Space

'Return our moon dust'

NASA postpones asteroid 'mission'

NEW YORK, June 25, (AP): NASA put an asteroid mission on hold Friday, blaming the late delivery of its own navigation software.

The Psyche mission to a strange metal asteroid of the same name was supposed to launch this September or October. But the agency's Jet Propulsion Lab was several months late delivering its software for navigation, guidance and control -- a crucial part of any spacecraft. Engineers "just ran out of time" to test it, officials said Friday.

Now the space agency is going to step back, and an independent review will look at what went wrong, when the spacecraft could launch again and even if it should go ahead, NASA planetary sciences chief **Lori Glaze** said.

Glaze

NASA has already spent $717 million on Psyche and its projected total cost, including the rocket to launch it, is $985 million. The small car-sized spacecraft was originally supposed to arrive at its asteroid in 2026 after a journey of more than 1 billion miles.

Now that the software has been delivered, there's no known problems with the spacecraft except "we just haven't been able to test it," said Lindy Elkins-Tanton, the Psyche mission lead scientist.

"There is that one challenge we couldn't overcome in time to launch in 2022 with confidence," she said.

There are still at least two launch opportunities next year and more in 2024 to get to the asteroid that sits in the belt between Mars and Jupiter, said JPL Director Laurie Leshin. That means Psyche wouldn't arrive at its asteroid until 2029 or 2030.

But calculating launch times is complicated because the mission needs the proper sunlight conditions and the asteroid "is spinning like a rotisserie chicken instead of like a top," Elkins-Tanton said.

Two other small missions were going to ride along on the SpaceX Falcon heavy rocket and NASA is looking at what will happen to those.

Psyche is just the latest in NASA's fleet of asteroid-exploring spacecrafts. Osiris-Rex is on the way back to Earth with rubble from the asteroid Bennu. Last year, NASA launched the ships Lucy and Dart to explore other space rocks and test if a rocket could knock off course an asteroid heading smack into Earth.

Rehearsal

Meanwhile, NASA said Thursday it has finished testing its huge moon rocket and will move it back to the launch pad in late August.

A date for the first flight will be set after a leak that popped up during a dress rehearsal is fixed, the space agency said.

Earlier this week, NASA fueled the 30-story Space Launch System rocket for the first time and pressed ahead with a critical countdown test despite a fuel line leak. Previous attempts were foiled by technical issues.

No one will be on board the debut launch that will hurl the Orion crew capsule atop the rocket to the moon and back. The initial flight will be followed by astronauts in 2024, looping around the moon and back. The third mission would attempt to land astronauts on the moon no earlier than 2025, more than a half-century after NASA's Apollo moonshots.

In another development, NASA said it want its moon dust and cockroaches back.

The space agency has asked Boston-based RR Auction to halt the sale of moon dust collected during the 1969 Apollo 11 mission that had subsequently been fed to cockroaches during an experiment to determine if the lunar rock contained any sort of pathogen that posed a threat to terrestrial life.

The material, a NASA lawyer said in a letter to the auctioneer, still belongs to the federal government.

The material from the experiment, including a vial with about 40 milligrams of moon dust and three cockroach carcasses, was expected to sell for at least $400,000, but has been pulled from the auction block, RR said Thursday.

"All Apollo samples, as stipulated in this collection of items, belong to NASA and no person, university, or other entity has ever been given permission to keep them after analysis, destruction, or other use for any purpose, especially for sale or individual display," said NASA's letter dated June 15.

Evidence

It went on: "We are requesting that you no longer facilitate the sale of any and all items containing the Apollo 11 Lunar Soil Experiment (the cockroaches, slides, and post-destructive testing specimen) by immediately stopping the bidding process," NASA wrote.

In another letter dated June 22, NASA's lawyer asked RR Auction to work with the current owner of the material to return it to the federal government.

The Apollo 11 mission brought more than 47 pounds (21.3 kilograms) of lunar rock back to Earth. Some was fed to insects, fish and other small creatures to see if it would kill them.

The cockroaches that were fed moon dust were brought to the University of Minnesota where entomologist Marion Brooks dissected and studied them.

"I found no evidence of infectious agents," Brooks, who died in 2007, told the Minneapolis Tribune for an October 1969 story. She found no evidence that the moon material was toxic or caused any other ill effects in the insects, according to the article.

But the moon rock and the cockroaches were never returned to NASA, instead displayed at Brooks' home. Her daughter sold them in 2010, and now they are up for sale again by a consignor who RR did not disclose.

