

Japan spacecraft starts yearlong journey home from asteroid

By Mari Yamaguchi
The Associated Press

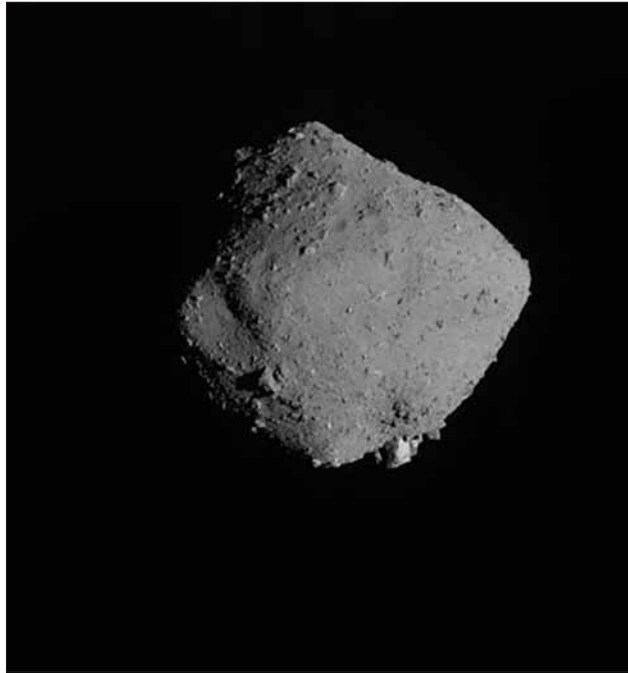
TOKYO — Japan's Hayabusa2 spacecraft has departed from a distant asteroid, starting its yearlong journey home after successfully completing its mission to bring back soil samples and data that could provide clues to the origins of the solar system, the country's space agency said.

The Japan Aerospace Exploration Agency (JAXA) said the spacecraft has left its orbit around the asteroid Ryugu, about 180 million miles from Earth.

Hayabusa2 captured and transmitted to Earth one of its final images of Ryugu, or "Dragon Palace," named after a sea-bottom castle in a Japanese folktale, as it slowly began moving away from its temporary home, JAXA said. The "farewell filming" continued for a few more days.

Hayabusa2 is expected to adjust its position on around November 18 after retreating 40 miles from the asteroid and out of its the gravitational pull. It will then receive a signal from JAXA to ignite a main engine in early December en route to the Earth's vicinity.

Hayabusa2 made touchdowns on the asteroid twice, despite difficulties caused by Ryugu's extremely rocky surface, and successfully collected data and samples



during its one-and-a-half-year mission since arriving in June 2018.

In the first touchdown in February, it collected surface

HOMeward BOUND. This image released by the Japan Aerospace Exploration Agency shows asteroid Ryugu taken by Japan's Hayabusa2 spacecraft. The spacecraft departed from the distant asteroid, starting its yearlong journey home after successfully completing its mission to bring back soil samples and data that could provide clues to the origins of the solar system. (Japan Aerospace Exploration Agency via AP) dust samples. In July, it collected underground samples for the first time in space history after landing in a crater it had earlier created by blasting the asteroid surface.

Hayabusa2 is expected to return to Earth in late 2020 and drop a capsule containing the precious samples in the Australian desert.

It took the spacecraft three-and-a-half years to arrive at the asteroid, but the journey home is much shorter thanks to the current locations of Ryugu and Earth.

JAXA scientists believe the underground samples contain valuable data unaffected by space radiation and other environmental factors that could tell more about the origin of the solar system 4.6 billion years ago.

Asteroids, which orbit the sun but are much smaller than planets, are among the oldest objects in the solar system and may help explain how Earth evolved. Hayabusa2 scientists also said they believe the samples contain carbon and organic matter and hope they could explain how they are related to Earth.

North Korea calls Biden a "rabid dog" for insulting its dignity

Continued from page 2

summits, including one brief handshake at the Korean Demilitarized Zone.

