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NASA: Lunar orbiter begins mapping, studying moon surface

Flying about 31 miles above the surface, orbiter begins sending home images, data

By Sharon Gaudin
September 18, 2009 04:04 PM ET

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Computerworld - Carrying seven scientific instruments and an intricate communications system, [NASA's Lunar Reconnaissance Orbiter](#) has begun the yearlong process of mapping the surface of the moon.

The spacecraft, which launched on June 18, has successfully wrapped up its 60-day testing and calibration phase, according to NASA. The orbiter has begun sending back [images of the lunar surface](#), along with data collected by its instruments.

The craft is orbiting about 31 miles above the moon's surface -- the closest that any spacecraft has orbited the moon, NASA said.

"The [orbiter] mission already has begun to give us new data that will lead to a vastly improved atlas of the lunar south pole and advance our capability for human exploration and scientific benefit," said Richard Vondrak, a project scientist at NASA's Goddard Space Flight Center, in a statement.

The space agency is hoping that the Lunar Reconnaissance Orbiter, along with its partner, the [Lunar Crater Observation and Sensing Satellite](#), will provide unprecedented detail about the moon. Scientists are hoping to search for resources like water, along with safe landing sites for future trips, in addition to mapping the surface. The craft can also measure lunar temperatures and radiation levels.

NASA has been planning on putting [humans back on the moon](#) by 2020, but those plans are in flux, given the current economic conditions and an

[Obama administration review](#) of NASA space missions. [NASA officials say](#) that getting more information about the moon will be key to any return there.

NASA reported on Thursday that the orbiters are finding that the south pole of the moon, with its shadowed craters and frigid temperatures -- about minus-400 degrees Fahrenheit -- may hold water ice and hydrogen. The ice and hydrogen may have been deposited by comets and solar winds, and then accumulated over billions of years in or under the craters.



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NASA scientists noted that if enough of these resources exist on the moon, future visitors could mine them there instead of hauling water from Earth.

To get all of this scientific information back to Earth, the orbiter has a [powerful communications system](#) onboard that can send massive amounts of data across the 238,000 miles to Mission Control.

A 13-inch-long tube, called a Traveling Wave Tube Amplifier, is designed to enable the orbiter to transmit 461GB of data per day, NASA noted, adding that that is more information than is generally found in a four-story library. It transmits the information at a rate of up to 100MB/sec., compared with a typical high-speed Internet service of about 1MB to 3MB/sec.

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craters from meteors on moon

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Submitted by Baruch Atta on September 18, 2009 - 16:05.

If we can identify a rock that was ticked off of Mars (found in the Anartic) then why haven't there been lots of moon rocks? Seems that each crash of a meteor on the Moon would cause a lot of stuff to escape the moon's gravity and of course fall to the Earth. Huh? Where are all the moon rocks?

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Lunar Rocks on Earth

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Submitted by MPP on September 18, 2009 - 17:21.

Right here:
<http://www.msnbc.msn.com/id/6620370/>

Outside of Antarctica, finding any of these rocks is very difficult - the Earth's crust changes over too fast.

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