



## LROC Views Lava Tube in Mare Ingenii

The Lunar Reconnaissance Orbiter Camera has taken a closer look at what is thought to be a skylight into a lava tube in the Mare Ingenii (The Sea of Cleverness) region, one of the few lunar mare features on the far side of the Moon. This skylight is huge — about 130 meters (427 feet) in diameter — and is probably the result of a partially collapsed lava tube. But lunar geologists really weren't expecting to see this kind unusual feature in this region. Previously, a skylight, or open pit was found in the Marius Hills region in the Ocean of Storms on the near side which is filled with volcanic domes and rilles where a lava tube might form. However, those kinds of volcanic features are not found in Mare Ingenii.

This could be an important find for several reasons. Lava tubes are important in understanding how lava was transported on the early moon, but they could also provide a home to future human explorers. This one on the far side would be a great place to set up a base for future telescopes proposed for observations out into the Universe from the Moon's far side. The Moon's surface is a harsh place, the human body doesn't do well when exposed to the constant radiation present on the Moon's atmosphere-less environment. Long term human presence would work if astronauts could spend most of their time shielded underground. While excavating a hole large enough to fit an

entire moon colony in it would be a huge engineering challenge, these lava tubes could provide ready-made locations for a well-shielded base.

Read our earlier story about a potential lunar base in the [Maurice Hill Pit](#) .

This pit in Mare Ingenii, the 'sea of cleverness,' is about 130 meters (427 feet) in diameter! Image width is 550 meters (1,805 feet), illumination is from the upper right, LROC Frame: NAC M128202846LE. Credit: NASA/Goddard/Arizona State University

Mare Ingenii may be best known for its prominent lunar swirls, which are high albedo surface features associated with magnetic anomalies. However, lunar swirls are not the only unique geologic feature found in the farside "sea of cleverness". The high-resolution cameras aboard the Japanese SELENE/Kaguya spacecraft first discovered this irregularly-shaped hole, visible in the opening image at LROC's 0.55 m/pixel resolution. The boulders and debris resting on the floor of the pit are partially illuminated (left side of the pit, above image) and probably originated at the surface, falling through the pit opening during collapse.

Arrow indicates location of pit. "S" indicates one of the numerous lunar swirls located in this region. Image is a portion of LROC WAC mosaic, 200 meters per pixel resolution; image width is 160 km (100 miles). Credit: NASA/Goddard/Arizona State University

A pit in the Marius Hills region, previously discovered by the JAXA SELENE/Kaguya mission, is thought to be a skylight into a lava tube in the rille-riddled region. Similar to the Marius Hills pit, the pit in Mare Ingenii is probably the result of a partially collapsed lava tube. However, the numerous volcanic features of the Marius Hills (such as the prominent rilles and domes) are not found in Mare Ingenii. Why the differences between regions? Future human exploration to this location would surely help scientists answer this question!

Posted by: Soderman/NLSI Staff

Source: <http://lroc.sese.asu.edu/news/?archives/246-Depths-of-Mare-Ingenii.html>

and

<http://www.universetoday.com/2010/06/17/very-clever-lro-views-huge-lava-tube-skylight-in-mare-ingenii/>

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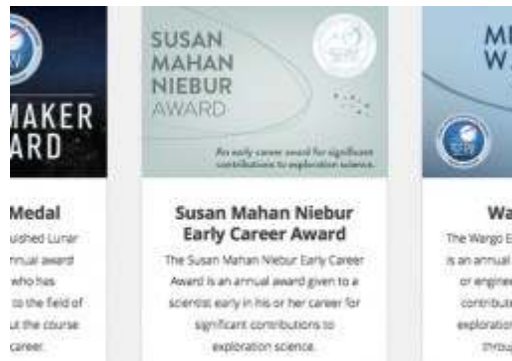
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[In-Situ Resource Utilization \(ISRU\): A Graduate Seminar featuring Joel Sercel – Optical Mining](#)

February 15 @ 10:30 am PST - 11:30 pm PST

[In-Situ Resource Utilization \(ISRU\): A Graduate Seminar featuring Phil Metzger – Water Extraction and Cleanup](#)

February 20 @ 10:30 am PST - 11:30 am PST



Congratulations to Paul Spudis, Katherine Joy and Simone Marchi for their achievements and contributions.

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## Did you know?

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March 13 @ 10:30 am PST

[Microsymposium 58](#)

March 18 @ 9:00 am PST - March 19 @ 5:00 pm PST

[48th Lunar and Planetary Science Conference](#)

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March 27 @ 10:30 am PST - 11:30 am PST

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