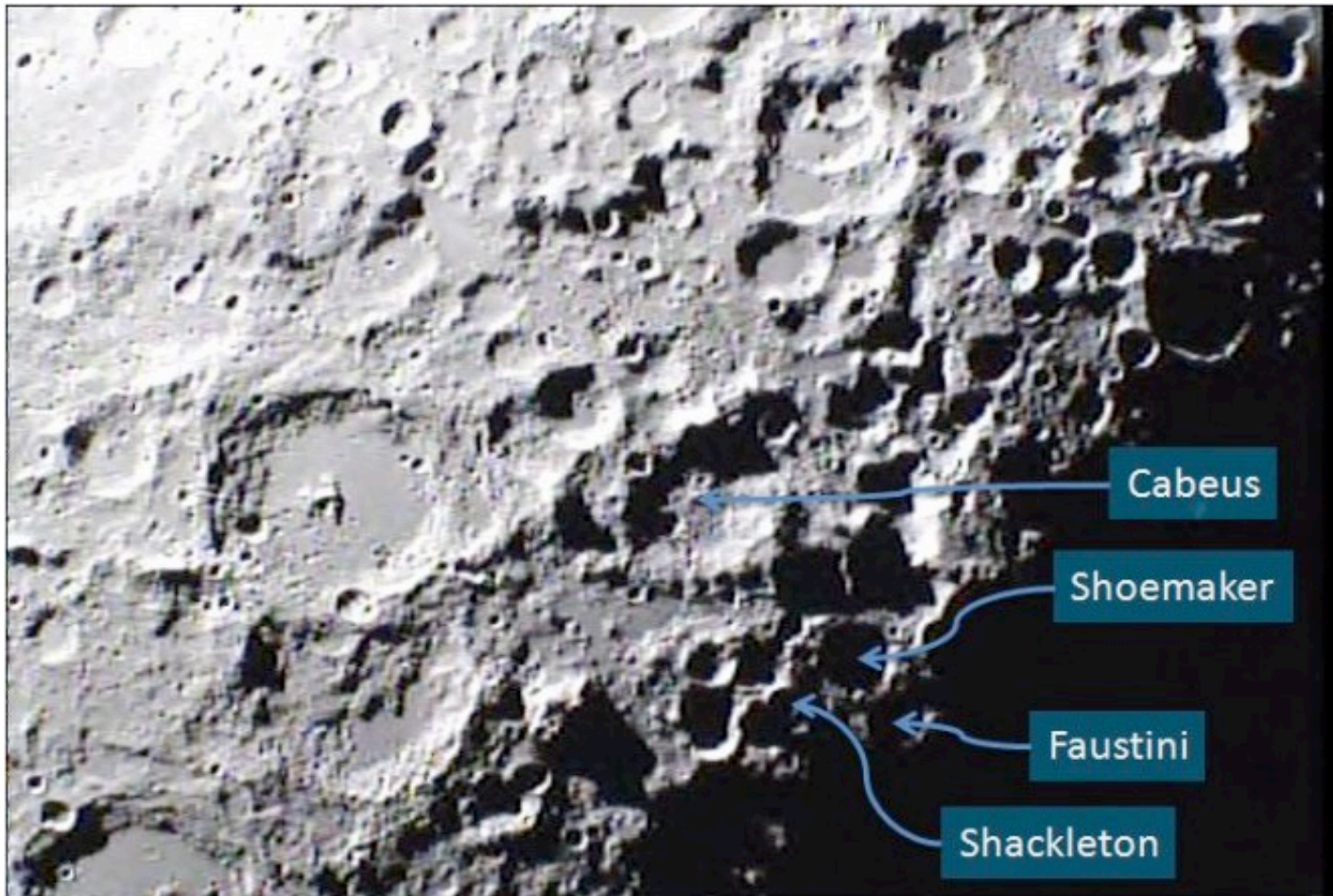


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Lunar Impactor Finds Clear Evidence of Water Ice on Moon

By [Alexis Madrigal](#) ✉ November 13, 2009 | 1:29 pm | Categories: [Space](#)



There is water on the moon, NASA confirmed today, and lots of it.

In the first look at results from the LCROSS mission, which sent a probe crashing into the Cabeus crater near the moon's south pole, NASA's main investigator said their instruments clearly detected water, despite [the underwhelming plume](#).

Within the field of view of their instruments, the team measured approximately 220 pounds or about 26 gallons of water. Next, the team will try to understand how the compounds they saw in the plume relate to what's actually embedded in the lunar regolith at the bottom of the permanently shadowed crater.

