Lynn wrote this story for VOA Learning English, based on reports from the Associated Press, Reuters and Caltech.

straddle– v. to be on both sides of something

nuclear fusion– n. the process of joining two nuclei to produce energy

dim– adj. not very bright

range– n. a series of values

poster child– n. someone or something that is used to represent a particular quality

probe— v.to examine something carefully, especially with the goal of finding something hidden

weird—n.strange or not normal

fascinating—adj.very interesting

transition— n.a change from one kind of something to another

messy— adj.not done wel

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## Article 111: Colombian Scientists Develop Substance to Protect Bees from Chemicals

*Date: 2024-10-28T21:55:00+00:00 | 396 words | Source*

No media source currently available

Scientists in Colombia say they have developed a new food substance that protects bees from dangerous chemicals used in farming. They claim it will protect the insects' brains from neurological damage caused by chemicals called pesticides.

As pollinators, bees are extremely important in the preservation of natural ecosystems and food production.

The plant-based food substance enables bees to deal with neurotoxins commonly used in agriculture. It protects their motor system and memory harmed by the chemicals.

Researchers at Colombia's Rosario University in Bogota developed the substance. They partnered with scientists from the Colombian Universidad Javeriana and the University of Arizona in the United States.

"This is a nutritional solution to the problem bees face when exposed to pesticides," said Andre Riveros, a professor at Rosario University. Riveros explained that the food substance causes the bees to develop protection against pesticides.

The substance is created with flavonoids, which are known for their health benefits. Flavonoids come from plants and are a kind of secondary metabolite. Secondary metabolites are substances made by plants that make them competitive in their environment.

During the first round of testing, scientists put the bees to sleep and placed them into small laboratory tubes. Then, they fed the bees the substance one by one.

Testing has now moved to real-world situations in a bee colony at the university, said Juan Jose Ovalle. He is a natural science student at Rosario University.

"We already know that there are molecules that improve the bees' health. We already know that there are molecules that prevent neuronal damage caused by pesticides," Ovalle said.

He added it was important to continue the work to increase the effectiveness of these methods to support bees.

Camilo Cohecha reported this story for Reuters from Bogota, Columbia. Anna Matteo adapted it for VOA Learning English.

neurological— adj.of, relating to, or affecting the nervous system

pesticide— n.a substance used to destroy pests

pollinator— n.something (as an insect) that pollinates flowers

preservation— n.the activity or process of keeping something valued alive, intact, or free from damage or decay

ecosystem— n.a system made up of an ecological community of living things interacting with their environment especially under natural conditions

motor— n.of, relating to, or being a motor neuron or a nerve containing motor neurons :of, relating to, concerned with, or involving muscular movement

exposed— v.not shielded or protected

We want to hear from you in the Comments section. Our comment policy is here.

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## Article 112: New Rice May Help Farmers in Japan Face Climate Change

*Date: 2024-10-29T21:55:00+00:00 | 597 words | Source*

No media source currently available

In the Japanese village of Kamimomi, a small group of farmers began gathering their rice in extreme heat, two weeks earlier than usual.

Kamimomi is in Japan's western Okayama prefecture. The area is called "the Land of Sunshine" because of its good weather. But farmers working in the mountainside rice fields say climate change is hurting the harvest of rice.

Joji Terasaka farms in Okayama. He said last year a hot period dried up the rice. He added, "I am worried about that this year because it will be just as hot."

This year Japan had its hottest July on record. The Japan weather agency said temperatures were 2.16 degrees Celsius higher than average. Worldwide, there has been a 1.2-degree Celsius rise in average temperature since 1850.

Scientists agreed that warming needs to be limited to 1.5 degrees Celsius to prevent the worst effects of climate change.

Last year, Japan had a poor rice harvest nationwide because of unusually hot weather.

Officials say the drop in harvest in Japan was partly responsible for a shortage of rice this summer. The low supply of rice in markets forced sellers to limit each buyer to one rice bag.

Yuji Masutomi is a researcher at the National Institute for Environmental Studies in Tsukuba, north of Tokyo. He said, "Perhaps people think that an increase of one degree Celsius in average temperature isn't much. But it's quite a big change for plants and crops."

Masutomi said the rising temperatures also hurt the quality of the grain. Last year, the farming ministry noted that at least one-fifth of rice farms have reported a drop in quality from rising temperatures. "Not only is the appearance not good; people say the taste drops too," Masutomi said.

Another problem the farmers in Kamimomi face is working under high heat. The average age of agricultural workers in Japan is nearly 69, among the oldest in the world. Older people are especially likely to suffer from the heat. For half of the year, farmers work in the heat to produce rice.

To deal with climate change, the government is urging the use of heat-resistant varieties of rice. One strain, developed by a research center near Tokyo, is called Sai no Kizuna.

Naoto Ohoka manages rice breeding at Saitama's Agricultural Technology Research Center. Ohoka said, "Last year and this year have been extremely hot, but even in those conditions, Sai no Kizuna maintained a certain level of quality."

Sai no Kizuna was developed in 2012 to better survive high heat, wind and certain pests and diseases. Masutomi recommends that similar varieties of rice should be introduced across Japan by the 2040s.

But it can take up to 10 years to develop a new strain. After it is approved for the market, farmers must then decide to grow it.

The most widely grown strain of rice is Koshihikari, which does not do well in high heat. Even so, older farmers have not always been willing to change to other varieties. Farming ministry data show that heat-resistant varieties grow in only around 15 percent of Japanese rice fields.

Ayaka McGill reported this story for the Associated Press. Jill Robbins adapted it for Learning English.

prefecture—n. any one of the areas into which some countries (such as Japan and France) are divided for local government

variety—n.(biology) a kind of a living thing that is different from similar living things because of a genetic difference

strain—n.a group of closely related plants or animals

breed—v. to keep and take care of animals or plants in order to produce more animals or plants of a particular kind

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## Article 113: Researchers Introduce Floating Drone to Transport Goods

Date: 2024-10-29T21:55:00+00:00 | 468 words | Source

No media source currently available

South Korean researchers have developed a drone designed to stay level when transporting goods over many kinds of surfaces.

A team at Seoul National University of Science and Technology built a prototype, or test model of the drone. The team recently demonstrated the aircraft for reporters from Reuters.

The prototype has a transport carrier attached to a drone structure. It is supported by several propellers and rotors that control its height, speed and direction in the air. The aircraft has a handle workers can push to guide it where it needs to go.

Members of the development team showed how the drone can keep itself level while floating, even when transporting goods up or down stairs. Leaders of the research say the drone is programmed to predict human actions for effective interactions.

Lee Seung-jae is a professor of mechanical system design engineering at Seoul National University of Science and Technology. He was a leader of the project. The research results appeared in a study in IEEE Robotics and Automation Letters. The publication is part of the Institute of Electrical and Electronics Engineers, based in New York.

Lee told Reuters tests of the drone showed it could transport objects up to 3 kilograms. He admitted this weight restriction likely limits the drone's use cases for many businesses. But he noted that the transporter's design and operating equipment could be used to create a series of other kinds of drone vehicles.

Lee said one example would be to use the transporter to carry sensitive or breakable materials. The technology could also be used to develop "flying taxis" to transport humans, he added.

When used in a flying taxi, Lee said the drones could be used to change batteries while still flying in the air, instead of having to return to a ground station for recharging.

In general, experts say drones with multiple propellers are easier to control and move in many different settings. But they are also slower and cannot travel as far on a battery charge.

Drones with multiple rotors have already been used to transport small amounts of goods, food and medical supplies. But experts say it is difficult to widely expand use of such drones for commercial purposes. This is because such activities would require larger batteries a smaller aircraft could not support.

Reuters reported this story. Bryan Lynn adapted the report for VOA Learning English.

drone— n.a pilotless aircraft

propeller— n.a piece of equipment made of two or more flat metal pieces that turn around and cause an aircraft to move

rotor— n.a part of a machine that spins, especially the device supporting the turning blades of an aircraft

handle— n.the part of something a person uses to hold or open it



battery— n.an object that provides electricity for things such as radios, toys, cars, etc.

commercial— adj.relating to the selling and buying of goods or services

## Article 114: What to Do if Your Phone Is Stolen or Lost

*Date: 2024-10-30T22:05:00+00:00 | 1076 words | Source*

No media source currently available

Phones hold so much of our digital lives — emails, social media and bank accounts, photos and more.

As a result, if our phones ever get stolen or lost, we can face major problems.

In some places, phone thefts have increased. Britain, for example, has some 200 phones stolen every day in “snatch thefts” - when a person steals a phone in a public place, sometimes right out of an owner’s hand, and escapes quickly.

The government has promised to take steps against the crime and is meeting with technology companies and device makers to come up with solutions.

Here are steps you can take before and after your phone goes missing.

There are things you can do to make it less painful if someone steals your phone. Because some of these features are more technical in nature, people often do not think of them.

Lock down as much as you can. At a minimum, require a password or special scan to unlock the device.

You can also add similar requirements to important individual apps — like your banking account, WhatsApp or Signal — to protect your finances or messaging from thieves.

You will probably have lots of important photos saved on your camera roll.

It is a good idea to back the photos up, along with contacts, calendar and other files. Google and Apple offer cloud-based backup services, although the free versions have limited storage space. You can also back up your files to an external hard drive, memory card or a laptop.

Some police forces and phone companies advise turning off message previews. This prevents thieves trying to break into your accounts from seeing reset or login codes when the phone is locked.

To do this on an iPhone, for example, go to Notifications in your settings and choose Show Previews. You can also go down the app list to turn previews off for individual apps but leave them on for less risky ones like news or weather.

Turn on newer features

Recent iOS and Android updates include a number of new elements designed to make thefts less profitable.

iPhone users can turn on Stolen Device Protection, which makes it a lot harder for phone thieves to change key functions and settings. Many thieves will want to wipe the data off and reset so they can

resell it, but with this feature on, they will need a face or fingerprint scan to do so. Apple also recently updated its “activation lock” feature to make it harder for thieves to sell parts from stolen phones.

Android phones, meanwhile, can now use artificial intelligence (AI) to detect motion indicating someone took a device out of your hand and is racing away on foot or a bike. The program then locks the screen immediately. There is also a feature called Private Spaces that lets you hide sensitive files on your phone.

Write down your device number

Take note of your phone’s serial number, also known as an IMEI number. It can link you to the phone if it does eventually get recovered. Call it up by typing (asterisk)#06# on your phone’s keypad. If you have already lost your phone you can also find it in other places like the box it came in.

If the device is stolen

If you are unlucky enough to have your phone stolen, notify police. Call your insurance company if you have a policy that covers the device. Inform your phone company so they can freeze your number and issue a replacement SIM card or eSIM. Notify your bank so they can watch out for unusual activity.

Tracking your device

Try to find your phone with the find my device feature. For iPhones, go to [iCloud.com/find](https://icloud.com/find) from a web browser. Android users should go to [www.google.com/android/find](https://www.google.com/android/find). Samsung also has its own service for Galaxy phones.

These services will show your phone’s current or last known location on a map. The service is also handy if you cannot find your phone somewhere in the house. Apple says even if a phone cannot connect to the internet or has been turned off, it can use Bluetooth to contact any nearby Apple devices by using the same network behind its AirTags tracking devices. Google says newer Pixel phones can be located “for several hours” after they have been turned off using similar technology.

You can get the phone to play a sound, even if it is on silent. You can also put the phone in lost mode, which locks it and displays a message and contact details on the screen for anyone who finds it. Lost mode on iOS also suspends any Apple Pay cards and passes.

If the device shows up in an unfamiliar location on the map, and you suspect it has been stolen, experts say it is better to contact police rather than trying to get it back yourself.

Cybersecurity company Norton says, “Confronting a thief yourself is not recommended.”

If you cannot find your phone, there are some final steps to take.

Log yourself out of all your accounts that might be accessible on the phone. Then remove your phone from your list of trusted devices that you use to get multifactor authentication codes. But make sure you can get those codes somewhere else, such as email.

Then, as a final step, you can erase the phone remotely so that there is no chance of any data falling into the wrong hands. However, take note: Apple says that if the iPhone is offline, the remote erase will

only happen the next time the phone comes back online. But if you find the phone before it gets erased, you can cancel the request.

Google warns that SD memory cards plugged into Android phones might not be remotely erased. And after the phone has been wiped, it will not show up with find my device.

Kelvin Chan reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

function-- n.a computer subroutine; the action for which a person or thing is specially fitted or used or for which a thing exists

feature--n.a prominent part or characteristic

technical-- adj.marked by or characteristic of specialization

storage-- n.space or a place for keeping things (such as data, objects, etc.)

external-- adj.of, relating to, or connected with the outside or an outer part

multifactor authentication-- n.a multi-step login process that requires more than just a password (for example: a password plus a special code sent by text message)

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## Article 115: Large Fish Thought to Have Disappeared Found in Mekong River

*Date: 2024-10-31T21:55:00+00:00 | 530 words | Source*

No media source currently available

Researchers say a large fish that was thought to have disappeared from Asia's Mekong River has been seen in the waterway in recent years.

The fish is called a giant salmon carp. A recent study detailed the most recent sightings of the fish. The lead writer of that study said the fish was seen at least three times between 2020 and 2023.

The predatory fish can grow to more than one meter in length and has an identifiable yellow spot surrounding its large eyes.

The Mekong River is Southeast Asia's longest river. It passes through China, Laos, Thailand, Myanmar, Cambodia and Vietnam. About 60 million people depend on the river for food and survival. It is also an important environment for numerous river creatures.

The leader of the research was Chheana Chhut. He is with the Inland Fisheries Research and Development Institute in Phnom Penh, Cambodia. "The giant salmon carp is like a symbol of the Mekong region," Chheana recently told The Associated Press.

He was the co-writer with other researchers of a study announcing the findings in the publication Biological Conservation. Chheana said researchers had believed that the last confirmed sighting of the fish in the Mekong was in 2005.

But since 2017, biologists following the movements of migratory fish in Cambodia developed relationships with local fishing communities. They asked people in the communities to inform them of any unusual sightings.

That process led to the finding that three giant salmon carp were identified in the Mekong River and a neighboring waterway in Cambodia between 2020 and 2023.

Bunyeth Chan is a researcher at Cambodia's Svay Rieng University. He helped lead the research. Bunyeth told the AP, "I was really surprised and excited to see the real fish for the first time."

Researchers say the sightings give them new hope for the future of the species. Another name used for the species is "ghost fish."

"This rediscovery is very exciting, positive news," said Zeb Hogan. He is a fish biologist at the University of Nevada, Reno, who was part of the research team.

But the problems the fish experienced also demonstrate the dangers facing all migratory species in the Mekong. The huge river faces industrial pollution and overfishing, among other problems.

Brian Eyler is director of the Southeast Asia Program at the Stimson Center in Washington, D.C. He was not involved in the research. Eyler said one issue is that more than 700 dams are built along the river and neighboring waterways. In addition, there are very few workable "fish passages" that help species avoid obstructions.

The Greater Mekong area includes Vietnam, Cambodia, Laos, Thailand and Myanmar.

The researchers said they hope that cooperation with local communities in Thailand and Laos will permit them to confirm whether the fish also still swims in other parts of the Mekong.

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

predatory— adj. a predatory animal kills and eats other animals

symbol— n. a sign or object used to represent something

species— n. a group of animals or plants that are similar and can produce young animals or plants

positive— adj. something good

obstruction— n. something that blocks something or someone from being able to do something

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## Article 116: Climate Extremes Continue, Bringing Floods to Spain

Date: 2024-11-03T21:55:00+00:00 | 808 words | Source

No media source currently available

Even for a period of extreme weather, this autumn has had more than the usual weather disasters.

The Spanish province Valencia has seen the latest incident of massive and deadly flooding in Europe. Heavy downpours also hit France, Austria and Czechia this fall. Italy has had two major floods, once in

September and then again in October.

More than 200 people have been killed in the flooding in Spain. At the same time, over half of the United States experiences an almost rain-free October.

Scientists studying the recent weather say the heavy rains are probably connected to climate change in two ways. They say a warmer atmosphere holds and then releases more moisture. The other connection is possible changes in the jet stream that could cause extreme weather. The jet stream is the river of air above land that moves weather systems around the planet.

Several climate scientists and meteorologists said the immediate cause of the flooding is a cut-off lower pressure storm system that came from an unusually wavy and slowed jet stream.

In the United States, the slow movement caused a sunny, high-pressure system with no moisture to cover the country and keep storms away.

"If we're getting all the dryness, somebody else is getting all the rain," said Yale Climate Connection meteorologist Jeff Masters, co-founder of Weather Underground.

"The same extremely wavy jet stream that is causing the U.S. drought is also responsible for the horrific flooding in eastern Spain," said climate scientist Jennifer Francis. She is with the Woodwell Climate Research Center in Cape Cod, Massachusetts.

Francis is an early developer of the theory that connects a wavier and slower-moving jet stream to climate change. The theory is that the Arctic is warming so much; it is now not much colder than the rest of the planet. That theory is gaining more acceptance, but it is not fully accepted by the climate science community.

Climate scientist Erich Fischer is with the university ETH Zurich in Switzerland. He does not fully accept the wavy jet stream theory. But then he lists the storm systems that have slowed and flooded Europe this fall: one in France and two in Italy in September and October and flooding in Austria and the Czech Republic in September.

And then there were the October floods in the Balkans, although Fischer said he is not sure they are similar enough. The European climate service Copernicus says parts of Poland, Germany and the Czech Republic got three months of rain in just five days in September.

Fischer also spoke of the floods in Europe during the summer. "Starting with Bavaria, southern Germany in June, and then it was something like six events in Austria and Switzerland in the mountains, extreme thunderstorms, and now this autumn."

He said it was an unusual period in which the systems, especially in Spain, France and Austria, stopped in one place and "the rain did not move" from the same valleys for hours.

Even without the changes to the jet stream, several scientists said they are sure that basic physics are making storms like this wetter.

It holds that every degree Celsius the air warms, it can hold seven percent more moisture. The world has warmed 1.3 degrees Celsius because of greenhouse gases, so it has about nine to 10 percent heavier rain, at the least, said Imperial College London climate scientist Friederike Otto. She helps run an organization called World Weather Attribution. It checks for human causes of extreme weather, sometimes finding them, sometimes not.

She said it is very clear that climate change is linked to the rain event in Valencia.

The Mediterranean Sea had its warmest surface temperature on record in mid-August, with a mean temperature of 28.47 Celsius, said Carola Koenig of the Centre for Flood Risk and Resilience at Brunel University of London.

She said that means more moisture is in the air, “resulting in more rain when the atmosphere starts to cool in the autumn.” She warned there may be more heavy rain after this week’s storm.

There may be different ways of counting and attributing climate change and the problems it causes, Otto said, but one thing is for certain: "Burning fossil fuels causes climate change and climate change causes death and destruction."

I’m Mario Ritter. And I’m Jill Robbins.

Seth Borenstein reported this story for the Associated Press. Jill Robbins adapted it for Learning English.

jet stream—n. a strong current of fast winds high above the Earth's surface

moisture—n. a small amount of a liquid (such as water) that makes something wet or moist

meteorologist—n. a science that deals with the atmosphere and with weather

drought—n. a period with no rain

physics—n. a science that deals with matter and energy and the way they act on each other in heat, light, electricity, and sound

attribute—v. to say that (something) is because of (someone or something)

## Article 117: NASA to Launch Instrument to Study Water on Moon

Date: 2024-11-03T22:05:00+00:00 | 753 words | Source

No media source currently available

The American space agency NASA is preparing to launch a spacecraft to seek more detailed information on water sources on the moon.

The spacecraft is an orbiter called Lunar Trailblazer. It is set to launch later this year, or in early 2025. A SpaceX Falcon 9 rocket will carry the orbiter to space. That rocket will also transport another moon exploring spacecraft.

In a recent statement, NASA said Lunar Trailblazer passed a series of important operational tests. It is currently completing additional software testing designed to simulate different elements of the trip, or mission.

NASA's Jet Propulsion Laboratory (JPL) is leading the mission, in cooperation with the California Institute of Technology (Caltech) in Pasadena, California. Lockheed Martin Space provided the spacecraft, linked it with the flight system, and supports operations as part of a contract with Caltech.

The spacecraft will use two science instruments to carry out its mission. Both instruments are designed to map the moon in search of areas containing water, as well as what forms the water is in. The two instruments use infrared technology to produce highly detailed mapped images.

Lunar Trailblazer weighs about 200 kilograms and measures 3.5 meters with its solar equipment fully deployed. The spacecraft is set to orbit the moon about 100 kilometers from the lunar surface.

Several past studies have provided strong evidence that water exists on the moon. But the evidence has not included exact details on where it is and what forms it might take. Scientists believe most of the water is solid, in the form of ice. But there could be areas where water exists in liquid form, or as a gas in the atmosphere.

One study released last month suggested that existing water on the moon is more widespread than previously thought. That study was based on new examinations of data collected by India's Chandrayaan-1 orbiting spacecraft.

NASA has said its search for water on the moon is important because it is seen as a necessary resource for future exploration activities. Astronauts could process it for drinking water, to cool equipment, to create breathable oxygen or even to make rocket fuel.

NASA said Lunar Trailblazer will make it easier for future human or robotic science investigators to use the water to see where it first came from.

For example, the presence of ammonia in ice could suggest it came from comets, NASA said. The presence of sulfur, on the other hand, could show it rose to the surface from deep inside the lunar interior when the moon was young and volcanically active.

One of the instruments, the High-resolution Volatiles and Minerals Moon Mapper, was developed by the JPL. The other, called the Lunar Thermal Mapper, was built by a team at the University of Oxford in Britain.

Neil Bowles is an instrument scientist for the Lunar Thermal Mapper. He said in a statement the instrument would center on producing detailed maps of lunar surface temperatures. He added that the other instrument will look for a series of signs, called signatures, of water molecules.

"Both instruments will allow us to understand how surface temperature affects water, improving our knowledge of the presence and distribution of these molecules on the moon," Bowles said.

The orbiter is designed to provide scientists with new information about how much movement there is of water molecules on the moon. Such movements can be linked to how much sun specific areas

receive. “Understanding whether water molecules move freely across the surface of the moon or are locked inside rock is also scientifically important,” NASA said in a statement.

Rachel Klima is an investigator for the Lunar Trailblazer spacecraft and its systems at the Johns Hopkins Applied Physics Laboratory in Laurel, Maryland.

She said data collected by the instruments can help provide information about where the moon’s water first came from. Klima compared such examinations to those involving glaciers that help scientists learn about Earth’s ancient history. Ice on the moon, she said, “could provide clues as to where that water came from and how and when it got there.”

Bryan Lynn wrote this story for VOA Learning English, based on reports from NASA.

simulate— v.to do or make something that behaves or looks like something real but is not

comet— n.an object in space that leaves a bright line behind it in the sky

distribute— v.to give something out to people or places

glacier— n.a large mass of ice that moves very slowly, usually down a hill or valley

clue— n.a sign or a piece of information that helps to solve a problem or answer a question

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## Article 118: Researchers Discover World’s Oldest Tadpole

*Date: 2024-11-05T21:55:00+00:00 | 353 words | Source*

No media source currently available

Scientists in Argentina have discovered the oldest-known remains of the tadpole. The animal belonged to a large frog species that lived alongside dinosaurs about 161 million years ago.

The researchers said the 16-centimeter-long tadpole died during the larval period, or stage, of frog development. The discovery is providing new information about the development of frogs and toads.

The remains suggest tadpoles today are largely unchanged from their ancestors in the ancient time called the Jurassic period. The oldest-known frog remains date back even further, though no older tadpole fossils have been found.

The remains are in good condition. In fact, researchers say, the ancient tadpole has some soft tissues rarely seen in fossils. The tadpole’s eyes and nerves, for example, appear as dark markings in the fossil.

Fossil hunters found the tadpole in 2020, during a dig for dinosaur remains on a ranch in the southern province of Santa Cruz. The fossil includes the tadpole’s head and most of its body.

Frogs have a two-stage life cycle, with the tadpole larva developing into the adult form. This tadpole was in the late stages of development. Adults of this species are a similar length as the tadpole, the researchers said.



"It's not only the oldest tadpole in the world and amazingly preserved, but it also tells us about the size of one of the few frog species known from that time," said biologist Mariana Chuliver of Fundación Azara-Universidad Maimónides.

Chuliver was the lead writer of the study that appeared recently in the scientific publication *Nature*.

Chuliver said the soft tissue remains are important because they permit researchers to "know the diet and lifestyle of these organisms."

The remains, Chuliver added, show that the form and structure of tadpoles have "remained almost unchanged over the last 160 million years."

Miguel Lo Bianco reported on this story for Reuters. John Russell adapted it for VOA Learning English.

species— n.a class of animals having common attributes and designated by a common name

fossil— n.the remains of an organism of past geologic ages that has been preserved in the earth's crust

preserve— v.to keep intact or free from decay

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## Article 119: US Approves Apple AirPods to Be Used as Hearing Aids

*Date: 2024-11-06T22:05:00+00:00 | 751 words | Source*

No media source currently available

The American government has approved the use of Apple AirPods as hearing aids.

The United States Food and Drug Administration (FDA) recently announced it had approved new hearing aid software created for some AirPods devices. An Apple software release this week launched the system on the devices.

Apple said its AirPods Pro 2 are equipped with the software. The company added that the design will permit users to turn their AirPods into a medical-strength hearing aid device.

The system aims to increase specific sounds in real-time, including parts of speech and elements within a users' environment. Apple says another goal of its software release is to get more people to try hearing aids.

An estimated 30 million Americans – about 1 in 8 Americans over the age of 12 — have hearing loss in both ears. Millions could see improvements from hearing aids. But most have never tried them, the National Institute on Deafness and Other Communication Disorders says.

Many others have tried assistive devices, but choose not to use them. The reasons include high cost, poor quality, poor fit, how the devices look or other reasons. But in recent years, there has been a push in the U.S. to get more people to try them.

In 2022, federal rules changed to permit some kinds of hearing aids to be sold without a doctor's order, or prescription. Such moves aimed to bring better and less costly models to patients.

The highest-quality hearing aids can cost from \$1,000 to \$2,500, or even more. But some over-the-counter models sell for between \$400 and \$500, said Elizabeth Stangl, a hearing expert at the University of Iowa. She spoke to The Associated Press.

Stangl said some of the less costly models are only effective at raising sound levels. But they lack the personal settings and noise blocking tools that can make hearing aids most helpful. AirPods cost \$249 on Apple's website, and sometimes less from other sellers.

The launch of the software is part of a series of health tools Apple has released over the years. Most of them were built for the Apple Watch. These include several tools for checking heart and oxygen levels.

Apple's software release also includes built-in tests to help users find out if they have hearing loss and, if so, how severe it is. Those who do have hearing loss can then set specific amplification levels.

Experts say there are other, similar headphone devices on the market that could also be used to increase sound levels for people with hearing loss. But many agree the AirPods addition is a good one, largely because of the way it could help normalize hearing aids for the public.

Barbara Kelley is the director of the Hearing Loss Association of America. She told the AP that AirPods are considered "mainstream" and already widely used. This could get people to try the devices if they have been resistant to the look of traditional hearing aids.

Kelley noted that many health conditions have been linked to hearing loss. These include depression, dementia and greater risk of falls. The majority of people with hearing loss are over age 60, but it can affect younger people as well, including those who suffered a hearing damaging event.

"Everything we do, all our relationships, whether it's personal or in our work life, involve hearing conversation," Kelley said. "We're finding now that the sooner that people can pay attention to their hearing health, the better."

The University of Iowa's Stangl noted the AirPods solution does come with possible issues some people may not like. Fit and comfort during long use might be one of these. And while other hearing aids are built to last through a whole day or more, she said the battery life of the AirPods does not permit for that. She also said that wearing AirPods might send a message to others that the person does not want to be disturbed or spoken to.

"But we're hoping that more people will try it and realize, 'Yeah, these do help,'" Stangl said.

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Reuters, Agence France-Press and Apple.

specific—adj. restricted to a particular individual, situation, effect, or reaction

amplify— v. to make louder

mainstream— adj.the beliefs or way of living accepted by most people

dementia— n.a mental illness suffered especially by older people

conversation— n.a discussion between two or more people

battery— n.a device that chemically stores electricity so it can be used as direct current in electrical circuits such as computers and motors

disturb— v.to interrupt what someone is doing

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## Article 120: Europe's Space Agency Is in Talks with SpaceX to Cut Space Junk

*Date: 2024-11-07T21:55:00+00:00 | 488 words | Source*

No media source currently available

The European Space Agency (ESA) is reportedly in talks with America's SpaceX to cooperate in efforts to reduce the growing amount of spacejunk.

The talks, reported by Reuters news agency, aim to get the California-based space company to join an international agreement that pushes for policies to fight space debris. It has been estimated that SpaceX satellites represent about two-thirds of spacecraft currently in low-Earth orbit.

Space debris is anything that humans have put into space that is no longer in use. This could include satellites, equipment, parts of rockets or spacecraft.

Space junk orbits hundreds of kilometers above Earth. It can circle Earth at speeds of about 25,000 kilometers per hour in low-Earth orbit. And it can cause major damage if it hits a space station, satellite or spacecraft.

The International agreement that ESA wants SpaceX to join is called the Zero Debris Charter. It seeks to stop any new orbital junk from being created by 2030. The 22 members of ESA have been seeking new members to join the agreement since the agency announced it in 2023.

ESA Director General Josef Aschbacher told Reuters that more than 100 countries and organizations have so far joined the agreement. When asked about SpaceX's possible involvement, Aschbacher said ESA was "in discussion" with the company to possibly sign up.

Aschbacher did not provide further details. But he said that work on the charter is moving forward, and ESA is continually raising the issue of space junk with nations and organizations.

Reuters reported that SpaceX did not respond to a request for comment on the matter. The news agency said that out of about 10,300 active satellites in space, an estimated 6,300 are part of SpaceX's fast-growing Starlink internet service system. Reuters said that information came from the U.S. Space Force.

Other organizations and nations are also launching their own large satellite collections. China has done so in an attempt to compete with SpaceX, Reuters reported. In addition, American-based Amazon expects to launch more than 3,000 satellites for its Kuiper internet service over the next 10 years.

Jonathan McDowell is a Harvard University astronomer who follows such objects. He has estimated there are nearly 19,000 pieces of trackable space junk in orbit.

There are no international laws on space debris. But in recent years countries have begun to create plans and national rules for fighting the problem.

"We are not a regulatory body; we are a technical space agency," Aschbacher said. "But the fact that we have put the charter around the table, which was elaborated with all the other partners, and that they signed up to it is very encouraging," he added.

Reuters reported this story. Bryan Lynn adapted the report for VOA Learning English.

junk— n. old things that no longer have much value

debris— n. broken pieces of something

regulatory— adj. controlling an activity or process, especially by using rules and laws

elaborate— v. to talk for a long time about something

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## Article 121: Researchers Discover Large, Ancient Mayan City

*Date: 2024-11-07T21:57:00+00:00 | 313 words | Source*

No media source currently available

Researchers in Mexico have discovered a large, lost Mayan city.

The major urban settlement, named Valeriana, is hidden deep in the southern forest of Campeche.

The discovery adds to existing knowledge about ancient Mayan settlements.

Valeriana was discovered by chance thanks to Lidar, or Light Detection and Ranging. It is a technology that uses lasers to map the Earth's surface.

The data used for the study came from around 122 square kilometers of high-quality Lidar data collected in 2013.

The work, led by the Nature Conservancy in Mexico, was part of a forest monitoring project called Alianza. The project aimed to reduce emissions from tree cutting, or deforestation, and land damage.

Researchers wrote in the study, published by Cambridge University Press, that "The discovery of Valeriana highlights the fact that there are still major gaps in our knowledge of the existence or absence of large sites within as-yet unmapped areas of the Maya Lowlands."

Lidar technology revealed a major settlement, filled with buildings and agricultural infrastructure.

The classical-era Maya civilization dates back to around 1800 to 1100 years ago. At the time, the Maya civilization grew its control over present-day southern Mexico and what are now Belize, El Salvador, Guatemala and Honduras.

In the study, the researchers identified a total of 6,764 structures, suggesting a populous ancient city.

The researchers will carry out further detailed study of the dataset – both remotely and in the field. The discovery serves as a way to better understand ancient Mayan urbanization and settlements.

Raul Cortes reported on this story for Reuters. John Russell adapted it for VOA Learning English.

urban— adj.of, relating to, characteristic of, or constituting a city

monitor-- v.to watch, keep track of, or check usually for a special purpose

highlight— v.to constitute a significant or especially interesting part of; to center attention on

infrastructure— n.the resources (such as buildings, roads, irrigation, or equipment) required for an activity

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## Article 122: Study Finds Saturn’s Moon Titan has Huge Layer of Methane-filled Ice

*Date: 2024-11-10T22:05:00+00:00 | 697 words | Source*

No media source currently available

New research suggests Saturn’s moon Titan has a thick ice cover that could be warming lower areas and supporting molecular growth.

Scientists at the University of Hawaii carried out the new study. It appears in *The Planetary Science Journal*. The findings add to existing evidence that Titan may hold the right mix of materials to support possible life.

No life forms have been confirmed on Titan, a cold, icy world. But past studies suggest the moon now has a large layer of ice that once supported widely flowing water on the surface. Titan is also thought to contain a dense atmosphere rich in nitrogen and methane, both of which are found in Earth’s own atmosphere.

NASA reports Saturn has a total of 146 moons orbiting it, more than any other planet. Titan, an ice giant, is the largest of them.

For more than 10 years, NASA’s Cassini spacecraft studied Saturn “and its complex system of rings and moons,” the space agency said. The new study used NASA data to closely examine surface details of Titan.

The researchers used computer modeling to examine different elements of Titan’s surface. One of the main discoveries was that many craters examined on Titan’s surface were not as deep as some other moons. The team reported that in some cases, craters were hundreds of meters shallower, or less deep,

than scientists expected. In addition, only 90 craters were identified on the whole moon.

“This was very surprising because, based on other moons, we expect to see many more impact craters on the surface,” said University of Hawaii’s Lauren Schurmeier, who led the study.

She said the research team had also expected to see much deeper craters. “We realized something unique to Titan must be making them become shallower and disappear relatively quickly,” she said.

Computer modeling carried out by the researchers showed how the surface might have changed to remove signs of major impact craters. The researchers said one of the most likely causes of such change was that the moon’s icy surface is covered with a thick layer of solid water ice, with methane gas trapped inside.

