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Modest New Moon Images Leave NASA Elated

By [Tariq Malik](#)
Senior Editor
posted: 24 June 2009
09:28 pm ET

They may look grainy or overexposed to the untrained eye, but the new images of the moon sent by an unmanned NASA probe early Tuesday left scientists on Earth rejoicing.

The [new moon views](#) came from NASA's Lunar Crater Observation and Sensing Satellite (LCROSS), a small spacecraft ultimately destined to slam itself and an attached Centaur rocket stage into the shadow-covered crater at the lunar south pole in a hunt for hidden water ice.

The LCROSS images are NASA's first up-close look at the moon in a decade.

To a public spoiled by recent [high-definition movies](#) and photos of the moon taken by probes from Japan, China and India, the first views from LCROSS may come up short at first blush. Some SPACE.com readers wondered if the probe's raw snapshots met up with expectations on Earth.

The answer from NASA is a resounding "yes." The new images left LCROSS scientists "elated," said Daniel Andrews, the spacecraft's project manager at NASA's Ames Research Center in Moffett Field, Calif.

Why? They were taken by a camera not designed to shoot the moon from so far out, and they gave scientists a taste of things to come.

A good test

The visible and infrared cameras on LCROSS - designed to scan the moon from much closer than Tuesday's flyby - are working, NASA officials said, and that was the point of the [first images](#).

"The team is very pleased with the data that we received from the moon," said Jonas Dino, a spokesperson at NASA's Ames Research Center overseeing the LCROSS mission. "These raw images, from an altitude of 8,000 to 10,000 km, prove that the instruments are healthy and returning good data."

The \$79 million LCROSS carries a three-color visible light camera among its suite of spectrometers and infrared sensors tailored for one specific purpose: [watching a collision](#) on the moon from close range to seek out signs of water ice. The visible camera is a tougher version of the RocketCam video cameras used to beam views of Earth and space from rockets and NASA shuttles, according to its builder Ecliptic Enterprises, Corp.

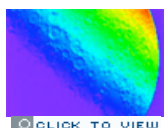
On Tuesday, LCROSS calibrated its instruments while zipping around



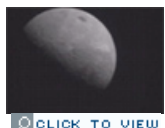
IMAGES



This image of the moon, one of the first by NASA's LCROSS spacecraft, shows the Goddard C Crater in a visible context camera view during a June 23, 2009 flyby. Credit: NASA.



The moon's Goddard C Crater region is seen in the far infrared in this view caught by a camera on NASA's LCROSS spacecraft during a June 23, 2009 flyby that allowed the probe to calibrate its camera tools. Credit: NASA.



This view of the moon's Goddard C Crater taken during the June 23, 2009 flyby of NASA's LCROSS lunar probe was obtained using one of the spacecraft's near

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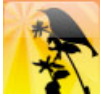
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Rickstar wrote: posted 24 June 2009, 10:34 pm ET

So,if LRO is commissioning for about a week,or so,should we expect to see shots from LRO,sometime next week,perhaps?...

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ScottCarpenter wrote: posted 24 June 2009, 11:31 pm ET

Does anyone think there's any chance at all that Americans will be back on the moon by 2020?, or by 2025? I've got a bad feeling about it. It seems to me that 30% of the program is going to get cut each year, and by the 2nd or 3rd year from now, it'll be out-right cancelled.

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MartianSam1 wrote: posted 24 June 2009, 11:41 pm ET

I wonder what the frame rate will be for LRO and LCROSS during the collision. Or the resolution for that matter. It should be pretty amazing to watch.

The moon is close enough for a good data rate, but I'm not sure what they are planning. I wonder if there would have been any advantage to simply using LRO as a relay. It's obviously much closer to LCROSS, but Earth is close enough that the whole "bent pipe" concept may not be worthwhile.

Just four more months, my friends!