“We need to take all the information — the amount of ejecta, the size of the crater — and reconstruct the

entire event and understand how it all fits back into the ground,” Colaprete said at a NASA Ames press conference.

For about a decade, lunar scientists have known the moon contained a lot of hydrogen, thanks to the [Lunar Prospector mission](#), but it wasn't entirely clear what form that hydrogen was stored in. Now, the LCROSS observations provide a handy explanation for the hydrogen: It's bound with oxygen to form water.

[Other analyses](#) have also provided evidence that [water exists on the moon](#), including most recently, [the Indian satellite Chandrayaan](#). But the latest LCROSS observations are different.

“[Chandrayaan] could not see into the shadowed craters. Their observation is entirely unique and complimentary. We looked inside the shadowed craters. The amounts and flavors could be distinctly different,” Colaprete said. “They saw water bound and adsorbed in grains. We saw, potentially, real crystalline water ice.”

Combined with the [various confirmations of water ice](#) on Mars, it's becoming clear that water — at least in ice form — is present throughout our solar system.

Astronomers are gaining a new appreciation for celestial bodies that once seemed rather staid.

“[LCROSS] is painting a really surprising new picture of the moon. This is not your father's moon,” said Greg Delory of the University of California, Berkeley. “Rather than a dead and unchanging world, it could be a dynamic and interesting one.”

Delory, who is not on the LCROSS team, also called the discovery “exciting and extraordinary,” saying lunar science could now move on to other fascinating questions.

“What's equally important is what we do next,” Delory said. “Where did the water come from? How long has it been there? What kind of processes are involved in putting it there and removing it and destroying it?”

There are all kinds of sources for the water, Delory said. It could come from comets, the solar wind, the moon itself or even the Earth.

“Now that we know that water is there we can begin in earnest to go to the next set of questions,” he said.

And answering them could tell us a lot about the solar system and its planetary bodies' relationship to water, which is necessary to all forms of life we know.

Colaprete may have another surprise in waiting, hinting that they glimpsed other interesting compounds in the plume that arose from Cabeus crater.

“This goes beyond the water, there's a lot of stuff that came out of there,” Colaprete said, before saying he didn't want to say “too much beyond” that.

Delory was equally excited but circumspect saying, “I'm sure the LCROSS team is going to reveal new and exciting discoveries as they continue to analyze their data.”

So, while the first LCROSS surprise — the wimpy plume — was disappointing, perhaps the next one the

mission delivers will be happy.

See Also:

- [Water Found on the Moon](#)
- [Water Found on the Moon](#)
- [Antifreeze Could Keep Saturn Moon Wet](#)
- [Case Builds for Water on Saturnian Moon of Enceladus](#)
- [Crash Into the Moon With LCROSS Friday Morning](#)
- [Hunt for Life on Saturnian Moon Heats Up](#)
- [More on the LCROSS mission](#)

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Tags: [LCROSS](#), [moon](#), [moon crash](#)
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Comments (31)

Posted by: 3ct7 | 11/13/09 | 1:54 pm

Is that 220 Earth pounds or Moon pounds? Looks like Earth pounds to me.

Posted by: bilbawbaggins | 11/13/09 | 2:02 pm

Giant lakes are what you get, water on the moon.

Posted by: jerryshifman | 11/13/09 | 2:22 pm

It would have been more clear to state the amount of water in terms of mass, not gallons or pounds. How many kilograms of water was detected?

Posted by: lithiumdeuteride | 11/13/09 | 2:26 pm

Pounds mass is a perfectly valid unit. 1 pound mass is the amount of mass which would have a weight of 1 pound force in standard Earth gravity.

And since it's a measure of mass, rather than weight, it remains unchanged on the Moon or anywhere else (for non-relativistic velocities).

Posted by: Gifftor | 11/13/09 | 2:29 pm

Divide pounds by 2.2, you get Kg. Pounds are mass.

Posted by: SpeedRacer | 11/13/09 | 2:44 pm

Bilbawbaggins post reminds me of The Police lyrics:

Giant steps are what you take
Walking on the moon
I hope my legs don't break
Walking on the moon
We could walk forever
Walking on the moon
We could be together
Walking on, walking on the moon

Posted by: spacedude | 11/13/09 | 2:54 pm

Does that mean the Lizard people from "V" won't have to attack us anymore?

Posted by: photoprinter | 11/13/09 | 3:08 pm

@SpeedRacer, I read a short story some time back, about a guy on some sort of work crew on the back side of the moon. There was a mishap with his transport. For his suit to stay charged and keep him alive, he must stay in the sunlight most of the time. Since he is out of radio range, and will be long dead before he is missed, he starts walking as fast as he can, away from the approaching night. Don't remember the title, or the author, but a pretty good story.

