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**LCROSS Spacecraft Anomaly**Mon, 24 Aug 2009  
11:58:30 PM EDT

Upon starting an early morning communications pass on Aug. 22, 2009, the Lunar Crater Observation and Sensing Satellite (LCROSS)

mission operations team discovered the spacecraft had experienced an anomaly.

According to spacecraft data, the LCROSS Internal Reference Unit (IRU) experienced a fault. The IRU is a sensor used by the spacecraft's attitude control system (ACS) to determine the orientation and trajectory of the spacecraft. The anomaly caused the spacecraft ACS to switch to the Star Tracker Assembly for spacecraft positional information and caused the spacecraft's thruster to fire excessively, consuming a substantial amount of fuel. Initial estimates indicate that the spacecraft still contains sufficient fuel to complete the full mission.

LCROSS mission operations declared a 'spacecraft emergency' and were allocated additional communications time on the Deep Space Network. The team conducted procedures to mitigate the problem and were able to restart the IRU and reduce fuel consumption to a nominal level. Automatic operations procedures also were implemented to minimize the possibility of another IRU anomaly from occurring while the spacecraft is out of contact with the ground. Since the re-start of the IRU, the spacecraft has not experienced any additional problems.

The team continues to actively assess and mitigate the situation and is in contact with the manufacturers of the IRU and star tracker to investigate the root cause of the problems. Mission managers remain optimistic the LCROSS mission can reach its successful conclusion with projected impact at the lunar south pole currently set for 4:30 a.m. PDT on Oct. 9, 2009.

LCROSS is a low-cost, highly risk-tolerant, fast-tracked mission of opportunity that was co-manifest with the Lunar Reconnaissance Orbiter. Both spacecraft launched from Cape Canaveral, Fla., on June 18, 2009. The main LCROSS mission objective is to confirm the presence or absence of water ice in a permanently shadowed region near a lunar pole.

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