

NASA's Quest to Find Water on the Moon Moves Closer to Launch

January 15 2008

Cameras and sensors that will look for the presence of water on the moon have completed validation tests and been shipped to the manufacturer of NASA's Lunar Crater Observation and Sensing Satellite.

The science instruments for the satellite, which is known as LCROSS, departed NASA's Ames Research Center in Moffett Field Calif., for the Northrop Grumman Corporation's facility in Redondo Beach, Calif. to be integrated with the spacecraft. A video file is available on NASA Television. LCROSS is scheduled to launch with the Lunar Reconnaissance Orbiter aboard an Atlas V rocket from Cape Canaveral, Fla., by the end of 2008.

"The goal of the mission is to confirm the presence or absence of water ice in a permanently shadowed crater at the moon's south pole," said Anthony Colaprete, LCROSS principal investigator at Ames. "The identification of water is very important to the future of human activities on the moon."

In 2009, LCROSS will separate into two parts and create a pair of impacts on the permanently dark floor of one of the moon's polar craters. The spent Centaur upper stage of the Atlas V rocket will hit the moon, causing an explosion of material from the crater's surface. The instruments aboard the satellite will analyze the plume for the presence of water ice or water vapor, hydrocarbons and hydrated materials. The satellite then will fly through the plume on a collision course with the

lunar surface. Both impacts will be visible to Earth and lunar-orbiting instruments.

Northrop Grumman is designing and building the spacecraft. After installing the instruments on the satellite, Northrop Grumman will test the entire spacecraft system to ensure it is flight worthy.

During development of the LCROSS payload, Ames engineers and scientists built new spaceflight hardware and used new testing procedures to take advantage of lower cost, commercially available instruments. The team subjected the commercial instruments and NASA-developed components to conditions simulating the harsh environment of spaceflight. Working closely with the commercial instrument manufacturers, all safety and operational concerns were addressed quickly and efficiently.

"This payload delivery represents a new way of doing business for the center and the agency in general," said Daniel Andrews, LCROSS project manager at Ames. "LCROSS primarily is using commercial-off-the-shelf instruments on this mission to meet the mission's accelerated development schedule and cost restraints."

"This arrangement has proven to work very well," Andrews added. "The vendors work with their products and develop a spaceflight knowledge base, and the LCROSS project gets very mature products for deployment on this mission."

For more information about the Lunar Crater Observation and Sensing Satellite mission, visit: lcross.arc.nasa.gov

For more information about the Lunar Reconnaissance Orbiter, visit: lunar.gsfc.nasa.gov

Source: NASA

Citation: NASA's Quest to Find Water on the Moon Moves Closer to Launch (2008, January 15)
retrieved 26 April 2024 from <https://phys.org/news/2008-01-nasa-quest-moon-closer.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.