

Space

Strahan, next space tourist

NASA launches mission to test asteroid defense

LOS ANGELES, Nov 24, (AP): NASA launched a spacecraft Tuesday night on a mission to smash into an asteroid and test whether it would be possible to knock a speeding space rock off course if one were to threaten Earth.

The DART spacecraft, short for Double Asteroid Redirection Test, lifted off from Vandenberg Space Force Base atop a SpaceX Falcon 9 rocket in a \$330 million project with echoes of the Bruce Willis movie "Armageddon."

If all goes well, in September 2022 it will slam head-on into Dimorphos, an asteroid 525 feet (160 meters) across, at 15,000 mph (24,139 kph).

"This isn't going to destroy the asteroid. It's just going to give it a small nudge," said mission official Nancy Chabot of Johns Hopkins Applied Physics Laboratory, which is managing the project.



Chabot

Dimorphos orbits a much larger asteroid called Didymos. The pair are no danger to Earth but offer scientists a way to measure the effectiveness of the collision.

Dimorphos completes one orbit of Didymos every 11 hours, 55 minutes. DART's goal is a crash that will slow Dimorphos down and cause it to fall closer toward the bigger asteroid, shaving 10 minutes off its orbit.

The change in the orbital period will be measured by telescopes on Earth. The minimum change for the mission to be considered a success is 73 seconds.

The DART technique could prove useful for altering the course of an asteroid years or decades before it bears down on Earth with the potential for catastrophe.

A small nudge "would add up to a big change in its future position, and then the asteroid and the Earth wouldn't be on a collision course," Chabot said.

Scientists constantly search for asteroids and plot their courses to determine whether they could hit the planet.

"Although there isn't a currently known asteroid that's on an impact course with the Earth, we do know that there is a large population of near-Earth asteroids out there," said Lindley Johnson, planetary defense officer at NASA. "The key to planetary defense is finding them well before they are an impact threat."

Observation

DART will take 10 months to reach the asteroid pair. The collision will occur about 6.8 million miles (11 million kilometers) from Earth.

Ten days beforehand, DART will release a tiny observation spacecraft supplied by the Italian space agency that will follow it.

DART will stream video until it is destroyed on impact. Three minutes later, the trailing craft will make images of the impact site and material that is ejected.

Recently NASA and the US's top federal nuclear research lab put out a request for proposals for a fission surface power system.

NASA is collaborating with the US Department of Energy's Idaho National Laboratory to establish a sun-independent power source for missions to the moon by the end of the decade.

"Providing a reliable, high-power system on the moon is a vital next step in human space exploration, and achieving it is within our grasp," Sebastian Corbisiero, the Fission Surface Power Project lead at the lab, said in a statement.

If successful in supporting a sustained human presence on the moon, the next objective would be Mars. NASA says fission surface power could provide sustained, abundant power no matter the environmental conditions on the moon or Mars.

"I expect fission surface power systems to greatly benefit our plans for power architectures for the moon and Mars and even drive innovation for uses here on Earth," Jim Reuter, associate administrator for NASA's Space Technology Mission Directorate, said in a statement.

The reactor would be built on Earth and then sent to the moon.

Submitted plans for the fission surface power system should include a uranium-fueled reactor core, a system to convert the nuclear power into usable energy, a thermal management system to keep the reactor cool, and a distribution system providing no less than 40 kilowatts of continuous electric power for 10 years in the lunar environment.

Some other requirements include that it be capable of turning itself off and on without human help, that it be able to operate from the deck of a lunar lander, and that it can be removed from the lander and run on a mobile system and be transported to a different lunar site for operation.

Meanwhile, the European Space Agency says the launch of a new NASA telescope to replace the famed Hubble observatory is being postponed to allow experts to check the device for possible damage following an incident at its spaceport in French Guiana.

The ESA said in a statement late Monday that technicians had been preparing to attach the James Webb Space Telescope to a launch vehicle adapter when a clamp band suddenly loosened, jolting the delicate observatory.

"A NASA-led anomaly review board was immediately convened to investigate and instituted additional testing to determine with certainty (that) the incident did not damage any components," ESA said. "NASA and its mission partners will provide an update when the testing is completed at the end of this week."

