



'Not your grandfather's moon anymore'

By **Shelby Lin Erdman**, CNN

December 22, 2009 10:29 p.m. EST



NASA's latest unmanned missions to the moon have scientists rethinking their concepts of Earth's closest neighbor.

STORY HIGHLIGHTS

NASA's latest missions indicate the moon has changes occurring by the day and week

Space agency says the missions are rewriting lunar science text books

Discovery of water in lunar crater could boost efforts for future astronaut visits

Lunar orbiter is taking pictures of leftover material from Apollo landing sites

RELATED TOPICS

[Unmanned Space Exploration](#)
[NASA](#)

(CNN) -- Forget almost everything you ever thought you knew about the moon.

NASA's latest missions indicate the moon is much more than a dead, unchanging satellite orbiting Earth. It's a dynamic environment, with changes occurring by the day and week, not over millions of years.

The space agency says the missions are rewriting lunar science text books and revolutionizing what scientists know about Earth's closest neighbor.

An announcement in November probably rivaled Neil Armstrong's first steps on the surface more than 40 years earlier: There's water on the moon.

The Lunar Crater Observation and Sensing Satellite, or L-CROSS, and its companion spacecraft crashed into a crater at the moon's south pole in October and discovered water in a very dark and very cold place. L-CROSS researchers said about 25 gallons of water were detected in the crater, which measured about 60 feet wide by a few feet deep.

Michael Wargo, NASA's chief lunar scientist on the L-CROSS mission, said the probes detected more than water in the crater, but researchers are still trying to understand what the other stuff is.

"We're opening new chapters. And in fact, because some of this information is so new and it's so different from the way we use to think about the moon, there are chapters that are blank right now," he said. You know that they're going to be written, but we don't even know the questions yet that are going to be engendered from this new information."

Wargo describes the lunar data as a treasure trove. The moon "is like the dusty attic of the solar system, in that things get collected there and they give you insight, not just into the moon, but the evolution of the solar system."

Earthbound explorations, such as Lewis and Clark's historic journey to the Pacific Ocean in the early 19th century, carry critically necessary items, but they have no need to haul wood or water. That's not so for manned space flight. Those missions will have to carry all the supplies necessary for survival unless they can manufacture some of them either in flight or on a planet's surface.

The presence of water and other compounds on the moon means there are potential resources that could sustain future exploration of the moon and beyond.

NASA is also mapping the moon's surface in



ADVERTISEMENT

NewsPulse

Most popular stories right now

[Palin's 'cheat sheet' on hand](#)

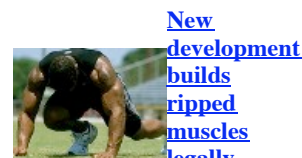
[7-year-old samba queen](#)

[Terror in a Tundra](#)

[100-year-old whiskey 'on ice'](#)

[Kim Kardashian: Reggie waited his entire life](#)

[Explore the news with NewsPulse »](#)



ADVERTISEMENT

Most recent reviews

from cnet



Dante's Inferno (PlayStation 3)

[Check prices](#)



Dante's Inferno (Xbox 360)

[Check prices](#)



Motorola Quantico

[Check prices](#)

[CNET.com ratings »](#) | [Read more CNET reviews »](#)

(The moon) is like the dusty attic of the solar system

unprecedented detail, eventually creating the first moon atlas. The Lunar Reconnaissance Orbiter, which launched last summer, is the robotic scout that is providing the data. LRO is on a mission that could last several years -- orbiting the moon and gathering crucial data that will help astronauts prepare for another visit.

Wargo said LRO is carrying high-resolution cameras, which have now mapped about 50 areas on the moon, including the Apollo mission landing sites.

"We have cameras on board that have been able to image where the Apollo spacecraft landed, and you can literally see where they put down their scientific packages, where the astronauts walked on the moon," according to Wargo.

The LRO discovered it's extremely cold in the permanently shadowed polar craters, where temperatures dip more than 400 degrees below zero Fahrenheit, or 249 degrees below zero Celsius. That's not far from absolute zero, defined by international agreement as 273.15 degrees below zero Celsius and a temperature that cannot be physically reached. These are the coldest temperatures ever recorded in the solar system.

The LRO is also measuring space radiation on the moon. Astronauts will need protection from this radiation during expeditions to the moon and other destinations.