The team said the data examinations suggest Titan has a methane-filled icy crust that is from five to 10 kilometers thick. The modeling operations run by the scientists produced images that looked similar to crater formations on Titan’s surface.

Schurmeier said the methane crust, “warms Titan’s interior” and can cause surprisingly fast changes to the surface structure. Schurmeier noted, for example, that crater shallowing on Titan is believed to be happening at a rate “that is close to that of fast-moving warm glaciers on Earth.”

The surface of Titan is estimated to be about minus 179 degrees Celsius. Because of this extreme cold, liquids on the moon’s surface take the form of ice, with methane gas locked inside, the researchers said. This gas could help warm surface levels beneath, possibly permitting molecules to rise toward the surface.

Schurmeier said studying the thickness of Titan’s icy crust is important because it might help explain how the moon’s atmosphere began to develop. The measurements could also provide additional information on Titan’s changing climate.

“Titan is a natural laboratory to study how the greenhouse gas methane warms and cycles through the atmosphere,” she said. The resulting information, she added, can provide important insights about such processes happening on Earth.

NASA’s Cassini spacecraft ended its mission in 2017, when it crashed into Saturn’s atmosphere. But the U.S. space agency has plans to send another explorer to Titan in 2028. That mission calls for a spacecraft called Dragonfly to travel to Titan to observe many different areas. The planned explorer, called a rotorcraft, operates similar to a helicopter.

Bryan Lynn wrote this story for VOA Learning English, based on reports from the University of Hawaii at Manoa, the University of Lisbon and NASA.

layer— n. an amount of something covering a surface

crater— n. a hole left in the ground by an object that hits it with a huge force

impact— n. the force or action of one object hitting another

unique— adj. different from everyone and everything else

crust— n.a hard, dry layer of the surface of something

glacier— n.a large mass of ice that moves very slowly, usually down a hill or valley

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## Article 123: Japan Launches World's First Wooden Satellite

*Date: 2024-11-11T21:55:00+00:00 | 644 words | Source*

No media source currently available

An experimental satellite made out of wood has been launched into space. Japanese developers of the device say it is the first time a wooden satellite has ever been sent to space.

The small satellite, called LignoSat, launched aboard an uncrewed Cargo Dragon spacecraft to the International Space Station (ISS). The satellite will later be released into orbit about 400 kilometers above Earth.

The satellite was built in the form of a box, with each side measuring about 10 centimeters. It was developed jointly by researchers at Kyoto University and Japanese homebuilder Sumitomo Forestry.

A spokeswoman for Sumitomo Forestry told the French news agency AFP that the launch of the satellite was “successful.” She said the plan calls for the device to be released into orbit in about a month, when its strength and effectiveness will be tested.

While made mostly of wood, LignoSat contains electronic elements that will control its movements and collect data on its operation. Once deployed, the satellite is expected to remain in orbit for about six months.

The main goal of the experimental satellite is to see whether wood material can be used to build additional satellites or other space equipment. Wood is considered more environmental friendly. This is because it can just burn up when reentering Earth's atmosphere. Satellites and other materials made of metal can release polluting particles into the air and oceans upon reentry.

International officials have already identified spacejunk as a growing problem. This includes things like dead satellites, lost pieces of equipment or small pieces of paint. Such objects can present threats to spacecraft and satellites operating in space.

Takao Doi is an astronaut who has flown on past space missions and studies human space activities at Kyoto University. He told Reuters he thinks wood can greatly improve future stays for long-term space travelers. "With timber, a material we can produce by ourselves, we will be able to build houses, live and work in space forever," Doi said.

He added that the experiment is designed to demonstrate the abilities of wood to serve as a suitable material for developing future space equipment.

"Early 1900s airplanes were made of wood," said Kyoto University forest science professor Koji Murata. "A wooden satellite should be feasible, too." Murata noted that wood can last longer in space

than on Earth because water or oxygen cannot burn or destroy it.

Doi said it is possible metal satellites could be banned in the future. "If we can prove our first wooden satellite works, we want to pitch it to Elon Musk's SpaceX."

The team said a 10-month experiment aboard the ISS found that honoki – a native tree in Japan and traditionally used to make sword covers – is well-suited for spacecraft. LignoSat is made of honoki as part of a traditional Japanese crafting method that does not use screws or glue.

Kenji Kariya is a leader at Sumitomo Forestry Tsukuba Research Institute. He told Reuters the wooden satellite will also test the ability of the material to reduce the effects of space radiation on semiconductors.

"It may seem outdated, but wood is actually cutting-edge technology as civilization heads to the moon and Mars." Kariya noted that expanding into space technologies could support the timber industry.

Reuters and Agence France-Press reported on this story. Bryan Lynn adapted the reports for VOA Learning English.

junk– n. material that is no longer of use or working

timber– n. wood used to construct buildings

feasible– adj. possible to do

pitch– v. try to persuade someone to do something

sword– adj. a weapon with a long, metal blade and a handle, that was especially used in the past

crafting– n. an activity in which you make something using a lot of skill, especially with your hands

semiconductor– n. a material, such as silicon, that permits electricity to move through it more easily when its temperature increases

outdated– adj. not modern enough

cutting-edge– adj. very modern, with all the newest developments

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## Article 124: Europe Scientists Predict Another World Heat Record

Date: 2024-11-12T21:55:00+00:00 | 523 words | Source

No media source currently available

Europe's climate agency says this year is likely to break 2023's record for the hottest year ever.

Researchers at the Copernicus agency also predicted 2024 will be the first year to be more than 1.5 degrees Celsius hotter than what is called the pre-industrial period. That period, from 1850 to 1900, is when humans began the widespread burning of fossil fuels.



The new data was released ahead of the United Nations COP29 climate meeting taking place this week in Azerbaijan. At that meeting, international representatives are expected to agree to call for more spending to fight the worldwide effects of climate change.

The European climate agency said that from January to October, the average world temperature rose so much that 2024 would almost surely be the world's hottest year on record.

Copernicus said its records date back to 1940 and are compared with world temperature records going back to 1850.

The director of Copernicus, Carlo Buontempo, told Reuters news agency the main cause of this year's record is climate change. "The climate is warming, generally. It's warming in all continents, in all ocean basins. So we are bound to see those records being broken," Buontempo said.

Buontempo also said the data clearly show such warming would not be happening without the continued release of carbon emissions into the atmosphere. Scientists say carbon dioxide is released by the burning of coal, oil and gas.

Buontempo noted the importance of worldwide observations and data collection to support the group's findings and predictions. Copernicus gathers data from billions of measurements from satellites, ships, aircraft and weather stations around the world.

Sonia Seneviratne is a climate scientist at public research university ETH Zurich in Switzerland. She told Reuters she was not surprised by the new prediction.

Seneviratne urged delegates at COP29 to agree to stronger action to limit the use of carbon-producing fossil fuels. "The limits that were set in the Paris agreement are starting to crumble given the too-slow pace of climate action across the world," she said.

Many countries agreed to try to prevent the average temperature of the atmosphere from increasing by more than 1.5 degrees Celsius over a period of years by signing the 2015 Paris Agreement. Officials from Copernicus have said that the 1.5-degree Celsius limit could be passed around 2030. "It's basically around the corner now," Buontempo said.

Climate scientists say each increase in temperature can fuel extreme weather. Recent examples of weather-related events include flooding that killed hundreds of people in Spain and wildfires in Peru. In Bangladesh, flooding destroyed more than 1 million tons of rice, driving food prices higher.

The Associated Press and Reuters reported this story. Bryan Lynn adapted the reports for VOA Learning English.

fossil fuels— n. fuels such as coal, oil, or natural gas that are formed in the Earth from dead plants or animals

continent— n. one of a few very large landmasses on the Earth, such as Eurasia and Africa

basin— n. a low area of land from which water flows into a river

emission— n. the act of sending something out such as a gas, heat, or light

crumble— v.to collapse or break down

around the corner— phr.about to happen soon

## Article 125: Webb Telescope Shows a Black Hole Breaking a Theoretical Limit

Date: 2024-11-12T21:55:00+00:00 | 612 words | Source

No media source currently available

Researchers have observed a large black hole that gained mass at a rate much faster than scientists had thought possible.

New observations from the Webb telescope involve the largest kind of black hole, a supermassive black hole. It is called LID-568. Scientists say it existed when the universe was about 11 percent of its current age.

Background of a black hole

Black holes are extremely dense objects with gravity so strong that not even light can escape. With their powerful gravitational pull, they grow in mass by taking in material such as gas, dust and stars that are nearby.

A supermassive black hole about four million times the mass of the sun, called Sagittarius A\*, is at the center of our Milky Way galaxy. Supermassive black holes are believed to be at the center of most galaxies.

Since NASA's James Webb Space Telescope started operating in 2022, researchers have been surprised to find supermassive black holes in the early universe. Researchers had believed that it takes a longer amount of time to gather such huge amounts of mass.

New observations of one early black hole give information about how this growth took place.

"The existence of supermassive black holes in the early universe challenges our current models of black hole formation and growth," said Hyewon Suh of the International Gemini Observatory in Hawaii and the U.S. National Science Foundation's NOIRLab. Suh was the lead writer of the study detailing the findings in the scientific publication *Nature Astronomy*.

The supermassive black hole LID-568 existed about 1.5 billion years after the Big Bang. The Big Bang, the event that started the universe, took place around 13.8 billion years ago.

LID-568 has a mass 10 million times greater than the sun, or two- and one-half times the mass of Sagittarius A\*. The researchers do not yet know the mass of its home galaxy.

The Webb telescope showed LID-568 gaining mass at a rate faster than scientists had thought possible. LID-568 appeared to be consuming infalling material - known as accretion - at more than 40 times the previously believed maximum for such activity.

This maximum is known as the Eddington limit.

### Exceeding the Eddington Limit

Early black holes are thought to have started in one of two ways. They could have begun after the explosive death of the universe's first generation of stars or through the collapse of large clouds of gas present in the early universe.

The discovery of LID-568 suggests that a lot of mass growth can take place during one time, or episode, of rapid accretion, Suh suggested.

A good sign of a growing supermassive black hole is emission of X-rays, high-energy electromagnetic radiation with very short wavelengths. Material moving around a supermassive black hole is superheated and glows strongly in X-ray wavelengths before disappearing in the black hole.

The researchers first spotted LID-568 using NASA's Chandra X-ray Observatory. They then studied it more closely with the Webb space telescope.

The Webb observations suggest the existence of a faster way for black holes to take in material.

Suh described LID-568 as "remarkable." She added, "We don't know yet how LID-568 is able to exceed the Eddington limit. To investigate further, we need more data, so we are planning to conduct follow-up observations with Webb."

Will Dunham reported on this story for Reuters. John Russell adapted it for VOA Learning English.

supermassive— adj.(describes black hole) the largest kind of black hole

challenge— v.to dispute or question something

consume—v.to take in, use up or eat

infalling— adj.moving under the influence of gravity toward an object (such as a black hole)

accretion— n.the process of growth or enlargement by a gradual buildup

emission—n.the process of releasing or sending out radiation

conduct—v.to carry out

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## Article 126: Researchers: Huge Drop in African Elephants

Date: 2024-11-13T21:57:00+00:00 | 516 words | Source

No media source currently available

African elephants are Earth's largest land animals. They are very intelligent and highly social. A recent study also says that numbers of African elephants sharply decreased over about fifty years.

The researchers described their work as the most comprehensive study of the two African elephants species- the savanna elephant and forest elephant. The study used data gathered at 475 areas in

37 countries from 1964 through 2016.

It found that savanna elephant populations fell by about 70 percent on average and forest elephant populations dropped by about 90 percent on average. The researchers mainly blame the decline on illegal hunting and the loss of the animals' natural environment.

However, the report also says populations of each species increased in other places because of wildlife protection programs.

"A lot of the lost populations won't come back, and many low-density populations face continued pressures. We likely will lose more populations going forward," said George Wittemyer. He is a Colorado State University professor who works with the conservation group Save the Elephants. Wittemyer helped lead the study, published in the Proceedings of the National Academy of Sciences.

Illegal hunting of animals is also called poaching. Elephant poachers usually kill the animals in order to remove their tusks. These prized objects are then sold on illegal markets, driven mostly by demand in China and other parts of Asia.

The research says agricultural expansion is mainly responsible for the loss of elephant habitat, meaning the natural areas where the animal lives.

Poaching has mostly affected forest elephants. Its population is estimated to be about one-third that of savanna elephants. Poaching has been especially damaged populations in northern and eastern Africa, such as Mali, Chad and Nigeria. But, in southern Africa, elephant populations rose at 42 percent of the studied areas.

"We have seen real success in a number of places across Africa, but particularly in southern Africa, with strong growth in populations in Botswana, Zimbabwe and Namibia," Wittemyer said. He credited conservation efforts by governments and independent organizations for the growth.

The study did not provide a continent-wide population count. It says the different methods used for counting over different periods made it impossible to keep a unified count of the African elephants. Instead, it estimates population trends in each of the studied areas.

A separate report from conservationists places the population of African elephants at between 415,000 and 540,000 as of 2016, the last year of the study period. It remains the most recent comprehensive continent-wide estimate.

Colorado State's Wittemyer said, "While the trends are not good, it is important to recognize the successes we have had and continue to have. Learning how and where we can be successful in conserving elephants is as important as recognizing the severity of the decline they have experienced."

Will Dunham reported this story for Reuters. Hai Do adapted the story for Learning English.

comprehensive- adj. including many, most or all

species- n. a group of animals or plants that are similar

decline- n. the change to a lower number

trend- n. the general direction of change

We want to hear from you. Our comment policy is here.

## Article 127: Australia Plans Social Media Ban for Children under 16

Date: 2024-11-13T22:05:00+00:00 | 638 words | Source

No media source currently available

The Australian government recently announced plans to ban the use of social media by children under the age of 16.

Prime Minister Anthony Albanese said, “Social media is doing harm to our kids.” He added that now is the time for the government to intervene.

The country’s Parliament will introduce a new bill during the final two weeks of its meeting starting on November 18. The bill will set an age limit of 16 for children to use social media and make the services responsible for enforcement.

Albanese told reporters that the age limit would take effect 12 months after the bill is passed. And social media services, including X, TikTok, Instagram and Facebook, would need to use the year to work out how to put age controls in place.

“I’ve spoken to thousands of parents, grandparents, aunties and uncles. They, like me, are worried sick about the safety of our kids online,” Albanese said.

The proposal comes at a time when governments around the world are considering ways to control how young people use smartphones and social media.

Under the Australian proposal, social media companies would face penalties for violating the age limit. However, under-age children and their parents would not face penalties.

Antigone Davis is the head of safety at Meta, which owns Facebook and Instagram. Davis said the company would respect any age limits the government wants to put in place. She added that officials need to discuss the ways social media can make the age limit happen. She suggested that stronger tools in app stores and computer systems for parents could be a “simple and effective solution.”

X did not immediately answer a request from The Associated Press (AP) for comment. TikTok said it would not offer a comment to the AP.

Some groups oppose the age limit

More than 140 experts in fields related to technology and children signed an open letter to Albanese last month opposing a social media age limit. The letter said a ban would not be an effective way to deal with the risks of social media use.

Sunita Bose is a director at the Digital Industry Group in Australia. Bose said in a statement, “Rather than blocking access through bans, we need to take a balanced approach to create age-appropriate spaces,

build digital literacy and protect young people from online harm.”

Jackie Hallan is a director at the youth mental health service ReachOut. She also opposed the ban. She noted that 73 percent of young people across Australia seeking mental health support get it through social media. She added that young people are likely to find ways to use social media even with a ban in place.

Child psychologist Philip Tam said it would have been easier to enforce the ban for children under the age of 12 or 13. Tam said, “My real fear honestly is that the problem of social media will simply be driven underground.”

Prime Minister Albanese said there would be rules to permit social media use in some situations, such as a need to connect with educational services.

Earlier this year, the government began testing age-restriction technologies among a group of users. Officials will use the test results to guide what reasonable steps social media services can take.

Lawmaker Paul Fletcher said the services already have the technology to enforce such an age ban. He added that if the law for controlling social media use is well written, Australia can get the results it wants.

Rod McGuirk wrote this story for The Associated Press. Andrew Smith adapted it for VOA Learning English.

penalty—n.a punishment for a violation of a rule or law

access—n.the ability to get to persons, places, or things you want

appropriate—n.correct or suitable in relation to a person or situation.

literacy—n.the ability to read and write; having knowledge of a particular subject

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## Article 128: Scientists Identify Misunderstanding about Uranus

*Date: 2024-11-14T21:55:00+00:00 | 660 words | Source*

No media source currently available

In 1781, German-born British astronomer William Herschel made Uranus the first planet discovered with a telescope. But, 243 years later, we still do not know much about this cold planet, the third largest in our solar system. And some of what we thought we knew about it turns out to be untrue.

Much of the knowledge about Uranus was collected when NASA's robotic spacecraft Voyager 2 flew past it in 1986. But scientists have since learned that the craft visited at a time of unusual conditions. An intense solar wind event at the time led to misleading observations about Uranus, and especially its magnetic field.

Observations in a solar wind event

The solar wind is a high-speed flow of charged particles coming from the sun. The researchers took a second look at eight months of data from around the time of Voyager 2's visit and found that it flew near Uranus just a few days after the solar wind had reduced the planet's magnetosphere to about 20 percent of its usual size.

A magnetosphere is an area of space surrounding a planet that is controlled by the planet's magnetic field. The magnetosphere protects the planet from solar and cosmic particle radiation.

The Voyager 2 observations led scientists to think Uranus' magnetosphere lacked in plasma and had very intense belts of highly energetic electrons.

Plasma is often called the fourth state of matter after solids, liquids and gases. In the night sky, plasma gives out light in the form of stars, nebulae, and even the auroras above the north and south poles. Plasma is a common feature in the magnetosphere of other planets, so scientists did not understand why there would not be much of it observed around Uranus.

Jamie Jasinski studies space plasma at NASA's Jet Propulsion Laboratory. He is the lead writer of the study published recently in the publication *Nature Astronomy*.

"We found that the solar wind conditions present during the flyby only occur 4 percent of the time. The flyby occurred during the maximum peak solar wind intensity in that entire eight-month period," Jasinski said. "We would have observed a much bigger magnetosphere if Voyager 2 had arrived a week earlier."

Such a visit would likely have shown that the Uranus magnetosphere is like those of Jupiter, Saturn and Neptune, the solar system's other large planets, the researchers said.

Uranus looks blue green because of the methane contained in its atmosphere. The planet is big enough to fit 63 Earths inside it. Among the solar system's eight planets, only Jupiter and Saturn are larger.

Uranus orbits almost 20 times further from the sun than Earth does. And it has 28 known moons and two sets of rings.

Data collected by Voyager 2 had suggested that its two largest moons - Titania and Oberon - often orbit outside the magnetosphere. But the new study shows that they usually stay inside the protective space, making it easier for scientists to magnetically detect possible subsurface oceans.

"Both are thought to be prime candidates for hosting liquid water oceans in the Uranian system..." Jet Propulsion Laboratory planetary scientist and study co-writer Corey Cochrane said.

Scientists want to learn whether subsurface oceans on moons in the outer solar system have conditions that could support life. So, on October 14, NASA launched a spacecraft on a mission to Jupiter's moon Europa to try to answer that question.

"A future mission to Uranus is crucial to understanding not only the planet and magnetosphere, but also its atmosphere, rings and moons," Jasinski said.

Will Dunham reported this story for Reuters. Jill Robbins adapted it for Learning English.

nebula— n. a cloud of gas or dust in space that can sometimes be seen at night

aurora(\_ borealis, or Northern Lights)— n.large areas of green, red, blue, or yellow light that sometimes appear in the night sky in far northern regions

peak— adj.at the highest point or level

detect— v.to discover or notice the presence of (something that is hidden or hard to see, hear, taste, etc.)

prime— adj.most important

crucial—adj.very important

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## Article 129: China Builds Test Version of Nuclear Reactor for Navy

Date: 2024-11-14T21:55:00+00:00 | 613 words | [Source](#)

No media source currently available

China has built a land-based test version of a nuclear reactor for a large warship. The development is the clearest sign yet that Beijing is moving toward producing the country's first nuclear-powered aircraft carrier. This information comes from a new study of satellite imagery and Chinese government documents provided to the Associated Press.

Why is this development important?

There has long been talk that China is planning to build a nuclear-powered aircraft carrier. But the recent research by the Middlebury Institute of International Studies in California is the first to confirm the country is working on a nuclear-powered movement system for a carrier-sized surface warship.

China's navy is already the world's largest in terms of numbers.

China's navy has also been developing quickly. Adding nuclear-powered carriers to its fleet would be a major step in realizing its hopes for a force capable of operating around the globe.

Nuclear carriers take longer to build than conventional carriers.

But once nuclear carriers are in operation, they are able to stay at sea for much longer because they do not need to refuel. In addition, there is more room on board for fuel and weapons for aircraft. Nuclear carriers are also able to produce more power to run advanced systems.

Right now, only the United States and France have nuclear-powered carriers. The U.S. has 11 in total, which permits it to keep multiple strike groups deployed around the world at all times, including in the Indo-Pacific area.

But the Pentagon is increasingly concerned about China's modernization of its fleet, including the design and building of new carriers.

China currently has three carriers, including the new Type 003 Fujian, which was the first both designed and built by China. Officials have said work is already underway on a fourth ship.

But the government has not announced whether that ship will be nuclear or conventionally powered.



How did the researchers arrive at their conclusion?

Middlebury researchers were at first investigating a mountain site outside the city of Leshan in the southwest Chinese province of Sichuan. They had suspicions that China was building a reactor to produce radioactive materials such as plutonium or tritium for weapons. Instead, the researchers said they determined that China was building a test version of a reactor for a large warship.

A number of sources, including satellite images, project tenders, employee files, and environmental impact studies, led researchers to their conclusion.

The reactor is housed in a new structure built at the site known as Base 909, which is under the control of the Nuclear Power Institute of China.

Documents show that China's 701 Institute, which is responsible for aircraft carrier development, got reactor equipment meant "for installation on a large surface warship."

The project's "national defense designation" also helped lead to the conclusion the sizeable reactor is a test version for a next-generation aircraft carrier.

What does China say?

Chinese President Xi Jinping has tasked defense officials with building a "first-class" navy and becoming a naval power as part of his plan for the country.

China's most recent white paper on national defense, dated 2019, said the Chinese navy was changing due to strategic requirements. The goal was to speed up "the transition of its tasks from defense on the near seas to protection missions on the far seas."

I'm Mario Ritter, Jr.

David Rising and Didi Tang reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

conventional—adj. of traditional design

advanced—adj. greatly developed beyond an early stage

tender—n. an invitation to present an offer or bid (for a project)

install—v. to set up for use or service

transition—n. a change or shift from one state or place to another

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## Article 130: Study: Chinese Rover Finds Evidence of Ancient Ocean on Mars

Date: 2024-11-17T22:05:00+00:00 | 639 words | Source

No media source currently available

Scientists say newly examined data from a Chinese explorer on Mars adds to existing evidence that the planet once had a very large ocean.

The exploring vehicle, or rover, is called Zhurong. It landed on the Martian surface in 2021. The rover has been operating in an area known as Utopia Planitia. This area is a large plain in Mars' northern hemisphere, the American space agency NASA explains.

The researchers combined data from Zhurong's instruments with observations from satellites and spacecraft orbiting Mars. The team said the examinations appeared to show that Utopia Planitia had geological elements suggesting an ancient ocean coastline.

The scientists said multiple elements, or features, pointed to evidence that a large ocean existed on Mars billions of years ago. The discovered surface features included troughs and channels that may have been formed by flowing water on Mars.

Earlier research that examined data of similar surface features suggested they might have been created by mud volcanoes, which likely formed in areas where there had been water or ice.

The researchers said the evidence suggests the area likely contained deep ocean environments as well as shallow ones. The research findings were recently reported in a study in the publication *Scientific Reports*.

Bo Wu was the lead writer of the study. He is a planetary scientist at Hong Kong Polytechnic University. Wu told Reuters news agency, "We estimate the flooding of the Utopia Planitia on Mars was approximately 3.68 billion years ago. The ocean surface was likely frozen in a geologically short period."

The search for water on Mars is closely linked to the search for signs of possible life. Evidence of a past ocean raises the possibility that the planet may have once supported microbial life.

There have been past studies suggesting Mars once had a large northern ocean. One such study was released in 2022. That research was based on satellite images of the Martian surface. The images were combined to produce detailed maps of the planet's northern hemisphere. Examination of the maps led to evidence of coastlines that once sat at the edge of a large ocean.

Another study, released in August, presented evidence suggesting Mars may contain a large ocean deep beneath its surface. That evidence was based on NASA's InSight Lander.

China's Zhurong rover began its data collection mission in May 2021. It stopped operating about one year later, with mission planners saying the power system was likely affected by sand and dust. But the rover still outlasted its planned mission of three months.

The researchers said the data shows that the ocean seems to have disappeared by about 3.42 billion years ago.

The study suggests the water that likely filled the Martian ocean was "heavily silted," study co-writer Sergey Krasilnikov said. He is a planetary scientist at Hong Kong Polytechnic University. Silt is a mix of sand and clay that has been carried by water, but later settles on land.

Krasilnikov added that during the period when the Martian ocean would have been active, the planet “...probably had a thick, warm atmosphere.” At that time, “microbial life was much more likely,” he said.

Hong Kong Polytechnic’s Wu said the new findings do “provide further evidence to support the theory of a Martian ocean.”

However, he told the French news agency AFP the study does “not claim that our findings definitively prove” there was an ocean on Mars. Such proof, he said, would likely require a future mission to bring Mars materials back to Earth for closer study.

Bryan Lynn wrote this story for VOA Learning English, based on reports from Reuters, Agence France-Presse, Hong Kong Polytechnic University and Scientific Reports.

plain— n.a large area of flat land

trough— n.a low point in a series of high and low points

channel— n.a long, narrow passageway for water or other liquids to flow along

shallow— adj.not deep

definitive— adj.certain, clear and not likely to change

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## Article 131: South Korean Team Develops Wheels That Climb over Barriers

*Date: 2024-11-18T21:55:00+00:00 | 433 words | Source*

No media source currently available

Imagine a wheelchair equipped with wheels flexible enough to move over all kinds of barriers: including the raised edges of streets.

A robotic delivery vehicle could use the same wheels to go upstairs to deliver food or other purchases.

This is what researchers from the Korea Institute of Machinery and Materials (KIMM) see as the future for their 'morphing' wheel. The wheels can change their shape and can roll over barriers up to 1.3 times their radius. The radius of a wheel is half its height.

Other possible applications for the morphing wheel include robots that gather information about an enemy in the battlefield.

The KIMM team also hopes that morphing wheels will one day be used with two and four-legged robots. Now, the movement of those machines is limited. Too much shaking is also a problem. With the morphing wheels, the robots could carry objects that need smooth movement for industrial use.

Aim to increase speed

Song Sung-hyuk is the lead researcher at South Korea's KIMM and a member of the AI robotics research team. He said the goal is to make the wheels work at the average speed of a car. That is about 100 kilometers per hour.

Wheels developed for a similar purpose, such as airless wheels, have flexibility but are limited in their ability to overcome barriers, said Song. The difference between airless wheels and the morphing wheel is that airless wheels are always soft, but the morphing wheels can change from hard to soft when they meet a barrier. They can then return to being hard to permit faster travel where there are no barriers.

The morphing wheel is made of an outer circle of chain and a series of wires running through its central hub. A sensor controls the stiffness of the wires in reaction to the barriers in its path.

Song's team demonstrated to Reuters a model of a wheelchair riding on morphing wheels as it climbed stairs with 18-cm steps. The team has also tested a device using the wheel at speeds of up to 30 kilometers an hour.

Hyun Young Yi, Daewoong Kim and Jack Kim reported this story for Reuters. Jill Robbins adapted it for Learning English.

flexible—adj. capable of bending or being bent

stairs—n. a series of steps that go from one level or floor to another

morph—v. to change gradually and completely from one thing into another thing usually in a way that is surprising or that seems magical

shake—v. to move back and forth quickly and even violently

chain—n. a series of metal links that look like a rope or similar line

stiff—adj. difficult to bend or move

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## Article 132: Study: Hawaiian Volcano Showed Signs Two Months before Exploding

*Date: 2024-11-18T21:55:00+00:00 | 517 words | Source*

No media source currently available

Scientists say they were able to identify signs that Hawaii's Mauna Loa volcano might erupt about two months before it exploded.

A new study explains the signs they discovered and how their method might be used to predict future eruptions.

Mauna Loa is the world's largest active volcano. The volcano's most recent eruption began in November 2022. In the weeks before the eruption, scientists identified, or detected, small earthquakes nearby. They also recognized other signs of volcanic activity and were able to warn people on the island of Hawaii.

Now, examinations of lava from the volcano have confirmed when melted rock underground started to move.

Kendra Lynn is a research geologist at the Hawaiian Volcano Observatory who helped lead the research. She also co-wrote the study, which recently appeared in the publication *Nature Communications*.

Lynn told the Associated Press that ground expansion and increased earthquake activity near the volcano resulted from melted magma rising from lower levels of Earth's crust. This movement of liquefied rock filled openings beneath the volcano.

When the underground pressure got high enough, the magma broke through hard surface rock and became lava. Later, the researchers collected pieces of the volcanic rock.

The team studied the chemistry of certain crystals within the lava to estimate when major movements began. It found that around 70 days before Mauna Loa's eruption, large amounts of melted rock had moved from three to five kilometers underground to just two kilometers beneath the surface. The researchers said this movement matched the timeline the geologists had observed with other signs.

Before 2022, the last time Mauna Loa erupted was in 1984. Most of the U.S. volcanoes scientists consider to be active are found in Hawaii, Alaska and near the West Coast. Worldwide, about 585 volcanoes are considered active.

"Volcanoes are tricky because we don't get to watch directly what's happening inside – we have to look for other signs," said Erik Klemetti Gonzalez. He is a volcano expert at Denison University in Ohio who was not involved in the study.

Ben Andrews heads a volcano program for the U. S. government's Smithsonian Institution. He also was not involved in the study. Andrews told the AP that scientists are still not able to fully predict volcanic eruptions. But he said they can issue a "forecast" based on observations and data.

Andrews compared volcano forecasts to weather forecasts, which are based on the probability that an event might happen. Experts say better data about past volcanic behavior can help researchers produce more detailed forecasts of future activity.

Klemetti Gonzalez added, "We can look for similar patterns in the future and expect that there's a higher probability of conditions for an eruption happening."

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

erupt–v. to have a sudden and violent explosion

magma–n. melted rock underneath the Earth's surface

crust– n. a hard, dry layer of the surface of something

crystal– n. a kind of see-through rock

tricky– adj. difficult to deal with or do

forecast— n.a report saying what is likely to happen in the future

pattern— n.a particular way that something is often done or repeated

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## Article 133: Social Media Service Bluesky Adds Millions of Users Since US Election

*Date: 2024-11-20T22:05:00+00:00 | 715 words | Source*

No media source currently available

The social media service Bluesky says it has been gaining millions of users since the U.S. presidential election. Usage data shows Bluesky reached 20 million users this week. That was up from about 12 million users just one month ago.

Bluesky is seen as a major competitor to social networking service X, formerly Twitter. American businessman Elon Musk bought Twitter in October 2022 and changed the name to X.

Musk made a series of changes to X shortly after taking over. These included greatly reducing the number of employees, as well as removing some existing restrictions on user content. Many of the released workers were responsible for monitoring the service to identify banned material or account violations.

Musk has described the changes as an effort to protect the free speech of users. But his critics have noted that removing content restrictions had resulted in more harmful content and hate speech appearing on X.

Some industry experts also see the recent rise in Bluesky users as a possible reaction to the changes under Musk's leadership at X.

Bluesky was started by the former head of Twitter, Jack Dorsey. He created it in 2019 as an internal project at Twitter. It started as an invitation only service, or platform. But after further development efforts, it was opened up to all users last February.

Bluesky operates similarly to X and Twitter. It offers a feed of accounts that users follow. Users can send direct messages and lock certain posts at the top of a user's feed. Bluesky also offers pre-chosen "starter packs" to help new users decide which individuals and organizations to follow.

Why is Bluesky growing?

Bluesky announced in mid-November that its total users had reached 15 million from 13 million at the end of October. The rate of new users has continued to grow during the past few weeks.

But the latest post-election increase was not the first time Bluesky has gained from people leaving X. In the week after X was banned in Brazil in August, Bluesky said it added about 2.6 million users – 85 percent of them from Brazil. And during one day in October, about 500,000 new users signed up for Bluesky after X warned that blocked accounts would be able to see a user's public messages.

Many new users – including reporters, left-leaning politicians and celebrities – have shared messages or created memes to explain their decisions for leaving X for Bluesky. Some expressed that they saw Bluesky as similar to an early version of Twitter.

Several well-known organizations and individuals recently announced they were leaving X because of concerns about changes to that service. These included the nonprofit Center for Countering Digital Hate, British news publisher The Guardian and former CNN news presenter Don Lemon.

Even with Bluesky's growth, X issued a statement after the U.S. presidential election saying it had "dominated the global conversation on the U.S. election" and had set new records.

### Beyond social networking

Even though Bluesky currently operates much like X, company leaders have said they plan to expand in new directions, The Associated Press reports. For example, Bluesky says it is seeking to build a new technical foundation it describes as "a protocol for public conversation."

That system is designed to make social networks work across different platforms such as email, internet blogs or phone numbers. Currently, users cannot cross between social platforms to leave a comment on someone's account. X users must stay on X, TikTok users must stay on TikTok, etc.

Industry experts say this design is what big technology companies wanted – to build out multiple product offerings around their online properties. Such systems support the advertising-driven business models of tech companies.

Bluesky has said it is trying to reimagine this kind of system on its path toward "interoperability" with other platforms.

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Reuters and Bluesky.

monitor– v.to watch something very carefully

celebrity– n.a famous person

dominate– v.to have control over a place or person

conversation– n.a talk between two or more people that is generally informal

meme– n.an idea, image, video, etc. that spreads very quickly on the internet

protocol– n.a set of rules covering something, often involving a very formal event

interoperable– adj.the ability of something to work well with other things around it

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## Article 134: 'A Great Situation:' Canadian Town Lives with Polar Bears

Date: 2024-11-21T21:55:00+00:00 | 923 words | Source

No media source currently available

Churchill, Manitoba is a small, rural Canadian town that lives with neighboring predators and loves it. That is because the predators — a polar bear population — attract the visitors who saved the town's economy after a military base there closed. Tourists wanting to see the bears bring millions of dollars into the local economy.