ESA said the telescope will now launch aboard an Ariane 5 rocket no earlier than Dec. 22 — four days after the original planned liftoff date of Dec. 18.

Also:

LOS ANGELES: "Good Morning America" co-host Michael Strahan is going to space next month.

Strahan, who turned 50 on Sunday, will join Laura Shepard Churchley, the eldest daughter of astronaut Alan Shepard, on the Dec. 9 mission aboard the New Shepard, a spacecraft named after her father and the first American in space.

The Blue Origin flight, the company headed by Jeff Bezos, will also carry four paying customers and will be the third by the New Shepard craft this year to shuttle humans to space.

Blue Origin has not disclosed the ticket price for paying customers. The 10-minute flight, five minutes less than Alan Shepard's 1961 Mercury flight, will launch from West Texas carrying six people, two more than the previous two flights this year with humans aboard.

Similar to previous jaunts, Strahan's flight is likely to include about three minutes of weightlessness and a view of the curvature of the Earth. Passengers are subjected to nearly 6 G's, or six times the force of Earth's gravity, as the capsule descends.

Strahan, who played for 15 years in the National Football League with the New York Giants, reported on the first Blue Origin flight for "Good Morning America."

"I want to go to space," Strahan told "GMA." "I think being there at the first launch, it really was mind-blowing."

Amazon founder Jeff Bezos and Star Trek star William Shatner flew to space on separate New Shepard flights this year. Shatner became the oldest person in space, eclipsing the previous record — set by a passenger on Bezos' flight in July — by eight years.

Virgin Galactic's Richard Branson went into space in his own rocket ship in July, followed by Bezos nine days later on Blue Origin's first flight with a crew. Elon Musk's SpaceX made its first private voyage in mid-September, though without Musk on board.



Corals fertilize billions of offspring by casting sperm and eggs into the Pacific Ocean off the Queensland state coastal city of Cairns, Australia, Nov. 23. (AP)

Australia's Barrier Reef erupts in color as corals spawn

Australia's Great Barrier Reef is spawning in an explosion of color as the World Heritage-listed natural wonder recovers from life-threatening coral bleaching episodes.

Scientists on Tuesday night recorded the corals fertilizing billions of offspring by casting sperm and eggs into the Pacific Ocean off the Queensland state coastal city of Cairns.

The spawning event lasts for two or three days. The network of 2,500 reefs covering 348,000 square kilometers (134,000 square miles) suffered significantly from coral bleaching caused by unusually warm ocean temperatures in 2016, 2017 and last year. The bleaching damaged two-thirds of the coral.

Gareth Phillips, a marine scientist with Reef

Teach, a tourism and educational business, is studying the spawning as part of a project to monitor the reef's health.

"It is gratifying to see the reef give birth," Phillips said in a statement on Wednesday. "It's a strong demonstration that its ecological functions are intact and working after being in a recovery phase for more than 18 months." (AP)

Coronavirus

Germany faces grim COVID milestone

Europe only region with more COVID

GENEVA, Nov 24, (AP): The World Health Organization said that coronavirus cases jumped by 11% in Europe in the last week, the only region in the world where COVID-19 has continued to increase since mid-October.

In its weekly assessment of the pandemic released on Tuesday, the UN health agency said cases and deaths globally have risen by about 6%, with about 3.6 million new infections and 51,000 new deaths reported in the previous week.

WHO's Europe director Dr. Hans Kluge warned that without urgent measures taken soon, the continent could see another 700,000 deaths by the spring.

"The European region remains in the firm grip of the COVID-19 pandemic," Kluge said, calling for countries to increase vaccination and to take other control measures like masking and social distancing to avoid "the last resort of lockdowns."

He noted that while more than 1 billion vaccine doses have been administered across WHO's European region, which stretches to central Asia, the range in vaccination coverage varies from 10% to 80%.

In the last week, Austria, the Netherlands and Belgium have all adopted stricter measures including partial lockdowns to try to stem the latest surge of the coronavirus. Germany is also set to record more than 100,000 COVID-19 deaths this week, with some politicians now calling for a vaccine mandate, like the one ordered in Austria.