"Anyone who dare slanders the dignity of the supreme leadership of the D.P.R.K, can never spare the D.P.R.K's merciless punishment whoever and wherever," said the North Korean statement, referring to the country by its formal name, the Democratic People's Republic of Korea.

"Rabid dogs like Baiden can hurt lots of people if they are allowed to run about. They must be beaten to death with a stick, before it is too late," it said.

It wasn't immediately clear which of Biden's comments provoked North Korea's anger. The Democrat has accused Trump of cozing up to "dictators and tyrants" and has been highly critical of his summitry with Kim, calling the meetings "three made-for-TV summits."

South Korea's Yonhap News Agency speculated that North Korea by insulting Biden was trying to appeal to Trump, who has continued to describe his personal relationship with Kim as good despite a stalemate in nuclear negotiations over disagreements in exchanging sanctions

relief and disarmament steps.

Biden, especially at campaign fundraisers, laments Trump's embrace of authoritarian foreign leaders. He has specifically named Kim and Russia's Vladimir Putin, calling the pair "thugs" and sometimes detailing Kim's human-rights abuses and attacks against dissenters.

"It's becoming more and more obvious that repugnant dictators, as well as those who admire and 'love' them, find Joe Biden threatening," said Andrew Bates, a Biden campaign spokesman. "That's because he'd restore American leadership in the world on day one by putting our security, interests, and values at the heart of our foreign policy."

Even while North Korea has praised Trump, it criticized members of his administration seen as holding a hard line against North Korea, such as former national security adviser John Bolton. It recently called Japanese Prime Minister Shinzo Abe an "idiot and villain" after he criticized a North Korean weapons test.

Associated Press journalist Bill Barrow in Atlanta contributed to this report.



AFGHANISTAN AIR POLLUTION. Afghan children receive treatment for respiratory problems at a pediatric hospital in Kabul, Afghanistan. Afghanistan authorities are trying to tackle pollution in the country's capital, which may be even deadlier than the 18-year-old war. Research group State of Global Air said more than 26,000 deaths could be attributed to air pollution in 2017, compared to 3,483 civilians killed that year in the Afghan war. (AP Photo/Rahmat Gul)

Afghan capital's air pollution may be even deadlier than war

Continued from page 3

wars since, "we lost all our urban infrastructure for water, electricity, public transportation, green areas, all these things," he said.

Kabul's environmental department has launched a new program to control old vehicles, one significant source of pollution.

"Fighting pollution is as important as fighting terrorism," said Mohammad Kazim Humayoun, the department's director.

Authorities warn that this winter is expected to be colder than usual and fear that will only increase the use of pollution-creating fuels to keep warm. The Kabul municipality has also called on residents to stop burning garbage for heat and instead use fuel.

"If everyone follows the instructions laid out by Kabul Municipality, the pollution could be controlled," the municipality's spokeswoman, Nargis Mohmand, said. But if not, "then we might live with this untreatable wound for years to come."

But fuel is either too expensive or not available for many in Kabul. Electrical heaters are too pricey for most, and power outages are frequent.

Doctors at Kabul's Indira Gandhi Children's Hospital say they've seen the

numbers of patients with pollution-related illnesses increase, though they could not give exact figures. In the winter, hundreds of children a day sometimes come in, suffering from respiratory illnesses, according to hospital officials.

Dr. Saifullah Abassin, a specialist trainer at the hospital, said his ward has a capacity of 10 patients but often has three times that number.

The government has launched an environmental awareness campaign. Ads on TV, programs at schools and universities, and sermons at mosques talk about pollution's harm to society and tell listeners about steps to reduce it.

But there are steps the state needs to take, like encouraging the planting of trees and creating green spaces, as well as implementing a city master plan to stop unplanned development around the capital, often a source of pollution because of their lack of services.

Sediqi, of the NEPA, said that ever since the first post-Taliban government was created in 2001, there was no planning on urban infrastructure, which left individuals to build on their own.

"Unfortunately, that led to unplanned development," he said. "So now we have numerous urban problems and challenges and organizational challenges, which is causing the environmental pollution."



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