However, the bears are entering the town more often in search of food. Researchers say the sea ice where the bears normally hunt is shrinking.

Geoff York is with Polar Bears International, a nonprofit environmental group based in Manitoba. York said: "You're seeing more bears because there are more bears on the land for longer periods of time to be seen" and they are willing to take more risks, getting closer to people.

There are about 600 polar bears in this Western Hudson Bay population. Environmentalists say that is about half what it was 40 years ago. Humans in Churchill outnumber the bears although not by very many.

It has been more than 10 years since a polar bear attacked anyone in Churchill. But townspeople look out for each other and tourists with a warning system and guards. There is even a polar bear jail.

#### Controlling Churchill's bears

Sergeant Ian Van Nest is a Manitoba province conservation officer. He recently guarded the streets of Churchill in his truck. It was the beginning of polar bear season in Churchill.

The vehicle is equipped with a rifle and a barred back seat to hold anyone he might have to arrest.

Van Nest saw a crowd of people who were watching a bear. He looked around for trouble in the area and then quietly spoke to the group's leader.

"How are you today?" Van Nest asked. The group leader answered that they were all right and then asked if their gathering place is acceptable to Van Nest.

"You're good," the officer answered. "You [have] got a lot of distance there," he added. So, the tour group continued to watch a polar bear on some nearby rocks.

#### The importance of visitors

Visitors interested in seeing the polar bears saved Churchill from shrinking out of existence when a military base there closed in the 1970s. The closure led to a drop in Churchill's population, from a few thousand residents to about 870.

A 2011 government study found that the average polar bear tourist spent about \$5,000 per visit. The tourism adds more than \$7 million yearly to the economy of the little town. Churchill has a few nice restaurants and more than 25 places where visitors can stay.

"We're...used to bears so (when you see one) you don't start to tremble," Mayor Mike Spence said. "It's their area too. It's important how the community coexists with bears and wildlife in general to



really get along. We're all connected.”

Churchill residents show polar bear pride in a way that mixes terror and fun.

“You know we're the polar bear capital of the world, right? We have the product, it's just about getting out there to see the bears safely,” said Dave Daley, who owns a gift shop, runs dog sleds and promotes the city. He also is a former president of the Chamber of Commerce, an office that supports business activity.

The former military base had a rocket launch area. It seemed to keep bears away. When it closed, the bears started entering the town more often, longtime residents said. So, Churchill and province officials “put together a polar bear alert program to make sure the community members were looked after, [and] protected,” said Spence who has been Churchill's mayor since 1995.

The town's old curfew siren sounds nightly, warning people that it is time to go inside to be safe from bears.

Georgina Berg recalls growing up in the 1970s near Churchill, where many First Nations people lived. “First Nations” is used in Canada to identify native people.

She remembers how differently her father and mother would react to seeing a bear in the past. She said her father would not pay attention to them.

“He said, ‘If you don't bother them, then they won't bother you,’” she recalled.

When a bear came near in later years, after her father had died, her mom was frightened.

“Everybody was yelling, and all the kids had to come in and everybody had to go home. And then we stayed silent in the house for a long time until we knew for sure that bear was gone,” Berg recalled.

For Van Nest, the provincial officer, the recent meeting with a group of bear watchers was different. The group was about 100 meters away from the bear. He said the bear was “putting on a bit of a show” for the tourists.

“This is a great situation to be in,” he said. “The tourists are a safe distance away and the bear's doing his natural thing and not being harassed by anybody.”

Seth Borenstein reported this story for the Associated Press. Caty Weaver adapted it for VOA Learning English.

predator—n. an animal that eats other animals to live

tourist—n. a person who visits places for enjoyment

barred—adj. equipped with bars to detain people

resident—n. a person who lives in a town, city, state or country

tremble—v. to shake uncontrollably

pride—n. a feeling of importance or happiness about something you have done

dog sled—n.a vehicle for the snow that is pulled by dogs and usually has runners

promote—v.to bring attention to something and to support its activities

siren—n.a loud device that is used to warn people over a large area

bother—v.to cause a person to feel worried, concerned or annoyed

harass—v.to repeatedly bother someone by creating a situation that causes them problems

## Article 135: Fossil Found in Brazil Shows Birds' Brain Development

Date: 2024-11-24T21:55:00+00:00 | 804 words | Source

No media source currently available

The brains of today's birds show a level of intelligence and behavioral complexity rivaled only by mammals. But scientists do not fully understand how bird brains have changed over millions of years from the form they had as dinosaurs. That understanding is now growing thanks to a fossil discovery in Brazil.

Researchers unearthed the remains, or fossil, of a head bone, or skull, of a bird species not known before. It has been named *Navaornis hestiae*. The fossil was in such good condition that scientists were able to create a computer image of its brain and inner ear structures. It lived in a dry area about 80 million years ago during the Cretaceous Period, near the end of the age of dinosaurs.

"This finding is one-of-a-kind," said University of Cambridge fossil expert Guillermo Navalón, a lead researcher of the study. It appeared this month in the publication *Nature*.

Birds developed from small, feathered dinosaurs during the Jurassic Period. The *Navaornis* discovery filled in a 70-million-year gap in the understanding of the development of the bird, dating back to the earliest-known bird *Archaeopteryx*. It lived about 150 million years ago in what is now Europe.

The researchers said the *Navaornis* skull has a bill and eye shape like modern birds. Its brain shows both modern and ancient elements, and some that are in between.

Well-preserved example

Luis Chiappe is a fossil scientist at the Natural History Museum of Los Angeles County in California and a co-writer of the study.

He said scientists rarely find such skulls of early birds, "and this one is the best preserved ever."

Daniel Field is a fossil scientist at the University of Cambridge and the study's lead writer. He said scientists have long struggled to understand how and when the brains and intelligence of birds developed. "The field has been awaiting the discovery of a fossil exactly like this one," he said.

The *Navaornis* brain - measuring about 10 millimeters across - is smaller, relative to skull size, than that of modern birds. But the skull is larger and more complex than that of *Archaeopteryx*.

Its cerebellum, a brain structure that in living birds helps with motor control during flight, was smaller than in today's bird species and more like Archaeopteryx's. But its brain was connected to the spinal cord in a way similar to modern birds, as well as humans. It was unlike Archaeopteryx and the dinosaurs from which birds evolved.

Navaornis also had something special – its inner ear organ for balance is larger than in any other known bird.

The fossil included 80 percent of the bird's bone structure, or skeleton. The scientists say they believe the bird could fly well based on their examination of the remains.

Its name means "Nava's bird," named for William Nava, the scientist who discovered the fossil in 2016 in the southeastern Brazilian state of Sao Paulo.

No direct line to today's birds

Navaornis lived during the Cretaceous period, but none of these birds survived the asteroid strike that took place 66 million years ago. That means there is no direct line from Navaornis to today's birds, and its modern-looking abilities and appearance developed separately from theirs.

The researchers said the bird ate insects and seeds it could take in whole. It lived side-by-side with huge, long-necked plant-eating dinosaurs and large meat-eating dinosaurs.

Field said if you gave it a quick look you might think it was like a living bird. But a closer look would show you some important differences – like claws coming out of its wings.

Will Dunham reported this story for Reuters. The images are licensed under Creative Commons Attribution 4.0 International License (<https://www.nature.com/articles/s41586-024-08114-4#rightslink>). Jill Robbins adapted the report for Learning English.

rival–v. to be as good or almost as good as (someone or something)

mammal–n. a type of animal that feeds milk to its young and that usually has hair or fur covering most of its skin

fossil–n. something (such as a leaf, skeleton, or footprint) that is from a plant or animal which lived in ancient times and that you can see in some rocks

species–n. biology. a group of animals or plants that are similar and can produce young animals or plants

gap–n. a difference between two people, groups, or things — often + between

skull–n. the structure of bones that form the head and face of a person or animal

evolve–v. to change or develop slowly often into a better, more complex, or more advanced state; to develop by a process of evolution

paleontologist– n. the science that deals with the fossils of animals and plants that lived very long ago especially in the time of dinosaurs

preserved—adj. kept in good condition over a long period of time

asteroid—n. any of the small rocky celestial bodies found especially between the orbits of Mars and Jupiter

claw—n. a sharp usually slender and curved nail on the toe of an animal

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## Article 136: American Companies Develop Unmanned Aircraft for Crops

*Date: 2024-11-24T21:55:00+00:00 | 792 words | Source*

No media source currently available

American companies are developing unmanned aircraft systems that are larger than drones. The goal is for the aircraft to help agricultural producers and reduce risks to human safety.

When Hector Xu was learning to pilot a helicopter in college, he remembered having a few bad experiences while flying at night.

The experiences led him to research unmanned aircraft systems while getting his doctorate at Massachusetts Institute of Technology. Then, Xu formed Rotor Technologies in 2021 to develop unmanned helicopters.

Rotor has built two autonomous helicopters that the company calls Sprayhawks. Rotor aims to have as many as 20 Sprayhawks ready for market next year. The company also is developing helicopters that would fly shipments into disaster areas and to oil rigs in oceans. The helicopters could also be used to fight wildfires.

For now, Rotor is paying attention to agriculture. The industry has accepted automation with drones but sees unmanned helicopters as a better way to spray larger areas with pesticides and fertilizers.

A major appeal of automation in agriculture flights is safety.

Because special airplanes called crop dusters fly at around 240 kph and only about 3 meters off the ground, there are tens of accidents each year. The small planes hit power lines, cell towers and other planes. Older planes in disrepair and pilot tiredness play a part in accidents.

A 2014 report from the National Transportation Safety Board found there were more than 800 agriculture flight accidents between 2001 and 2010, including 81 that were deadly. A separate report from the National Agriculture Aviation Association found nearly 640 accidents from 2014 until this month with 109 deaths.

“It is a very, very dangerous, profession,” said Dan Martin, a research engineer with the U.S. Department of Agriculture’s Agriculture Research Service. Martin said about the pilots, “They make all their money in those short few months so sometimes it may mean that they fly 10 to 12 hours a day or more.”

Job risks also include possible contact with farming chemicals.

In recent years, safety and cost concerns have led to a number of drones flying above farmers' fields, Martin said.

He added that some 10,000 drones will likely be sold this year alone. "It's growing exponentially as a market, super fast," Martin said.

But the size of the drones means they only can cover a small amount of the area that a plane or helicopter can. The limitation is providing an opening for companies building bigger unmanned aircraft like Rotor and another company, Pyka.

California-based Pyka announced in August that it had sold its first autonomous electric aircraft for crop protection to a buyer in the United States. Pyka's Pelican Spray, a fixed-wing aircraft, received official approval last year to fly for crop protection. The company also sold its Pelican Spray to Dole for use in Honduras and to the Brazilian company, SLC Agrícola.

Lukas Koch is chief technology officer at Heinen Brothers Agra Services, the company which bought the Pelican Spray in August. Koch has called unmanned aircraft part of a coming "revolution," that will save farmers money and increase safety.

The Kansas-based company operates out of airports from Texas to Illinois. Koch does not see the unmanned aircraft replacing all the company's pilots but rather taking over the riskiest jobs.

"The biggest draw is taking the pilot out of the aircraft inside of those most dangerous situations," Koch said.

But Koch also says that autonomous aviation systems could bring new dangers to an already busy airspace. Still, the risk is less of a concern in rural areas with plenty of open space and fewer people.

Companies like Rotor have developed their systems to work if bad events come up.

Rotor's helicopter, for example, has a half-dozen communications systems and, for now, a remote pilot in control.

If the ground team loses contact with the helicopter, Rotor has a system to deal with the problem. The system makes sure the engine can be turned off and the helicopter can perform a controlled landing.

The safety measures will go a long way to helping the company receive what it expects will be official government approval to fly its helicopters for business purposes. Once the company has approval, the difficulty, as Xu sees it, will be building more devices to meet the demand in the United States and Brazil.

Michael Casey reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

drone— n.a small uncrewed aircraft guided by remote control or onboard computers

helicopter—n.an aircraft whose lift comes from one or more powered rotors turning about vertically

autonomous— adj.undertaken or carried on without outside control

pesticide— n.a chemical or agent used to destroy pests

crop duster—n.the airplane used to spray crops especially with pesticides

exponentially— adv.characterized by an extremely fast increase

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## Article 137: NASA Reconnects with Voyager, Longest Serving Mission in History

Date: 2024-11-24T22:05:00+00:00 | 801 words | Source

No media source currently available

NASA has once again reconnected with its Voyager spacecraft, marking a continuation of the American space agency's longest mission in history.

The two spacecraft – Voyager 1 and Voyager 2 – launched within weeks of each other in 1977. So they have been operating for more than 47 years.

NASA officials have reported several difficulties with the spacecraft in recent years, mainly communication issues. The most recent problems involved the Voyager 1 spacecraft. NASA said in a statement in April it had remained out of touch with the spacecraft for the previous five months.

Agency officials said they later learned the problem was linked to a chip inside one of Voyager 1's onboard computers. The issue made data being sent by the spacecraft unreadable. NASA said its engineers were able to fix that problem by making changes to how the spacecraft stores and reads data.

Then, in October, NASA reported another communication issue that resulted in a brief delay in receiving data from Voyager 1. That problem turned out to be linked to the spacecraft's radio transmitter system.

The agency said that, for some reason, Voyager 1's fault protection system was activated when NASA sent a command for the spacecraft to turn on one of its heaters. This activation – meant to save power – led Voyager 1 to start sending signals to a different radio transmitter system than it normally uses.

This meant NASA had to listen for the signals on the S-band instead of the usual X-band. Once they did this, they were able to start receiving data again. NASA has said the S-band is much weaker than the X-band, so engineers were seeking to get the X-band radio communication system back online for long-term use.

NASA said the agency had not used the S-band since 1981.

Voyager 1 and Voyager 2 are NASA's most distant operating spacecraft. The agency has reported Voyager 1 is exploring space from about 24 billion kilometers from Earth, while Voyager 2 is operating from about 20.5 billion kilometers away.

Because of this great distance, NASA says its communication with the two Voyagers takes about one day to receive data, and another day to send information back from Earth.

The two Voyagers were first designed to explore Jupiter and Saturn. Both spacecraft successfully carried out studies of those planets. Later, Voyager 2 made the first-ever close observations of Uranus and Neptune in 1989.

The two spacecraft then began a new mission to explore distant areas of space. In 2013, NASA announced Voyager 1 had crossed over the border dividing our solar system from interstellar space. The term “interstellar” means “between stars.” Scientists say interstellar space begins where the sun's continuous flow of particles and its magnetic field stop.

Voyager 2 first entered interstellar space in 2018. NASA said the spacecraft was more than 17.7 billion kilometers from the sun at the time. Both Voyagers are the only spacecraft so far to explore interstellar space.

The space agency says the Voyagers are studying how the interstellar medium interacts with the solar wind. Solar wind is the continuous flow of charged particles released by the sun. The spacecraft have also provided data on the heliosphere, a kind of protective bubble around our solar system.

Suzanne Dodd is the current project manager for the Voyager mission at NASA's Jet Propulsion Laboratory in California. She recently said in a statement the agency has no plans to retire the two Voyagers as long as they are communicating with mission members back on Earth. Dodd said the spacecraft are currently centered on observing how interstellar space and the heliosphere interact with each other.

"We wouldn't be doing Voyager if it wasn't taking science data," she added. Dodd noted one reason the Voyagers have been operating for so long is that the engineers who built them provided multiple backup systems to avoid future problems.

She said some who worked on Voyager in its earliest days have even come back from retirement to pass on knowledge to the next generation of scientists and engineers.

"From where I sit as a project manager, it's really very exciting to see young engineers be excited to work on Voyager," Dodd said. "To take on the challenges of an old mission and to work side by side with some of the masters, the people that built the spacecraft – they want to learn from each other."

Bryan Lynn wrote this story for VOA Learning English, based on reports from NASA.

chip– n. a small part of a computer that stores and helps process information

fault– n. something that goes wrong with a particular system

transmitter– n. a piece of equipment used to send and receive radio signals through the air

bubble– n. a ball of gas enclosed by another material

challenge– n. something difficult that tests one's ability or determination

master– n. someone who has demonstrated they can do something very well

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## Article 138: Fossil from Germany Provides New Details about Ancient Flying Reptiles

Date: 2024-11-25T21:55:00+00:00 | 520 words | Source

No media source currently available

Scientists say a fossil found in Germany is providing new details about flying reptiles that lived on Earth about 147 million years ago.

The fossil was discovered in 2015 in the southeastern German state of Bavaria. It contains the remains of a newly identified species called *Skiphosoura bavarica*.

*Skiphosoura* is considered a pterosaur, an ancient flying reptile. It lived toward the end of the Jurassic Period. Researchers say the creature played an important part in the development of ecosystems during the age of the dinosaurs.

The reptile had a wing reach of about 2 meters for traveling and a set of sharp teeth to help capture and eat other animals. *Skiphosoura* would have been one of the largest fliers in its ecosystem. Researchers say the discovered fossil was in good shape, with nearly every bone remaining in the skeleton. This has permitted the team to learn new details about this pterosaur.

One of the leaders of the fossil examinations is David Hone of Queen Mary University of London. He told Reuters news agency he thinks the fossil find was "of huge importance."

Hone was the lead writer of a study describing the team's work in the publication *Current Biology*. He added that *Skiphosoura* has provided new information about the evolution of pterosaurs. "It also brings other pterosaur finds we had already made into focus," Hone said.

He added that the discovery also helps better explain "where they go in the family tree of pterosaurs" and permits scientists to show this development from early to later forms.

"The teeth are quite long and sharp. They are for puncturing and holding," Hone said. He noted these were likely used to catch smaller animals such as lizards, small mammals, insects and possibly fish.

Pterosaurs are considered ancestors of the dinosaurs. They were the first of three groups of vertebrates – animals with a backbone – to enjoy powered flight. Pterosaurs disappeared about 66 million years ago in the mass extinction that also took out most of the dinosaurs after an asteroid struck Earth.

Scientists divide pterosaurs into two major groups - the early non-pterodactyloids and the later pterodactyloids. The early group's members had a short head, short neck, long tail and a long fifth toe on the foot. The later ones had a large head, long neck, short tail, long wrist and short fifth toe.

The team says the discovery of *Skiphosoura* – along with another species that lived 170 million years ago in Scotland – have helped shape important events in pterosaur development.

Reuters reported this story. Bryan Lynn adapted the report for VOA Learning English.



fossil— n. something (such as a leaf, skeleton, or footprint) from a plant or animal that lived in ancient times and that you can see in old rocks

species— n. a group of animals or plants that are similar and can produce young animals or plants

ecosystem— n. all the living things in a particular area, as well as the ways the things affect each other and the environment

focus— n. special attention you give something

puncture— v. to make a hole in something

extinct— adj. not existing anymore

asteroid— n. a rocky object that goes around the sun like a planet

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## Article 139: Nations Agree to \$300 Billion Deal at Climate Talks

*Date: 2024-11-26T21:57:00+00:00 | 600 words | Source*

No media source currently available

Countries from around the world recently agreed to provide \$300 billion to support poor nations in the face of climate change.

The agreement reached on November 24 at the United Nations climate talks in Azerbaijan left many unsatisfied. But some were hopeful that it would be a step in the right direction.

The final deal says that rich countries have agreed to collectively provide at least \$300 billion a year by 2035. The amount is much smaller than the \$1.3 trillion that developing nations were asking for and that experts said was needed.

Chandni Raina is India's negotiator at the climate talks. She told The Associated Press that the amount of money in the deal was very small. She said, "I'm sorry to say we cannot accept it."

Nigeria's Nkiruka Maduekwe, head of the National Council on Climate Change, called the deal an insult and a joke.

Ani Dasgupta is head of the environmental organization World Resources Institute. Dasgupta called it "an important down payment toward a safer, more equitable future." However, he added that the poorest countries are "rightfully disappointed" that wealthy nations did not offer more money with billions of lives at risk.

The meeting went on longer than expected because of serious divisions and strong disagreements among countries. But delegations who feel more hopeful about the agreement said this deal is headed in the right direction, with hopes that more money will come in the future.

Eamon Ryan, Ireland's environment minister, called the agreement "a huge relief." He said in a time of division and war, "the fact that we could get it through in these difficult circumstances is really important."

## Final agreement at climate talks

The final agreement includes a call for parties to work together using "all public and private sources" to get closer to the \$1.3 trillion per year goal by 2035. That means also pushing for large international banks to help pay the bill. And it means, hopefully, that companies and private investors will follow by spending their money toward climate action.

The agreement also calls for developing countries that receive money to limit or cut the release of heat-trapping gases. Those targets are to be set early next year. They are part of the plan to keep cutting pollution with new targets every five years, which the world agreed to at the U.N. talks in Paris in 2015.

The money will pay for the move away from fossil fuel toward clean energy. It will go to countries hard hit by extreme weather to prepare for floods, storms and fires. It will also go toward improving a farming process to help them survive weather extremes. In areas hit regularly by severe storms, the money can help build stronger homes or help people move to safer places.

The Philippines, for example, has been hit by six major storms in less than a month. Millions of people faced strong winds, rising waters and serious damage to homes, roads and bridges and farmland.

Esther Penunia works with the Asian Farmers Association. She said many farmers had to deal with storm damage such as trees that will not produce fruit for months or years, or animals that died.

Melina Walling reported this story for the Associated Press. Jill Robbins adapted it for Learning English.

equitable-adj. dealing fairly and equally with everyone

relief-n. a pleasant and relaxed feeling that someone has when something unpleasant stops or does not happen

circumstances-n.(usually plural) a condition or fact that affects a situation

fossil fuel- n. a fuel (such as coal, oil, or natural gas) that is formed in the earth from dead plants or animals

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## Article 140: US Proposes Measures to Limit Google after Monopoly Ruling

Date: 2024-11-27T21:58:00+00:00 | 656 words | Source

No media source currently available

The United States government has proposed a series of measures to limit Google from anti-competition business activities. The move comes after a federal judge ruled in August Google had violated trade laws by operating its search engine as an illegal monopoly.

The ruling accused Google of paying smartphone makers to ensure that its search engine was set as the default system on new devices. The U.S. Justice Department brought the antitrust case against Google's parent company, Alphabet.

Last week, the Justice Department issued a set of corrective guidelines for Google. Here is a look at the proposed measures as well as the government's case against the American tech giant.

What is the Justice Department's goal?

Justice Department officials say the main goal of the proposals is to get Google to stop using its highly popular search engine to illegally block competition and restrict innovation.

The Department said Google's violations of U.S. trade law had given the company an unfair advantage in the online search business. It accuses Google of illegally gaining that advantage.

Google has criticized the court's decision. The company's chief legal officer, Kent Walker, also condemned the Justice Department's corrective proposals. He called the guidelines "wildly overbroad" in an online statement. He added his opinion that the measures seek to go way beyond the court's ruling.

Walker said the proposals "would break apart Google products – even beyond search – that people love and find helpful in their everyday lives."

What are some of the Justice Department's proposals?

The Justice Department proposed a series of measures to limit Google from blocking competition from other search engine providers.

The main proposal is a ban on Google from signing deals – worth billions of dollars – to lock its search engine as the default system on Apple's iPhone and other popular devices. This measure could result in reduced profits for companies that sign such deals.

Other proposed measures include a ban on Google from using search results to favor its own services, such as YouTube or its artificial intelligence (AI) tool, Gemini. Another would force Google to license its search data to competitors.

In addition, the Justice Department is seeking to require Google to be more open about how it sets the prices advertisers must pay to be listed near the top of some targeted search results.

Another proposal would give publishers, websites and content creators the right to request that their data not be included in Google's search results or be used to train the company's AI models.

What comes next in the case?

Google will also have the chance to propose its own list of fixes to the court. After that, federal regulators will create a new version of the proposals in early March. Court hearings on the proposed measures are set to begin in April and the judge is expected to issue a final decision before September 2025.

The trial to rule on the final proposals will take place after President-elect Donald Trump takes office. Trump has made comments suggesting a breakup of Google is not in the U.S. national interest.

However, some recent nominations put forward by Trump's transition team have favored those who have been critical of big technology companies. And since the case was brought during Trump's first term, it is likely to move forward.

But before the final trial begins, Google is expected to appeal the case. Experts say this may mean the case could stretch out for years in the courts.

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

monopoly— n. complete control of the entire supply of goods or of a service in a certain area or market

default— n. what exists or usually happens if no changes are made

innovation— n. the act or process of introducing new ideas, devices or methods

advantage— n. a condition that provides a greater chance of success

regulate— v. to bring something under government control

transition— n. a change from one system or administration to another

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## Article 141: 'Mini Moon' Object Moves Away from Earth's Orbit

Date: 2024-11-28T21:55:00+00:00 | 646 words | Source

No media source currently available

An asteroid that moved closer to Earth's orbit in recent months is now moving away from our planet as gravity pulls it back toward the sun.

The asteroid is small – about 10 meters long – and never presented any threat to Earth. But the object, known as 2024 PT5, was recently pulled closer to our planet by Earth's gravitational forces.

Scientists sometimes call such objects “mini-moons.” This is because they behave similarly to the permanent moon orbiting Earth when they are captured by gravity. But they are much smaller and stay only temporarily in Earth's orbit.

The American space agency NASA said it does not consider 2024 PT5 a mini-moon because it was never expected to be fully captured by Earth's gravity. But NASA has described the small asteroid as “an interesting object” that is worthy of study. Such asteroids are considered near-Earth objects.

The space agency noted that similarities between the asteroid's motion and that of Earth suggest the object could be a large piece of rock that broke off from the moon's surface after an asteroid strike in the distant past.

The object was first observed on August 7 by two astronomer brothers from Spain's Complutense University of Madrid – Carlos de la Fuente Marcos and Raúl de la Fuente Marcos. They identified the asteroid through observations made by a telescope in South Africa.

The Spanish astronomers said it appeared 2024 PT5 is part of a group of near-Earth objects within the Arjuna asteroid belt. They wrote that asteroids in this belt are believed to be “surrounding the path followed by the Earth-moon system.”

The Associated Press reported the astronomers had used telescopes in the Spanish Canary Islands, off the coast of northwestern Africa, to make hundreds of observations. The object is currently more than 3.5 million kilometers from Earth. Only powerful telescopes can see the asteroid because of its small size and low brightness.

The astronomers say 2024 PT5 should head back to Earth in the coming weeks. It is expected to pass as close as 1.8 million kilometers from Earth in January. The moon stays at a distance of about 384,000 kilometers from our planet, NASA explains.

The asteroid will then move farther into the solar system while orbiting the sun. Scientists say the next time the object is expected to make another close move toward Earth is in 2055.

Raul de la Fuente Marcos told the AP that 2024 PT5 was first identified in August and began its move toward Earth in late September. He said the object’s path was similar to the shape of a horseshoe.

De la Fuente Marcos noted that by the time the asteroid returns in January, it will be moving at more than double the speed from September. Current data suggests that during its 2055 visit, it will again make a temporary and partial circle around Earth.

NASA said teams at its Center for Near Earth Object Studies had continually followed the movements of 2024 PT5. It is normal for NASA and its international partners to continuously search the skies for near-Earth objects. Such objects include asteroids and comets that come within 50 million kilometers of Earth’s orbit.

The search system, called ATLAS, involves four different telescopes. Two of them are based in Hawaii. Another operates in Chile and the other sits in South Africa. NASA explains that ATLAS is designed to search the whole sky several times each night looking for moving objects.

The space agency says it will use its large Goldstone Solar System Radar observer – which sits in Barstow, California – to follow 2024 PT5 when it again is pulled toward Earth’s orbit in 2025.

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

asteroid– n.a rocky object that goes around the sun like a planet

comet– n.an object in space that leaves a bright line behind it in the sky

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## Article 142: Astronomers Study Newly Discovered Fast-forming Exoplanet

Date: 2024-11-28T21:55:00+00:00 | 607 words | Source

No media source currently available

Astronomers have observed a newborn planet that formed in three million years, a relatively brief time. They say the discovery leads to questions about the current understanding of the speed of planetary formation.

Space scientists estimate the planet to be around 10 to 20 times the mass of Earth. It is an exoplanet, meaning a planet outside our solar system. It is one of the youngest exoplanets ever discovered. It exists among dense gas and dust orbiting a young star. The orbiting matter is called a protoplanetary disk. It provides the materials necessary for planet formation.

The star it orbits is not as hot and is about half as bright as our sun. The star's mass is about 70 percent that of the sun. It is in our Milky Way galaxy, about 520 light-years from Earth. A light-year is the distance light travels in a year, 9.5 trillion kilometers.

"This discovery confirms that planets can be in a cohesive form within 3 million years, which was previously unclear as Earth took 10 to 20 million years to form," said Madyson Barber, a research student at the University of North Carolina at Chapel Hill (UNC). Barber is the lead writer of the study published recently in *Nature* magazine.

"We don't really know how long it takes for planets to form," UNC professor and study co-writer Andrew Mann added. "We know that giant planets must form faster than their disk dissipates because they need a lot of gas from the disk. But disks take 5 to 10 million years to dissipate. So do planets form in one million years? Five? Ten?"

The planet orbits its star every 8.8 days. Its mass is in between that of Earth, the largest of our solar system's rocky planets, and Neptune, the smallest of the gas planets. It is less dense than Earth and has a diameter about 11 times greater. Its chemical makeup is not known.

The researchers suspect that the planet formed further away from its star and then moved closer.

"Forming large planets close to the star is difficult because the protoplanetary disk dissipates away from closest to the star the fastest, meaning there's not enough material to form a large planet that close that quickly," Barber said.

The researchers found the planet using the so-called "transit" method: observation of a drop in the star's brightness, from the perspective of an observer on Earth, when the planet passes in front of it. NASA's Transiting Exoplanet Survey Satellite, or TESS, space telescope discovered the exoplanet.

"This is the youngest-known transiting planet. It is on par with the youngest planets known," Barber said.

Stars and planets form from clouds of interstellar gas and dust.

"To form a star-planet system, the cloud of gas and dust will collapse and spin into a flat environment, with the star at the center and the disk surrounding it. Planets will form in that disk. The disk will then dissipate" starting from the star side, Barber said.

"It was previously thought that we wouldn't be able to find a transiting planet this young because the disk would be in the way. But for some reason that we aren't sure of, the outer disk is warped, leaving a

perfect window to the star," Barber added.

Reuters news agency reported this story. Caty Weaver adapted it for VOA Learning English.

cohesive— n.exhibiting or producing the act or state of sticking together tightly

previously— adv. before; in the past

dissipate— n.to break up and scatter or vanish

diameter— adj.the length of a straight line through the center of an object or space

spin— v.to turn in a circular motion

warp- to be turned or twisted out of, or as if out of, shape

## Article 143: Scientists Publish Version of a Map of Human Body Cells

Date: 2024-12-01T21:58:00+00:00 | 632 words | Source

No media source currently available

Researchers have created an early version of a map of some of the human body's cells.

The human body has an estimated 37.2 trillion cells. Each type of cell has a unique job. Knowing each cell's job can help scientists better understand health and diseases such as cancer.

The work is part of the Human Cell Atlas project. The effort began in 2016. It involves researchers around the world. The group, called a consortium, plans to release a more complete atlas in 2026 by mapping cells from 18 organs and body systems. These include the skin, heart, and breasts.

Some of the researchers published their findings on bone development in embryos. The study appeared in *Nature* on November 20.

Aviv Regev is a founding co-chair of the project. Regev is currently executive vice president and head of research and early development at U.S. biotech company Genentech. She said the work is important in two ways.

First, the project relates to curiosity. Humans have long wanted to know what they are made of. "And, in fact, biologists have been mapping cells since the 1600s for that reason," Regev added.

Second, Regev said knowing how cells work is critical for understanding how to treat disease.

"Cells are the basic unit of life, and when things go wrong, they go wrong with our cells, first and foremost," she added.

"Fundamentally, these studies tell us how tissues, organs and humans are built," said Muzlifah Haniffa of Wellcome Sanger Institute and Newcastle University in Britain. Haniffa was a member of the project's organizing committee.

What is the Human Cell Atlas?

Scientists are focusing on certain organs. They are mapping the jobs of cells in the mouth, stomach and intestines. They are researching cells that guide how bones and joints develop. They also are exploring which cells group into tissue, where they are found in the body and how they change over time.

The high-resolution, open-access atlas is considered a first version. The scientists say they hope it will help researchers fight diseases that damage human cells.

The current cell map not only shows many types of human cells. It also shows the relationships between cells, said Dr. Timothy Chan. Chan is a cancer expert at the Cleveland Clinic who was not involved in the project. Chan said the atlas project is a “deep dive into human biology” that is sure to help identify and treat cancer cells.

Scientists are also creating other atlases that could show more about the foundations of health and disease in specific parts of the body.

For example, researchers working on a brain atlas are seeking to understand the structure, location and function of the many types of brain cells. A new gut microbiome atlas is meant to show the collection of microorganisms in the intestines. Those organs play important parts in digestion and immune system health.

Adithi Ramakrishnan and Laura Ungar reported this story for The Associated Press. Anna Matteo adapted it for VOA Learning English with additional information from Reuters and other sources.

type—n. a particular kind of thing that is like others in the same group

unique—adj. something that is unlike anything else

atlas—n. a detailed map of a place or a thing that include picture or images

curiosity—n. the condition of being interested in something and wanting to learn more about it

biologist—n. a scientist who studies the processes of life and the living structures involved in it

focus—v. to place special attention on something or someone

high-resolution—adj. usually related to a kind of image that is very rich or high in detail showing very small or complex things clearly

open-access—adj. available to anyone and not requiring payment

deep dive—n. a complete investigation into something

location—n. the place where something is

We want to hear from you. What are your thoughts on this topic? In the Comments section, you can also practice using any of the expressions from the story. Our comment policy is [here](#).

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## Article 144: Research of Galaxies Supports Einstein's General Theory of Relativity

Date: 2024-12-01T22:05:00+00:00 | 721 words | Source

No media source currently available

An international group of scientists has been studying how the structure of the universe has grown over the past 11 billion years.

These researchers recently announced findings about how gravity behaves at a very large scale. What they found supports a prediction physicist Albert Einstein made in his 1915 theory of general relativity.

### Dark energy and gravity

The findings are part of a years-long study of the history of the universe that has focused on dark energy. Dark energy is an invisible and mysterious force that is accelerating, or speeding up, the ongoing expansion of the universe.