Globally, WHO reported that COVID-19 in Southeast Asia and the Middle East dropped by 11% and 9% respectively.

The biggest decrease in coronavirus deaths in the last week was seen in Africa, where fatalities fell by 30%, continuing a decreasing trend in COVID-19 that first began in late June.

Although cases remained stable in the Americas, WHO said the number of deaths rose by about 19%.

The agency said the easier-to-spread delta variant remains the predominant version of COVID-19 globally. Of the more than 840,000 sequences uploaded to the biggest publicly available database of viruses in the last week, about 99.8% were the delta variant.

Other variants including mu, lambda and gamma made up fewer than 1% — although they continue to make up a significant proportion of sequences from Latin America.

Meanwhile, Germany is set to mark 100,000 deaths from COVID-19 this week, passing a somber milestone that several of its neighbors crossed months ago but which Western Europe's most populous nation had hoped to avoid.

Teutonic discipline, a robust health care system and the rollout of multiple vaccines — one of them homegrown — were meant to stave off a winter

surge of the kind that hit Germany last year.

Yet complacency and a national election, followed by a drawn-out government transition, saw senior politicians dangle the prospect of further lifting restrictions even as Germany's infection rate rose steadily this fall.

"Nobody had the guts to take the lead and announce unpopular measures," said Uwe Janssens, who heads the intensive care department at the St. Antonius hospital in Eschweiler, west of Cologne.

"This lack of leadership is the reason we are here now," he said.

Skeptics

Doctors like Janssens are bracing for an influx of coronavirus patients as confirmed cases hit fresh daily highs that experts say is also being fueled by vaccine skeptics.

Resistance to getting the shot — including the one developed by German company Biontech together with its US partner Pfizer — remains strong among a sizeable minority of the country. Vaccination rates have stalled at 68% of the population, far short of the 75% or higher that the government had aimed for.

"We've increasingly got younger people in intensive care," said Janssens. "The amount of time they're treated is significantly longer and it blocks intensive care beds for a longer period."

Older people who got vaccinated early in 2021 are also seeing their immunity wear off, making them vulnerable to serious illness again, he said. Echoing problems seen during the initial vaccine rollout, authorities have struggled to meet demand for boosters even as they tried to encourage holdouts to get their first shot.

Some German politicians are suggesting it's time to consider a vaccine mandate, either for specific professions or for the population as a whole. Austria took that step last week, announcing COVID-19 shots will become compulsory for all starting in February after seeing a similar reluctance to get vaccinated fuel fresh outbreaks and hospitalizations.

Germany's outgoing Chancellor Angela Merkel said in June that she didn't favor such a measure. Signaling a possible shift in position, Merkel summoned leaders from the three parties negotiating to form the next government for talks Tuesday at the chancellery to discuss the pandemic situation.

Merkel's likely successor, current Finance Minister Olaf Scholz of the center-left Social Democrats, has refused to be drawn on whether he would back compulsory COVID-19 shots.

Together with the environmentalist Greens and the pro-business Free Democrats, his party recently passed a law that replaces the existing legal

foundations for pandemic restrictions with narrower measures, starting Wednesday. These include a requirement for workers to provide their employers with proof of vaccination, recovery or a negative test. But the change also makes it harder for Germany's 16 governors to impose hard lockdowns without getting approval from state assemblies.

Getting those majorities may be hardest in those states where case numbers are highest. A recent study found infection rates are higher in areas where support is biggest for the far-right Alternative for Germany, a party that has campaigned against pandemic restrictions.

Last week Saxony, an eastern state with the highest infection rates and where the Alternative for Germany is particularly strong, announced that crematoria would be allowed to operate on Sundays to cope with the higher-than-usual number of deaths.

Also:

SEOUL, South Korea: New coronavirus infections in South Korea exceeded 4,000 in a day for the first time since the start of the pandemic as a delta-driven spread continues to rattle the country after it eased social distancing in recent weeks to improve its economy.

The Korea Disease Control and Prevention Agency said most of the new 4,116 cases reported Wednesday came from the capital Seoul and its surrounding metropolitan region, where an increase in hospitalizations has created fears about possible shortages in intensive care units.

