



The Starry Messenger

THE BIGGEST & BEST IN THE METROPLEX!

BACK TO THE MOON FOR GOOD



NEW PLANETARIUM SHOW
Narrated by **TIM ALLEN**
Google LUNAR XPRIZE

Back To The Moon For Good Opening Reception

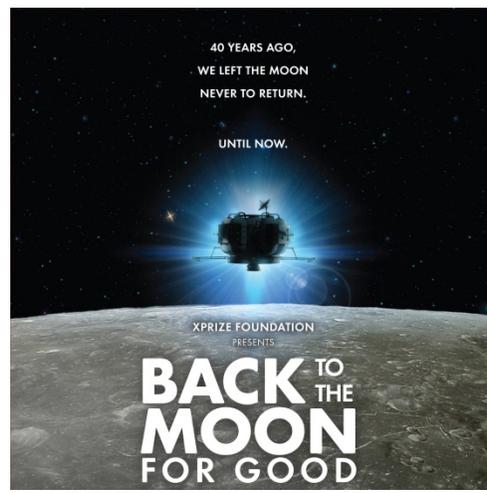
Join us Sunday, December 8th from 12:00 - 3:00 p.m., for a special opening reception to kick off our newest show - *Back to the Moon for Good*! Ken Murphy, president of the Moon Society, will give a free lecture about the Moon before the screening of *Back to the Moon for Good*. After the show join us for a raffle (grand prize is a telescope) and see some of the cool Moon artifacts on display!

- 12:00 - Moon U., Ken Murphy, president of the Moon Society
- 1:30 - Back to the Moon for Good

In case you haven't heard, the Moon is trending again... and in a big way. Unlike the glory days of the 1960s and 1970s, our big white space neighbor is enjoying the attention of a new generation of lunar explorers. Only this time, they're going back to the Moon for good.

The educational Google Lunar XPRIZE fulldome planetarium show *Back To The Moon For Good* chronicles teams around the world competing for the largest incentivized prize in history, by landing a robotic spacecraft on the Moon for the first time in more than 40 years.

To win the Google Lunar XPRIZE, a team must land a robotic spacecraft on the Moon, travel it 500 meters over the lunar surface, and send video, images and data back to Earth. This global competition is designed to spark imagination and inspire a renewed commitment to space exploration, not by governments or countries – by the citizens of the world.





Holiday Schedule

Get ready for the holidays with our holiday programming. Or relax and learn during one of our other planetarium shows this holiday season.

December 5th – 22nd

Thursdays

6:00 – Season of Light

Fridays

6:00 – Holiday Music Magic

Saturdays

1:00 – One World, One Sky: Big Bird's Adventure

2:30 – Holiday Music Magic

5:30 – Season of Light

7:00 – Pink Floyd

Sundays

1:30 – Back to the Moon for Good

3:00 – Spacepark 360

December 26th – January 5th

Thursdays

2:00 – Back to the Moon for Good

3:30 – Spacepark 360

Fridays

2:00 – Secret of the Cardboard Rocket

3:30 – Spacepark 360

Saturdays

1:00 – One World, One Sky: Big Bird's Adventure

2:30 – Holiday Music Magic

5:30 – Season of Light

7:00 – Pink Floyd

Sundays

1:30 – Back to the Moon for Good

3:00 – Spacepark 360



Planetarium Office Closed During Winter Break

The Planetarium office will be closed from Monday, December 23rd through Wednesday, January 1st, 2014 for winter break. We will respond to critical voicemails and emails during this time. All other business will be handled when we return to the office on Thursday, January 2nd. The theater will remain open during this time, for our holiday show schedule.

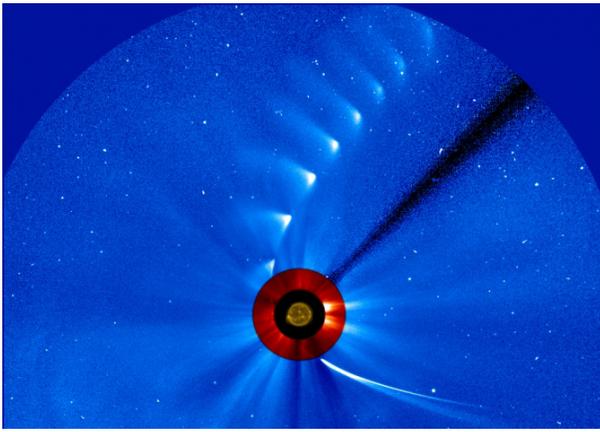


Curiosity Rover Mission Update

NASA's Mars rover Curiosity resumed full science operations on Saturday, Nov. 23.