The study's researchers used a year of observations by the Dark Energy Spectroscopic Instrument (DESI) at Kitt Peak National Observatory in Arizona.

Gravity is one of the universe's fundamental forces. Einstein's theory linked space, time and gravity. The theory holds that large amounts of mass and energy curve the structure of space-time, influencing the motion of whatever passes nearby.

Dragan Huterer of the University of Michigan was co-leader of the working group that examined the data from DESI.

Huterer said: "Einstein's theory of general relativity describes the motion of massive objects in a gravitational field that they create. It is one of the most successful physical theories that we have."

But the announcement in 1998 that the universe's expansion was speeding up raised doubts about Einstein's model.

"The discovery of the accelerating universe...led to suggestions that maybe general relativity needs to be modified," Huterer said.

The new DESI findings revealed gravity is behaving as Einstein predicted that it would.

Scientists say the Big Bang event 13.8 billion years ago began the universe, which has been expanding ever since. They say experiments show the expansion was actually accelerating and dark energy is a possible cause.

The new DESI findings focused on the growth of what is called the cosmic structure. It dates to when the universe was about 20 percent of its current age.

This cosmic structure has a direct connection to the large-scale organization of matter. Galaxies, galaxy clusters and even larger galaxy superclusters form a cosmic web or connected networks with large areas of space existing in between.

This structure results from the gravitational pull of matter throughout the universe.

The new study was based on DESI observations of almost 6 million galaxies and their centers, dating back 11 billion years.

The DESI scientists in April released the largest three-dimensional map of the cosmos. They announced findings suggesting that dark energy may not be an unchangeable force. Instead, it might change over time. Those findings focused on a specific behavior of galaxy clusters. The new research expanded what is known about that behavior.

Mustapha Ishak-Boushaki of the University of Texas at Dallas was a co-leader of the working group. He said, "Our DESI data shows that it is in agreement with Einstein's theory of gravity but still favors adynamicaldark energy - and finding thesesimultaneouslyis new."

The universe includes ordinary matter: stars, planets, gas, dust. It also contains dark matter. Dark matter is invisible material that might make up about 27 percent of the cosmos. In addition to that, scientists also believe there is dark energy which might make up 68 percent of the cosmos.

"Dark energy is responsible for the accelerated expansion of the universe. The physical nature of dark energy is at present unknown," Huterer said.

The new findings appear to support the current "standard model" of cosmology that includes the theory of general relativity.

The DESI working group involves more than 900 researchers from more than 70 organizations worldwide. It is overseen by the U.S. Department of Energy's Lawrence Berkeley National Laboratory. The new research was published in the arXiv online database before undergoing the process ofpeer review.

Will Dunham reported on this story for Reuters. John Russell adapted it for VOA Learning English.

focus— v.to concentrate attention or effort

fundamental—adj.ideas that form the basis of other ideas or theories

curve—n.a shape that is similar to a circle or a rounded line

massive— adj.forming or consisting of a large mass; very large

dynamical— adj.of or relating to physical force or energy

simultaneously— adv.existing or happening at the same time

peer review— n.a process for publishing scholarly research in which academic people with similar positions and jobs as the writers' offer criticism of a research paper before it is officially published in a scholarly journal

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## Article 145: Microsoft's AI 'Agents' Aim to Take over Many Human Duties

Date: 2024-12-02T21:55:00+00:00 | 614 words | Source

No media source currently available

Microsoft is expanding its artificial intelligence (AI) tool offerings to include “personalagents” which are designed to take over different human processes.

The American software company said the new offerings are designed to help users complete certain business activities with little or no human involvement. The agents are expected to be offered to some users starting in the coming weeks. A full release is expected sometime next year.

Microsoft has said its agents are designed to expand on so-called chatbots. A chatbot is an AI tool that can work by itself to produce human-level writing or discussion. Such systems – also known as generative AI – can also produce images and videos based on short text descriptions.

While chatbots perform some functions on their own, they also depend heavily on humans to operate and guide them. The idea behind AI agents is to give them the ability to take over whole business processes with little or no guidance from people.

In a statement last month, Microsoft said it was preparing for a world where every organization would have a collection of AI agents to perform different business activities.

In another statement issued last week, the company said the agents being developed are designed to “operate around the clock” to ease the workload of human workers. Examples of agent duties include processing customer orders or returns and examining shipping records to prevent errors.

Microsoft has moved quickly to offer AI technologies to everyday users of its business software products. The methods are largely based on models built by AI developer OpenAI, creator of the ChatGPT chatbot. Microsoft has invested about \$13 billion in OpenAI.

Microsoft's Chief Marketing Officer, Jared Spataro, said the public should “think of agents as the new apps for an AI-powered world.”

The company added that its customers will be able to use its Copilot Studio service to create their own AI agents to meet specific needs. Copilot is Microsoft's existing AI chatbot tool. In addition, the company said it has introduced 10 ready-to-use agents to carry out routine business activities.

Charles Lamanna is the corporate vice president of business and industry for Copilot. He told Reuters news agency, “The idea is that Copilot is the user interface for AI.” He added, “Every employee will have a Copilot, their personalized AI agent. And then they will use that Copilot to interface and interact with the sea of AI agents that will be out there.”

In an online explanation of the AI tools, Microsoft said “instead of just assisting you, agents can work alongside you or even on your behalf.” This could include “a range of things, from responding to customer questions to more (complex) or multistep assignments,” the company added.

The abilities of AI agents remain limited for now. But ongoing development of the tools has raised concerns about certain risks linked to the technology. Microsoft officials have said the company had developed responsible AI guidelines to protect users from possible security or privacy problems.

Other big technology companies also aim to develop such agents. These include Salesforce, Nvidia, Google and Oracle. Industry experts have said the tools could provide companies with an easier path to earn money from the billions of dollars they are investing in AI systems.

The Associated Press, Reuters and Agence France-Presse and Microsoft reported this story. Bryan Lynn adapted the reports for VOA Learning English.

agent— n.a person or system whose job it is to deal with business for someone else

customer— n.a person or organization that buys goods or services from a shop or business

routine— adj. a regular task that gets repeated over and over again

interface— n.a connection between a person and a computer system

on behalf (of someone)— phraseacting for someone else

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## Article 146: Ancient Footprints Suggest 2 Human Species Were Neighbors in Kenya 1.5 Million Years Ago

Date: 2024-12-02T21:57:00+00:00 | 593 words | [Source](#)

No media source currently available

Scientists say ancient footprints left in wet dirt on a Kenyan lakeside suggest that two early human ancestors were neighbors about 1.5 million years ago.

Two separate species made the sets of footprints “within a matter of hours, or at most days,” said paleontologist Louise Leakey, a writer of the research published recently in the journal *Science*. Paleontologists study fossils to learn about the history of life on Earth.

Scientists already knew from earlier fossil finds that these two extinct lines of human development – called *Homo erectus* and *Paranthropus boisei* – lived about the same time in the Turkana Basin.

But dating fossils is not exact. “It’s plus or minus a few thousand years,” said paleontologist William Harcourt-Smith of Lehman College and the American Museum of Natural History in New York. He was not involved in the study.

Yet with fossil footprints, “there’s an actual moment in time preserved,” he said. “It’s an amazing discovery.”

Researchers found the fossil footprints in 2021 in what is today Koobi Fora, Kenya, said Leakey, who is based at Stony Brook University in New York.

Study co-writer Kevin Hatala is a paleoanthropologist at Chatham University in Pittsburgh, Pennsylvania. He said the two species likely knew of each other’s existence whether they left the prints

at the same time or a day or two apart.

“They probably saw each other, probably knew each other was there and probably influenced each other in some way,” Hatala said.

Scientists were able to tell the difference between the two species because of the shape of the footprints. The shape of each informed researchers about the structure of the foot and how it was being used at the time.

*Homo erectus* appeared to be walking similarly to how modern humans walk – striking the ground heel first, then moving weight over the ball of the foot and toes and pushing off again.

The other species, which was also walking upright, was moving “in a different way from anything else we’ve seen before, anywhere else,” said co-writer Erin Marie Williams-Hatala, a human development anatomist at Chatham.

Among other details, the footprints suggest greater ability of movement in their big toe, compared to *Homo erectus* or modern humans, said Hatala.

Our common primate ancestors probably had hands and feet fit for grasping branches. But, over time, the feet of human ancestors developed to permit walking upright, researchers say.

The new study adds to a growing amount of research that suggests the change to walking on two feet did not happen at a single moment, in a single way.

Instead, there may have been a number of ways that early humans learned to walk, run and slide on prehistoric muddy hills.

“It turns out, there are different gait mechanics – different ways of being bipedal,” said Harcourt-Smith.

The Associated Press reported this story. Caty Weaver adapted the story for VOA Learning English.

species– n.a class of things of the same kind and with the same name

fossil– n.a trace or print or the remains of a plant or animal of a past age preserved in earth or rock

extinct– adj. no longer existing

preserve– v.to keep or save from decomposition

anatomist– n.a scientist who studies the structural makeup of a living organism or any of its parts

bipedal– adj.of, or relating to, walking on two feet

primate– n.any of an order of mammals that are characterized by hands and feet that grasp, a relatively large complex brain, and vision in which objects are seen in three dimensions and that includes human beings, apes, monkeys, and related forms (such as lemurs and tarsiers)

## Article 147: As Space Traffic Grows, UN Calls for More International Cooperation

Date: 2024-12-04T22:05:00+00:00 | 593 words | Source

No media source currently available

As the amount of space traffic continues to grow, the United Nations is calling for increased international cooperation to improve safety.

Continued deployment of satellites and sharp increases in space debris over the years have resulted in the crowding of low Earth orbit. Space experts and industry leaders say this has created safety risks that will worsen if the problem is not dealt with.

A U.N. gathering of experts in October called for more sharing of information about orbital space objects, as well as creation of an international process to follow and manage them. The meeting was organized by the U.N.'s Office for Outer Space Affairs.

Data from the American-based company Slingshot Aerospace suggests there are more than 14,000 satellites around the world in low Earth orbit. That number includes about 3,500 satellites that are currently inactive, Reuters news agency reports.

In addition, there are about 120 million pieces of orbital debris left over from spacecraft launches, crashes or other causes. Only a few thousand of those are large enough to follow, or track.

"There's no time to lose on space traffic coordination," the director of the U.N.'s Office for Outer Space Affairs, Aarti Holla-Maini, told Reuters. She added, "With so many objects being launched into space, we have to do everything we can to ensure space safety, and that means facilitating the sharing of information between operators."

Holla-Maini explained that such coordination should involve both public and private organizations. The goal is to take steps to avoid crashes between space objects orbiting in low Earth orbit. She added that this area of space must remain safe to prevent costly difficulties to technologies that drive worldwide communication, navigation and scientific exploration.

Currently, there is no centralized system to help prevent such problems. It has also been difficult for organizations to agree on a set of guidelines aimed at improving safety in low Earth orbit. While some countries are willing to share data, others object because of security or privacy concerns.

There have been several examples of these issues over the past year. A Chinese launcher rocket exploded in August, creating thousands of pieces of debris in low Earth orbit. In June, an unused Russian satellite exploded, releasing thousands of metal pieces. That incident forced astronauts on the International Space Station to briefly take shelter.

Low Earth orbit is the most crowded area of space. This is because it offers a balance between cost and proximity, making it a popular target for the quickly growing private space industry.

It is estimated that many more satellites – tens of thousands more – will enter low-Earth orbit in the coming years. One prediction by Canada-based space tracking company NorthStar Earth & Space suggests the possible financial risk of space object collisions is likely to reach \$556 million over five years.

NorthStar's chief executive, Stewart Bain, told Reuters the situation had reached "a critical point" for establishing rules to cover space objects in low Earth orbit. Bain noted that SpaceX's Starlink is launching thousands of satellites per year and China and others are preparing to follow. Such expansion could threaten the load capacity of objects in low Earth orbit, he said.

Reuters reported this story. Bryan Lynn adapted the report for VOA Learning English.

debris– n. broken pieces of something

manage– v. to deal with something

coordinate– v. to organize all the different parts of something

facilitate– v. to make something possible or easier

navigate– v. to find directions by using maps or other equipment

proximity– n. how near one thing is to another, or the fact of being near something

capacity– n. the largest amount or number something can hold

## Article 148: Rare Birth Gives Hope to Endangered Deer

Date: 2024-12-08T21:56:00+00:00 | 479 words | Source

No media source currently available

Recently, a rare pudu was born in an Argentinian zoo. The birth has given scientists and conservationists a chance to study and collect data on the small deer.

Pudus are one of the smallest deer species in the world. They can grow up to 50 centimeters tall and weigh up to 12 kilograms. At birth, the white-spotted male pudu weighed just 1.21 kilograms.

Workers at the conservation organization Temaikken Foundation named it Lenga after a tree species in the Andean Patagonian Forest of Chile and Argentina.

"It's a very enigmatic animal. It's not easy to see," said Maximiliano Krause. He is Lenga's caretaker at the nonprofit organization.

Krause says Lenga is spending his days exploring the park with his mother, Chalten, and father, Nicolino. Lenga is breastfeeding for the first two months until he can eat plants on his own.

After that, Lenga will lose his white spots and the spotty skin color that helps small deer hide from both daytime and nighttime predators. At about one year, pudus develop antlers and reach up to 10 centimeters.

Pudus are very elusive animals. In other words, they are hard to find and difficult to see in the wild. When chased by predators, they escape in a zig-zag manner. The small deer also face threats from wild dogs and species introduced into southern Argentina and Chile.

Only about 10,000 pudus remain in the wild. They are classified as near-threatened by the International Union for Conservation of Nature (IUCN).

"This pudu birth is obviously a joy for us," said Cristian Guillet. He is the director of zoological operations at the Temaikken Foundation.

Guillet said that Lenga will help them research and gather data that will help conservation efforts for pudus and other Patagonian deer, like the huemul.

"(This) offers hope of saving them from extinction," Guillet said.

Lucila Sigal and Alexander Villegas reported this story for Reuters. Anna Matteo adapted it for VOA Learning English.

conservationist— n.a person who is in favor of conservation especially of natural resources (as forests)

species— n.a category of living things that ranks below a genus, is made up of related individuals able to produce fertile offspring, and is identified by a two-part scientific name

enigmatic— adj.of, relating to, or resembling a puzzle or enigma : mysterious

predator— n.an animal that obtains food mostly by killing and eating other animals

zig-zag— adv.one of a series of short sharp turns, angles, or alterations in a course

classify— v.to consider (someone or something) as belonging to a particular group : to arrange in classes that have systematic relations usually founded on common properties

extinction— n.the process of no longer existing : an act of extinguishing or an instance of being extinguished

We want to hear from you. Do you have a similar expression in your language? In the Comments section, you can also practice using any of the expressions from the story. Our comment policy is here.

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## Article 149: New Study Examines Whether Venus Had Liquid Water

Date: 2024-12-08T22:05:00+00:00 | 694 words | Source

No media source currently available

A new study suggests that Venus likely never had water flowing on its surface. The research was based on data related to the chemical makeup of the planet's atmosphere.

Scientists have long considered whether Venus once held liquid water, even possibly large oceans. Such research was based on the fact that Venus is like our own planet in many ways. It is a rocky planet similar in structure and size to Earth and is also our closest planetary neighbor.



But the latest study provides evidence that Venus has likely always been the hot, extremely dry planet it remains today. Researchers from Britain's University of Cambridge led the study. It recently appeared in the publication *Nature Astronomy*.

The researchers' data examinations led them to conclude that both the surface and interior of Venus remain dry. The team said the strongest evidence that Venus once had large amounts of water would be the discovery of some water inside the planet today. But the study provided no evidence of that.

Since water is considered an important element for supporting life, the researchers also suggest that Venus was likely never habitable, or able to support life.

The lead writer of the study was Tereza Constantinou, a doctoral student at the University of Cambridge's Institute of Astronomy. She told Reuters news agency, "We suggest that a habitable past would be associated with Venus' present interior being water-rich, and a dry past with Venus' present interior being dry."

The researcher explained they attempted to measure the current destruction rate of molecules in water, carbon dioxide and carbonyl sulfide in Venus' atmosphere. The state of the planet's atmosphere is linked to volcanic activity, the team said.

"Volcanism, through its supply of gases to the atmosphere, provides a window into the interior of rocky planets like Venus," the researchers wrote in a statement. "As magma rises from the mantle to the surface, it releases gases from the deeper portions of the planet."

Volcanic explosions, or eruptions, can provide information on the amount of water contained deep below a planet's surface, the scientists said.

On Earth, for example, volcanic eruptions mostly release steam, a vapor created when water gets heated. Measurements of volcanic gases on Earth have shown they release about 60 percent water vapor.

But the researchers said their examinations suggested volcanic gases released on Venus were less than 6 percent water vapor. This persuaded the team to conclude that the planet's interior – the source of the magma that releases volcanic gases – must be very dry.

The team noted that scientists have had two leading theories on the history of water on Venus. The first is that the planet had a moderate climate for billions of years, with liquid water flowing over areas of the surface. Over time, widespread volcanic activity likely led to extreme heat and dry conditions that made the water disappear.

The second theory imagined Venus as being very hot from the beginning, preventing liquid water from ever forming on the surface.

Constantinou said, "Both of those theories are based on climate models, but we wanted to take a different approach based on observations of Venus' current atmospheric chemistry." She added that the team did not find evidence that any chemicals being removed from the atmosphere were later being restored.

This provides strong evidence that Venus has a very dry interior today, the scientists concluded. "The atmospheric chemistry suggests that volcanic eruptions on Venus release very little water, implying that the planet's interior...is equally dry," Constantinou said.

She added that her team "would have loved to find that Venus was once a planet much closer to our own." However, Constantinou noted the finding suggests that researchers should center their searches "on planets that are mostly likely to be able to support life – at least life as we know it."

Bryan Lynn wrote this story for VOA Learning English, based on reports from Reuters and the University of Cambridge.

magma– n.hot liquid rock found just below the surface of the Earth

mantle– n.a layer of something that covers a surface

vapor– n.many small drops of liquid that form in the air

approach– n.the way something is done

imply– v.to communicate an idea or feeling without saying it directly

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## Article 150: Saving Sea Turtles on Northeastern US Coast

*Date: 2024-12-10T21:55:00+00:00 | 567 words | Source*

No media source currently available

Over the last 20 years, the number of stranded sea turtles has increased in the waters off the northeastern coast of the United States. As a result, special animal hospitals in the New England area are now treating many sea turtles. Some kinds of these animals are highly endangered.

The turtles enter waters such as Cape Cod Bay when the weather is warm. But when temperatures drop, they cannot escape to head south, said Adam Kennedy. He is the director of rescue and rehabilitation at the New England Aquarium.

The aquarium operates a turtle hospital in Quincy, Massachusetts. On December 3, Kennedy said more than 200 young turtles needed to be treated there. The animals had been stunned by the cold.

The cold-stunned sea turtles wash up on the shores of Cape Cod every fall and winter. Kennedy said aquarium workers expect the number of turtles that they rescue to climb to at least 400. He said the average in 2010 was 40.

Kennedy said, "Climate change certainly is allowing those numbers of turtles to get in where normally the numbers weren't very high years ago." He added that high winds and falling temperatures caused the recent strandings.

In the early 2010s, the five-year average of cold-stunned sea turtles in Massachusetts was around 200. In recent years, that number has grown to more than 700. These numbers come from the U.S. National Oceanic and Atmospheric Administration.

All the turtles at the New England Aquarium's hospital are young. Most are the highly endangered Kemp's ridley turtles. The migration of these turtles often causes them to become stranded in the New England area. But some are green turtles or loggerheads which are not as endangered.

Kemp's ridley is the world's smallest sea turtle. The turtles mostly live in the Gulf of Mexico. But they travel into the northern Atlantic Ocean when young. A 2019 study in the scientific publication PLoS One said ocean warming increases the chance that turtles will become stunned by the cold in the waters of the Northwest Atlantic. The study said warmer water might push the turtles north in a way that makes stranding more likely.

Melissa Joblon is director of animal health at the New England Aquarium. She said most turtles that arrive at the center are sick: "The majority of the turtles arrive with serious ailments such as pneumonia, dehydration, traumatic injuries, or sepsis."

The turtle hospital treats the animals so they can be returned to the wild. Kennedy said they are put in local waters or even taken south to warmer waters. He said about 80 percent survive.

"At the end of the day," Kennedy said, "getting these turtles back to the wild is what we are doing and what we want. We want them back in the ocean."

Patrick Whittle reported this story for the Associated Press from Portland, Maine. Anna Matteo adapted the report for VOA Learning English.

stranded—adj. to be unable to leave a place

rehabilitation—n. the process of bringing a person or any living thing back to health after an accident or sickness

aquarium—n. a place that shows and takes care of fish and other sea life

stun—v. to make senseless, groggy, or dizzy by or as if by a blow

allow—v. to let something happen

migration—n. to regular movement of animals from one place to another to find food or better weather conditions

ailment—n. a sickness or condition that causes pain or poor health

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## Article 151: European Climate Agency: 2024 Is Likely Hottest Year on Record

Date: 2024-12-11T21:57:00+00:00 | 569 words | Source

No media source currently available

A recent report by the European climate service Copernicus says that November was the second-warmest November for which the agency has records.

The finding means that Copernicus will likely declare 2024 the hottest year ever measured using its sets of data.

Copernicus called last year the hottest on record. But after this summer, scientists involved in the effort were expecting that 2024 would set a new record.

In November, the global temperature average was 14.10 Celsius. Through November, this year's average global temperature is 0.14 Celsius above the same period last year.

Jennifer Francis is a climate scientist at the Woodwell Climate Research Center in the northeastern U.S. state of Massachusetts. Francis, who was not involved in the report, said the big story about November is that “like 2023, it beat out previous Novembers by a largemargin.”

The report said 2024 will likely be the first year in which the average temperature was more than 1.5 degrees Celsius above pre-industrial times. In earlier publications, Copernicus calls pre-industrial times the period between 1850 and 1900.

The 2015 Paris Agreement says human-caused warming should be limited to 2 degrees Celsius.

In the years following 2015, the world's top climate scientist said it was important to limit the rise in temperature to 1.5 degrees Celsius to prevent the worst effects of climate change. The scientists said these effects could include increasingly destructive andfrequentextreme weather events.

Copernicus Deputy Director Samantha Burgess said in a news release that “ambitiousclimate action is more urgent than ever.”

Many scientists say the main cause of climate change is the burning of fuels like coal, oil and natural gas.

Francis said the new records are “terrible news for people and ecosystems.”

Francis predicted bad effects from the quickly changing climate. These include the possibility of animals dying off and changes to the natural food webs that the animals are part of.

She added that coastal communities may face problems because of rising sea levels.

Experts said heat waves over the oceans and a loss of sea ice and snow cover probably played a part in the temperature increase this year. Copernicus, the European agency, said the area of Antarctic sea ice in November was 10 percent below average, a record.

The Associated Press reports that oceans absorb about 90 percent of the heat trapped by greenhouse gases. They then release heat and water vapor back into the atmosphere.

Last year's record heat was caused partly by an El Niño — a temporary natural warming of parts of the central Pacific that affects weather worldwide.

But that ended earlier this year and an effect that often follows, called La Niña, failed to take place. This left the scientific community “a little perplexed by what's going on here...why temperatures are staying high,” said Jonathan Overpeck.

Overpeck is a climate scientist at the University of Michigan.

One theory is that an El Niño releases more heat to the atmosphere because of warmer ocean waters. Overpeck said, “we’re not getting the cooling effect that often in decades gone by helps bring the temperature back down.”

This year, he said, “is such a big jump following yet another jump...”

Tammy Webber reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

margin— n.a measure or degree of difference

frequent— adj.acting or returning regularly or often

ambitious— adj.hoping to reach a particular goal

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## Article 152: TikTok Asks Court to Block US Ban, Seeks US Supreme Court Hearing

*Date: 2024-12-11T22:05:00+00:00 | 594 words | Source*

No media source currently available

TikTok has asked a U.S. appeals court to temporarily block a law requiring its parent company, ByteDance, to divest itself of the popular video sharing service, or face a U.S. ban.

The legal request comes after the same federal appeals court last week upheld a law that forces ByteDance to sell TikTok by January 19 or face the ban. Lawyers for ByteDance and TikTok are seeking to temporarily block the law to give the U.S. Supreme Court a chance to rule on the case.

The companies said the Supreme Court had “an established historical record of protecting Americans’ right to free speech.” They added their opinion that they expected the high court to “do just that on this important constitutional issue.”

In the legal request, the companies warned that, without court intervention, the law would take effect next month leading to the closure of TikTok in the U.S. They called the service, or app, “one of the nation’s most popular speech platforms,” noting it currently has more than 170 million monthly users in the U.S.

TikTok also warned that, if the law takes effect, it would affect “services for tens of millions of TikTok users outside the United States.”

The companies asked the appeals court to act on their request by December 16. They noted that President-elect Donald Trump has suggested he may try to prevent a U.S. ban on TikTok. Trump is set to take office on January 20.

A temporary block on the law could “give the incoming administration time to determine its position,” they said. The new administration’s position, the companies argued, could make the Supreme Court

hearing of the case unnecessary.

Unless the Supreme Court rules, a decision about whether to delay the TikTok ban would rest with President Joe Biden. He could approve a 90-day extension past January 19. However, experts have noted it is not clear whether ByteDance could meet a series of requirements needed to permit an extension.

U.S. officials have long warned that TikTok presents national security concerns. The government accuses ByteDance of sharing user data with China's government. Critics have said China could also use TikTok to spread misinformation and that material published on the service can harm the mental health of young users.

TikTok has repeatedly denied the accusations.

In its ruling, the appeals court recognized that "170 million Americans use TikTok to create and view all sorts of free expression." However, it added that a divestment of the service from Chinese control was "essential to protect our national security."

ByteDance has said it does not plan to sell TikTok. Technology experts have noted that even if the company did agree to sell, the deal would likely be blocked by Chinese export rules.

However, some American investors have expressed interest in buying the company's American operations. They include Trump's former Treasury Secretary Steven Mnuchin and billionaire businessman Frank McCourt.

Reuters news agency reports that it is not yet clear whether the Supreme Court will consider the case. But some legal experts have said the high court is likely to agree to hear it. The law is considered by some a test to see how far the U.S. government should be permitted to go in acting against technology companies using national security as a reason.

The Associated Press, Reuters and Agence France-Presse reported on this story. Bryan Lynn adapted the reports for VOA Learning English.

divest— v.to sell something, especially a business or part of a business

platform— n.a kind of computer system, smartphone or social media service

determine— v.to decide something

essential— adj.necessary or needed

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## Article 153: Study: Ancient Americans Depended Heavily on Mammoth for Food

*Date: 2024-12-12T21:55:00+00:00 | 656 words | Source*

No media source currently available

A new study finds that the first humans to live in North America depended heavily on mammoths and other large animals for food.

The finding is based on examinations of the diet of a woman who lived about 13,000 years ago during the last Ice Age. She belonged to a culture called the Clovis. They were among the first Native Americans to arrive on the continent.

The woman was still breast-feeding her 18-month-old son when he died. The boy's remains were discovered back in 1968 in an ancient burial ground in the western U.S. state of Montana. Scientists examined his bones to learn more about his mother's diet.

They found that the woman ate mostly meat from mammoths and other very large animals. The finding supports scientific theories that Clovis people specialized in hunting large animals instead of seeking plants or small animals to eat.

At the time the Clovis people lived, large animals like mammoths lived in areas covering the Americas, as well as parts of northern Asia. The researchers noted that mammoths traveled very long distances during this period. This made them a target for migrating humans seeking protein-rich foods to eat.

The team examined isotope data collected from the boy's bones to estimate the Clovis woman's dietary intake. An isotope is a kind of atom that has a different atomic weight than similar atoms, but the same chemical structure. The isotope experiments centered on the elements carbon and nitrogen.

Mat Wooller is a professor and director of the Alaska Stable Isotope center at the University of Alaska Fairbanks. He was a co-writer of the study describing the research in the publication *Science Advances*.

Wooller told Reuters news agency isotope examinations can provide "a chemical fingerprint" of parts of an ancient human's diet. "We are all made of elements, like carbon and nitrogen, and so is our food," he said.

James Chatters is a professor of Earth, Environment and Society at Canada's McMaster University. He helped lead the research. Chatters said in a statement that centering on mammoths "helps explain how Clovis people could spread throughout North America and into South America in just a few hundred years."

The scientists estimated the woman mostly ate meat from a group of animals called megafauna, the largest creatures that existed at the time. The study showed megafauna made up about 96 percent of her diet, with mammoth accounting for about 40 percent of the total.

Chatters said one mammoth could support "a dependent community of children, care-giving women, and less mobile elders for days or even weeks while the hunters sought their next kill." Mammoths stood to about four meters tall at the shoulder and weighed as much as 11 tons.

Chatters said the Clovis people were known to be highly skilled hunters with a 10,000-year history of hunting megafauna over wide areas of territory. He added that the great dependence of the Clovis on megafauna likely led to the pressures that later caused the extinction of large ice age animals.

Chatters noted the latest finding supports past studies that provided "indirect evidence" that Clovis people mainly depended on mammoths and other large animals for food. This evidence included examinations of different artifacts—such as stone tools or the ancient remains of large animals, he said.

Ben Potter was also a co-writer of the study. He is an archeologist at the University of Alaska Fairbanks. Potter told Reuters, "These results also help us understand megafauna extinctions at the end of the last Ice Age." He added the findings suggest that humans may have played a more important part in the extinctions than is sometimes thought.

Reuters reported this story. Bryan Lynn adapted the report for VOA Learning English, with additional information from the University of Alaska Fairbanks and Science Advances.

mobile—adj. capable of moving or being moved

artifact—n. an object showing human work and representing a culture or a stage in the development of a culture

extinct—adj. no longer in existence

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## Article 154: Google Announces Solution to a Big Problem in Quantum Computing

*Date: 2024-12-15T21:57:00+00:00 | 651 words | Source*

No media source currently available

Google recently said that it had solved a major problem in supercomputing with a new generation of processor called Willow.

Along with other technology companies such as Microsoft and International Business Machines (IBM), Google, whose parent company is Alphabet, is working on quantum computing. The new development promises to increase computing speeds while limiting mistakes, or errors, which are a problem with quantum computing systems.

Scientists at the company's Santa Barbara, California quantum laboratory announced they had at least partly solved the error problem on December 9. On the same day, the scientific publication Nature published their paper on error correction.

Google said that the Willow processor carried out a computation in under five minutes that would have taken a fast supercomputer longer than the current age of the universe to complete.

The work of the Google researchers, however, does not have any commercial uses yet. But Google hopes quantum computers will one day solve problems in medicine, battery chemistry and artificial intelligence (AI) that today's computers cannot solve.

The Willow processor, or chip, runs on units of data called "quantum bits" or "qubits" for short. Qubits permit fast computing but can easily create errors. Google researchers have a theory that qubits might be affected by subatomic particles from events in space.



As more qubits are placed onto a chip, however, the errors can increase to make the chip no better than today's usual computer chips. As a result, scientists have been working on quantum error-correction since the 1990s.

Hartmut Neven, who leads Google's Quantum AI group, said that Willow has 105 qubits.

In the paper recently published in *Nature*, Google researchers said they have found a way to connect the Willow chip's qubits so that error rates go down as the number of qubits goes up. Neven also said Willow can correct errors in "real time." That is an important step toward making quantum computers useful.

"We are past the break even point," Neven told Reuters. In a blog post, he said it was an unmistakable sign that "error correction is improving overall."

In 2019, IBM challenged the claim that Google's quantum chip solved a problem that would take a normal computer 10,000 years to complete. IBM said the problem could be solved in two-and-a-half days using different assumptions about computer system design.

Google said in its blog post that it considered some of those concerns in its newest estimates. Even under the best conditions, Google said a computer of today would still take a billion years to get the same results as its latest chip.

Some of Google's competitors are producing chips with more qubits than Willow. But Anthony Megrant, who is also with Google Quantum AI, told Reuters that Google is trying to make the most dependable qubits possible.

Google produced its earlier chips in a shared building at the University of California, Santa Barbara. But for the Willow chips, Google built its own special laboratory. Megrant said that the new lab will speed up the process of making future chips.

One major problem is that quantum chips must be kept at low temperatures in machines that can produce extremely low temperatures called cryostats. The new laboratory permits the researchers to work more quickly.

"If we have a good idea, we want somebody on the team to be able to...get into that clean room and into one of these cryostats as fast as possible, so we can get lots of cycles of learning," Megrant said.

Stephen Nellis reported this story for Reuters news agency. Jill Robbins adapted it for Learning English with additional information from Google and *Nature*.

quantum—adj. of, relating to, or using the principles of quantum theory

computation—n. an operation carried out by a computing device that is mathematical and digital in nature

commercial—adj. related to business activity

assumption—n. one of the basic conditions that is accepted in making a computation, but which might not exist in reality

cycle—n.a repeating series of events or actions

## Article 155: Europe Launches Mission to Create Simulated Solar Eclipse

Date: 2024-12-15T22:05:00+00:00 | 603 words | Source

No media source currently available

Two European satellites were recently launched on a mission that will include a simulated total solar eclipse.

The European Space Agency (ESA) launched the satellites on December 5 from southern India aboard an Indian-built rocket.

ESA says its Proba-3 mission aims to demonstrate precision formation flying abilities as the two satellites travel together in a fixed position.

The two satellites are set to separate and fly 150 meters apart in about a month when they reach their target area high above Earth.

### Creating simulated solar eclipse

In one of the mission's major experiments, the two spacecraft will carry out a series of artificial total solar eclipses. A shadow created by one satellite will permit the other to observe sun activity while blocking out the sun itself.

The goal of this operation is to give scientists the chance to study the sun's outermost atmosphere, known as the corona. The corona is difficult to observe because of the brightness of the sun.

Scientists have repeatedly tried to study this part of the sun from observations on Earth during real total solar eclipses. But those eclipses do not happen often and usually only last up to five minutes. The Proba-3 team plans to carry out total eclipses at least twice a week, with each lasting up to six hours.

Scientists say repeated studies of the corona can help provide new information about how solar activity influences Earth. For example, the project could help scientists better understand why the corona is so much hotter than the sun itself, and how the sun's energy output changes over time.

Sometimes, intense solar activity can result in geomagnetic storms, which can cause difficulties for power and communication systems on Earth.

"For six hours at a time, it will be able to see the sun's faint atmosphere, the corona, in the hard-to-observe region between the sun's edge and 1.4 million kilometers from its surface," ESA said in a pre-launch statement.

