



Lunar CRater Observation and Sensing Satellite

LCROSS Interview, Q & A with Brian Day

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On June 17, 2009 the Lunar Crater Observation and Sensing Satellite (LCROSS) will be launched from Cape Canaveral to begin its mission. The hard work of hundreds of scientists, engineers, and NASA staff will finally be fulfilled. But for the average joe who is hearing about this LCROSS mission just now he has to wonder, "Are we going to be able to enjoy gravity and our regular tides after NASA is finished impacting the moon with a huge satellite?" I would bet that this joe is not the only one with questions on the LCROSS missions impact on the moon and Brian Day, a NASA employee and important figure in the LCROSS mission, has kindly answered many alarmingly questions the average person might wonder.

1. Will the impact created by the LCROSS mission harm the moon through it's force of impact? Why or why not? The impact will create a crater on the surface of the Moon. The crater will be about 20-25 meters in diameter and about 3-5 meters deep. That's not very big as craters go. If you look at the Moon through even a small telescope, you can appreciate how the Moon has been subjected to billions of years of crater-forming impacts. All of the thousands of craters that you see through a small telescope are much larger than the crater that LCROSS will create. Many of the craters you can see are will over 100 kilometers in diameter. The largest impact feature on the Moon, the Aitken Basin, is about 2,000 kilometers in diameter. Compared to this, a 20-meter crater is very inconsequential. Scientists estimate that craters the size that LCROSS create happen, on the average, about twice a month somewhere on the surface of the Moon due to meteoroid impacts. In that sense, LCROSS is doing nothing special at all. But what does make the LCROSS impact special is that it will hit an area we are particularly interested in and we will know in advance just when and where to look.

2. How fast will the spacecraft crash into the moon? We are planning for an impact at 2.5 kilometers per second, or about 5,600 miles per hour.

3. Why did you pick a permanently shadowed crater to launch the spacecraft into? The goal of the LCROSS mission is to see if there are deposits of water ice on the Moon. In most areas of the lunar surface, the intense heat of the Sun would prevent ice deposits from existing. However, near the poles, there are craters whose floors are permanently shadowed. These areas have not experienced the heat or light of the Sun for up to a few billion years. Because they are so cold and have been so for so long, they could be outstanding places for water ice to accumulate.

4. How long has this mission been in the process of formation? The LCROSS mission was proposed in early 2006 and had to be ready to fly in late 2008. Just think about that! That is a very short time to put together something as complicated as a Moon mission. This includes designing the mission, designing and building the spacecraft, designing and building the science instrument payload, as well as testing all of the hardware, software, and procedures. The LCROSS mission team has been a very busy group of people!

Brian Day started his relationship with NASA AMES through volunteering and eventually became an employee because of the relationships he made through his volunteering. Brian stresses the importance of volunteering in the current economic situation as a way of creating relationships and networking. Although Brian has quite a unique and interesting career, he had to spend a tremendous amount of time and schooling to get there. Thanks to his answers regarding the impact of this mission on the moon it is now clear that NASA knows exactly what they're doing; if there's anyone I would want to leave the fate of the planet with, my choice would be NASA.



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