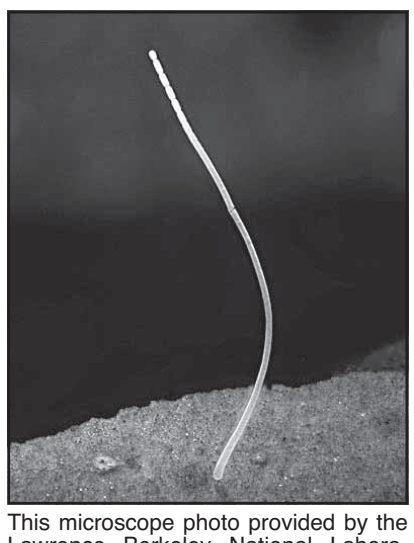
It's not unusual for a third party to lay claim to something that is being auctioned, said Mark Zaid, an attorney for RR Auction.

"NASA has a track record of pursuing items related to the early space programs," although they have been inconsistent in doing so, Zaid said. By its own admission, NASA acknowledged in one of its letters that it did not know about the previous auction of the cockroach experiment items.

"We have worked with NASA before and have always cooperated with the U.S. government when they lay claims to items," Zaid said. "At the end of the day, we want to act appropriately and lawfully."

RR Auction is holding on to the lot for now, but ultimately, it's up to the consignor to work something out with NASA, he said.

Technicians work on the Psyche spacecraft at the NASA Jet Propulsion Laboratory, April 11, 2022, in Pasadena, Calif. NASA put an asteroid mission on hold Friday, June 24, blaming the late delivery of its own navigation software. The Psyche mission to a strange metal asteroid of the same name was supposed to launch this September or October. But the agency's Jet Propulsion Lab was several months late writing and delivering its software for navigation, guidance and control. (AP)



This microscope photo provided by the Lawrence Berkeley National Laboratory in June 2022 shows a filament of a Thiomargarita magnifica bacteria cell. The species was discovered among the mangroves of Guadeloupe archipelago in the French Caribbean. A team of researchers at the Department of Energy (DOE) Joint Genome Institute (JGI), Lawrence Berkeley National Laboratory (Berkeley Lab), the Laboratory for Research in Complex Systems (LRC), and the Université des Antilles, characterized the bacterium composed of a single cell that is 5,000 times larger than other bacteria. (AP)

Discovery

Agency decision irks group: The US Forest Service has approved a new rule waiving fees for unauthorized grazing under some circumstances in a move blasted by an environmental group that says the agency is codifying lax enforcement.

The Forest Service issued the decision this month following a 2016 Government Accountability Office report that found the agency couldn't identify how much unauthorized grazing was occurring because it often handled cases informally with no documentation.

The agency issues permits to livestock producers that define when, where and how many animals - mostly cattle and sheep - are allowed on specific Forest Service grazing allotments. Violations occur when livestock are in areas outside of allowed times of the year, in unauthorized areas or when there are more animals in an area than allowed.

About 2 million cattle and 800,000 sheep and goats graze on about 150,000 square miles (390,000 square kilometers) of Forest Service land in 29 states. Most of the grazing is in the US West. The agency said it administers about 6,000 active livestock grazing permits and in the last five years has collected between $5.4 million and $9.2 million annually in grazing fees.

"Providing Forest Service line officers the authority to waive excess and unauthorized use fees, when certain conditions are met, provides the needed flexibility to resolve incidents using a common-sense approach that minimizes conflict," the agency said in an email to The Associated Press. "The economic activity generated from ranching is the lifeblood of many rural communities." (AP)

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Team hauls in 18-foot python: A team of biologists recently hauled in the heaviest Burmese python ever captured in Florida, officials said. The female python weighed in at 215 pounds (98 kilograms), was nearly 18 feet long (5 meters) and had 122 developing eggs, the Conservancy of Southwest Florida said in a news release.

The team used radio transmitters transplanted in male "scout" snakes to study python movements, breeding behaviors and habitat use, said Ian Bartoszek, wildlife biologist and environmental science project manager for the conservancy's program.

"How do you find the needle in the haystack? You could use a magnet, and in a similar way our male scout snakes are attracted to the biggest females around," Bartoszek said.

The team used a scout snake named Dionysus - or Dion for short - in an area of the western Everglades. "We knew he was there for a reason, and the team found him with the largest female we have seen to date."

Biologist Ian Easterling and intern Kyle Findley helped capture the female snake and haul it through the woods to the field truck.