The country's death toll is now 3,363 after 35 virus patients died in the past 24 hours. The 586 patients who are in serious or critical conditions also marked a new high.

South Korea is the latest country to see infections and hospitalizations rise after loosening social distancing measures amid high vaccination rates. Cases are also climbing in the United States ahead of the Thanksgiving holiday weekend, while Austria entered a major lockdown on Monday as a virus wave spreads across Europe.

Officials in South Korea eased social distancing rules starting this month and fully reopened schools on Monday in what they describe as first steps toward restoring some pre-pandemic normalcy. In allowing larger social gatherings and longer indoor dining hours at restaurants, officials had hoped that improving vaccination rates would keep hospitalizations and deaths down even if the virus continues to spread.

But health workers are now wrestling with a rise in serious cases and fatalities among older people who rejected vaccines or whose immunities have waned after getting injected early in the vaccine rollout that began in February.

Later that same day, the government launched a program to promote green development. Official speeches resembled a dress rehearsal for efforts to project responsible environmental stewardship at Glasgow after two years of historically elevated deforestation.

One of the two ministers who participated in the earlier meeting said the decision to withhold data was part of a strategy to recover environmental credibility abroad. (AP)



The SpaceX Falcon 9 rocket with the Double Asteroid Redirection Test, or DART, spacecraft onboard, is seen ready for launch, Tuesday, Nov. 23, at Space Launch Complex 4E, Vandenberg Space Force Base in Calif. DART is the world's first full-scale planetary defense test, demonstrating one method of asteroid deflection technology. The mission was built and is managed by Johns Hopkins APL for NASA's Planetary Defense Coordination Office. (AP)

Discovery

Feds seek to protect turtles: The US Fish and Wildlife Service announced Monday that it is proposing threatened status for the Pearl River map turtle, seeking to grant added federal protections to an at-risk species found only in Louisiana and Mississippi.

"These native freshwater map turtles are at risk and need our help," regional director Leopoldo Miranda-Castro said in a news release.

The agency said it also would seek protection for the closely related Pascagoula map turtle, found only in Mississippi, and three other species found in Alabama, Florida, Georgia and Tennessee because they look like the Pearl River turtle.

Without protecting the other species it would be difficult for enforcement agents to stop people from catching and selling Pearl River map turtles — one of the main threats to the species, according to a preview posted a day ahead of its planned publication Tuesday in the Federal Register.

The "threatened due to similarity" status would make it illegal to take the turtles out of the wild but wouldn't require a recovery plan or other protections the Pearl River turtles will get if it is listed as threatened.

The map turtles' name is derived from shell markings that resemble the contour lines on topographic maps. Map turtles are also called sawbacks because their shells have a central ridge that sometimes develops saw-like points.

"Federal protection for the beautiful Pearl River map turtle is long overdue," said Jason Totoiu, a senior attorney at the Center for Biological Diversity, which joined Healthy Gulf, another ecological nonprofit, in suing to get both turtles listed as endangered. (AP)

'Brazil withheld data': Brazil's President Jair Bolsonaro and Environment Minister Joaquim Leite both knew the Amazon region's annual deforestation rate had surged before the UN climate talks in Glasgow, but kept results quiet to avoid hampering negotiations, according to three Cabinet ministers who spoke to The Associated Press on condition of anonymity.

Data from the National Institute for Space Research's Prodes monitoring system released Thursday showed the Amazon lost 13,235 square kilometers (5,110 square miles) of rainforest in the 12-month reference period from August 2020 to July 2021. That's up 22% from the prior 12-month period and the worst in 15 years.

The three ministers as well as a coordinator at the space institute that compiles the data, all of whom spoke to the AP on condition of anonymity due to concern

about reprisals, said the annual deforestation report was available on the government's information system before talks in Glasgow began on Oct. 31.

Six days before that, at a meeting in the presidential palace, Bolsonaro and several ministers discussed the 2020-2021 deforestation results and determined they wouldn't be released until after the climate conference, said the three ministers, two of whom were present.



Bolsonaro



Totoiu