Mission leaders say the eclipse experiments will require extreme precision – within just one millimeter – to effectively position the spacecraft. To keep their position, the satellites will depend on GPS, laser systems and radio links.

ESA said in a statement, “Proba-3 is very different because our satellites will be flying just one-and-a-half football fields away from each other during active formation flying.”

Esther Bastida Pertegaz is a systems engineer on the Proba-3 mission. She said in a video, “The corona of the sun ... has been very poorly investigated. One of the things we really want to understand is ... how do coronal mass ejections or solar wind originate in this area.”

The \$210 million project is being supported by over 40 European companies, Reuters news agency reports. These include SENER Aerospace, Redwire Space, and Airbus Defence and Space.

ESA says Proba-3 will aim for at least 1,000 hours of “on demand” totality during its two-year operation. Once the mission is complete, both satellites will continually drop lower until they burn up in the atmosphere. Officials said that would likely happen within five years.

ESA has said other orbits of Proba-3 – besides the eclipse experiments – will be carried out to demonstrate a range of precise formation flying to help support future missions.

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Reuters and the European Space Agency.

simulate— v.to do or make something that behaves or looks like something real but is not

artificial—adj.something created by a machine and not a natural process

faint— adj.very light; hard to see

GPS— n.a system built to follow the movements of something with an electronically-powered piece of equipment

originate— v.where something begins

## Article 156: NASA’s James Webb Confirms Continued Expansion of the Universe

Date: 2024-12-16T21:55:00+00:00 | 753 words | Source

No media source currently available

Data collected by the James Webb Space Telescope has confirmed earlier information suggesting the universe is expanding at a faster rate than scientists had expected.

The new finding is based on measurements collected by the Webb over the past two years. The telescope is operated by the American space agency NASA.

Researchers say the new readings show that our universe is growing faster today than it did in the period after it first formed billions of years ago. The data suggests the distances between nearby stars and galaxies are increasing. This confirms earlier studies based on data collected by other telescopes.

The finding that today’s universe is expanding faster than expected was first made in the 1990s by data gathered by NASA’s Hubble Space Telescope. In 1998, data examinations led a group of scientists to

first conclude that our universe is expanding at an ever-increasing rate.

That finding was based on studies of huge explosive events called supernovas. NASA describes a supernova as an “extremely bright, super-powerful explosion of a star.” A supernova takes place at the end of a star’s life.

The 1990s research on supernovas and the universe’s continued expansion resulted in three scientists winning the 2011 Nobel Prize in Physics. One of the winners – Adam Riess of Johns Hopkins University in Maryland – was the lead writer of a study on the new data collected by the Webb telescope.

The study notes the idea of the universe expanding at an unexpected rate – and the mysterious reasons behind the growth – has long been known as Hubble Tension. The Nobel winners were awarded the prize in part for showing evidence that Hubble Tension may be caused by forces they describe as “dark energy.”

NASA says astronomers believe dark energy makes up about 68 percent of the universe, while dark matter makes up around 27 percent. But beyond that, very little is known about these two “dark” elements.

Riess – a professor of physics and astronomy – wrote about the new data produced by the Webb telescope observations. He said in a statement, “The discrepancy between the observed expansion rate of the universe and the predictions of the standard model suggests that our understanding of the universe may be incomplete.”

Riess noted that data from both the Webb and Hubble instruments had confirmed the earlier findings linked to the Hubble Tension problem. He said the ongoing mysteries of how dark energy might affect faster universe expansion presents a major “challenge” for scientists. However, the new data also provides new possibilities “to learn more about our universe.”

The researchers used three different methods to measure a specific value – the distances from Earth to galaxies where a kind of pulsating star called a Cepheid had been identified.

The universe’s expansion rate is measured in kilometers per second as megaparsecs, a distance equal to 3.26 million light-years. A light-year is the distance light travels in a year, about 9.5 trillion kilometers.

The researchers said the Webb’s observations appear to rule out the idea that the earlier Hubble data might have returned false information because of possible instrument errors. The team’s findings recently appeared in a study in the publication *The Astrophysical Journal*.

Siyang Li is a doctoral student in astronomy at Johns Hopkins who was a co-writer of the study. He told Reuters news agency the Webb results could mean “there may be a need to revise our model of the universe.” However, Li added that such a revision would be very difficult to make currently with existing data.

Li also noted a great improvement in the Webb data compared to the older Hubble information. “The Webb data is like looking at the universe in high-definition for the first time and really improves the

signal-to-noise of the measurements,” he said.

The researchers suggested more work is needed to possibly unlock the Hubble Tension mystery. Riess said more data observations will be necessary to learn about what forces are continuing to drive expansion of the universe. And the team will next try to capture more detailed data on the rate of expansion, as well as seek to establish timelines for the growth.

Bryan Lynn wrote this story for VOA Learning English, based on reports from Reuters, NASA and Johns Hopkins University.

discrepancy— n.a difference between two things that should be the same

challenge— n.something difficult that tests one’s ability or determination

pulsate— v.to beat or move with a strong, regular rhythm

revise— v.to change something so that it is more correct

high-definition— adj.a system for showing very clear pictures on a television or computer screen

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## Article 157: Geothermal Development Faces Barriers in Southeast Asia

*Date: 2024-12-17T21:55:00+00:00 | 708 words | Source*

No media source currently available

Indonesia and the Philippines aim to increase their use of geothermal energy to move away from highly polluting fossil fuels.

However, money issues, governmental rules, and community protests have slowed the growth of geothermal energy production.

Geothermal energy uses heat from undergroundreservoirsof hot water to produce electricity. Environmental experts see geothermal as a good source of clean energy because it can provide power 24 hours a day. Geothermal power plants also require littlemaintenanceand can last for many years.

Countries with high geothermal possibilities — such as the United States, Indonesia and the Philippines — have areas where volcanic activity naturally carries hot water or steam to the Earth’s surface. The hot water or steam can also be reached bydrillinginto the ground.

Marit Brommer is head of the International Geothermal Association based in Germany. She told The Associated Press, “We’re essentially standing on our own sun, which we can get clean, reliable energy from.”

Geothermal energy in Southeast Asia

In Southeast Asia, geothermal energy production is expected to increase ten times greater from 2020 to 2050, reaching 276 million megawatt-hours, the International Energy Agency says.

After the U.S., Indonesia and the Philippines are the second and third-largest users of geothermal energy in the world.

Still, Indonesia uses less than one-tenth of its large reserves of geothermal energy. Six percent of the country's power supply comes from geothermal sources.

And the Philippines has only developed about eight percent of its geothermal resources. It makes up 14.6 percent of the country's energy use.

Both countries plan to expand their production of geothermal energy. Indonesia aims to increase geothermal production by at least 8 percent by 2030. The Philippine government is targeting several projects to increase geothermal capacity by nearly 1.5 gigawatts, nearly doubling its current use.

However, developing new geothermal projects is costly and sometimes risky for companies when they test and drill to look for reservoirs. That makes it hard to get money for development, said Shigeru Yamamura. He is an energy specialist at the Asia Development Bank.

"That's the most difficult part for developers, because (in terms of money) they cannot take 100 percent of the exploration risk themselves," Yamamura said.

The Philippine government has announced plans to auction for developing geothermal projects. The government is also preparing a "smart green grid plan" that centers on renewable energy. The plans may make it more likely that banks will give loans to private companies seeking to develop geothermal projects.

The Indonesian Ministry of Energy and Mineral Resources says it is working to shorten the wait time to get permits for new geothermal projects. It is also considering ways to increase the amount of money companies could make from the projects.

The World Bank is providing a \$150 million loan to increase Indonesian investments in geothermal energy. And the Green Climate Fund and the Clean Technology Fund are providing \$127.5 million.

Still, community pushback can slow development even when there is enough money.

In Indonesia, villagers have protested geothermal projects. They say the projects are not safe and can harm the environment. Several geothermal projects in Indonesia have had deadly gas leaks in the past five years.

In the Philippines, protests have led at least one company to pay money to indigenous groups for the use of their lands.

Brommer, of the International Geothermal Association, thinks governments and businesses should work with nearby communities.

"We need to show that this development benefits all people, not just a company," she said. "It's not about being a good neighbor; it's about being the best neighbor and really working with communities to respect their concerns."

Vitoria Milko wrote this story for The Associated Press. Andrew Smith adapted it for VOA Learning English.

reservoir-n.a large natural or manmade lake used as a source of water supply

maintenance-n.the act of keeping property or equipment in good condition by making repairs

drill-v.to make a hole in the ground or some other surface

capacity-n.the largest amount or number something can hold

auction-v.to make a public sale where something is sold to the person or group that offers the highest price

grid-n.the physical system that delivers electricity in a country

Indigenous-adj.native to an area; groups of people who are descended from the first people to ever live in an area or country

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## Article 158: Tech Tip: How to Protect Communications through Encryption

*Date: 2024-12-18T22:05:00+00:00 | 751 words | Source*

No media source currently available

U.S. cybersecurity officials are advising people to use encryption in their communications after a major hacking campaign.

Federal officials released a list of security suggestions for U.S. telecommunications companies that were targeted.

The advice includes one suggestion that everyone can use: “Ensure that traffic is end-to-end encrypted to the maximum extent possible.”

End-to-end encryption, also known as E2EE, means that messages are protected so that only the sender and receiver can see them. If anyone else gets the message, all they will see is disordered information that cannot be understood without the key.

Law enforcement officials had until now resisted encryption. This resistance is because the encryption means the technology companies themselves will not be able to look at the messages. In addition, the companies will not be able to respond to law enforcement requests to turn the data over.

The Associated Press (AP) recently offered some ways that normal people can use for end-to-end encryption :

Officials said the hackers targeted the metadata of a large number of people. That included information on the dates, times and recipients of calls and texts. The hackers also got to see the information from texts from a much smaller number of people.

If you are an iPhone user, information in text messages that you send to someone else who also has an iPhone will be encrypted end-to-end. Look for the blue text bubbles which mean that the messages are encrypted iMessages.

The same goes for Android users sending texts through Google Messages. There will be a lock next to the timestamp on each message to show that the encryption is on.

But there is a weakness. When iPhone and Android users text each other, the messages are encrypted only using Rich Communication Services (RCS). That is a common method for messaging that has replaced the older SMS and MMS methods.

Apple notes that RCS messages “aren’t end-to-end encrypted, which means they’re not protected from a third party reading them while they’re sent between devices.”

Samsung, which sells Android smartphones, also indirectly described the issue in a small area at the bottom of a press release last month. Samsung said about RCS, “Encryption only available for Android-to-Android communication.”

To avoid getting caught out when exchanging texts, experts recommend using encrypted messagingapps.

Privacy supporters are big fans of Signal, which uses end-to-end encryption on all messages and voice calls. Signal is an app that is run by an independent nonprofit group based in Mountainview, California. It promises never to sell customer data. The group has also made its source code publicly available so that it can be examined by anyone “for security and correctness.”

Signal’s encryption method is so respected that it has been included into competitor WhatsApp.

End-to-end encryption is also the normal mode for Facebook Messenger, which like WhatsApp is owned by Meta Platforms.

What about Telegram?

Telegram is an app that can be used for one-on-one discussions, group chats and broadcast “channels.” But Telegram does not use end-to-end encryption normally. Users have to turn on end-to-end encryption. And Telegram’s end-to-end encryption does not work with group chats.

Cybersecurity experts have warned people against using Telegram for private communications.

Instead of using your phone to make calls through a wireless cellular network, you can make voice calls with Signal and WhatsApp. Both apps encrypt calls with the same technology that they use to encrypt messages.

There are other choices. If you have an iPhone, you can use Facetime for calls, while Android owners can use the Google Fi service. Both are end-to-end encrypted.

However, with all these choices, the person on the other end will also have to have the app.



WhatsApp and Signal users can choose the privacy setting they want in the settings. Such choices include hiding an IP address during calls to prevent your general location from being guessed.

Kelvin Chan reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

encryption— n.changing something (such as data) into a code

hack— v.to gain illegal access to a computer network, computer system, phone, etc.

extent— n.a degree, point, or limit to which something goes to

key—n.information that permits a computer application to un-encrypt a message permitting the receiver to read it

metadata-- n.data that gives information about other data

recipient— n.someone who receives something

text (message)—n.a short message sent through a computer program from one person to another which can contain a written message, links or pictures

app (application)—n.a computer program that is designed to do one task or several linked tasks

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## Article 159: Robot Leads Cattle to Greener Fields

*Date: 2024-12-22T21:55:00+00:00 | 543 words | [Source](#)*

No media source currently available

Researchers in Australia are using a robot powered by artificial intelligence (AI) to improve the way farmers raise cattle.

The robot has four wheels and is painted red.

Researchers have named the robot cow SwagBot. It can drive by itself and move cows from one field to another based on the condition of the soil and plant life.

Researchers at the University of Sydney in Australia said SwagBot is becoming the world’s first “smart cow.” They believe it can make cattle farming more efficient and put less pressure on the environment.

Swagbot was first launched in 2016. At that time, it could only move around fields where cattle graze. Over time, scientists have added sensors and AI systems to the robot.

These systems help SwagBot judge the health, type, and thickness of grasses and plants in fields and to observe the health of the cattle.

The robot uses this information to move cattle to the best areas for grazing. The goal is to move cattle to a new grazing area before they have damaged the grass in a particular field. This can prevent damage to the soil. The robot can also send the information back to farmers.

Salah Sukkarieh is a professor of robotics and intelligent systems at the University of Sydney. His team made SwagBot. He said that once cattle feel at ease near the robot, they follow it around.

"You want to move the animals to the right part of the pasture where there is good protein, good carbs," he said. Sukkarieh added that it is important to move the cattle easily and without fences.

Australia is one of the world's biggest exporters of beef. It has around 30 million cattle spread across large areas that are often dry. As a result, some pastures are of low quality and do not have a lot of grass.

Farmers carefully assess how many animals their land can support. However, many farmers have little control over where the animals graze within large areas of land. Overgrazing can lead to poor soil that supports less plant and animal life.

Erin O'Neill is a part-time farmer who watched a recent demonstration of the robot in a field north of Sydney. She said the robot can help farmers get detailed information about the current condition of their fields.

She said the robot can tell farmers "what bits of pasture are most nutritious, particularly if you've got cattle like we do that are pregnant." O'Neill added that pregnant cattle need high-quality pastures to aid them through pregnancy.

SwagBot is still in development. It is part of a growing movement in agriculture towards robotics. Farming experts hope robots can make production more efficient. Robots could also reduce the need for workers in places, like Australia, where finding workers in areas with a low population can be difficult.

Cordelia Hsu wrote this story for Reuters news agency. Andrew Smith adapted it for VOA Learning English.

efficient—adj. something that does what it is supposed to do using the least resources possible

graze—v. when certain animals, such as cattle, eat grass in a field

pasture—n. a field used for feeding animals like cattle, sheep, goats, or other grazing animals

assess—v. to take in information in the aim of making a judgement or determination about it

## Article 160: NASA Identifies Cause of Mars Helicopter's Final Crash

Date: 2024-12-22T22:05:00+00:00 | 788 words | Source

No media source currently available

The American space agency NASA says it has found the likely cause of a crash that grounded its Mars helicopter Ingenuity.

The finding comes after NASA said it had carried out the "first aircraft accident investigation on another world."

Ingenuity arrived on Mars along with NASA's Perseverance explorer, or rover, in February 2021. The experimental helicopter took its last flight, number 72, in January. That flight ended in a hard landing on the Martian surface.

In April 2021, Ingenuity became the first aircraft to complete a powered, controlled flight on another planet. The aircraft was built to test take-off, short flight and landing operations. The flights on Mars aimed to support NASA's efforts to build new aircraft that can fly in the atmospheres of other planets.

Engineers from NASA's Jet Propulsion Laboratory in California fully investigated Ingenuity's last flight on Mars. They found the cause of the crash was linked to the helicopter's navigation system. That camera-based system was not able to collect dependable data on elements of the Martian surface to support a safe landing.

A detailed, final report on the accident is to be issued in the coming weeks. But the engineers have already described their main findings in a statement published online.

They said the helicopter's last flight saw the aircraft climb to about 12 meters, where it stayed, or hovered, while capturing images of the Martian surface. Data records show Ingenuity began its planned descent after about 19 seconds. By 32 seconds, the helicopter was back on the surface and was no longer sending communication signals.

The next day, Ingenuity team members reestablished communications and received images from its last flight. The images showed the aircraft suffered severe damage to its rotor blades.

NASA explained that Ingenuity's navigation system plays an important part in collecting data about the surface to ensure the aircraft can complete a smooth landing. The helicopter uses a camera that points downward, capturing information about what is below the craft.

In past flights, the engineers said the camera was able to find smooth, suitable landing possibilities. But NASA said during the final flight, the helicopter was traveling in an area with very few surface features for the camera to capture. This meant the aircraft's navigation system could not find enough of these features to choose a good landing spot.

At the time, Ingenuity was operating together with NASA's Perseverance rover in an area of Mars known as Jezero Crater.

The images recovered from Ingenuity suggested the navigation system's inability to pick up surface features made the helicopter descend too fast. The hard landing on a sand hill is believed to have caused the helicopter to turn over and roll.

The engineers said images showed that all four of Ingenuity's rotor blades broke at their weakest point. The damaged blades also caused the aircraft to shake. Events related to the crash led to increased power demand, which resulted in the loss of communications.

Although the crash ended Ingenuity's flight operations, NASA said it is still able to provide and send back weather information and other kinds of data. The space agency says this information could be helpful in designing future aircraft or other explorers to be sent to Mars.

Teddy Tzanetos is Ingenuity's project manager. He said in a statement one major thing the team learned was that future aircraft designed for space travel do not necessarily need to be large flying machines. Tzanetos added that Ingenuity's longevity suggests that "not everything needs to be bigger, heavier, and radiation-hardened" to work in the Martian environment.

With this in mind, NASA engineers have been testing smaller, lighter flying vehicles, with limited electronics, in order to produce future helicopters that can make a large number of smaller exploration trips.

Tzanetos shared details about one aircraft NASA is currently developing. It is called the Mars Chopper rotorcraft. Tzanetos said Chopper is about 20 times heavier than Ingenuity. Developers say it would be built to carry several kilograms of science equipment, while self-exploring distant areas of Mars. Chopper would also have a much longer travel ability, flying up to 3 kilometers in a day. Ingenuity's longest flight was 704 meters.

Tzanetos said that overall, "Ingenuity has given us the confidence and data to envision the future of flight at Mars."

Bryan Lynn wrote this story for VOA Learning English based on reports from NASA.

navigation— n. finding directions by using maps or other equipment

rotor blade— n. thin, flat pieces of material that spin to make aircraft lift off the ground and travel

descent— n. the act or process of moving downward

feature— n. a common quality or important part of something

longevity— n. surviving for a long time

confidence— n. the feeling or belief that someone or some group is good or able to succeed at something

envision v. to picture oneself

## Article 161: Researchers Hope to Bring Back American Chestnuts

Date: 2024-12-23T21:57:00+00:00 | 488 words | Source

No media source currently available

"Chestnuts roasting on an open fire,

Jack Frost nipping at your nose..."

This classic song written by Bob Wells and Mel Tormé in 1944 has long brought to mind the image of Christmas for generations of Americans.

At one time, the American Chestnut was among the most common and largest trees in the eastern United States. The wood was used to cover the walls of homes and schools. The leaves helped add nutrients to the soil. And men on street corners sold chestnuts cooked on open fire.

However, in the late 19th century, some East Asian varieties of chestnut trees brought to the U.S. carried a fungus that killed almost all American chestnuts.

Efforts to bring back the chestnut

The American Chestnut Foundation (TACF) is a non-profit organization based in the eastern state of North Carolina. It has been working with researchers for over 30 years to bring the trees back to eastern U.S. forests.

American chestnuts now exist mostly as huge root systems that grow into small trees. The fungus harms them when the small trees start to develop fully. East Asian varieties, like those that brought the fungus in the first place, are resistant to the fungus.

Researchers have tried to save American chestnuts by cross-breeding, or mixing, them with one kind of Chinese chestnut that can fight off the fungus. Progress has been slow, however. The trees the researchers have grown could not resist the fungus well enough to become large and healthy trees.

That is why scientists are now trying to combine two methods: cross-breeding and genetically modifying, or changing, the genes of American chestnut trees. They hope this will improve the tree's ability to resist attack from the fungus.

But, progress was delayed by a recent mix-up involving two varieties of genetically modified American chestnuts. Scientists at the State University of New York (SUNY) had hoped to get approval for the new seed this year.

Possible effects of climate change

A changing climate and warmer temperatures may also make restoring the chestnut difficult in some areas.

A team at Virginia Tech University published a study this summer about this issue. They looked at projected future climates and then measured the shortest distance the trees would have to move to survive well in a new climate.

For now, researchers know their work might not be successful in their lifetimes. The process has been slow. And two of the first chestnut restoration experts, Bill Powell and Chuck Maynard, both died in the past 13 months.

Linda McGuigan helped support Powell's and Maynard's research for years at SUNY's College of Environmental Science and Forestry.

"The project moves on, lives on. And we honor their memory," McGuigan said. "I want to do something good for the future, for my children."

variety-n.a kind or type of something

fungus-n.a mushroom or other plant that has no flowers, leaves, or green coloring

restoration-n.the bringing back of something to its former condition

## Article 162: Saturn's Rings Might Be Much Older Than Had Been Thought

Date: 2024-12-25T21:55:00+00:00 | 378 words | Source

No media source currently available

Recent research suggests that Saturn's rings may be older than they look — and possibly as old as the planet itself.

Instead of being 400 million years old as some had thought, the icy rings could be the same age as Saturn: 4.5 billion years old.

A Japanese-led research team reported Saturn's rings may be in good condition not because they are young but because they are dirt-resistant.

For many years, scientists had believed that Saturn's rings were between 100 million and 400 million years old. This idea came from more than 10 years of observations by NASA's Cassini spacecraft.

The spacecraft studied Saturn before its mission ended in 2017.

Images by Cassini showed no evidence of any darkening of the rings by impacts from micrometeoroids — space rock particles smaller than a grain of sand. The finding led scientists to believe the rings formed long after the planet.

Through computer modeling, the Institute of Science Tokyo's Ryuki Hyodo and his team showed that micrometeoroids become gas or small liquid drops once they hit the rings. As a result, little if any dark or dirty substances, or residue, remain.

Researchers found that the resulting charged particles are forced toward Saturn or out into space, keeping the rings clean. The findings dispute the idea that the rings are much younger than the planet. The resulting research appeared in the scientific publication *Nature Geoscience*.

Hyodo said it is possible Saturn's rings could be somewhere between the two extreme ages. For example, the rings could be around the halfway mark of 2.25 billion years old.

However, the solar system was much more chaotic during its early years. Large planetary-sized objects were moving around and affecting each other a lot at that time. It was just the sort of situation that might have produced Saturn's rings.

“Considering the solar system's evolutionary history, it's more likely that the rings formed closer to” Saturn's earliest times, Hyodo told the Associated Press in an email.

Marcia Dunn reported this story for the Associated Press. John Russell adapted it for VOA Learning English.

impact—n.the result of at least two things colliding or striking one another

model—v.to create a representation or simulation of something

chaotic—adj.confused or disordered

evolutionary—adj.of or pertaining to evolution (a process of change)

## Article 163: What Were Google’s Top Searches in 2024?

Date: 2024-12-25T22:05:00+00:00 | 546 words | Source

No media source currently available

As we near the end of 2024, we are looking back at the top terms people searched for on Google during the year.

Each year, Google releases its “Year in Search” report. It includes terms that saw the biggest rise in traffic compared to the year earlier.

Online marketing company Semrush reports Google controls about 92 percent of the worldwide internet search traffic. It also estimates the search engine completes up to 3 trillion requests per year.

In an announcement on its news website, The Keyword, Google said 2024 was a very big year for web searches related to sporting events. Searches for information on soccer and cricket proved to be especially popular.

The top-searched soccer event was the Copa América competition, which took place in the United States this past summer. The next most-searched was the UEFA European Championship. That was followed by cricket’s Men’s T20 World Cup competition.

Imane Khelif led the list of top-searched sports stars during the year. Khelif is an Algerian female boxer who won a gold medal at the 2024 Olympic Games in Paris. An American boxer, Mike Tyson, came next on the list and Spanish soccer professional Lamine Yamal took the third place.

News was the other area receiving the most search requests during 2024. Topping the list for searches of events was the U.S. presidential election. That was followed by news stories about excessive heat experienced across many parts of the world. And finishing in third was news about the Paris Olympics.

U.S. President-elect Donald Trump topped searches in Google’s people category. He was followed by Catherine, Princess of Wales. U.S. Vice President Kamala Harris, Trump’s main opponent in the November presidential election, came in third on the list.

The most popular searches for people who died in 2024 included Liam Payne, Toby Keith and O.J. Simpson.

In the world of entertainment, Disney and Pixar’s movie *Inside Out 2* was the top-searched movie of the year. In second place was Marvel’s *Deadpool & Wolverine*, followed by the comedy film *Saltburn*.

The top-searched television show was Netflix’s *Baby Reindeer*. That was followed by Amazon’s series *Fallout*. In third place was the action show *House of the Dragon*.

In music, Kendrick Lamar's "Not Like Us" topped song searches. Next on the list was "APT.", a pop song by Rosé and Bruno Mars, followed by "Bling-Bang-Bang-Born" by Creepy Nuts.

The top Google search for a food recipe was for the Olympic village's chocolate muffin. The sweet treat was made famous by Norwegian swimmer Henrik Christiansen during the games.

The New York Times' "Connections" puzzle topped game searches.

In searches on parks on Google Maps, New York City's Central Park was number one. At number two was Rizal Park in Manila, the Philippines, followed by Japan's Ohori Park in Fukuoka.

The California-based technology company said the 2024 search results were collected from January 1 through November 23. Users can find more top-searched terms at a special Google site found [here](#).

The Associated Press reported this story. Bryan adapted the report for VOA Learning English, with additional information from Google.

category— n.a group of people or things of a similar type

entertainment— n.movies, tv shows or other performances or activities that entertain people

recipe— n.a list of foods and instructions that tell how to cook something

puzzle— n.a game or activity in which you have to put pieces together or answer questions using skill

## Article 164: Study: Around Half of US Teens Always Online

Date: 2024-12-26T21:55:00+00:00 | 478 words | [Source](#)

No media source currently available

Nearly half of American teenagers – children ages 13 to 17 - say they are online “constantly” despite concerns about the effects of social media and smartphones on their mental health.

The information comes from a report that was recently released by the Pew Research Center.

As in past years, YouTube was the most popular platform teenagers used. Around 90 percent said they watched videos on the website, down slightly from 95 percent in 2022. Nearly 75 percent of those questioned said they visit YouTube every day.

There was a small downward change in several popular apps teens used. For example, 63 percent of teens said they used TikTok, down from 67 percent. Snapchat use went to 55 percent from 59 percent. This small decline could be due to pandemic-era restrictions easing up and kids having more time to see friends in person. But the change is probably not big enough to be truly meaningful.

X saw the biggest decline among teenage users. Only 17 percent of teenagers said they use X, down from 23 percent in 2022, the year Elon Musk bought the platform.

Reddit usage remained the same at 14 percent. About 6 percent of teenagers said they use Threads, Meta's answer to X that launched in 2023.



The report comes as countries around the world try to understand the effects of social media on young people's well-being.

Australia recently passed a law banning children under 16 from social networks. Still, it is unclear how the Australian government will be able to enforce the age limit. It is also unclear whether such a ban will come with unexpected or bad effects, such as isolating some children.

Meta's messaging service WhatsApp was different in that it saw the number of teenage users increase to 23 percent from 17 percent in 2022.

Pew also asked teenagers how often they use different online platforms. A small but notable number said they are on them "almost constantly." For YouTube, 15 percent reported constant use, for TikTok, 16 percent, and for Snapchat, 13 percent.

As in previous public opinion studies, girls were more likely to use TikTok almost constantly while boys went to YouTube. There was no meaningful gender difference in the use of Snapchat, Instagram and Facebook.

Around 25 percent of Black and Hispanic teens said they visit TikTok almost constantly, compared with just 8 percent of white teenagers.

The report was based on a public opinion study of 1,391 U.S. teenagers that ran from September 18 to October 10, 2024.

Barbara Ortutay reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

constantly— adv.always, without change

platform— n.a website or app that serves as a base from which a service is provided

app— n. (short for application)a program that performs a task or set of tasks

isolate-- v.to separate or set apart from others

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## Article 165: Large Chilean Frog at Risk from Climate Change

*Date: 2024-12-29T21:55:00+00:00 | 323 words | Source*

No media source currently available

A large frog species that lived alongside dinosaurs and is considered a "living fossil" is now losing ground in its native Chile.

Climate change and human actions are damaging the creature's living environment, or habitat.

The Helmeted Water Toad is one of the largest frogs in the world, growing up to over 30 centimeters in length and weighing up to one kilogram.

The amphibian has experienced little genetic change for millions of years. But now its future is at risk, scientists say.

"It's sad that a species that managed to coexist with dinosaurs, that managed to resist a mass extinction, is now threatened by human beings," said Melissa Cancino. Cancino is an animal doctor and founder of Proyecto Anfibia, a group that works on amphibian research and education in Chile.

The Helmeted Water Toad's environment covers a large part of the country, but its population is suspected to have decreased by at least 30 percent since 1990. The creature is identified as "vulnerable" on the International Union for Conservation of Nature's (IUCN) Red List.

Climate change, habitat changes, environmental decline and pollution have all caused the Helmeted Water Toad's numbers to decline, Cancino said. Poor water and waste management have also threatened the frog's living environment.

Matias Faundez, another member of Proyecto Anfibia, has seen the damage first hand.

"This estuary runs through the whole city, and has plenty of illegal run-offs," he said as he walked through a stream outside of Valparaiso. "Even so," he added, "the frog manages to survive."

Rodrigo Gutierrez reported on this story for Reuters. John Russell adapted it for VOA Learning English.

species— n.a class of animals having common attributes and a common name

amphibian— n.any of a class of cold-blooded animals (such as frogs) that have gilled aquatic young and air-breathing adult

vulnerable— adj.open to attack or damage

extinction— n.the act of completely dying off

estuary— n.a part of the sea at the lower end of a river

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## Article 166: Top Technology Stories of 2024

Date: 2024-12-29T22:05:00+00:00 | 728 words | Source

No media source currently available

Throughout 2024, we saw further development of artificial intelligence (AI) systems and new legal action brought against technology companies. Here is a look back at some of the biggest tech stories we covered in 2024.

AI continues to expand

During the year, companies continued developing and deploying new AI tools.

Among these were a new set of AI offerings announced by American software company Microsoft. Officials explained the new tools included "personal agents" designed to help users complete business

activities with little or no human involvement.

Microsoft says it designed the agents to expand on so-called chatbots – AI tools that work by themselves to produce human-level writing or discussions. The company said it expects a full release of the agents sometime in 2025.

In September, technology company Apple announced it was launching several new iPhones equipped with special chips to support AI operations. Apple chief Tim Cook said the new models had been “designed for Apple Intelligence from the ground up.”

We reported in October about an effort by researchers to use AI to improve existing weather prediction models. One system works by combining past weather predictions with modern methods to provide the most complete picture of weather and climate data.

More warnings AI’s possible dangers

In California, three legislative measures were enacted to ban the use of AI tools to create false images and videos during election campaigns. One main goal was to fight deepfakes. These are pieces of video or audio created to make it appear that people in it are saying or doing things they never said or did. Deepfakes were used in several world election campaigns in 2024.

In May, an international gathering of major AI developers and top government officials in Seoul agreed on measures that aim to ensure that AI systems are safely built and deployed. Attendees from 16 different technology companies signed a promise to develop AI technology in ways that limit possible public harms.

US legal moves against tech companies

About one year ago, an American jury found that Google’s app store operates as an illegal monopoly. Then in August 2024, a federal judge ruled that Google had violated trade laws by operating its search engine as a monopoly. The ruling accused Google of paying smartphone makers to ensure that its search engine was set as the default system on new devices.

As part of the case, the U.S. government proposed in November a series of measures to limit Google from anti-competition business activities. Google criticized the court’s ruling as an example of government overreach. U.S. officials have long warned that TikTok presents national security concerns.

Earlier this month, video sharing service TikTok asked a U.S. appeals court to block a law requiring its Chinese parent, ByteDance, to divest itself of TikTok or face a U.S. ban. The request came after the same court had upheld a law forcing ByteDance to sell TikTok by January 19 or face the ban. Lawyers for ByteDance and TikTok are seeking to have the U.S. Supreme Court rule on the case.

In May, U.S.-based Aurora Innovations said it was preparing to launch a series of driverless trucks to transport goods on a major public highway. Company officials said it planned to begin the service in Texas, with 20 tractor-trailers transporting goods between Dallas and Houston. The company hopes to expand the service to thousands of tractor-trailers within three to four years.

In October, the U.S. Federal Aviation Administration (FAA) announced it had issued final rules for operating air taxis. It also set training and approval requirements for pilots. The FAA said air taxis belong to a kind of aircraft known as Advanced Air Mobility (AAM) flyers. They generally operate on their own on electrical power, with vertical take-off and landing abilities.

FAA Administrator Mike Whitaker said such aircraft represent “the first new category of aircraft in nearly 80 years.” He added that the new rules are meant to mark the beginning of possible widespread AAM operations across the U.S. in the future.

Bryan Lynn wrote this story for VOA Learning English.

chip— n.a very small slice of silicon containing electronic circuits (as for a computer)

monopoly— n.complete control of the entire supply of goods or of a service in a certain area or market

default— adj.what exists or usually happens if no changes are made

divest— v.to sell something, especially a business or part of a business

vertical— adj.pointing straight up from a surface

category— n.a group of people or things of a similar kind

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## Article 167: Researchers: Giant Sloths, Mastodons Lived with Humans in Americas

*Date: 2024-12-31T21:57:00+00:00 | 768 words | Source*

No media source currently available

A sloth is a furry animal that lives mainly in South and Central America. It moves very slowly and spends most of its time in trees.

But thousands of years ago their ancestors were huge. Giant sloths could weigh up to 3.6 metric tons and lived on the ground.

For many years, scientists believed the first humans to arrive in the Americas quickly killed off these giant ground sloths, along with many other huge animals. Those include mastodons, saber-toothed cats, and dire wolves.