Activities over the weekend included use of Curiosity's robotic arm to deliver portions of powdered rock to a laboratory inside the rover. The powder has been stored in the arm since the rover collected it by drilling into the target rock "Cumberland" six months ago.

The decision to resume science activities resulted from the success of work to diagnose the likely root cause of a Nov. 17 change in voltage on the vehicle. The voltage change itself did not affect the rover safety or health.



NASA Investigating the Life of Comet ISON

After several days of continued observations, scientists continue to work to determine and to understand the fate of Comet ISON: There's no doubt that the comet shrank in size considerably as it rounded the sun and there's no doubt that something made it out on the other side to shoot back into space. The question remains as to whether the bright spot seen moving away from the sun was simply debris, or whether a small nucleus of the original ball of ice was still there. Regardless, it is likely that it is now only dust.

Comet ISON, which began its journey from the Oort Cloud some 3 million years ago, made its closest approach to the sun on Nov. 28, 2013. The comet was visible in instruments on NASA's Solar Terrestrial Relations Observatory, or STEREO, and the joint European Space Agency/NASA Solar and Heliospheric Observatory, or SOHO, via images called coronagraphs. Coronagraphs block out the sun and a considerable distance around it, in order to better observe the dim structures in the sun's atmosphere, the corona. As such, there was a period of several hours when the comet was obscured in these images, blocked from view along with the sun. During this time, NASA's Solar Dynamics Observatory could not see the comet, leading many scientists to surmise that the comet had disintegrated completely. However, something did reappear in SOHO and STEREO coronagraphs some time later – though it was significantly less bright.

Whether that spot of light was merely a cloud of dust that once was a comet, or if it still had a nucleus – a small ball of its original, icy material – intact, is still unclear. It



How to Preserve Historic Moon Landing Sites for Posterity

How does a country preserve its mark on the moon for decades to come? It may not seem like the moon is a busy space-traffic hub these days, but in the not-too-distant future, that could change.

On Sunday (Dec. 1), [China launched a spacecraft](#) designed to land safely on the lunar surface, and some private companies hope to stage launches to the moon as well. If [industry](#) and other nations aren't careful, the uptick in lunar traffic might disturb the landing sites from the Apollo era, as well as Russia's landing sites on the lunar surface.

In order to protect the United States' lunar heritage, U.S. legislators have recently proposed a "moon bill" that would qualify the [Apollo landing sites as a national park](#). However, that could create more problems than it solves, according to a space policy expert. The bill might even violate the United Nations' Outer Space Treaty, an agreement that prohibits countries from owning territory on the moon and other celestial bodies; the United States, Russia and 126 other nations have ratified the treaty. [[NASA's 17 Apollo Moon Missions in Pictures](#)]

"They [lawmakers] tried to carefully say it wouldn't violate the treaty's sovereignty issues," Henry Hertzfeld of the Space Policy Institute at George Washington University said. "First of all, I think it does, but secondly, even if it doesn't, other nations, including our friends and allies, are going to look at that and say, 'They're declaring sovereignty and violating the treaty.' It's going to be interpreted as yet another aggressive U.S. action."

seems likely that as of Dec. 1, there was no nucleus left. By monitoring its changes in brightness over time, scientists can estimate whether there's a nucleus or not, but our best chance at knowing for sure will be if the Hubble Space Telescope makes observations later in December 2013.

Regardless of its fate, Comet ISON did not disappoint researchers. Over the last year, observatories around the world and in space gathered one of the largest sets of comet observations of all time, which should provide fodder for study for years to come. The number of space-based, ground-based, and amateur observations were unprecedented, with twelve NASA space-based assets observing over the past year.

Read the original NASA press release [here](#).

In a new paper published in the journal *Science* on Thursday (Nov. 28), Hertzfeld details a potentially better way to preserve the [lunar landing sites](#) of nations who have landed on the moon in the past, and those that hope to do so in the future.

To read more about Hertzfeld's proposal, please see the [full article](#) published at [Space.com](#)