All this information is critical if humans are to make it back to the moon by 2020, the target date set by the Bush administration in 2004. But it's more than that. Wargo sum it up this way:

"We used to think of the moon as this really dead and unchanging place, that the moon was a dead planet. ... There are changes that occur there not over the course of thousands or millions or even billions of years, but are changing over the course of days and weeks and months. That's something people just hadn't thought of until just weeks and months ago. ... This isn't your grandfather's moon anymore."

FOLLOW THIS TOPIC +

We recommend

- [NASA moves forward with Mars exploration plan](#)
- [NASA reveals first-ever photo of liquid on another world](#)
- [NASA's strike on moon worked, mission official says](#)

More Tech

- [World War II-era navigation system shutting down](#)
- [China: Large hacker training Web site shut down](#)
- [Endeavour lifts off on two-week mission](#)

Sponsored links

Coffee Fool Exposed

A shocking secret coffee co's don't want you to know.
www.coffeefool.com

How to make Electricity

\$49 Homeowner's kit that power co exec's tried to outlaw in 18 states
www.Power-4-Homes.com

ADHD In Children

Learn About ADHD And Get A Free Trial Offer For Medication.
www.focusonadhd.com

soundoff (46 Comments)

Show: [Newest](#) | [Oldest](#) | [Most liked](#)

Showing 25 of 46 comments

Sort by

[Subscribe by email](#)

[Subscribe by RSS](#)



Guest

Guest
A moon mission spends money, true but where? Right here in the usa. Plus a lot of the tech that we use everyday (freeze dried food, ultra light weight materials, medical

[Log in](#) or [sign up](#)

equipment) was originally invented to make those missions to the moon possible and are now used everyday here. We get more from NA ...more

2 weeks ago | [Like \(10\)](#) | [Report abuse](#)



[Guest](#)

Guest

The end of the world is really at hand , it is a sad day in history when we care more about sarah palin than we do about spending billions of dollas to go back to somplace we have been 40 years ago using the exact same technology that was pathetic, NASA is a true waste of money time and resources th ...more

3 weeks ago | [Like \(3\)](#) | [Report abuse](#)



[TOM13](#)

TOM13

Do us all a favor and stop while you are behind? the only "stupid people" i have seen are the Republicans that want to stop the growth of our country in the right way (catching up with the rest of the world) with overhauled healthcare, and research that can actually find us a CURE for something inst ...more

4 days ago | [Like \(2\)](#) | [Report abuse](#)



[thinkumdude](#)

thinkumdude

Let's go back to the moon! And beyond!

1 month ago | [Like \(12\)](#) | [Report abuse](#)



[Guest](#)

Guest

Cool, Peace, Love and Dope Groovy Man. Welcome back to 1968

3 weeks ago | [Like \(4\)](#) | [Report abuse](#)



[joetheman22](#)

joetheman22

if we are changing our scientific views on the moon, imagine how wrong we are about mars

1 month ago | [Like \(10\)](#) | [Report abuse](#)



[thinkumdude](#)

thinkumdude

Right on! And a good reason to eventually go there. Not just to go there, but to know it.

1 month ago | [Like \(4\)](#) | [Report abuse](#)



[jonnybond](#)

jonnybond

How come there are no pictures of the lunar lander sitting on the moon we all remember the landers base being left behind so where the helk is it. Did the americans really land on the moon they seem to stupid in 2010 to manage it so who really believes they could do it when a calculator was the size ...more

1 month ago | [Like \(14\)](#) | [Report abuse](#)



[Guest](#)

Guest

We stand on the shoulders of giants, with no aspirations of becoming giants ourselves. We are content to sit and go along for the ride.This goes to show how far we've fallen as a society since the 60s. Huge gains have been made in certain areas (Civil rights, at least as far as skin color), but su ...more

6 days ago | [Like \(3\)](#) | [Report abuse](#)



[RalfTheDog](#)

RalfTheDog

The moon is big. The lander is small.