A necropsy also found hoof cores in the snake's digest system, meaning that an adult white-tailed deer was its last meal. (AP)

Health

Monkeypox outbreak growing across Britain

'COVID vaccines saved 20m lives'

NEW YORK, June 25, (AP): Nearly 20 million lives were saved by COVID-19 vaccines during their first year, but even more deaths could have been prevented if international targets for the shots had been reached, researchers reported Thursday.

On Dec. 8, 2020, a retired shop clerk in England received the first shot in what would become a global vaccination campaign. Over the next 12 months, more than 4.3 billion people around the world lined up for the vaccines. The effort, though marred by persisting inequities, prevented deaths on an unimaginable scale, said Oliver Watson of Imperial College London, who led the new modeling study.

"Catastrophic would be the first word that comes to mind," Watson said of the outcome if vaccines hadn't been available to fight the coronavirus. The findings "quantify just how much worse the pandemic could have been if we did not have these vaccines."

The researchers used data from 185 countries to estimate that vaccines prevented 4.2 million COVID-19 deaths in India, 1.9 million in the United States, 1 million in Brazil, 631,000 in France and 507,000 in the United Kingdom.

An additional 600,000 deaths would have been prevented if the World Health Organization target of 40% vaccination coverage by the end of 2021 had been met, according to the study published Thursday in the journal Lancet Infectious Diseases.

The main finding - 19.8 million COVID-19 deaths were prevented - is based on estimates of how many more deaths than usual occurred during the time period. Using only reported COVID-19 deaths, the same model yielded 14.4 million deaths averted by vaccines.

The London scientists excluded China because of uncertainty around the pandemic's effect on deaths there and its huge population.

The study has other limitations. The researchers did not include how the virus might have mutated differently in the absence of vaccines. And they did not factor in how lockdowns or mask wearing might have changed if vaccines weren't available.

Another modeling group used a different approach to estimate that 16.3 million COVID-19 deaths were averted by vaccines. That work, by the Institute for Health Metrics and Evaluation in Seattle, has not been published.

In the real world, people wear masks more often when cases are surging, said the institute's Ali Mokdad, and 2021's delta wave without vaccines would have prompted a major policy response.

"We may disagree on the number as scientists, but we all agree that COVID vaccines saved lots of lives," Mokdad said. The findings underscore both the achievements and the shortcomings of the vaccination campaign, said Adam Finn of Bristol Medical School in England, who like Mokdad was not involved in the study.

"Although we did pretty well this time - we saved millions and millions of lives - we could have done better and we should do better in the future," Finn said.

Funding came from several groups including the WHO; the UK Medical Research Council; Gavi, the Vaccine Alliance; and the Bill and Melinda Gates Foundation.

Also:

LONDON: **British** officials said the monkeypox outbreak in the **UK** is growing across the country, mainly among men who are gay or bisexual, or other men who have sex with men. They urged those with new or multiple sex partners to be vigilant for the symptoms of monkeypox.

In a technical briefing released on Friday, Britain's Health Security Agency said their data show monkeypox is spreading in "defined sexual networks of gay, bisexual, or men who have sex with men." Officials said there were no signs suggesting sustained spread beyond those populations.

Of the 810 monkeypox cases in the UK to date, five are in women. Among patients who completed a detailed survey, 96% of those infected were men who were gay, bisexual or had sex with other men. Among the nearly 50 countries reporting monkeypox cases globally, Britain has the biggest outbreak beyond Africa.

"If you are concerned that you may have monkeypox, don't go to events, meet with friends or have sexual contact," said **Dr. Meera Chand,** director of clinical and emerging infections at Britain's Health Security Agency. Doctors say people who have unexpected skin lesions or rashes that could be monkeypox should seek help at a sexual health clinic and avoid close contact with others until they have consulted a physician.

She said that anyone who was in close, physical contact with someone who had monkeypox was at risk of catching the disease, regardless of their sexual orientation.

"To assist with our contact tracing, we encourage everyone to ensure they exchange contact details with sexual partners, to help us limit further transmission where cases occur," Chand said.

The Health Security Agency said there were "a relatively high number of cases reported travelling to **Gran Canaria** in early May," suggesting they were infected there before returning to Britain.

Earlier this week, British officials said they were widening their vaccination policy to offer shots to gay and bisexual, and other men who have sex with men who were at high risk of catching monkeypox, which it defined as those who have multiple partners, participate in group sex or attend venues where sex occurs on the premises.