# There were not one, but two asteroid encounters this weekend

As the United States of America celebrated its 250th birthday on terra firma with fireworks displays this weekend, two Asian countries made some splashes of their own farther from Earth.

On Sunday, an aging Japanese spacecraft named Hayabusa2, which completed its initial sample-return objective more than half a decade ago, found success with an extended mission that saw the vehicle fly by a peanut-shaped asteroid named Torifune.

Hours later, the Chinese space agency released images from a spacecraft, Tianwen-2, arriving at its target asteroid following a journey of 1 billion km. At this small asteroid, the Chinese spacecraft will attempt to retrieve samples and return them to Earth late next year.

## Torifune flyby

The Japanese space agency's Hayabusa2 mission launched back in December 2014 and made a rendezvous with a near-Earth asteroid named 162173 Ryugu in June 2018. After gathering samples, the spacecraft burned its ion propulsion engines to return to Earth, and during a flyby in late 2020 it released a small return capsule. Scientists recovered 5.4 grams of asteroid material from the capsule.

By this point, however, Hayabusa2's efficient propulsion system still had nearly half of its xenon propellant remaining—approximately 30 kg of the 66 kg it began its mission with.

So Japanese engineers and scientists plotted out an operations plan that would extend over the next decade and visit two more asteroids. It flew by the first of these on Sunday, a 450-meter-long asteroid designated as 98943 Torifune. Observations began about two weeks ago and culminated in a flyby during which the spacecraft passed within about 800 meters of the asteroid.

“These observations continued until immediately before the closest approach to Torifune but could not be conducted after the spacecraft had passed the asteroid,” JAXA, the Japanese space agency, said in a news release early Monday. “At present, only part of the data acquired by the scientific instruments has been transmitted to Earth. The remaining data will be transmitted to the ground during future operations.”

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