But research in recent years suggests that humans might have arrived in the Americas thousands of years earlier than scientists had once believed. New findings suggest that humans lived with the big animals for thousands of years.

Daniel Odess is an archaeologist at White Sands National Park in the American state of New Mexico.

“There was this idea that humans arrived and killed everything off very quickly — what’s called ‘Pleistocene overkill,’” he said. But new discoveries suggest that “humans were existing alongside these animals for at least 10,000 years, without making them go extinct.”

Santa Elina is a place in central Brazil where archeologists are looking for the remains of ancient animals and humans. There, scientists have found bones of giant sloths. However, the bones look like humans used them and changed them.

Mirian Pacheco is a researcher in a laboratory at the University of São Paulo. Pacheco recently showed The Associated Press a small, round sloth fossil. She noted that the fossil is smooth and there is a very small hole near one edge. She said it looks like humans changed the bone on purpose. She added that researchers think the bone was probably used as jewelry.

The animal bones from Santa Elina are about 27,000 years old. That is older than scientists had thought possible. Some had believed that humans only arrived in the Americas 11,000 years ago.

Researchers at first wondered if humans had been working with ancient fossils. But Pacheco's research strongly suggests that ancient people were carving "fresh bones" shortly after the animals died.

Pacheco studied chemical changes that take place when a bone becomes a fossil. She said the bone had been carved "before the fossilization process." Pacheco's team also ruled out natural processes.

In high school, Pacheco learned that most archeologists believed humans arrived in the Americas about 13,000 to 11,000 years ago. "What I learned in school was that Clovis was first," she said.

Clovis is a place in New Mexico where archaeologists in the 1920s and 1930s found objects dated to between 11,000 and 13,000 years ago. Until more recent years, Clovis objects, or artifacts, were among the oldest known in the Americas.

Scientists say there was a large decrease in the number of large animals at that time. The period is also believed to mark the end of the last Ice Age: a period when large areas of land were covered with thick ice and snow.

Briana Pobiner is a paleontologist with the Smithsonian Institution's Human Origins Program. Pobiner said, "It was a nice story for a while, when all the timing lined up," adding, "But it doesn't really work so well anymore."

In the past 30 years, new research methods, including ancient DNA, have suggested a different story.

The first place that most scientists agreed was older than Clovis was Monte Verde, Chile.

There, researchers discovered 14,500-year-old stone tools, pieces of animal skins, and several plants people could eat and use for medicine.

"Monte Verde was a shock," said Tom Dillehay. He is an archeologist at Vanderbilt University in the American state of Tennessee. Dillehay has carried out research at Monte Verde for many years.

At New Mexico's White Sands, researchers have uncovered human footprints dated to between 21,000 and 23,000 years ago. The site also has tracks of giant animals dated to about the same time. However, archeologists have not found any artifacts at the site.

Researchers continue to disagree about the timing of humans' first arrival in the Americas. But if they did arrive earlier than once thought, several scientists now believe that it is possible they did not

immediately kill off the giant animals living in the Americas.

Christina Larson reported this story for The Associated Press. Andrew Smith adapted the story for Learning English.

furry—adj.covered with animal hair

Pleistocene—n.a period of time from about 2.5 million to 11,000 years ago

extinct—adj.no longer existing on the Earth

archeologist—n.a person who studies ancient human life

fossil—n.the mineralized remains of a tissue of a living thing

jewelry—n.objects that are worn on the body to beautify and show status

carve—v. to slowly cut away material to make a design or special surface

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## Article 168: AI Tools Often Used for Fake Product Reviews

*Date: 2025-01-01T21:55:00+00:00 | 863 words | Source*

No media source currently available

Artificial intelligence (AI) tools that permit people to produce online reviews have put sellers, service providers and buyers in unfamiliar territory, public protection groups and researchers say.

False, or fake, reviews have long appeared on many popular websites such as Amazon and Yelp. The reviews are often traded on private social media groups between fake review dealers and businesses willing to pay. Sometimes, businesses get good reviews in exchange for offering buyers rewards such as gift cards.

But AI tools, popularized by OpenAI's ChatGPT, permit people to produce reviews faster and in greater numbers, technology industry experts say.

Where are AI-generated reviews appearing?

Fake reviews are found across a wide range of industries, from e-commerce and travel to services such as home repairs, medical care and music lessons.

The Transparency Company is a technology company and public protection group that uses software to detect fake reviews. The company said it started to see AI-generated reviews appear in large numbers in mid-2023. The reviews have increased quickly ever since.

For a recently released report, The Transparency Company examined 73 million reviews in three areas: home, legal and medical services. Nearly 14 percent of the reviews were likely fake. The company expressed a "high degree of confidence" that 2.3 million reviews were partly or entirely AI-produced.

Last September, the Federal Trade Commission (FTC) took legal action against the company behind an AI writing tool and content producer called Rytr. The FTC accused Rytr of offering a service that could

pollute the marketplace with fake reviews.

The FTC, which banned the sale or purchase of fake reviews in 2024, said some of Rytr's buyers used the tool to produce hundreds and perhaps thousands of reviews. The reviews appeared in support of garage door repair companies, sellers of copied designer handbags and other businesses.

What are companies doing?

Major companies are developing policies for how AI-generated content fits into their systems for removing fake reviews. Some companies already employ special programs and investigative teams to find and remove fake reviews. Still, the companies are giving users some ability to use AI.

Spokespeople for Amazon and Trustpilot, for example, said they would permit buyers to post AI-assisted reviews as long as the buyers represent their true experience. Yelp has taken a more cautious approach, saying its rules require reviewers to write their own reviews.

The Coalition for Trusted Reviews, which Amazon, Trustpilot, Glassdoor, Tripadvisor, Expedia and Booking.com launched last year, said that even though people may put AI to illegal use, the technology also presents "an opportunity to push back against those who seek to use reviews to mislead others."

The FTC's rule banning fake reviews, which took effect in October, permits the agency to fine businesses and individuals who take part in fake reviews. Tech companies hosting such reviews are protected from the penalty. This is because they are not legally responsible under U.S. law for the content that outsiders post on their websites.

Tech companies, including Amazon, Yelp and Google, have sued fake review dealers they accuse of selling fake reviews on their sites. The companies say their technology has blocked or removed a large number of suspect reviews and suspicious accounts. However, some experts say they could be doing more.

"Their efforts thus far are not nearly enough," said Kay Dean, a former federal criminal investigator who runs a public protection group called Fake Review Watch. "If these tech companies are so committed to eliminating review fraud on their platforms, why is it that I, one individual who works with no automation, can find hundreds or even thousands of fake reviews on any given day?"

Finding fake reviews

Consumers can try to find fake reviews by watching out for a few possible warning signs, researchers say. Overly good or bad reviews are suspect. Highly specialized terms that repeat a product's full name or model number are another possible clue.

When it comes to AI, research done by Balázs Kovács, a Yale professor, has shown that people cannot tell the difference between AI-created and human-written reviews. Some AI detectors may also be fooled by shorter texts, which are common in online reviews, the study said.

However, there are some AI clues that online shoppers and service seekers should keep in mind. Panagram Labs says reviews written with AI are often longer, highly structured and include "empty descriptors." Empty descriptors include general phrases and attributes or characteristics. The writing

also often includes overused phrases or opinions like “the first thing that struck me” and “game-changer.”

Haleluya Hadero reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

review-- n. an evaluation or assessment of a product or service

opportunity-- n.a good chance for progress

mislead– v. to lead in a wrong direction or into a mistaken action

sue-- v.to seek justice from someone by legal process

fraud-- n. intentional changing of truth in order to get another person to part with something of value

automation– n. automatically controlled operation of a system by and electronic device that takes the place of human labor

clue-- n.an idea; a piece of evidence that leads one toward a solution

detect-- v.to find or discover the true nature of something; to discover something

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## **Article 169: Scientists Use Ancient Genes to Estimate Contact Between Humans, Neanderthals**

*Date: 2025-01-01T22:05:00+00:00 | 640 words | Source*

No media source currently available

Scientists have used ancient genes to learn more details about contact between Neanderthals and humans tens of thousands of years ago.

Results of two recent studies estimate the two groups likely met and began mating about 45,000 years ago.

Modern humans – also known as Homo sapiens – began in Africa hundreds of thousands of years ago and later started spreading to Europe, Asia and other places. Scientists believe that at some point, they met and mated with Neanderthals. The mixing of these groups had a major influence on humans’ genetic code.

However, scientists do not know exactly when or how the two groups interacted. But the two new studies provide some additional details about the timing of this contact.

One group of scientists examined genetic material from three female and three male Homo sapiens individuals who lived around 45,000 years ago. Reuters news agency reported that research involved the oldest genes from Homo sapiens ever examined, or sequenced.

Some of the genes came from bones found in acavein the central German village of Ranis. Other material came from a woman believed to have lived at around the same time in a cave in a mountainous



area of what is now the Czech Republic.

Researchers estimated the period of mixing between Neanderthals and humans at about 49,000 to 45,000 years ago. The findings were recently published in *study in Nature*.

A second group of researchers examined genetic material from 300 present-day and ancient Homo sapiens. This included 59 individuals who lived between 2,000 and 45,000 years ago. That study, published in the journal *Science*, estimated the period of mixing at about 50,500 to 43,500 years ago.

The scientists said their new findings on the mixing and mating of the groups suggested the activities happened a little more recently than thought in the past. They believe the contact continued over many generations.

Priya Moorjani was co-writer of the study appearing in *Science*. She is an assistant professor of molecular and cell biology at the University of California, Berkeley. She told Reuters, “Genetic data from these samples really helps us paint a picture in more and more detail.”

The team noted that it is difficult to know the exact nature of the interactions between Homo sapiens and Neanderthals based on the examined data. The researchers also could not confirm exactly where the mixing and mating happened. However, they believe it was most likely somewhere in the Middle East.

The researchers noted most modern humans still have genetic material from Neanderthals that accounts for an estimated one to two percent of their DNA. They said modern-day genetic traits linked to skin color, hair color and even nose shape can relate back to the Neanderthals. Our genetic makeup also includes links to another group of human ancestors called Denisovans.

Moorjani noted that the history of Neanderthals living outside Africa for thousands of years likely gave them a greater ability to deal with climate and diseases in new environments. “Some of their genes may have been beneficial to modern humans,” she added.

Rick Potts is director of the Smithsonian Institution’s Human Origins program. He was not involved in the new research. Potts told The Associated Press he hopes future genetic studies can help scientists learn even more details about the interactions of Neanderthals and modern humans.

He said, “Out of many really compelling areas of scientific investigation, one of them is: well, who are we?”

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Reuters and Nature.

genetic code— n. information from DNA or RNA that is used to create an organism's proteins

cave— n. a large hole in the side of a mountain or underground

sample— n. a small amount of something that gives you information about the thing it was taken from

trait— n. a quality, good or bad, in someone’s character

beneficial—adj.helpful or useful

compelling—adj.demanding attention

## Article 170: Scientists Show Baby Mammoth Preserved for 50,000 Years in Siberia

Date: 2025-01-05T21:55:00+00:00 | 270 words | Source

No media source currently available

Researchers in Russia's Siberia area are showing the public what they say are the 50,000-year-old remains of a baby mammoth.

Melting permafrost led to the animal's discovery. They are calling it the best-preserved mammoth body ever found.

Named Yana by the scientists, the female mammoth weighs more than 100 kilograms and is 120 centimeters tall.

Scientists believe that Yana was one year old when she died. Her remains are among several mammoth carcasses that have been recovered.

Yana was found among the melting permafrost at Batagaika crater in the far-eastern Russian area of Yakutia. Known as the “gateway to the underworld,” scientists have found remains of other ancient animals there, including bison, horses and dogs.

Permafrost is soil that remains frozen for a period of years or more. As the permafrost in Siberia melts, discoveries of prehistoric animals are becoming more common.

Scientists at Russia's North-Eastern Federal University will study Yana's remains. The university has a research center and museum specifically for mammoths.

Scientists at the university described the find as “exceptional.” They said Yana would give researchers additional information about how mammoths lived and how they changed to survive in their surroundings.

The Associated Press reported this story. Anna Matteo adapted it for VOA Learning English.

permafrost—n.soil that remains frozen for a period of years or longer without melting

preserved—adj.kept in good condition; relatively unchanged by conditions such as age, wear or weather

carcass—n.the remains of a dead animal

crater—n.a circular hole in the earth with a steep edge and curving bottom that is often caused by a meteor strike or volcanic activity

exceptional—adj.something that is unlike others; remarkable or surprising

## Article 171: The Sky Promises Many Big Events in 2025

Date: 2025-01-05T21:56:00+00:00 | 576 words | Source

No media source currently available

The world will have to wait until 2026 for the next total solar eclipse. However, the sky promises plenty of other big events in 2025.

The new year starts off with a six-planet parade in January that people will be able to see for weeks. The smallest planet, Mercury, will join the crowd for a seven-planet line in February.

The Planetary Society's chief scientist Bruce Betts said about the visible planets, "People should go out and see them sometime during the next many weeks. I certainly will."

Here is a look ahead to the major sky events in 2025:

The moon will disappear for more than an hour over North and South America on March 14. The event will be followed two weeks later by a partial solar eclipse. People in Maine, eastern Canada, Greenland, Europe, Siberia and northwestern Africa will be able to watch the show.

In September, there will be an even longer total lunar eclipse over Europe, Asia, Africa and Australia. Two weeks later, a partial solar eclipse will take place in the area over the South Pacific, including New Zealand and parts of Antarctica.

Three supermoons are coming this year in October, November and December.

The full moon will look especially big and bright those three months as it orbits closer to Earth than usual.

November's supermoon will come closest, passing within 356,980 kilometers from Earth. Last year had four supermoons, ending in November.

This month, six of our seven neighboring planets will line up in the sky to form a long arc. All but Neptune and Uranus should be visible with the eye just after sunset, weather permitting.

The parade will continue for weeks. Mercury will make a short appearance by the end of February. The planets will slowly exit, one by one, through spring.

Northern and southern lights

Geomagnetic storms painted the sky with beautiful colors in unexpected places last year.

Space weather experts predict more of these storms this year. Such storms could produce even more northern and southern lights.

The reasoning for the prediction is that the sun has reached its solar maximum during its current 11-year cycle. The cycle could continue through this year. The National Oceanic and Atmospheric Administration's Shawn Dahl urges everyone to follow space weather news, so as not to miss any colorful shows.

The Perseid and Geminid meteor events, or showers, are well-known crowd-pleasers. The Perseids will take place in August. The Geminids come in December. But do not forget about the smaller meteor showers including the Lyrids in April, the Orionids in October and the Leonids in November.

Areas away from cities, where night skies are darker, are best for watching the events. Generally, meteor showers are named for the constellation which they appear to come from. They take place whenever Earth moves through paths of debris left behind by comets and sometimes asteroids.

Marcia Dunn reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

eclipse— n. the total or partial obscuring of one celestial body by another

supermoon— n. a kind of full moon that takes place when the moon is at or near the closest point to earth in its orbit

arc— n. a special kind of curved or arched path

maximum— n. the upper limit; the highest or furthest point

cycle— n. a course or series of events or operations that happen regularly

constellation— n. a configuration of stars

debris— n. the remains of something (often said of something that has been destroyed or broken)

## Article 172: 2024 Another Big Year for Space Exploration

*Date: 2025-01-05T22:05:00+00:00 | 835 words | Source*

No media source currently available

As we enter the new year, we take a look back at some of the biggest space stories of 2024.

### Historic private moon landing

Nearly one year ago, a private spacecraft completed the first U.S. moon landing in more than 50 years. The American space agency NASA announced the space lander, called Odysseus, had touched down on the lunar surface February 22.

Odysseus was developed by the Texas-based company Intuitive Machines. The spacecraft carried out several science experiments before powering down permanently on the moon in late March.

NASA said Odysseus had successfully captured data to help the agency “better understand the moon’s environment and improve landing precision and safety.”

### Japanese moon landing

Japan’s space agency JAXA announced in January 2024 that its SLIM spacecraft had successfully landed on the moon. But the lander touched down the wrong way up, causing some communication and power problems.

Japanese space officials reported that they stayed in communication with SLIM through late April. They said the spacecraft was able to collect valuable data about the touchdown and surrounding area.

One purpose of the mission was to demonstrate new precision landing technology. JAXA said the experiment was successful because SLIM was able to land within 10 meters of its planned target.

#### Chinese moon landing and return

In May, China launched its Chang'e 6 spacecraft to the moon's far side. In late June, Chinese space officials announced the spacecraft had returned to Earth with rock and soil samples collected on the lunar surface.

The successful return made China the first country to ever collect and bring back lunar samples from the far side of the moon. The area is known as the far side because it always faces away from Earth.

#### Europe's asteroid exploration mission

In October, the European Space Agency (ESA) said it had successfully launched a spacecraft, called Hera, to explore an asteroid struck in an earlier NASA test mission. Hera's trip to the asteroid is expected to take about two years.

Hera is headed to the asteroid Dimorphos. NASA crashed its DART spacecraft into the space rock in 2022, about 11 million kilometers from Earth. NASA said its mission successfully showed it was possible to change the orbit of asteroids that might threaten Earth in the future.

Hera aims to closely examine Dimorphos to get more details on how the strike by DART affected the asteroid. The data that NASA collected is to be used together with information gathered by ESA to develop future planetary defense plans.

#### Europa Clipper to explore Jupiter's moon

NASA announced the successful launch of its Europa Clipper spacecraft in October. The explorer is designed to search for possible signs of life on Jupiter's moon Europa.

Jupiter is the largest planet in our solar system and has numerous moons. But icy Europa has been identified by scientists as a good candidate for having the right conditions to support life. Several studies have suggested the moon likely contains a large ocean beneath its icy surface.

NASA said the Europa Clipper would fly past Mars, then back toward Earth, "using the gravity of each planet to increase its momentum." These kinds of "gravity assists" are expected to provide the needed push to get the spacecraft to Jupiter by 2030.

#### Boeing's crew flight to the ISS

In early June, Boeing successfully carried out a test mission for NASA by transporting two American astronauts – Butch Wilmore and Suni Williams – to the International Space Station (ISS).

The two were expected to stay in space for only a week. But ongoing technical issues with the Starliner spacecraft prevented a return trip.

NASA announced plans in August to have Starliner return to Earth without the astronauts. The current plan is for Wilmore and Williams to return on a SpaceX Dragon spacecraft sometime in late March or April.

### SpaceX landing demonstration

SpaceX has now completed six launch tests of its huge Starship rocket system. Four of those tests were carried out in 2024. The last test took place in November.

The Starship rocket and spacecraft system is designed to be a completely reusable vehicle to transport astronauts and supplies. It has successfully demonstrated that ability in its most recent experimental flights.

During one of the tests in October, Starship's Super Heavy booster rocket was "caught" and secured by a huge structure that includes metal arms. A short time later, Starship's second stage safely splashed down in the Indian Ocean.

Bryan Lynn wrote this story for VOA Learning English.

precision— n. the quality of being very correct or exact

sample— n. an amount of a substance that is taken for tests or scientific study

asteroid— n. a rocky object that goes around the sun

mission— n. (space exploration) the flight of a spacecraft to its target along with tasks expected to be carried out

momentum— n. the force that makes something continue to move

booster— n. an engine on a spacecraft that gives extra power for the first part of a flight

stage— n. part of a rocket that contains engines and fuel, but which is left behind when the rocket reaches a certain distance above the Earth

splash down— v. when a spacecraft reenters the Earth's atmosphere and lands in a body of water

## Article 173: Small Businesses Say US TikTok Ban Would Hurt Them

Date: 2025-01-08T22:05:00+00:00 | 713 words | Source

No media source currently available

As the date nears for a possible U.S. ban on the video sharing service TikTok, some small companies are saying such a ban would hurt their business.

The U.S. Justice Department has ordered TikTok's China-based parent, ByteDance, to sell the social media app by January 19 or face the ban. Lawyers for ByteDance and TikTok have sought legal action to temporarily block the Justice Department's order.

The Supreme Court is expected to consider the matter in January. President-elect Donald Trump, who takes office January 20, has asked the Supreme Court to delay a ban to permit solving the problem through “political means.”

U.S. officials have long warned that TikTok presents national security concerns. The government accuses ByteDance of sharing user data with China’s government. Critics have said China could also use TikTok to spread misinformation and that material published on the service can harm the mental health of young users.

TikTok has repeatedly denied the accusations. The company has said it sees the app as an important tool to support Americans’ right to free speech.

Industry experts have said a U.S. ban on TikTok could affect millions of small businesses that use the service to grow.

TikTok launched in the United States in 2016. Since then, many small business owners have been using it in different ways. These include marketing and advertising campaigns to introduce new products. Many companies also sell goods directly through the app.

TikTok's own estimates suggest small businesses currently using the service would lose more than \$1 billion in revenue in a single month if the ban goes into effect.

One example of how TikTok can be used to quickly grow a business is the experience of Desiree Hill. She is the owner of Crown’s Corner Mechanic in Conyers, Georgia.

She told the Associated Press that sharing videos of her work on TikTok helped spread the word online about her business. As a result, the app made her services so popular she was able to open her own shop with five employees 18 months ago.

“Every day I get at least two to three customers that have seen me on TikTok, watched my videos and wanted to become a customer,” Hill said.

If a ban on TikTok is established, many businesses would likely move to other services to reach customers. Instagram Reels, Snapchat and YouTube Shorts are three possibilities. Many small companies already use those apps. But business experts say it might be harder to get teens who have long used TikTok to start using other apps.

Another way for businesses to reduce the effects of a ban would be for them to build a strong base of customers who are willing to provide their contact emails or phone numbers. That permits owners to reach out directly to users with new offers and other marketing messages.

Hill, of Crown Corner Mechanics, worries that other services would not reach as many possible customers as TikTok. She said she is already using YouTube, Instagram and Facebook, but has not been getting the same results.

“I am worried because there is no preparation for this,” Hill told the AP. She added, “If I lose TikTok, I will lose a large part of my business or I will lose my ability to grow anymore.”

Crystal Lister uses TikTok for her business, called Mommy and Me: The Listers, in Cypress, Texas. The company offers interactive educational training in subjects including technology and science. Now, she is seeking to move her offerings to YouTube and Instagram Reels but says TikTok is easier to use.

“It is going to be a challenge if TikTok is banned because we’re losing kind of all the functionality you want,” Lister said. These could include video creation methods and the ability to spread product details through social media. “So we’ll have to use many other platforms to supplement what TikTok did in one.”

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

app— n.a small computer program that can be put onto a mobile phone or other electronic device

customer— n.a person or organization that buys goods or services from a shop or business

interactive— adj.involving communication between people

challenge— n.something difficult that tests one’s ability or determination

functionality— n.the way something works

supplement— v.to add things to make something larger or better

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## Article 174: NASA Says Spacecraft Made Closest-Ever Pass to Sun

*Date: 2025-01-12T22:05:00+00:00 | 769 words | Source*

No media source currently available

NASA says a spacecraft that has been examining the sun’s outermost atmosphere recently got closer to our Earth’s star than any past explorer has.

The American space agency announced its Parker Solar Probe passed within 6.1 million kilometers of the sun’s outer corona on December 24. Mission leaders established communication with the spacecraft after the operation and said the orbiter was safe.

NASA launched the Parker Solar Probe in August 2018. Its mission is to study the sun’s powerful corona and solar wind. Solar wind is created by a continuous flow of charged particles, called plasma, into space from the corona.

In 2021, NASA announced the orbiter had passed into the solar atmosphere for the first time. Researchers said at the time, the spacecraft had successfully “touched” the sun. Parker was believed to be about 13 million kilometers from the center of the sun when it crossed over into the sun’s outer atmosphere.

In a statement, NASA’s Associate Administrator Nicky Fox praised the spacecraft’s latest pass-by of the sun. “Flying this close to the sun is a historic moment in humanity’s first mission to a star,” she said. Fox leads the agency’s Science Mission Directorate at NASA Headquarters in Washington, D.C.



The Parker Solar Probe is believed to have traveled at speeds up to 692,000 kilometers per hour during the mission. NASA said this was “faster than any human-made object has ever moved.”

Fox said she hopes data collected by the spacecraft can help scientists better understand how the sun behaves and influences other elements in our solar system and beyond. “By studying the sun up-close, we can better understand its impact throughout our solar system, including on the technology we use daily on Earth and in space.”

Fox added that such studies can provide valuable information “about the workings of stars across the universe to aid in our search for habitable worlds beyond our home planet.”

NASA’s statement noted the agency’s earlier preparation and operations were all leading up to the latest mission. To help it get into the right position, the Parker Solar Probe received assistance from several flybys of the planet Venus. The last flyby happened on November 6, 2024.

These gravitational assists had put the spacecraft “an ideal distance” from the sun every three months, NASA explained. This distance was “close enough to study our sun’s mysterious processes,” but not “to become overwhelmed by the sun’s heat and damaging radiation.”

Developers of the spacecraft say it was built with a shield made with carbon material to protect it from the extreme heat released by the sun’s corona. The shield was designed to survive temperatures reaching 1,400 degrees Celsius. NASA says the data-gathering instruments are placed behind the shield.

Nour Rawafi is the project scientist for Parker Solar Probe at NASA’s Johns Hopkins Applied Physics Laboratory in Maryland. His team designed, built, and operates the spacecraft. He said Parker had performed as planned although it operates in “one of the most extreme environments in space.”

Rawafi added that the mission had brought “a new golden era of space exploration, bringing us closer than ever to unlocking the sun’s deepest and most enduring mysteries.”

Dr. Joseph Westlake is director of NASA’s Heliophysics Division, the part of the agency that studies the sun. Westlake noted that his team is preparing for more flybys in the future and hopes to capture more valuable data. Already, flybys of Venus have gathered information about the natural radio waves coming from Venus.

In 2023, scientists announced they had learned new information about solar wind from data collected by Parker. Data showed that solar wind can reach speeds up to 1.6 million kilometers per hour. Solar wind forms a large magnetic barrier known as the heliosphere. It protects Earth and other planets from the continuous flow of high-energy particles from the sun’s corona.

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Agence France-Presse and NASA.

corona— n. the outer atmosphere of a star, such as the sun

impact— n. the effect that a person, event or situation has on someone or something

habitable— adj.able to support life

flyby—n.a term used by space agencies to describe when a spacecraft uses the gravity of a planet to increase its speed or change direction

overwhelm— v.to produce an effect that is too strong or extreme

shield— n.a large, flat object used for protection against dangerous or unpleasant things

golden era— n.a period during which something or someone was particularly successful,goodor special

endure— v.to make it through a difficult time or situation

heliophysics— n.relatng to an area of space that is influenced by the sun or solar wind

delve— v.to examine something in detail to find information

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## Article 175: European and Japanese Spacecraft Examines Mercury's Pole

*Date: 2025-01-15T21:55:00+00:00 | 374 words | Source*

No media source currently available

A spacecraft recently sent back some of the best close-up pictures yet of the planet Mercury's north pole.

The European and Japanese robotic explorer went as close as 295 kilometers above Mercury's night side before passing directly over the planet's north pole.

The European Space Agency (ESA) released images that show craters with deep shadows on our solar system's smallest planet.

ESA noted that the edges, or rims, of the craters called Prokofiev, Kandinsky, Tolkien and Gordimer create permanent shadows. As a result, these unlit craters are some of the coldest places in the Solar System even though Mercury is the closest planet to the sun.

Cameras also took images of neighboring volcanic plains known as Borealis Planitia. ESA noted that these are "Mercury's largest expanse of 'smooth plains' and were formed by the widespread eruption of...lava 3.7 billion years ago."

Also appearing in the images released by ESA is Mercury's largest impact crater, the Caloris Basin, which covers more than 1,500 kilometers.

This was the sixth and final flyby of Mercury for the BepiColombo spacecraft since its launch in 2018. The recent move put the spacecraft on a path to enter orbit around Mercury late next year. The spacecraft holds two orbiters, one from Europe and the other from Japan, that will circle the planet's poles.

In a statement on its website, ESA noted that Mercury, a small, dry planet, is “the least explored planet of the inner Solar System. Learning more about Mercury will shed light on the history of the entire Solar System.”

The spacecraft is named for the late Giuseppe (Bepi) Colombo, an Italian mathematician. Colombo played a part in NASA’s Mariner 10 mission to Mercury in the 1970s and, 20 years later, in the Italian Space Agency’s special satellite project that flew on the U.S. Space Shuttle.

Marcia Dunn reported this story for the Associated Press. John Russell adapted it for VOA Learning English.

shadow– v.to cast a shadow (a dark figure cast upon a surface when a body blocks the rays of a light)

crater– n.a low area or depression formed by an impact

expanse– n.a great extent or distance of something that is spread out

erupt– v.to force out or release suddenly (often lava or steam that is pent up)

shed light– idiom to expand or increase knowledge

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## Article 176: AI Tools Drive Many New Products at the CES 2025 Electronics Show

*Date: 2025-01-15T22:05:00+00:00 | 942 words | [Source](#)*

No media source currently available

At this year’s CES show in Las Vegas, Nevada, crowds from around the world came to see the latest products built with artificial intelligence (AI).

CES is produced by the Virginia-based Consumer Technology Association. It presents the latest electronic product offerings or features, targeting consumers. More than 138,000 people attended the event which ended last weekend.

More than 4,000 companies presented products at CES 2025. Here is a look at some of the top products shown at this year’s 2025 show:

CES is historically an event at which large electronics manufacturers introduce their latest and greatest televisions. This year was no different.

South Korean TV makers LG and Samsung both announced new smart models with built-in AI tools. Others – including Japan’s Panasonic and China’s Hisense and TCL – also released TV models with new AI tools.

Korean manufacturer LG said its latest models are equipped with AI technologies designed to autonomously improve picture brightness, sharpness and sound quality. The AI improvements are powered by the company’s own AI processor technology.

LG also announced new updates for its Magic Remote device controller, saying new AI tools were added to provide more detailed search and interactive possibilities with users.

Samsung introduced a system called Samsung Vision AI for its line of OLED and QLED TV models. The company said the AI tools are meant to turn the TVs into more “intelligent” assistive devices and to help “simplify and enrich everyday living” for its users.

One example is a feature that permits users to click on different screen elements to receive immediate information about what they see. The company said another tool makes it possible to activate live language translation on-screen.

#### Transport and personal robots

Several companies at CES introduced robotic transport vehicles designed to travel over many kinds of surfaces or terrain.

One model was built by Kubota, a Japanese maker of farm and building equipment. The company demonstrated how the KATR four-wheeled robot uses hydraulic to control the vehicle’s four legs independently. This design seeks to keep the robot secure and level even when working on hills or in rocky areas.

Kubota says the vehicle – which is able to carry loads up to 240 kilograms – is small enough to be transported in most pickup trucks.

Chinese developer Unitree Robotics showed off a dog-like robot model called Go2. The robot was designed with a series of cameras, sensors and AI tools. The company says this permits Go2 to make smooth movements and automatically follow its owner. It is able to carry small loads on its back and can also be used in security operations involving businesses or individuals.

Demonstrations at CES showed Go2 doing tricks, like standing on two legs, dancing and giving high fives to visitors. The company produces several other dog-like models, as well as humanoid robots.

#### Aircraft carrier vehicle

The latest flying car designs are also a yearly favorite at CES. But this year, Chinese automaker XPENG took its presentation a step further by introducing a combination truck and flying vehicle.

The company calls the system a Land Aircraft Carrier. It includes a large transport van with enough space to transport a vertically landing flying vehicle inside. The idea is for users to be able launch the flying vehicle from anywhere the van can go. The flying car is fully autonomous and can carry two people at a time.

Chinese media reported the company – which also offers several traditional vehicles on its website – plans to sell the combination for about \$300,000. XPENG said it will aim to increase production for all its vehicles in the coming year.

#### Self-charging vehicle

California-based Aptera Motors demonstrated a new electronic vehicle model with a built-in charging system. The company explains on its website that the vehicle has solar panels on its surface to capture energy from the sun. When charged this way, Aptera claims the car can travel up to 64 kilometers in a single day without being plugged in to a power source. On a full charge, the company says the vehicle can travel up to 640 kilometers.

#### Salt enhancing spoon

Japanese drink producer Kirin Holdings introduced a new product that aims to strengthen, or enhance, the taste of salt in food products without increasing the amount of salt. The spoon-shaped device uses electricity to increase saltiness. The company says the tool – which can be taken anywhere – sends a weak electric current through the top of the device to food.

French electric sports equipment maker SQ-Motors presented an all-terrain electric board that can move on roads and snow. The company calls its invention the Sternboard. It is a three-wheeled board with an electric motor in the back.

First designed to be an electric skateboard, a version was developed to move on snow. The powered boards have reached speeds of more than 60 kilometers per hour in tests.

But the snow versions are not designed for speed. They seek to provide users with the ability to go up hills or move long distances over level land.

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, AFP and online sources.

consumer – n. a person or group which buys products for personal use and not for business

feature – n. a quality of a product that its manufacturer wants possible buyers to know about

autonomous – adj. able to do a task or job without assistance

enrich – v. to increase the quality of something

screen – n. a flat device that shows electronic images or video

translate – v. to change words from one language to another

terrain – n. a particular kind of land

hydraulics – n. a system that uses liquid to mechanically move or lift equipment or parts

vertical – adj. not flat but positioned up and down

charge – v. to put electrical power into a power source, like a battery, to do mechanical or electronic work

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## Article 177: Researchers Use Lasers to Study Ancient Peruvian Mummies

Date: 2025-01-19T21:55:00+00:00 | 477 words | Source

No media source currently available

For more than 5,000 years, humans have covered themselves with permanent artistic designs known as tattoos.

In a recent study, researchers used lasers to uncover highly complex designs of ancient tattoos on mummies from Peru.

The skin of the mummies and the black liquid, or ink, used to make the tattoos permitted researchers to observe fine details. These marks are not visible to the human eye, said study co-writer Michael Pittman of the Chinese University of Hong Kong.

The researchers examined around 100 mummies dating to around 775 years ago. The mummies were from coastal Peru's Chancay culture, which grew and developed before the Inca empire and the arrival of Europeans.

All the individuals had some form of tattoos on the back of their hands, knuckles, arms or other body parts. The study paid careful attention to four individuals with "exceptional tattoos" — designs of shapes such as triangles and diamonds, said Pittman.

It was not clear how the tattoos were created. But they are "of a quality that stands up against the really good electric tattooing of today," said Aaron Deter-Wolf of the Tennessee Division of Archaeology. Deter-Wolf was not involved in the research.

