

## SPACE TOPICS

### LUNAR RECONNAISSANCE ORBITER (LRO)

After several decades in which lunar missions have taken a back seat to the exploration of more distant worlds, the Moon is once again a prime destination for NASA missions. Under the guidelines of the Vision for Space Exploration, NASA is charged with establishing a permanent base on the Moon, where technologies aimed at taking humans to Mars can be tested. Creating such a habitat, however, requires close and detailed knowledge of the lunar environment, and NASA is currently planning a series of missions to learn more about conditions on Earth's giant satellite. Leading the charge is the Lunar Reconnaissance Orbiter (LRO), the first of NASA's Lunar Precursor and Robotic Program (LPRP) missions.

Set to launch on October 31, 2008, LRO will take only 4 days to reach the Moon, but spend the following two months adjusting its orbit. It will then settle on a near-circular path that will take it from pole to pole at a height of around 50 kilometers (30 miles) above the lunar surface. LRO is scheduled to remain in this polar orbit for at least a year, all the while collecting and recording data on lunar conditions.

As a first step towards establishing human presence on the Moon, LRO will focus on the factors that most affect the ability of humans to survive in hostile lunar conditions. The spacecraft's six instruments will enable it to precisely measure radiation levels near the Moon, monitor the extreme temperature fluctuations that characterize its surface, detect evidence of the presence of water ice, search for suitable landing sites, and more. The mass of scientific data that will be gathered by LRO will then serve to take humans one step closer to expanding our presence in the solar system.

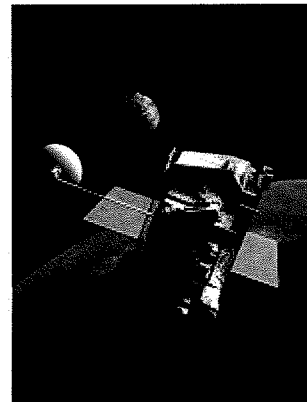
#### Mission Facts

**Launch Date:** October 31, 2008.

**Launch Vehicle:** Atlas 401.

**Mass:** 1,000 kilograms, out of which about 100 kilograms is payload capacity.

**Orbit:** polar, near-circular, about 50 kilometers (30 miles) above lunar surface.



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