NASA spacecraft finds crash site of Indian lunar lander

A NASA spacecraft in orbit around the Moon spotted the crash site of India's ill-fated lunar lander, Vikram, which slammed into the Moon's surface during a landing attempt in September. Images taken by the spacecraft confirm that the lander met an explosive end, revealing the lander's impact site and the surrounding debris created by the accident.

Part of India's Chandrayaan-2 mission to the Moon, Vikram was supposed to be the first Indian spacecraft to touch down gently on the lunar surface. India had put a vehicle on the Moon before, but that spacecraft purposefully slammed into the ground, kicking up lunar dirt and allowing researchers to learn more about the kinds of materials lurking on the Moon. With Vikram, India hoped to put a spacecraft intact on the Moon, to study the lunar environment in more detail. Vikram was even carrying a rover that was supposed to travel up to 1,640 feet (500 meters) and learn more about the composition of the surface.

But during Vikram's scheduled landing on September 6th, officials with the Indian Space Research Organization (ISRO) lost contact with the vehicle when it was about 1.3 miles (2.1 kilometers) above the lunar surface. It was unclear exactly what happened to the lander for a while. In the days following the landing, some ISRO officials claimed they had found the spacecraft on the lunar surface and were still trying to establish contact with it. But just last week, ISRO admitted that Vikram had a "hard" landing, after the vehicle had trouble braking during its descent to the surface.

The subtle difference between the before and after photos of the landing site
Image: NASA / GSFC / Arizona State University

Now, researchers have provided visual confirmation of this hard impact, thanks to NASA's Lunar Reconnaissance Orbiter, which has been orbiting the Moon since 2009. A team of scientists operating the camera on the orbiter first took pictures of the landing site on September 17th and released them to the public. They received a tip of possible debris in the pictures, and confirmed that it came from Vikram. However, the place where Vikram hit wasn't well lit, so the team took images of the site again in October and November to get a better look. Ultimately, they found the spot and captured a more detailed image of the site and debris field.

While these images provide some closure with Vikram, India's Chandrayaan-2 mission isn't a total loss. The Vikram lander traveled to the Moon along with another spacecraft — one designed to study the lunar surface from above. That vehicle successfully entered the Moon's orbit in August and is still circling overhead, gathering data about the Moon and decoding what's on the surface below.

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