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Rickstar wrote: posted 25 June 2009, 12:06 am ET

I just read in Sky & Telescope mag,that LRO will be watching,along with some of the big scopes at Hawaii:-)

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lwblack wrote: posted 25 June 2009, 1:39 am ET

Personally, I see this attempt at keeping Nasa in the space business out of LEO as a joke. Not that long ago, the US lead space exploration. Today, it shows signs of losing this lead in a dramatic style. This is evident by the fact that the US has waiting for so long to return to the moon and now reverts from manned Apollo missions to this kind of robotic mission that every other country in the world has already performed. Its becoming very reminiscent of the US health care system where we pay more for health care than any other country and yet receive less. One might wonder, 'what causes this?' Actually, it doesn't take a rocket scientist to figure it out. Too many hands in the pot! With fewer and fewer jobs available and more jobs going overseas, more people must seek assisted living. Those assisted living funds must come from somewhere. While some feel the answer is to merely remove the availability of assisted funding, others feel the answer lies elsewhere; in particular more jobs that can't be moved overseas. For those that think removing the availability of assisted funding is the answer, what happens to those individuals? Do they merely drop off the face of the earth or are they motivated into finding those funds on their own? Such as robbery, theft? Invariably, the costs don't go away. It is simply transferred to another cost further down the road. Security is by no means a cost-free situation. Security begins at home and on that note, jobs must

return home to counter it.

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papertiger1967 wrote: posted 25 June 2009, 2:19 am ET

@ Scott Carpenter. I think that I can safely say that American politics will not allow the moon shot to be cancelled. The country needs a big bright achievement to eradicate the shame of its recent past. Iraq was a disaster. No pride or superiority there. President Obama is a revolutionary figure and he will lead the charge to the Moon. He knows that America (the people of America) need a new dream. Playing international policeman is no longer popular with the American public. So America will go back to the moon and then to Mars. I would suggest that some future analyst has already briefed American government and big industry as to exactly when the coal, oil and steel will run out. America is the last of the Empire Builders the last of the Colonial Powers. It thrives upon expansion, we must expand to the Moon and Mars. It is a done deal.

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GreenDude wrote: posted 25 June 2009, 8:14 am ET

lwblack - thanks for your obviously knowledgeable and dramatic conspirosy theory comment.

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vaxheadroom wrote: posted 25 June 2009, 9:20 am ET

Since this is an article on the instruments, they really should have included the website to the instrument info:
<http://lcross.arc.nasa.gov/instruments.htm>

What's really cool about this is that these cameras and spectrometers were not designed specifically for LCROSS, they're essentially COTS cameras talking thru a mostly COTS Data Handling Unit (DHU). The only thing we really did on the spacecraft was put a 1Mbps serial link on the housekeeping I/O card and shunt this data to the ground. The main processor doesn't even see the science data - very unusual for a satellite (as was noted in the article, no sense storing this stuff, cause post impact there's no possibility of retrieval!).

Final target data rates put the images at 10Hz for most cameras, so it'll be much more interesting than the 1Hz of the flyby - and we'll have basically all the cameras at once all the way into the crater!! Hang on guys - this is gonna be good...

Emory Stagmer
LCROSS Lead C&DH FSW Engineer
(speaking of course, only for myself, not NASA or my employer NG)

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Tomorian wrote: posted 25 June 2009, 10:46 am ET

I'm going to pay devil's advocate in my response, so I apologize ahead of time if I offend anyone.

Since we have been in the space buisness for 50ish years, you

would have thought we have returned to the moon by now. If a newly developed country like China is beating our butts, through the use of HD imaging, I don't call a blurry image any type of success. Even though the camera was not meant for long distance pictures, this makes our country look like we haven't had a 50 year old space program. We the taxpayers spend a lot of money on NASA, and the return has not been so promising. I call this a step backwards for mankind. After seeing the Orion capsule and rocket, my optimism over NASA dropped significantly. It's starting to feel as though we actually never made it to the moon. Even though I know we have, this backward thinking cannot be ignored. We might have to send a message to the White House to end NASA, and to find another company to take over. Privately owned companies are kicking NASA's behind in space technologies. That is very-very sad.

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