1 month ago | [Like \(6\)](#) | [Report abuse](#)



[Zaoldyeck](#)

Zaoldyeck

Actually there are pictures, the LRO took pictures of the I believe Apollo 16 landing site, you can even see

to
comment

the rover and tracks, but to see the flag requires a resolving power that we don't have, there are no pictures of the flag because there's nothing that can optically resolve such a small object ...more

1 month ago | [Like \(13\)](#) | [Report abuse](#)



[GeoCPU](#)

GeoCPU

Who's book were these guys reading. Sure there are daily changes, no news there. But the scope and scale of changes over the past million years is very small compared to what happens on earth. Again, no news there. This is kind of like kids thinking that bell bottoms are a new 21st century fashion ...more

1 month ago | [Like \(6\)](#) | [Report abuse](#)



[virtualfred](#)

virtualfred

As I follow this postings I realize why society is declining in so many ways. Exploration and pushing the boundaries of what we know have always driven mankind to greater prosperity and greater understanding. The greatest era economic prosperity in modern history was based largely on technology and ...more

1 month ago | [Like \(44\)](#) | [Report abuse](#)



[Crookers](#)

Crookers

proofread dammit!!!

1 month ago | [Like \(9\)](#) | [Report abuse](#)



[Guest](#)

Guest

suckit dammit!!!!

3 weeks ago | [Like \(4\)](#) | [Report abuse](#)



[2centzz](#)

2centzz

I have a great idea, let's spend millions upon millions of dollars looking at a rock with 25 gallons of water found in a hole while people in this country can't even purchase food at the grocery store. What a waste of our tax money and a showing of pure stupidity.

1 month ago | [Like \(16\)](#) | [Report abuse](#)



[domodamonte](#)

domodamonte

Let's just bomb another 3rd world country instead.

You do realize getting off this planet is the only way to ensure the survival of the human race? Sooner or later this planet is going to die or be destroyed so let's hope it's not sooner.

1 month ago | [Like \(28\)](#) | [Report abuse](#)



[tornado101](#)

tornado101

Congress recently told NASA that the Orion/Atlas combination was shaking too much to be launched. They told NASA to do some research and fix it. Let's see them build a smooth ride into space.

1 month ago | [Like \(4\)](#) | [Report abuse](#)



[chessnutz](#)

chessnutz

"Michael Wargo, NASA'S chief lunar scientist on the L-CROSS mission, said the probes detected more than water in the crater, but researchers are still trying to understand what the other stuff is."

The other stuff is Cheese!

1 month ago | [Like \(10\)](#) | [Report abuse](#)



[FreeMan56](#)

FreeMan56

Nah, it's dead skin from the man in the moon, silly.

1 month ago | [Like \(6\)](#) | [Report abuse](#)



037news

037news

Obama better shut that program down. This is not a time to be spending cash on sending people to the moon. We can just keep throwing big rocks at it to see what else comes out of the ground. We can send a jar of bacteria and see what happens.

1 month ago | [Like \(4\)](#) | [Report abuse](#)



hereiskorea

hereiskorea

Why's NASA so eager to find water on the moon instead of zinc, natural gas and likewise minerals or natural resources that can be mined of people to use as like a clean energy? Is NASA priority in studying planets its satellites 'nthe whole universe as well to find a living organism especially an int ...more

1 month ago | [Like \(4\)](#) | [Report abuse](#)



Guest

Guest

Natural Gas on the moon, a brilliant idea, with one problem. As far as we know, there has never been life on the moon in any significant quantity. Therefore, to put it simply, there is nothing to die, decay, and be transformed into carbon-based energy sources (like oil and natural gas).

1 month ago | [Like \(9\)](#) | [Report abuse](#)



FreeMan56

FreeMan56

It's simple: we need places to go ruin once we've ruined this place.

1 month ago | [Like \(12\)](#) | [Report abuse](#)



DaaaveT

DaaaveT

"There's water on the moon." " . . . measuring space radiation on the moon - astronauts will need protection from this . ." - Why on earth (pun intended) did we not learn this on the first 6 trips? How many rocks/soil samples did we bring back. Didn't somebody pack a geiger counter on one of th ...more

1 month ago | [Like \(5\)](#) | [Report abuse](#)

[Load next 25](#) | [View all comments](#)

[Post a comment](#)

[Log in](#) or [sign up](#) to comment



32°

HI 33° LO 28°

Odd, WV Weather forecast

SEARCH



POWERED BY Google

[Home](#) | [Video](#) | [NewsPulse](#) | [U.S.](#) | [World](#) | [Politics](#) | [Justice](#) | [Entertainment](#) | [Tech](#) | [Health](#) | [Living](#) | [Travel](#) | [Opinion](#) | [iReport](#) | [Money](#) | [Sports](#)
[Tools & widgets](#) | [Podcasts](#) | [Blogs](#) | [CNN mobile](#) | [My profile](#) | [E-mail alerts](#) | [CNN Radio](#) | [CNN shop](#) | [Site map](#)