

News

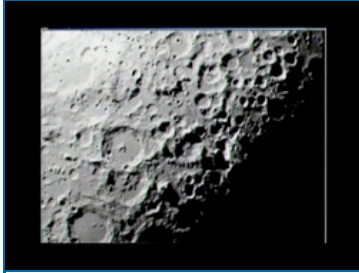
LCROSS impacts the Moon in search for water ice

LCROSS science instruments worked exceedingly well and returned a wealth of data that will greatly improve our understanding of the Moon.

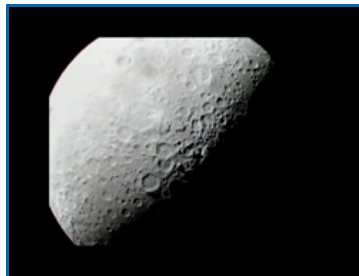
Courtesy NASA

October 9, 2009

NASA's Lunar Crater Observation and Sensing Satellite, or LCROSS, created twin impacts on the Moon's surface early Friday in a search for water ice. Scientists will analyze data from the spacecraft's instruments to assess whether water ice is present.



The satellite traveled 5.6 million miles (9 million kilometers) during an historic 113-day mission that ended in the Cabeus Crater, a permanently shadowed region near the Moon's south pole. The spacecraft was launched June 18 as a companion mission to the Lunar Reconnaissance Orbiter from NASA's Kennedy Space Center in Florida.



"The LCROSS science instruments worked exceedingly well and returned a wealth of data that will greatly improve our understanding of our closest celestial neighbor," said Anthony Colaprete, LCROSS principal investigator and project scientist at NASA's Ames Research Center in Moffett Field, California. "The team is excited to dive into data."

Visit Astronomy.com's [Lunar Reconnaissance Orbiter \(LRO\)](#) mission page for complete coverage.

In preparation for impact, LCROSS and its spent Centaur upper stage rocket separated about 54,000 miles above the surface of the Moon on Thursday at approximately 9:50 p.m. EDT.

Moving at more than 1.5 miles per second (2.4 km/s), the Centaur hit the lunar surface shortly after 7:31 a.m. EDT October 9, creating an impact that instruments aboard LCROSS observed for approximately four minutes. LCROSS then impacted the surface at approximately 7:36 a.m. EDT.

"This is a great day for science and exploration," said Doug Cooke, associate administrator for the Exploration Systems Mission Directorate at NASA Headquarters in Washington. "The LCROSS data should prove to be an impressive addition to the tremendous leaps in knowledge about the Moon that have been achieved in recent weeks. I want to congratulate the LCROSS team for their tremendous achievement in development of this low-cost spacecraft and for their perseverance through a number of difficult technical and operational challenges."

Other observatories reported capturing both impacts. The data will be shared with the LCROSS science team for analysis. The LCROSS team expects it to take several weeks of analysis before it can make a definitive assessment of the presence or absence of water ice.

"I am very proud of the success of this LCROSS mission team," said Daniel Andrews, LCROSS project manager at Ames. "Whenever this team would hit a roadblock, it conceived a clever work-around allowing us to push forward with a successful mission."

The images and video collected by the amateur astronomer community and the public also will be used to enhance our knowledge about the moon.

"One of the early goals of the mission was to get as many people to look at the LCROSS impacts in as many ways possible, and we succeeded," said Jennifer Heldmann, Ames' coordinator of the LCROSS observation campaign. "The amount of corroborated information that can be pulled out of this one event is fascinating."

"It has been an incredible journey since LCROSS was selected in April 2006," said Andrews. "The LCROSS Project faced a very ambitious schedule and an uncommonly small budget for a mission of this size."

"LCROSS could be a model for how small robotic missions are executed. This is truly big science on a small budget."

Three reasons... [To subscribe to Astronomy magazine today!](#) (1) Save 39%. (2) Get full access to our online Astronomy Plus features. (3) Receive a FREE gift.