Posted by: chris2pher | 11/13/09 | 3:19 pm

So know that we know there is water on the moon, we will be sending people up to the moon to analyzer it further? I sure hope so and I see no reason why we shouldn't get at least a Exploration Rover up there to collect more data and to keep it frozen.

Posted by: louis | 11/13/09 | 4:45 pm

Finally, a new place to pollute!!! I guess we were running out of options on our own spaceship Earth 😊

Posted by: neeneko | 11/13/09 | 4:58 pm

@louis

I am not sure anything we have the ability to do would count as ‘pollution’ in space or around the moon, outside maybe radio.

Posted by: youdbehotterifnaked | 11/13/09 | 5:11 pm

I CALL FAuSTINI CRATOR TO BE MY HOME!!!! AWAY YE DOGS, AWAY!!!

Posted by: 8x10 | 11/13/09 | 5:56 pm

@neeneko..Give us a chance, we will figure something out.

Posted by: dcline | 11/13/09 | 6:13 pm

@neeneko, well I guess having sports equipment, a 4x4, an american flag and a broken down RV in your yard aren’t considered pollution when you live in a trailer.

Posted by: Bruckley | 11/13/09 | 6:13 pm

I hear there’s actually a thin oxygen atmosphere and in the day it gets up to around 75 degrees. So we could hang out on lounge chairs in our swim trunks with the waves lapping at our feet.

Posted by: WHITEHOUSE | 11/13/09 | 8:21 pm

..There is more than 20 different kind of elements of oil in the deep of 1000 feet and down all over the moon.Is not water is oil form of we use every days in our machinery like cars to refrigeration to machine oil.For those who own these fields will be playing golf rest of the life with the golf pros.Meanwhile people not own these fields will be living like a snake in the trash rest of their life.There one of them I kill yesterday.

Posted by: deckard68 | 11/13/09 | 8:48 pm

All my bottled water comes from the moon. What do you poor saps drink?

Posted by: EMAGDNIM | 11/13/09 | 9:33 pm

When we “landed” on the moon, we didn’t find this water? So now the moon creates water only when un-

manned craft go there? I am confused.

Posted by: eliatric | 11/13/09 | 11:46 pm

“Potentially.” \$80 million buys a “potentially”???

Posted by: lkrndu | 11/14/09 | 1:13 am

aaah litiodoot-ey-ride, but NOOO, ‘pound’ is but a unit of weight in the English system. One pound is how much weight is manifested, at the surface of the earth, by a mass of one slug.

- Sluggo

Posted by: MarkmBha | 11/14/09 | 6:58 am

I find it amazing! After all these years; and what we all learned in school to be proven wrong... amazing!

Posted by: Ua41 | 11/14/09 | 12:04 pm

Uh, didn't India find water on the moon before us?

http://en.wikinews.org/wiki/Indian_lunar_mission_Chandrayaan_finds_water_on_moon

So why are we just firing shit at the moon? Seems wasteful

Posted by: traxor | 11/14/09 | 12:55 pm

I don't understand how they can tell it's water from these images. It's very clever.

Posted by: ninevoltz | 11/14/09 | 1:19 pm

Glad to hear this. The discovery of this water is further proof of God's design. It is His gift to humanity, and will make it easy for us to colonize the moon.

Posted by: phillymurals | 11/14/09 | 9:05 pm

I think that the word should be complementary not complimentary.

Posted by: daequalizer | 11/14/09 | 10:41 pm

SAS has ssaid water is destiny

Posted by: pornoizle1 | 11/15/09 | 3:01 am

So, while the first LCROSS surprise — the wimpy plume — was disappointing, perhaps the next one the mission delivers will be happy.

[porno izle](#)
[dizi izle](#)

Posted by: pornoizle1 | 11/15/09 | 3:02 am

[porno izle](#)
[dizi izle](#)

Posted by: sandyor | 11/15/09 | 6:57 am

Owesome achievement . We looking for achievement from so many years Finally we got it.

<http://www.goarticles.com/cgi-bin/showa.cgi?C=2215914>

Posted by: Sinibaldi | 11/15/09 | 2:58 pm

In the magical field.

...I see beautiful skies and the sound of a delicate dream...

Francesco Sinibaldi

Posted by: Marasbaras | 11/16/09 | 5:05 am

@ninevoltz: further PROOF? Wow, you have a low threshold for “proof”.