The study results appeared recently in the publication *Proceedings of the National Academy of Sciences*.

Using lasers that make skin glow, "we basically turn skin into a light bulb," said study co-writer Tom Kaye of the nonprofit Foundation for Scientific Advancement based in Sierra Vista, Arizona.

The findings were "helpful to learn about new non-destructive technologies that can help us study and document sensitive archaeological materials," such as mummies, said Deter-Wolf.

The oldest known tattoos ever discovered are on the remains of a Neolithic man who lived in the Italian Alps around five thousand years ago. Many mummies from ancient Egypt also have tattoos, as do remains from cultures around the world.

People have used tattooing for many reasons throughout history. The marks can show cultural or individual identity, social standing, and more. Tattoos also have been used for protection against disease or to deepen relationships with spirits or gods, suggested Lars Krutak. Krutak, who works at the Museum of International Folk Art in Santa Fe, New Mexico, was not involved in the research.

Designs on ancient textile and stone products are more commonly found in good condition for study than are ancient tattoos. But ancient tattoos when studied can provide information about art forms that would

not otherwise be available, suggested Martin Smith of Bournemouth University. Smith was not involved in the recent study.

Christina Larson reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

mummy— n.human remains that are in good condition or very well preserved

visible— adj.capable of being seen

exceptional— adj.superior, rare, much better than average

glow— v.to shine as if filled with light

light bulb— n.an electric lamp

textile— n. woven cloth, fibers, or yarn

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## Article 178: Two New Private Spacecraft Launch to the Moon

*Date: 2025-01-19T22:05:00+00:00 | 821 words | Source*

No media source currently available

Two private spacecraft are on their way to the moon to carry out separate missions.

The landers launched January 15 from the American government's Kennedy Space Center in Florida. The private company SpaceX used its Falcon 9 launch vehicle to fly the landers into space. The two separated from Falcon 9 about one hour into the flight.

Mission leaders said the launch went exactly as planned, with no problems reported. The trip to the moon will take some time. One spacecraft is expected to land on the lunar surface in early March, while the other should touch down in late May or early June.

In February 2024, the first private spacecraft completed the first U.S. moon landing in more than 50 years. The lander, called Odysseus, was developed by the Texas-based company Intuitive Machines. The spacecraft experienced some technical problems but was able to carry out several science experiments before powering down permanently on the moon in late March.

For this current mission, Texas-based Firefly Aerospace developed Blue Ghost, one of the two landers launched. The other, named Resilience, belongs to Japanese company ispace. Both are designed to collect data and materials to support several planned moon missions – some including astronauts – in coming years.

The Blue Ghost lander is targeting a landing site near a volcanic structure called Mons Latreille. It is a 480-kilometer basin that sits in the northeast quarter of the near side of the moon.

The American space agency NASA says the 2-meter-tall Blue Ghost is carrying 10 NASA science and technology instruments. They aim to “gather valuable scientific data studying Earth's nearest neighbor,” the agency said.

NASA's Artemis program aims to send astronauts to the moon for the first time since the Apollo 17 mission in 1972. The next planned flight in that program is Artemis II, which is set to launch in April 2026. In that mission, four astronauts will fly NASA's Orion spacecraft more than 400,000 kilometers on a trip around the moon.

Nicola Fox is the associate administrator for NASA's Science Mission Directorate in Washington D.C. She said in a statement the agency's cooperation with private companies is "a critical part of bringing humanity back to the moon."

Fox added that NASA chose the new experiments partly because of information learned from NASA's Apollo space program, which began in the 1960s. She said the current mission seeks to ensure "the safety and health of our future science instruments, spacecraft, and, most importantly, our astronauts on the lunar surface."

Blue Ghost's equipment includes a tool to collect dirt and another to dig a hole for measuring temperatures below the lunar surface. The spacecraft is also carrying a device built to measure light reflection to be used with lasers to better measure the distance between Earth and the moon.

In addition, Blue Ghost is carrying instruments to examine the structure and density of areas beneath the lunar surface. Other equipment will seek to capture X-ray images of the edge of Earth's magnetic field.

The ispace lander Resilience is carrying an exploring vehicle, called a rover, to the moon. The five-kilogram rover is designed to collect lunar soil and other materials from the surface.

Resilience is also carrying equipment and instruments to complete several experiments for Japanese companies and other organizations. One of the experiments will test an electrolysis device designed to separate water into hydrogen and oxygen. Such a device could help future astronauts better use water resources on the moon and produce rocket fuel.

Other experiments set for the Resilience mission include food production tests and the deployment of a "deep space radiation probe." The instrument is designed to collect detailed measurements of ionizing radiation in space.

NASA has said it is paying \$101 million to Firefly for the mission and another \$44 million for the experiments. Officials from ispace did not report how much its mission would cost.

It is the second moon mission for ispace. During the last one, Japan's space agency JAXA successfully launched its SLIM spacecraft to the moon in January 2024. But the lander touched down imperfectly, causing some communication and power problems.

However, Japanese space officials reported they had stayed in communication with SLIM through late April. During this time, they said the spacecraft was able to collect valuable data about the landing and surrounding area.

Bryan Lynn wrote this story for VOA Learning English, based on reports from NASA, The Associated Press and Agence France-Press



mission— n. (space exploration) the flight of a spacecraft to its target along with tasks expected to be carried out

lunar— n. of, relating to, or resembling the moon

reflect— v. if a surface reflects heat, light, etc., it sends the light, etc. back and does not absorb it

electrolysis— n. use of an electric current to cause chemical change in a liquid

ionize— v. to cause to form an ion: an atom or small group of atoms that has an electrical charge because it has added or lost one or more electrons

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## Article 179: Musk: Third Person Receives Computer-Brain Connection from Neuralink

*Date: 2025-01-21T21:55:00+00:00 | 616 words | Source*

No media source currently available

Businessman Elon Musk said a third person has had a special electronic device directly connected to their brain.

The unidentified person received an implant from Musk's company Neuralink, which makes devices that link the human brain to computers. Neuralink is one of many groups working to connect the human nervous system to machines.

On the social media service X, which he owns, Musk said: "We've got...three humans with Neuralinks and all are working well."

Neuralink announced its first brain implant one year ago. Recently, Musk said the company has improved its devices. Musk also said Neuralink hopes to implant the experimental devices in 20 to 30 more people this year.

The second patient reportedly has a spinal cord injury and got the implant last summer. The person was playing video games with the help of the device and learning how to use design software. The first patient, also paralyzed after a spinal cord injury, said it helped him play video games and chess.

Many other companies and research groups are working on similar projects. Two studies published last year in the *New England Journal of Medicine* describe how brain-computer interfaces, known as BCIs, helped people with Amyotrophic lateral sclerosis (ALS) communicate better. ALS is a nervous system disease that affects cells in the brain and spinal cord.

Others working on brain-computer interface technology

Nature magazine reported last September that there were published results from 28 trials worldwide of BCIs over the past 25 years.

Rajesh Rao is co-director of the Center for Neurotechnology at the University of Washington. Rao said that many research laboratories have already shown that humans can control computer cursors using

BCIs.

Rao said Neuralink might be different from the others in two ways. First, the surgery to implant the device is the first to use a robot to implant flexible electrical connectors into a human brain to record brain signals and to control devices. Second, those connectors might record from more parts of the brain than interfaces from other research efforts.

Rao said other companies such as Synchron, Blackrock Neurotech and Onward Medical are carrying out BCI tests on people using methods that are different from Neuralink.

Marco Baptista is chief scientific officer of the Christopher & Dana Reeve Foundation. He called BCI technology "very exciting" with possible benefits to people with paralysis.

Through clinical tests, "we'll be able to see what's going to be the winning approach," he said. "It's a little early to know." A clinical trial follows established rules on how to design an experiment involving human subjects.

How are BCIs tested and supervised?

Neuralink announced in 2023 that it had received permission from U.S. officials to begin testing its device in people. The Food and Drug Administration (FDA) is responsible for approving the sale of medical devices.

Dr. Rita Redberg studies high-risk devices at the University of California, San Francisco. Redberg said that most medical devices go on the market without clinical trials. However, high-risk devices that are seeking approval from the FDA before they go on the market need what is called an "investigational device exemption."

Neuralink says it has this exemption.

Laura Ungar reported this story for the Associated Press. Jill Robbins adapted it for Learning English.

implant—n. something placed in a person's body by means of surgery

spinal cord—n. the large group of nerves which runs through the center of the spine and carries messages between the brain and the rest of the body

paralyzed—adj. unable to move or feel all or part of the body

cursor—n. a mark on a computer screen that shows the place where information is being entered or read

benefit—n. a good result from an action or treatment

exemption—n. freedom from being required to do something that others are required to do

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## Article 180: Researchers: Female Family Ties Important to Social Networks

Date: 2025-01-22T21:55:00+00:00 | 585 words | Source

No media source currently available

A recent study suggests that female family ties were central to social networks in ancient Celtic society before the Roman invasion.

Genetic evidence from a late Iron Age cemetery in Britain shows that women were closely related. At the same time, unrelated men were more likely to come into the community from other places, likely after marriage.

For the study, researchers examined ancient DNA from 57 burial places in Dorset in southwestern England. People used the cemetery from around 2100 years ago to around 1800 years ago.

The results showed that two-thirds of the individuals descended from a single maternal lineage.

Lara Cassidy of Trinity College Dublin was one of the study's co-writers. Cassidy suggested to the Associated Press (AP) that the results were surprising, or in her words, "jaw-dropping."

She said that such a finding had "never been observed before in European prehistory."

The study appeared recently in the scientific publication *Nature*.

The research suggests that women stayed in the same circles throughout life. They kept social networks and likely inherited or managed land and property.

Cassidy told the AP that the findings suggest, "it's your husband who is coming in as a relative stranger, dependent on a wife's family for land and livelihood."

Such a way of living is called matrilocality. The researchers said it is historically rare.

Guido Gneccchi-Ruscione is with the Max Planck Institute in Germany. Gneccchi-Ruscione was not part of the study.

He said researchers studying burial places in Britain and Europe have only discovered the opposite behavior. He said in those communities, women left their homes and families to join their husband's family group.

He said such a way of living, known as patrilocality, has been observed in other ancient time periods. These include the Neolithic period which started more than 10,000 years ago to the early Medieval period more than 1000 years in the past.

Cassidy said in studies of pre-industrial societies from around 220 years ago to the present, researchers found that men join their wives' extended family households only eight percent of the time.

But researchers already knew there was something special about the role of women in Iron Age Britain. A group of tribes with closely related languages and art that is often described as Celtic lived in England before the Roman invasion about 2000 years ago.

Valuable objects have been found buried with Celtic women. Roman writers, including Julius Caesar, wrote with disrespect about their relative independence and fighting abilities.

The network of strong female family connections that the researchers found does not necessarily mean that women also held official positions of political power.

Study co-writer Miles Russell of Bournemouth University in England researches ancient societies. He said the findings do suggest that women had some control of land and property and strong social support. Such a situation made Britain's Celtic society more "egalitarian" than the Roman world, Russell said.

Christina Larson reported on this story for the Associated Press. John Russell adapted it for VOA Learning English.

cemetery— n.a burial ground

descended from—v. (phrasal)to be related by birth to an ancestor

maternal— adj.of or related to the mother

lineage— n.a group of individuals descending from a common ancestor

inherit—v.to receive property or something of value because of a family relationship

manage—v. to oversee or look over

extended family— n.a large group of people who are related by blood or marriage who consider themselves as a large family

egalitarian—adj.aiming to make people in a society more equal than they are

## Article 181: Meta Ends Third-party Fact-Checking, Adds 'Community Notes' System

Date: 2025-01-22T22:05:00+00:00 | 738 words | Source

No media source currently available

Facebook parent company Meta recently announced changes to the way it tries to identify misinformation and harmful material published on its social media services.

Meta chief Mark Zuckerberg explained in a video that the company had decided to make the changes because the old system had produced "too many mistakes and too much censorship."

Issues with Meta moderation

Zuckerberg said the moderation system Meta had built needed to be "complex" to examine huge amounts of content in search of material that violated company policies.

However, he noted the problem with such systems is they can make a lot of errors. The Meta chief added about such systems, "Even if they accidentally censor just one percent of posts, that's millions of people."

So, he said the company had decided to move to a new system centered on “reducing mistakes, simplifying our policies, and restoring free expression.”

“Community Notes” system

The new method turns over content moderation duties to a “Community Notes” system. The company said this system aims to “empower the community” to decide whether content is acceptable or needs further examination.

The changes will be effective for Meta’s Facebook, Instagram and Threads services. Meta said the new system would become available first to U.S. users in the coming months.

Meta’s former moderation system involved the use of independent, third-party fact-checking organizations. Many of these were large media companies or news agencies. The efforts included digital tools as well as human workers to fact-check content and identify false, inappropriate or harmful material.

Meta said the third-party moderation method ended up identifying too much information for fact-checking. After closer examination, a lot of content should have been considered “legitimate political speech and debate.”

Another problem, the company said, was that the decisions made by content moderators could be affected by their personal beliefs, opinions and biases. One result was that “a program intended to inform too often became a tool to censor.”

Meta’s new Community Notes system is similar to the method used by the social media service X. A statement by Meta said changes to this system will have to be made by users, not anyone from the company.

Meta said, “Just like they do on X, Community Notes will require agreement between people with a range of perspectives to help prevent biased ratings.” The company also invited any users to register to be among the first to try out the system.

How did fact-checkers react to Meta's change?

The International Fact-Checking Network (IFCN) criticized Meta’s latest decision. It said the move threatened to “undo nearly a decade of progress.”

The group rejected Zuckerberg's claim that the fact-checking program had become a “tool to censor” users. It noted, that “the freedom to say why something is not true is also free speech.”

Milijana Roga is executive editor of the Serbian fact-checking outlet Istinomer. She told Reuters news agency that she thinks Meta's decision would end up hurting the media industry. Roga noted that research suggests that many citizens use Meta services as their main source for information. Removing independent fact-checkers “further hinders access to accurate information and news,” Roga said.

How effective are Community Notes?

Not a lot of research has been done on how effective Community Notes systems are. But one effort carried out by the University of California and Johns Hopkins University found in 2024 that community notes entered on X for COVID-19 misinformation were accurate. The research showed the notes used both moderate and high-quality sources and were attached to widely read posts.

However, the number of people taking part in that study was small. Also, the effects the system had on users' opinions and behavior is unknown.

A 2023 study, from the Journal of Online Trust and Safety, said it was harder for users to agree when they examined content related to political issues.

Bryan Lynn wrote this story, based on reports from Meta, The Associated Press and Reuters.

**censorship**— n. the system or practice of censoring information contained in books, movies, the internet, etc.

**moderate**— v. to make sure the rules of an internet discussion are not broken

**content**— n. writing, audio and visual material found online

**inappropriate**— adj. something that is not right in a particular situation and which depends on people's opinions

**legitimate**— adj. something real

**bias**— adj. a situation in which you support or oppose something in an unfair way because you are influenced by personal opinions

**range**— n. all elements of a series of objects or numbers

**perspective**— n. the way person thinks about something

**decade**— n. a period of 10 years

**hinder**— v. to make it difficult to do something

**accurate**— n. true or correct

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## Article 182: Astronauts Stay Busy on International Space Station Awaiting Flight Home

*Date: 2025-01-26T22:05:00+00:00 | 832 words | Source*

No media source currently available

Two American astronauts awaiting their return flight from the International Space Station (ISS) have stayed busy carrying out a series of scientific experiments.

The U.S. space agency NASA has said the pair – Butch Wilmore and Suni Williams – will remain at the ISS until late March or early April. When they arrived at the orbiting laboratory in June 2024, the astronauts expected to stay in space for just one week.

Their trip was a test flight of Boeing's Starliner spacecraft. While Starliner safely transported the two to the ISS, the spacecraft had several problems that persuaded NASA to send it back to Earth for further testing without the astronauts onboard.

NASA's current plan calls for Wilmore and Williams to fly back on a SpaceX spacecraft in late March at the earliest. NASA has been using SpaceX's Crew Dragon to regularly carry astronauts and supplies to the ISS since 2020.

The astronauts have been using their extended mission to carry out experiments. In addition, Williams stepped out of the space station earlier this month to complete a spacewalk.

Another NASA astronaut, Nick Hague, joined Williams on the spacewalk on January 16, the agency said in a statement.

The two repaired a piece of equipment that helps guide the movements of the ISS. The spacewalk also included work on an X-ray telescope, as well as maintenance activities for other ISS systems. NASA noted it was the fourth spacewalk for Hague and the eighth for Williams.

The space agency said Williams was preparing for another spacewalk planned for January 30. Wilmore is expected to join Williams on that spacewalk, which NASA estimates will last about six-and-a-half hours. The two will be aiming to remove a radio antenna structure. They will also be "searching for microbes" around the ISS for use in experiments.

Here is a look at other experiments Wilmore and Williams have completed during their stay:

#### New methods to grow food

NASA said Wilmore and Williams have tested different methods for growing crops in space. Such methods could support humans who have longer stays in space in the future.

One experiment is called the Plant Water Management investigation. NASA said this experiment "uses the physical properties of fluids...to overcome the lack of gravity and provide hydration to plants." The experiment aims to help NASA develop hydroponics systems to support future space missions.

Another experiment examines a new way to grow vegetables, plants and flowers inside the ISS to provide nutrition and beauty. As part of this experiment, Wilmore installed a new light meter inside the ISS. The device is designed to measure available light and to help crew members improve growing operations.

NASA also said that throughout the current mission, Williams had deployed and observed three free-flying robots called Astrobees. This robotic experiment seeks to examine how such robots could assist astronauts with daily duties and maintenance work.

The agency said the square-shaped robots are designed to help scientists and engineers develop and test new robotic technologies for use in microgravity environments. The assistants are also designed to help astronauts with daily tasks "and give ground controllers additional eyes and ears on the space station."

Williams tested the robots' ability to map the inside of the space station and Astrobees' flight abilities.

### Image captures from space

NASA astronauts visiting the ISS have a long history of capturing images of Earth from space. And this is another activity Wilmore and Williams have carried out. The ISS gives astronauts a “window to the world” as they orbit 400 kilometers above their home planet.

During their mission, NASA said the two astronauts had “captured hundreds of photographs of Earth, ranging from auroras, land, sea, orbital sunrises and sunsets, and more.”

### Radio connections with Earth

Another space station tradition is for U.S. astronauts to connect with students and other interested individuals during their stay in space. They have virtual visits with people back on Earth who can ask the astronauts how it feels to live in space and can learn about NASA’s experiments aboard the ISS.

In early August, Williams used ham radiotechnology to connect with students from Banda Aceh, Indonesia. NASA explained that students get the chance to communicate with the astronauts when the ISS passes overhead. The students can ask about research on the ISS as well as the radio wave technology that makes the communication possible.

Bryan Lynn wrote this story for VOA Learning English, based on reports from NASA and The Associated Press.

antenna— n.a device used to send or receive communications signals

hydration— n.the process of making the body take in water or other liquid

hydroponic— adj.relating to or grown using a method of growing plants in water,sand or gravel

install—v.to put a piece of equipment in place so that it can do what it is designed to do

meter—n.any device either analog or digital that measures a value in the physical world

maintenance— n.the work needed to keep something operating in good condition

aurora— n.a natural appearance of colored lights in the sky

virtual— adj.happening using digital communications and not taking place physically

ham radio— n.an activity that sends and receive radio messages as a hobby

## Article 183: Researchers: NASA Asteroid Samples Contain ‘Building Blocks’ of Life

Date: 2025-02-02T22:05:00+00:00 | 749 words | Source

No media source currently available

Scientists examining material collected from an asteroid say it appears to contain some of the chemical building blocks of life.



The American spacecraft OSIRIS-REx collected the samples in 2020 from the asteroid Bennu. In 2023, the spacecraft sent the rock and dust material back to Earth in a special container that landed by parachute. Scientists from the American space agency NASA recovered the samples in the western state of Utah.

OSIRIS-REx is already on its way to another asteroid called Apophis. It is expected to reach that asteroid in 2029.

On Bennu, the spacecraft collected a total of 122 grams of material. This is believed to be the largest sample collected from beyond the moon. NASA has shared some of the material with international researchers.

Two research groups released studies last week describing results of their examinations of the asteroid material.

One study, published in *Nature Astronomy*, suggested the samples contained a mixture of organic compounds. Organic compounds have one or more carbon atoms that attach to other elements, usually hydrogen, oxygen, nitrogen and sulfur. All life on Earth is based on carbon and is built from organic compounds.

The other study, published in *Nature*, provides evidence that a much larger object, which Bennu is believed to have broken off from, once held salty, liquid water.

The researchers said this suggests that in the early solar system, asteroids such as Bennu might have transported water and life-supporting chemicals to other planets and moons.

Researchers from both groups noted it was important that the samples they worked with came directly from the asteroid itself. Asteroid pieces that fall to Earth turn into meteorites, and chemicals inside the samples can be changed or lost.

In a statement, NASA said the findings do not provide direct evidence of life itself. However, the space agency said, “They do suggest the conditions necessary for the emergence of life were widespread across the early solar system.” This increases the chances that “life could have formed on other planets and moons,” the statement added.

The parent of Bennu is believed to be an icy body measuring about 100 kilometers across. Scientists believe the body formed in the outer solar system and was later destroyed, possibly 1 to 2 billion years ago. The pieces that broke off likely formed Bennu and other asteroids observed to be masses of loose material, rather than solid objects.

Nicky Fox is the associate administrator for NASA’s Science Mission Directorate in Washington D.C. She praised the OSIRIS-REx mission, saying it was “already rewriting the textbook on what we understand about the beginnings of our solar system.”

Fox added that she hopes the samples can help scientists understand “what ingredients in our solar system existed before life started on Earth.”

Tim McCoy is a researcher at the U.S. Smithsonian Institution and was a lead writer of the Nature study. He told the Associated Press (AP) that the samples may provide details about "the kind of environment that could have been essential to the steps that lead from elements to life."

He noted that combining the ingredients of life with an environment of sodium-rich water is "really the pathway to life." He added the samples suggest the processes involving the chemical compounds "probably occurred much earlier and were much more widespread than we had thought before."

Yasuhito Sekine is with the Institute of Science in Tokyo. He did not take part in the new research. Sekine confirmed the findings were only made possible by examining samples "collected directly from the asteroid, then carefully preserved back on Earth."

Jason Dworkin is a project scientist for the OSIRIS-REx mission at NASA's Goddard Space Flight Center in Maryland. He told Reuters news agency that all biology is made up of organic compounds. And some of those may have survived 4.5 billion years.

Dworkin said the materials from OSIRIS-REx provide new details about a solar system that might have had the right elements to support life. But he added that one of the most interesting questions, still remains: "Why we, so far, only see life on Earth and not elsewhere."

Bryan Lynn wrote this story for VOA Learning English, based on reports from The Associated Press, Reuters, Agence France-Presse and NASA.

asteroid— n. an object made of rock and metal that orbits the sun, but are smaller than planets

sample— n. a small amount of something that gives you information about the thing it was taken from

organic— adj. from a living organism

emerge— v. to appear from somewhere

loose— adj. not firmly attached

ingredient— n. the different parts that make up something

preserve— v. to keep something the same or prevent it from becoming damaged

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## Article 184: Scientists Find 'Chorus Waves' in Unexpected Part of Space

Date: 2025-02-03T21:45:00+00:00 | 443 words | [Source](#)

No media source currently available

International researchers recently released a study on bursts of energy in an unexpected area of space.

Scientists call the energetic activity "chorus waves" because they are said to move at the same frequency as sounds humans can hear. When the energy is turned into audio signals, the waves sound like birds chirping.

Researchers have known about chorus waves in space for many years. But the latest research has found the waves exist 100,000 kilometers from Earth. Chorus waves have never before been measured at such a big distance from a planet.

In an email, study writer Chengming Liu from Beihang University in Beijing wrote: “They are one of the strongest and most significant waves in space.”

Allison Jaynes is a space physicist at the University of Iowa who was not involved with the study. Speaking about the recent study, Jaynes said, “That opens up a lot of new questions about the physics that could be possible in this area.”

The new found chorus waves were detected in an area where Earth's magnetic field is stretched out. Scientists said they did not expect to find the waves there. The discovery raises new questions about how the chirping waves form.

Jaynes added, “We definitely need to find more of these events.”

Scientists still are not sure how the waves develop. But they think Earth's magnetic field may have something to do with it.

For many years, radio antennas have picked up chorus waves. This includes receivers at an Antarctica research station in the 1960s. And NASA's two Van Allen Probes heard the chirping sounds from Earth's radiation belts at a closer distance than the newest observations.

The latest chorus waves were picked up by NASA's Magnetospheric Multiscale satellites. They were launched in 2015 to explore the Earth and the sun's magnetic fields.

Chorus waves have also been found near other planets including Jupiter and Saturn. The waves can produce high-energy electrons. That means they can threaten satellite communications.

The researchers said their findings suggest that chorus waves might be found everywhere in the magnetic fields of planets.

The study was released on January 22 in the scientific publication *Nature*.

Adithi Ramakrishnan reported this story for the Associated Press from New York. Anna Matteo adapted it for VOA Learning English.

chorus—n. a group of singers who sing together

significant—adj. important, meaningful

chirping—n. short, sharp sounds similar to the songs of certain birds

frequency—n. the number of times a wave form repeats in a certain amount of time

magnetic field—n. the area around a magnetized object that is influenced by its magnetism

antenna—n. a device that carries radio waves to a receiver

radiation belt—n. an area of charged particles around a planet that is formed largely because of its magnetic field

## Article 185: Huge Iceberg Could Threaten Penguins in the South Atlantic Ocean

Date: 2025-02-04T21:55:00+00:00 | 692 words | Source

No media source currently available

Scientists are worried that a large iceberg heading toward an island in the South Atlantic Ocean could threaten wildlife there.

Researchers say the iceberg is the largest in the world. It is moving through the South Atlantic toward the island of South Georgia. The island is a British overseas territory that is about 1,400 kilometers east of the Falkland Islands.

Scientists say South Georgia is a main mating ground for wildlife, especially penguins and seals.

The iceberg is officially known as A23a and it measures about 3,500 square kilometers. It has existed since 1986, when it broke off from the Antarctic shelf.

Andrew Meijers is an oceanographer with the British Antarctic Survey. He told the French News Agency (AFP) that scientists have been using satellite imagery to follow the iceberg's movements.

Meijers said observations had shown the iceberg had not broken into smaller pieces like some other so-called "megabergs" that passed through the Southern Ocean. He added that predicting the iceberg's exact path is difficult. But ocean conditions suggest it should reach South Georgia in two to four weeks.

Meijers said he is worried the iceberg will get caught on the underground continental shelf around South Georgia. But he said it is also possible the large ice mass could miss the shelf and continue moving into open waters beyond South Georgia.

If the iceberg does get caught, or stuck, on the shelf, Meijers said it could remain there for months or it could break into pieces. Meijers is concerned that this could harm efforts by penguins and seals on the island to feed and raise their young. Icebergs that have grounded there in the past led to the deaths of young penguins and seals, he said.

Raul Cordero is a mechanical engineer from Chile's University of Santiago. He is also a member of the National Antarctic Research Committee. Cordero told AFP he thinks the iceberg will miss South Georgia.

"The island acts as an obstacle for ocean currents and therefore usually diverts the water long before it reaches the island," he said. "The iceberg is moved by that water flow, so the chances of it hitting are not that high." Cordero added, however, that some iceberg pieces could affect the island.

Soledad Tiranti is a glacier expert who is currently on an Argentinian exploration trip in the Antarctic. She told AFP that icebergs such as A23a "are so deep that before reaching an island or mainland they

generally get stuck" on the seabed.

It is currently summer in South Georgia and penguins and seals from the area have been looking for food in the cold Antarctic waters to bring back to their young. Meijers said the animals might have to go around the iceberg if it gets stuck.

He added that if they had to move around it, this would take a lot of their energy, possibly leading to animal deaths. The seal and penguin populations on South Georgia have already been having a "bad season" with cases of bird flu, Meijers said.

Iceberg A23a remained stuck for 30 years before finally breaking free from the Antarctic shelf in 2020. Scientists watching its movements say the iceberg has followed nearly the same path as other large ice masses in the past.

The icebergs generally pass the east side of the Antarctic Peninsula through the Weddell Sea along a path known as "icebergalley." They are pushed by the world's most powerful ocean current system, the Antarctic Circumpolar Current.

Agence France-Presse reported on this story. Bryan Lynn adapted the report for VOA Learning English.

iceberg— n.a huge piece of ice that floats freely in the sea

shelf— n.an area of relatively shallow water that surrounds a land mass

continental shelf—n.an area of relatively shallow water that extends from the world's great land masses and beyond which is the deep ocean

obstacle— n.something that makes it difficult or gets in the way of doing something; a barrier

divert— v.to send someone or something to a place other than where they had expected to go

glacier— n.a large mass of ice that moves very slowly, usually down a hill or valley

alley— n.a narrow street or place where things are likely to pass

## Article 186: Study Finds India's Tiger Population Doubled in 12 Years

Date: 2025-02-05T21:55:00+00:00 | 635 words | Source

No media source currently available

A recent study says India has doubled its tiger population in 12 years.

Researchers said the gain came from efforts to protect the big cats from hunters, and to protect against the loss of tiger habitat and prey, among other things.

The National Tiger Conservation Authority said the number of tigers grew from an estimated 1,706 in 2010 to around 3,682 in 2022. Those numbers mean India is home to about 75 percent of the total tiger

population.

The research shows that a reduction in conflict between humans and wildlife also played a part in the population growth. The study credited efforts to improve economic conditions for communities near tiger habitats. The researchers said the growth in the tiger population also led to improvements in local economies through increased ecotourism.

The study appears in the publication *Science*. It said India's success demonstrates that wildlife protection can help both biodiversity and nearby communities.

"The common belief is that human densities preclude an increase in tiger populations," said Yadvendra Jhala. Jhala is a scientist at Bengaluru-based Indian National Academy of Sciences and was the study's lead writer. "What the research shows is that it's not the human density, but the attitude of people, which matters more."

Wildlife conservationists and ecologists welcomed the study. But they said making the source data available to a larger group of scientists would aid tigers and other wildlife in India. The study was based on data collected by Indian government-supported organizations.

Arjun Gopalaswamy is an ecologist who knows how to measure wildlife populations. He said that estimates from India's official tiger observation program have been undependable. He said some of the numbers in the study are much higher than past estimates of tiger populations from the same datasets. But he added that the study's findings seem to have corrected a data problem noted repeatedly by scientists since 2011 related to tiger population size and their range.

The study said tigers disappeared in some areas. These included habitats that were not near national parks or other protected areas, and areas of increased development, increased human use of forest resources and areas with armed conflict.

"Without community support and participation and community benefits, conservation is not possible in our country," said Jhala.

That means local people need to see good results from their efforts to save tigers.

Tigers are spread across about 138,200 square kilometers of India. But just 25 percent of the area is rich in tiger prey and is protected. Another 45 percent of tiger habitat is shared with about 60 million people, the study said.

Jhala said strong wildlife protection legislation is the "backbone" of tiger conservation in India. "Habitat is not a constraint, it's the quality of the habitat which is a constraint," he said.

Wildlife biologist Ravi Chellam, who did not take part in the study, praised the tiger conservation efforts as promising. But, he said, such efforts need to be extended to other wild animals to better care for the whole ecosystem in India.

Chellam said several kinds of Indian wildlife are "on the edge," and need more attention.

The Associated Press reported this story. Caty Weaver adapted it for VOA Learning English.

habitat—n.the place or environment where a plant or animal naturally or normally exists

prey—n.an animal hunted or killed by another animal for food

ecotourism—n.people who travel to and visit a place to see its natural beauty and wildlife

biodiversity—n.biological variety in an environment as indicated by numbers of different species of plants and animals

preclude—v.to make impossible by necessary consequence

attitude—n. the visible behavior that shows how a person thinks or feels about something or someone

conservationist—n. a person who works to preserve animals,plantsand natural resources for future generations

range—n.the area where a plant or animal naturally lives and can be found

constraint—n.the state of being restricted

participation— n.the action or state of taking part in something

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## Article 187: New US Jet Breaks Sound Barrier in First Flight Test

*Date: 2025-02-05T22:05:00+00:00 | 756 words | Source*

No media source currently available

An experimental aircraft developed by a private American company broke the sound barrier during a recent flight test.

California-based company Boom Supersonic built the plane, named XB-1. The company said the aircraft reached a speed of Mach 1.05 during a test on January 28. The test flight operated from the Mojave Air & Space Port in Mojave, California.

Any speed greater than Mach 1.0 breaks the sound barrier and is considered supersonic. The American space agency NASAexplains that at sea level, the speed of sound is estimated to be about 1,236 kilometers per hour.

In a statement, Boom Supersonic said the XB-1 demonstrator aircraft climbed to more than 35,000 feet before reaching Mach 1.0. It recorded the speed within 11 minutes of taking off. The company also released a video feed of the supersonic test flight.

The company said in a press release, “Historically, supersonic aircraft have been the work of nation states, developed by militaries and governments.” But the latest flight made the XB-1 “the world’s first independently developed supersonic jet” to break the sound barrier, Boom Supersonic said.

The company’s founder and chief executive officer, Blake Scholl, said, “XB-1’s supersonic flight demonstrates that the technology for passenger supersonic flight has arrived.”

Boom Supersonic launched in 2014 “with the goal of making high-speed travel mainstream and enabling a new world of human connection.” With that in mind, the company has been working to develop a supersonic passenger airliner called Overture. The aircraft would carry up to 80 passengers.

Boom Supersonic is one of several American companies seeking to develop supersonic flight vehicles. NASA is also working on a supersonic aircraft in partnership with a U.S. contractor.

The last time supersonic travel was available to passengers was 2003. That is the year the Concorde – the world’s first supersonic passenger jet aircraft – stopped service. Britain and France jointly operated the Concorde.

But the joint operation between British Airways and Air France suffered several business difficulties that led to the decision to stop flying the supersonic planes. Some of the difficulties were linked to publicity about a deadly Concorde crash in 2000. That incident involved an Air France airliner crashing shortly after taking off from Paris. The crash claimed a total of 113 lives.

Boom Supersonic says its planned Overture airliner will be designed to transport passengers from the U.S. East Coast across the Atlantic to Europe in about 3-and-a-half hours. The flight with normal passenger jets takes about eight hours.

Amy Marino Spowart is the president and chief executive officer at the National Aeronautic Association. She told The Associated Press the latest supersonic test flight suggests “the future of aviation is here and now.” Spowart added, “Not only is there hope for faster and better commercial flight, but Boom proves that it can be done sustainably.”

Boom Supersonic has said its planned supersonic airliner will be designed to run on up to 100 percent sustainable aircraft fuel. Such sustainable fuels are made from non-petroleum products, such as food waste or other biomass materials. Both XB-1 and Overture are made mostly from a carbon-based composite material to provide “a strong, lightweight structure,” the company said.

NASA’s supersonic aircraft – built together with Lockheed Martin – is called X-59. It is also an experimental plane that is seeking to test the level of noise produced by supersonic travel. Currently, supersonic flights are banned over land because of the loud noise they produce.

NASA has explained it plans to carry out testing this year of the X-59 aircraft, which has been designed and engineered to operate at lower noise levels than other supersonic aircraft. The tests – to take place at supersonic test centers in California – are designed “to prove the quiet supersonic technology works as designed.”

NASA said that after that testing is done, the agency plans to begin community reaction studies, beginning in 2026. These will involve flying the X-59 over several cities and then asking people on the ground to share their thoughts on the level of noise they heard.

NASA has said the X-59 – which measures 30 meters long and nine meters wide – is expected to fly at 1.4 times the speed of sound. That is about 1,500 kilometers per hour.



The Associated Press, Reuters and Boom Supersonic reported on this story. Bryan Lynn adapted the reports for VOA Learning English.

mainstream— adj.the beliefs or way of living that are accepted by most people

enable— v.to make something possible

sustainable— adj.method of energy production that cause little or no damage to the environment

composite— adj.made up of several different materials or parts

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## Article 188: Study: Millions of Europeans Could Die from Heat by end of Century

*Date: 2025-02-06T21:55:00+00:00 | 482 words | Source*

No media source currently available

A new study warns that millions of Europeans could die from heat-related causes by the end of the century.

The study was based on computer simulations of predicted climate activity in 854 different European cities. It found that extreme temperatures, mostly heat, could kill as many as 2.3 million people in Europe by 2100.

The researchers said the number of predicted deaths could be reduced if nations are able to find better ways of cutting carbon pollution levels and dealing with extreme heat.

Currently, cold weather kills far more people in Europe than hot weather. But the study found that as temperatures continue to rise, deaths from cold weather will lessen over time. However, heat-related deaths are predicted to rise sharply.

Scientists at the London School of Hygiene and Tropical Medicine led the research. The results appeared recently in a study in the publication *Nature Medicine*.

The researchers urged increased efforts to reduce greenhouse gases and expand indoor air-cooling systems and cooling centers in parts of Europe. Without such efforts, places in Italy, southern Spain and Greece are likely to see large increases in heat deaths related to climate change, the study found.

On the other hand, much of Scandinavia and Britain are predicted to see fewer temperature-related deaths, largely because low temperatures are expected to become more moderate.

Pierre Masselot studies the environmental effects of human health at the London School of Hygiene and Tropical Medicine. He helped lead the research.

Masselot told the Associated Press that drops in cold deaths in northern parts of Europe are happening in areas not as populated as places further south. "The Mediterranean is a so-called climate hotspot," he said. "It's a region that is warming much quicker than the rest of the world. And Malta is right in the middle of it."

The study predicts Malta's temperature-related deaths will increase by 269 people for every 100,000 individuals by the end of the century. On the other hand, Ireland's rate is expected to drop slightly to 15 per 100,000 people.

European officials reported several heat waves have killed thousands of people in recent years across the continent. The highest number was in 2003, when about 70,000 deaths were recorded.

Among the areas predicted to see the most deaths from future temperature rises is Barcelona, Spain. The study found almost 250,000 people could die from temperature-related causes in that city by 2100. And the study warned that Rome and Naples could have up to 150,000 deaths.

The study predicted that more than 5.8 million extra heat deaths would be linked to climate change. At the same time, the study found cold-related deaths would drop by 3.5 million.

The Associated Press reported on this story. Bryan Lynn adapted the report for VOA Learning English.

simulate— v.do or make something that behaves or looks like something real but is not

region— n.a particular area in a country or the world

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## Article 189: American Inventors: Rocket Scientist Robert Goddard

*Date: 2025-02-24T22:05:00+00:00 | 341 words | Source*

No media source currently available

Today rocket launches and space missions are common. But in the early 1900s, space travel seemed like a dream.

One of the most influential people in the field of rocket science was American Robert Goddard.

The American space agency NASA describes Goddard as “the father of modern rocket propulsion.”

Robert Goddard once said that "the dream of yesterday is the hope of today and the reality of tomorrow." His scientific work gave hope to many dreams about space travel. He turned some of those dreams into reality.

More than one hundred years ago, Goddard carried out studies and tests of rocket engines.

He developed and flew many rockets that got their power from solid fuels: chemicals that formed a hard substance. In 1925, he made and tested the first rocket engine using a soft chemical fuel. The next year, he successfully launched the world's first liquid-fuel rocket.

Many historians consider liquid-fuel rocket flight to be as important as the first airplane flight by the American brothers Orville and Wilbur Wright.

Goddard's work proved that machines could travel outside of Earth's atmosphere and into space.

During his early research, he received money and support from the U.S. Smithsonian Institution. The Smithsonian published several reports about his efforts.

One publication, called “A Method of Reaching Extreme Altitudes,” wrote about his search for ways to send weather recording instruments higher than balloons could fly. It described how he developed the mathematical theories for rocket flight.

In that report, Goddard also suggested the possibility of a rocket someday reaching the moon. At the time, there was a big dispute in the press about this claim. Many people thought he was foolish for suggesting something that seemed so impossible.

Many of Goddard’s ideas are still used in rocket development. So, in a way, every rocket that flies today could be considered a Goddard rocket.

Shirley Griffith reported on this story for VOA Learning English. Bryan Lynn adapted it.

mission—n.a flight into space aimed at reaching a goal

propulsion— n.a force that pushes something forward

## Article 190: Japan’s Toyota Builds a City-like Center to Test Robotics, AI

Date: 2025-02-26T22:00:00+00:00 | 554 words | Source

No media source currently available

Japanese automaker Toyota says it is building a research center in a city-like setting to test robotics, artificial intelligence (AI) and autonomous vehicle technologies.

Toyota recently announced it had completed the first part, or phase, of the center, called Woven City. It sits near the southern Japanese city of Susono. Company officials recently showed off the latest progress to reporters from the Associated Press.

Daisuke Toyoda is an executive for Toyota who is helping lead the project. He told the AP that the center was not designed to be a “smart city.” However, it aims to carry out technology research and development and be “a test course for mobility.”

The company said Woven City would serve as a “Living Laboratory.” It aims to test technology systems to support future changes in “the movement of people, goods, information and energy.”

Toyoda said the center is meant to be a place where researchers and technology company officials can come together and share ideas. It will also seek to establish a community with a shared desire “to co-create, develop and refine” new technology products and services.

Woven City was built on the grounds of a closed Toyota automobile factory. The automaker said the project’s first phase covers about 47,000 square meters. When completed, it will spread out over 294,000 square meters.

Building operations on Woven City began in 2021. All the buildings are connected by underground passageways. Among planned testing activities will include self-driving vehicles making waste pickups

and completing deliveries around the area. Testing operations will center on how people living in cities can best interact with changing technologies.

Currently, no one lives in Woven City. When it opens, officials plan on having about 100 people living there. They will be called “weavers.” These are workers employed by Toyota and its partner companies making other products.

When AP reporters visited the area, Japanese coffee maker UCC was serving hot drinks from a self-driving bus. The bus was parked in an area surrounded by still-empty housing.

Toyota has supported electric vehicle (EV) technology in the past. However, the company is currently involved in a push for hydrogen, the energy of choice in Woven City.

Keisuke Konishi is an automobile expert at Japan’s Quick Corporate Valuation Research Center. He told the AP Toyota has plans to expand into self-driving vehicle services to compete with Google’s Waymo and other large companies.

Konishi noted the company has the money for such development even if it means building up a completely new business. “Toyota has the money to do all that,” he said.

Toyota officials have said they do not expect Woven City to make money, at least not for the first few years.

Several other futuristic developments have been planned in other areas of the world over the years. They have included efforts in Toronto, Canada; Saudi Arabia; Abu Dhabi; and San Francisco, California. But those projects are either still being developed or have been canceled.

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English.

autonomous—adj. able to operate without the help of people

mobility—n. the ability to move or walk around freely

refine—v. to make something pure or improve something, especially by removing unwanted material

deliver—v. to move goods from one place to another

park—v. to put a vehicle in a place where it can stay for a period

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## Article 191: The Planets Gather for a Show in the Evening Sky

Date: 2025-02-27T21:55:00+00:00 | 363 words | Source

No media source currently available

All seven major planets form a kind of parade in the sky at the end of February. Although two of the planets are not visible to the unaided eye, all are on the same side of the sun during the evening hours.

This planetary grouping happens when the planets appear to line up in the night sky as seen from Earth. They do not form a straight line, but they do stretch across the evening sky this year.

The American space agency, NASA, says these astronomical gatherings are common. A parade of four or five planets visible to the unaided eye happens every few years.

A similar parade took place last June, but only two planets could be seen without the use of special equipment. Six planets were visible in January. Four were visible to the unaided eye. In recent weeks, Mercury joined the group.

Venus, Mars and Jupiter are all easily visible in the evening. Saturn is now very close to the setting sun and Mercury is close to the horizon, making both hard to see. Uranus and Neptune are the most distant planets. Uranus can be glimpsed with binoculars or a telescope under good conditions. But Neptune is now too close to the sun to be seen.

Seeing the brightest planets is easy. Go outside on a clear night after sunset. The planets will shine brighter than the stars. Mars is a bright, reddish-orange light appearing high in the constellation Gemini. Jupiter is very bright and a little lower than Mars toward the constellation Taurus.

Venus, in the constellation of Pisces, is the brightest natural object in the sky besides the sun and moon.

There are many stargazing apps available that can help identify the planets and bright stars.

The planets will slowly move lower and lower in the west throughout the spring.

I'm Mario Ritter, Jr.

Adithi Ramakrishnan reported this story for the Associated Press. Mario Ritter, Jr. adapted it for VOA Learning English.

visible—adj.able to be seen by the eye  
horizon—n.where the sky apparently meets the land  
glimpse—v.to see something for a short time or with some difficulty  
constellation—n.a group of stars that is defined by international scientific agreement  
app (application)—n.a computer program for a specific purpose

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## Article 192: Scientists Discover Stonehenge-like Circle in Denmark

Date: 2025-02-28T21:55:00+00:00 | 394 words | Source

No media source currently available

Danish researchers have announced the discovery of a collection of wooden pieces placed in a circle that are believed to date back thousands of years ago.

The team says the wood pieces and some other objects were found during building work in the northwestern Danish town of Aars. The discovery led the researchers to suggest the people who placed the wooden pieces might have been linked to a group who built Britain's famous Stonehenge stone structure.

A total of 45 ancient wood pieces were discovered underground last week during building, or construction, work. The pieces formed a circle about 30 meters across.

In an email to the French news agency AFP, Sidsel Wahlin of the town's Vesthimmerlands museum described the discovery as "a once in a lifetime find."

The circle "points to a strong connection with the Britishhengeworld," she added.

The British Museumsayson its website the first stones placed at Stonehenge, in southern England, are believed to have started arriving there around 3000 BC.

The Danish researchers said they were also looking to see whether an inner circle might also exist where the wooden pieces were found. Wahlin noted that in the past, other wood circles had been found on the Danish island of Bornholm in the Baltic Sea.

But Wahlin said the circle in Aars was "the first one of this largertypethat we can properly investigate."

Archeologists working at the building site also found an ancient settlement that included a leader's grave and a bronze sword.

Wahlin said her team was still carrying out detailed work in the area in an effort to estimate the age and purpose of the materials.

In particular, the archeologists are now searching for religious-connected materials known as "ritualdeposits." These might include flint arrow heads and small knives or daggers.

Wahlin said the researchers will continue looking for links between the Aars site and other groups, such as those who built Stonehenge. She added the influence of other groups had already been found in some objects and graves found in Denmark.

John Russell adapted this story based on an AFP report.

henge— n.a kind of circular Bronze Age structure

type— n.a particular kind or group

ritual— n.an activity or set of actions always done in the same way or at the same time, sometimes as part of a religion

deposit— n.something laid down

## Article 193: New Discovery Could Explain What Gives Mars its Red Color

Date: 2025-03-02T21:55:00+00:00 | 522 words | Source

No media source currently available

Scientists say they might have identified the mineral on Mars that is responsible for making the planet appear red.

New data collected on Mars through several methods suggests the substance, called ferrihydrite, is likely found in dust and rock material across wide areas of the planet. The team carrying out the

research describes ferrihydrite as an “iron oxide mineral.”

The mineral appears reddish in color and can form in water-rich environments. The scientists said discovering large amounts of it on Mars adds to existing evidence that the planet might have held a large supply of liquid water in the past.

The research was carried out by an international team led by America’s Brown University and the University of Bern in Switzerland. The findings recently appeared in a study published in *Nature Communications*.

The researchers noted that scientists have long wondered about the exact substance that gives Mars – which is also known as the Red Planet – its deep red color. Past studies had suggested a mineral called hematite might be the cause.

The study is based on Martian data collected by several spacecraft. These include the Mars Reconnaissance Orbiter, operated by the American space agency NASA. In addition, information was captured by instruments aboard the European Space Agency’s (ESA’s) Mars Express and Trace Gas orbiters. Some data also came from exploring vehicles, called rovers, operating on Mars.

In their examinations, the researchers also used manmade, or synthetic, material designed to look and feel similar to real Martian dust.

Adomas Valantinas currently works as a researcher at Brown University’s Department of Earth, Environment & Planetary Sciences. He helped write the study. Valantinas noted the mystery of why Mars is red had been considered “for hundreds, if not thousands, of years.”

Valantinas recognized his team was not the first to consider ferrihydrite as a possible reason for the coloring of Mars. But he noted, “it has never been proven as we have now, using observational data and novel laboratory methods...”

Valantinas noted the discovery of widespread ferrihydrite suggests Mars once held liquid water that would have made it possible for the planet to support some form of life.

"Our study reveals that ferrihydrite formation on Mars required the presence of both oxygen...and water capable of reacting with iron," he added. "These conditions were very different from the dry, cold environment of Mars today."

John Mustard is a planetary expert at Brown University and was a co-writer of the study. He called it “a door-opening opportunity” for future research. But he added that additional study is needed to confirm the team’s latest findings.

"As exciting as the new findings are, we realize that our results can only be verified by samples from Mars, which are currently being collected by NASA's Perseverance rover," Mustard said. He added, "When we get those back, we will be able to check whether our theory about ferrihydrite is correct."

Bryan Lynn wrote this story for VOA Learning English, based on reports from  
novel—adj. new or different from anything else

opportunity—n.a situation in which it is possible for someone to do something

verify—v.to confirm whether something is true

check—v.to find out if something is correct or not

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## Article 194: Private Lander Carrying NASA Experiments Lands on the Moon

Date: 2025-03-05T22:00:00+00:00 | 526 words | Source

No media source currently available

A private spacecraft carrying several science experiments has successfully landed on the moon.

The lander, called Blue Ghost, was built by the American company Firefly Aerospace. The spacecraft touched down March 2 on the part of the moon's near side called Mare Crisium. The near side of the moon is the side facing Earth.

Officials at Firefly's Mission Control center near Austin, Texas, confirmed the successful landing. The chief engineer for the Blue Ghost mission, Will Coogan, announced to excited workers: "We're on the moon."

The officials said the spacecraft landed in the right position and was operating normally. The successful touchdown makes Firefly the first private company to land a spacecraft on the moon without crashing or having a major problem.

Only five countries can claim successful moon landings: Russia, the United States, China, India and Japan.

Blue Ghost is named after a rare kind of firefly found in the U.S. The four-legged lander is two meters tall and 3.5 meters wide. It launched in mid-January from Florida, carrying 10 experiments for the American space agency NASA.

In a statement, NASA said the 10 experiments are designed to operate on the surface of the moon for one lunar day, which is about 14 Earth days. The Associated Press reported that NASA paid \$101 million for the spacecraft and \$44 million for the equipment it carried.

It was the third mission under NASA's Commercial Lunar Payload Services (CLPS) program. The program aims to turn over the country's major space missions to private companies to reduce costs. Several other companies are part of the program.

Another lander, called Athena, is set to attempt a moon landing on March 6. That four-meter-tall spacecraft was built and operated by Houston-based Intuitive Machines. It will land on another part of the moon, about 160 kilometers from the lunar south pole.

A third lander from private Japanese company ispace will attempt a moon landing in about three months. The lander, called Resilience, shared its rocket ride with Blue Ghost. But it took a longer path



to the moon. The company is also attempting to land on the moon for the second time. Its first lander crashed in 2023.

NASA has said it aims to have two private landers launch to the moon each year, realizing some missions will fail. The space agency's top science officer is Nicky Fox. She told the AP the latest launches "open up a whole new way for us to get more science to space and to the moon."

In the past, NASA's successful moon landings involving astronauts cost billions of dollars. But Firefly chief Jason Kim said the private companies now building and launching spacecraft have a limited budget and the spacecraft operate robotically.

Kim said everything went just as planned with Blue Ghost's landing. "We got some moon dust on our boots," he added.

The Associated Press, Agence France-Presse and NASA reported on this story. Bryan Lynn adapted the reports for VOA Learning English.

mission— n.(space exploration) the flight of a spacecraft to its target along with tasks expected to be carried out

boot—v.a strong shoe that covers the foot and part of the leg

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## Article 195: Scientists Link Gene to Human Speech

*Date: 2025-03-08T21:55:00+00:00 | 609 words | Source*

No media source currently available

A new study suggests the beginnings of human speech are linked to genetics. The research identifies a protein – found only in people – that may have helped early humans develop spoken communication.

Scientists involved in the study say this new speaking ability became important for humans' survival. For example, speech permitted individuals to share information, organize activities and pass down knowledge. These abilities are now seen as an advantage humans had over their relatives, such as the Neanderthals and Denisovans.

The researchers recently published their findings in a study in the journal *Nature Communications*.

Liza Finestack teaches about speech and hearing at the University of Minnesota. She told The Associated Press (AP) the new study is "a good first step to start looking at the specific genes" that may affect speech and language development. Finestack was not involved in the study.

Dr. Robert Darnell has long been studying the protein – called NOVA1 – at his laboratory at New York's Rockefeller University. He helped lead the new research and was a writer of the study. Darnell told the AP the genetic version, or variant, included the protein that helped humans develop into the "dominant species" that remains today.

The latest research involved scientists using CRISPR gene editing methods to replace the NOVA1 protein found in mice with the one found in humans. The aim was to test the real-life effects of the

genetic variant. The researchers were surprised to learn that the variant changed the way the animals called out to each other.

Baby mice with the human variant made a different sound than normal mice do when their mother came around. Adult male mice with the variant also made different sounds when they were near a female they wanted to mate with.

Darnell said both of these situations gave the mice a reason to speak. Those with the human variant "spoke differently," demonstrating the gene's influence in speech, he added.

This is not the first time a gene has been linked to speech. In 2001, British scientists said they had discovered the first gene tied to a language and speech disorder.

Researchers called this human language gene FOXP2. But even though FOXP2 was found to be linked to human language, the variant in modern humans was not found in our species alone. Later research found it was shared with Neanderthals. The NOVA1 variant in modern humans, on the other hand, is found only in our species, Darnell said.

The presence of a gene variant is not the only thing that permits people to speak. The ability also depends on physical elements in the human throat and areas of the brain that work together to help people produce speech and understand language.

Darnell said he hopes the recent work can lead to new ways to treat speech-related problems.

The University of Minnesota's Finestack noted the genetic findings could also one day permit scientists to identify people who might need help developing speech and language early in life.

"That's certainly a possibility," she said.

Laura Ungar reported this story for the Associated Press. Jill Robbins adapted it for Learning English.

**advantage**—n. something (such as a good position or condition) that helps to make someone or something better or more likely to succeed than others

**specific**—adj. special or particular

**variant**—n. something that is different in some way from others of the same kind

**dominant**—adj. more important, powerful, or successful than most or all others

**species**—n. biology. a group of animals or plants that are similar and can reproduce

**CRISPR**—n. short for CRISPR-Cas9, it is a genome-editing tool that allows scientists to precisely cut and modify DNA sequences.

**throat**—n. the tube inside the neck that leads to the stomach and lungs

## Article 196: A Short History of Spacecraft Landings on the Moon

Date: 2025-03-09T22:00:00+00:00 | 622 words | Source

No media source currently available

Many years have passed since the first spacecraft landed on the moon in 1966. From then until now, there have been many additional attempts with some succeeding and others failing. Here is a short history of some of these attempts.

The Soviet Union's Luna 9 spacecraft was the first to land on the moon. It touched down on the lunar surface in 1966. The landing came after several other Soviet spacecraft either did not reach the moon or crashed on the surface.

The American space agency NASA says Luna 9 was the first spacecraft to carry out a soft landing on the moon. It was also the first to send "photographic data" from the moon's surface to Earth. Luna 9's landing proved "the lunar surface could support the weight of a lander and that an object would not sink into a loose layer of dust as some models predicted," NASA said.

In May 1966, the United States followed with its Surveyor 1 mission. NASA describes this effort as "the first of a series of seven robotic spacecraft sent to the moon to gather data in preparation for NASA's Apollo missions." The successful soft landing of Surveyor 1 "was one of the great successes of NASA's early lunar and interplanetary program."

Both the U.S. and Soviet Union had other successful robotic landings. Next, the countries aimed to be the first to land humans on the moon.

In 1969, NASA successfully landed Apollo 11 astronauts Neil Armstrong and Buzz Aldrin on the moon. The U.S. Apollo program sent 12 astronauts to explore the moon over six missions. Apollo 17 was the last in 1972. The U.S. is still the only country to land humans on the moon. NASA officials say the agency's Artemis program aims to return astronauts to the lunar surface possibly by the end of 2026.

China expands space efforts

In 2013, China became the third country to successfully land a spacecraft on the moon. China landed an exploring vehicle, or rover named Yutu that year. China followed with the Yutu-2 rover in 2019, this time touching down on the moon's unexplored far side.

In 2020, China successfully returned samples of rock and dirt collected by the rovers. The mission returned about 1.7 kilograms of lunar material collected from the near side of the moon. Then in 2024, another mission returned rock and soil samples from the less explored far side of the moon. China has said it aims to land its astronauts on the moon by 2030.

Russian landing failure

In 2023, Russia tried its first moon landing in nearly 50 years. The Luna 25 spacecraft was attempting to land near the lunar south pole. But it is believed to have crash landed on the moon's surface. The country's last effort before that, Luna 24 in 1976, landed successfully and returned moon rocks to Earth.

India succeeds on second attempt

After its first lander crashed into the moon in 2019, India made its second attempt in 2023. The country successfully landed its Chandrayaan-3 spacecraft on the lunar surface. The mission made India the fourth nation to complete a moon landing.

Japan lands sideways

In January 2024, Japan became the fifth country to successfully land a spacecraft on the moon. But the SLIM spacecraft landed upside down. This caused some power and communication problems, but the lander was able to operate for a short time.

The Associated Press reported this story. Bryan Lynn adapted the report for VOA Learning English with additional information from NASA.

layer— n. an amount of a substance that covers a surface

mission— n. (space travel) the flight of a spacecraft to perform a certain task or job

sample— n. a small amount of something that gives you information about the thing it was taken from

## Article 197: Study Shows How Earth's Orbit Affects Ice Ages

Date: 2025-03-10T22:00:00+00:00 | 548 words | Source

No media source currently available

A recent study suggests the next ice age will likely begin in about 11,000 years unless emissions change the effects of natural climate cycles.

An ice age is a period of reduced temperatures causing ice to cover large areas of the northern and southern parts of the world.

A group of scientists studied changes in the shape of the Earth's orbit around the sun, the tilt of the Earth's axis and the movement of the axis itself, called a wobble. These three motions are believed to happen in cycles. The Serbian scientist Milutin Milankovitch developed a theory about 100 years ago that these cycles affected Earth's long-term climate.

The team noted that small changes in Earth's orbit around the Sun caused predictable cycles of warming and cooling over a period of about 100,000 years.

These findings permitted the team to determine how the three factors of tilt, wobble, and the shape of Earth's orbit might have affected the Earth's climate over the last 900,000 years.

The group published its findings in *Science* on February 27.

The scientists examined a million-year record of climate by looking at ice sheets across the northern half of the world and deep ocean temperatures.

They then compared this data with small but regular changes in Earth's orbit over time.

The lead writer of the study is Stephen Barker, a professor at Cardiff University in Britain. He told the French News Agency (AFP) that for many years it has been difficult for scientists to show exactly how small changes in Earth's orbit have led to huge changes between warm and cold periods.

Earth is believed to go through cycles of ice ages and warm periods. The last ice age is thought to have ended around 11,700 years ago. Scientists, such as Milankovitch, have long seen a connection between Earth's orbit and climate.

However, researchers have struggled to precisely date when each of the climate changes happened. It has also been difficult for them to know exactly which orbit positions affect the start and stop of cold or warm periods.

Barker said his team of researchers studied slow changes in temperature over long periods of time instead of only looking at shorter periods of change between cold and warm climates.

Barker told AFP, "We would expect a glaciation to occur within the next 11,000 years, and it would end in 66,000 years' time."

Lorraine Lisiecki is a professor at the University of California, Santa Barbara, and a co-writer of the study. She said the study shows that changes in climate over tens of thousands of years are not random.

The team aims to expand its findings to investigate the long-term effects of human activity on climate. They also want to find out how it might affect Earth's natural climate cycles.

Issam Ahmed wrote this story for Agence-France Presse. Andrew Smith adapted it for VOA Learning English.

emissions—plural n. gases released into the atmosphere

tilt—n. not straight up and down but set to the side at an angle

axis—n. the imaginary line around which the Earth revolves, or turns

cycle—n. an action or set of actions that repeat over a regular period

sheet—n. a flat, wide extent of a material such as paper or ice

precisely—adv. exactly

factor—n. something that affects a process or development

wobble—n. an apparently unsteady side-to-side motion

glaciation—n. a period in which large areas of ice form and move

random—adj. showing no particular order or period

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## Article 198: Total Lunar Eclipse to Turn Moon Red

Date: 2025-03-11T22:00:00+00:00 | 480 words | Source

No media source currently available

A total lunar eclipse is about to make the moon appear a reddish color across the Western Hemisphere.

The event will happen Thursday night into Friday morning. The best places to see the eclipse will be in North America and South America. Parts of Africa and Europe may also get brief views.

A lunar eclipse happens when the sun, Earth, and moon line up just right, with Earth positioned between the sun and moon. This causes the Earth to create a shadow on the moon. In a total lunar eclipse, the Earth's shadow covers all of the moon.

Another kind of eclipse is a solar eclipse. In a solar eclipse, the moon gets in a position where it blocks light from the sun, causing a partial or full shadow on Earth.

A total lunar eclipse can also be called a blood moon. It makes the moon appear reddish-orange, similar to the element copper. The color comes from small amounts of sunlight passing through the Earth's atmosphere.

The American space agency NASA says lunar and solar eclipses happen between four and seven times a year. The last total lunar eclipse was in 2022.

This one will be visible for about one hour starting Friday morning at 2:26 a.m. Eastern Daylight Time (EDT). The time when the Earth's shadow covers all of the moon will be close to 3 a.m. EDT.

"As long as the sky is clear, you should be able to see it," Shannon Schmoll told the Associated Press. She is the director of Abrams Planetarium at Michigan State University. No special equipment will be needed to see the reddish moon.

The total lunar eclipse may be harder to see in Europe and Africa because the moon will be close to setting.

Michael Faison is an astronomy expert from Yale University. He told the AP, "This is really an eclipse for North and South America."

Zoe Ortiz is a historian with the University of North Texas. She noted that different civilizations have observed lunar eclipses for thousands of years. This helped ancient people learn things about the behaviors of the sun, moon, and stars.

"They were looking at the night sky and they had a much brighter vision than we do today," Ortiz said.

The ancient Greek thinker and writer Aristotle observed that Earth's shadow on the moon during a lunar eclipse was always curved. This fact supported proof that the Earth is round.

The next total lunar eclipse will appear in the sky September 7, across parts of Asia, Africa, Australia and Europe. Parts of the Americas will get the next chance to see one in March 2026.

Adithi Ramakrishnan wrote this story for The Associated Press. Andrew Smith adapted it for VOA Learning English.

shadow— n. a dark area created by something blocking light

curve— n.a line that bends around in the same way as a circle

## Article 199: Methods for Protecting Earth against an Asteroid Strike

Date: 2025-03-12T22:00:00+00:00 | 676 words | Source

No media source currently available

Astronomers following asteroid activity in space estimate there is a very small chance an object large enough to destroy a whole city could strike Earth in 2032.

But space agency officials say even if such an asteroid keeps heading on a path toward Earth, the world is now much better-equipped to defend itself against such a threat.

The American space agency NASA recently estimated there was a 3.1 percent chance that asteroid 2024 YR4 would hit Earth on December 22, 2032. That is the highest probability predicted for such a large space rock in modern times.

Richard Moissl is head of the European Space Agency's (ESA) planetary defense office. While recognizing the risk the asteroid could present, he told the French news agency AFP people should not panic over such predictions.

Astronomers have noted that the more data they gather, the odds of a direct asteroid hit are expected to keep rising over time. However, scientists say at a certain point the odds will likely drop down to zero.

Moissl said he thinks it is important to remember that even in the unlikely event the probability keeps rising to 100 percent, the world is "not defenseless."

Here are some methods currently being considered as defensive measures to keep humanity safe in case there is a real threat.

Send a spacecraft to hit it

Only one planetary defense method has been tried against an asteroid. In 2022, NASA's Double Asteroid Redirection Test (DART) sent a spacecraft into the 160-meter-wide Dimorphos asteroid. The effort successfully changed the asteroid's orbit around a larger space rock.

Bruce Betts is chief scientist for the nonprofit Planetary Society. He told AFP that space agencies could hit the 2024 YR4 asteroid with several spacecrafts, observing how each one changed the path.

The asteroid discovered in December is estimated to be 40-90 meters wide -- about half the size of Dimorphos.

"You have to take care not to overdo it," Moissl warned. He said this is because if a spacecraft only partly destroys an asteroid, it could send smaller pieces of the space rock heading toward Earth.

A separate idea would involve sending a large spacecraft to fly alongside a threatening asteroid. The spacecraft would not touch the asteroid, but would use its gravitational force to pull it away from Earth.

Moissl said another non-contact plan would put a spacecraft near the asteroid to eject a continuous flow of atoms to push the asteroid off course.

Scientists have also considered painting one side of the asteroid white. They believe this could increase the light the object reflects to make it slowly change course.

One idea is to use a nuclear weapon against a threatening asteroid. In laboratory tests, researchers found that X-rays from a nuclear blast could move a rock. But this is considered more of a plan for kilometers-wide asteroids like the one that killed off the dinosaurs. And this method also carries the risk that a nuclear explosion could send additional pieces of the asteroid falling toward Earth.

A similar method – but one considered less dangerous – would involve shooting laser beams from a spacecraft to destroy the side of an asteroid in an effort to push it away from Earth.

Moissl said that if all else fails, at least the world will have a good idea where a threatening asteroid would strike. Since astronomers believe most asteroids would at most threaten to destroy one city, efforts could be organized to get people out of an area before a strike.

"Seven-and-a-half years is a long time to prepare," Moissl added. He also noted that even with the rising odds involving 2024 YR4, there is still about a 97 percent chance the asteroid will miss Earth.

Daniel Lawler with Issam Ahmed reported this story for Agence France-Presse. Jill Robbins adapted it for Learning English.

asteroid-n.any of the small rocky celestial bodies found especially between the orbits of Mars and Jupiter

reflect-v.of light or sound. to move in one direction, hit a surface, and then quickly move in a different and usually opposite direction

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## Article 200: Wilbur and Orville Wright: The First Airplane

Date: 2025-03-17T22:05:00+00:00 | 475 words | [Source](#)

No media source currently available

Wilbur and Orville Wright are the American inventors who made a small engine-powered flying machine. They proved that flight without the aid of gas-filled balloons was possible.

Wilbur Wright was born in 1867 near Melville, Indiana. His brother Orville was born four years later in Dayton, Ohio.

As they grew up, the Wright brothers experimented with mechanical things. Later, the Wright brothers began to design their own flying machine. They used ideas they had developed from earlier experiments with a toy helicopter, kites, the printing machine and bicycles.

Soon, they needed a place to test their ideas about flight. The best place with the best wind conditions seemed to be a piece of sandy land in North Carolina along the coast of the Atlantic Ocean. It was called Kill Devil Hill, near the town of Kitty Hawk.



The Wright brothers did many tests with gliders at Kitty Hawk. With these tests, they learned how to solve many problems.

By the autumn of 1903, Wilbur and Orville had designed and built an airplane powered by a gasoline engine. The plane had wings 12 meters across. It weighed about 340 kilograms, including the pilot.

On December 17th, 1903, they made the world's first flight in a machine that was heavier than air and powered by an engine. Orville flew the plane 36 meters. He was in the air for 12 seconds. The two brothers made three more flights that day.

Four other men watched the Wright brothers' first flights. One of the men took pictures. Few newspapers, however, noted the event.

It was almost five years before the Wright brothers became famous. In 1908, Wilbur went to France. He gave demonstration flights at heights of 90 meters. A French company agreed to begin making the Wright brothers' flying machine.

Orville made successful flights in the United States at the time Wilbur was in France. The United States War Department agreed to buy a Wright brothers' plane. Wilbur and Orville suddenly became world heroes. But the brothers were not seeking fame. They returned to Dayton where they continued to improve their airplanes. They taught many others how to fly.

Wilbur Wright died of typhoid fever in 1912. Orville Wright continued designing and inventing until he died many years later, in 1948.

Today, the Wright brothers' first airplane is in the Air and Space Museum in Washington, D.C. Visitors to the museum can look at the Wright brothers' small plane. Then they can walk to another area and see space vehicles and a rock collected from the moon. The world has changed a lot since Wilbur and Orville Wright began the modern age of flight over one hundred years ago.

Marilyn Rice Christiano wrote this story for VOA Learning English. John Russell adapted it.

glider— n.a flying object similar to an airplane but without an engine

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## End of Corpus

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