



Lunar Librarian Newsletter

December 2007

Vol. 2. Issue. 12

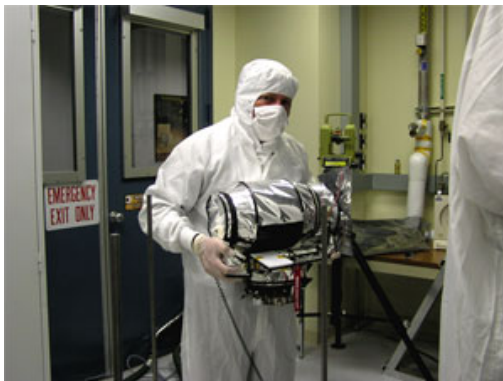
LRO News

Return with LRO



The LRO website has a new video available: Return with LRO. “The Deputy Project Manager for the Lunar Reconnaissance Orbiter (LRO) program, Cathy Peddie, expresses her personal and professional thoughts on the upcoming LRO mission. From following in the footsteps of her childhood heroes, to building, testing, and intergrading the LRO instruments, to how LRO may play into future missions.” Check out the video at:

<http://learners.gsfc.nasa.gov/mediaviewer/LRO/>



In the photo to the left, John Bousman at JPL prepares the Diviner instrument for testing. The instrument has completed its Electromagnetic Interference (EMI) and vibration testing, and thermal vacuum started yesterday.

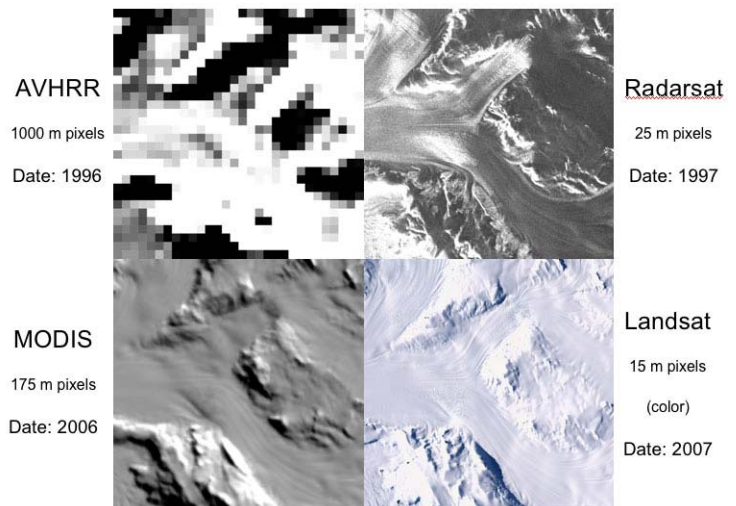
This photo, to the right, shows the Lunar Orbiter Laser Altimeter (LOLA) instrument undergoing receiver testing. The instrument is the gold-colored box mounted to a supporting frame and pointed downward. The black optics underneath are directing light into the receiver telescope. The laser's beam expander is to the right of the receiver telescope.

This week (November 19th), the LOLA team held a review of the plans for environmental testing. The instrument has successfully completed all of its performance testing. We will now subject the instrument to the rigors of space travel, then test its performance again.



Landsat Image Mosaic of Antarctica (LIMA)

A joint effort between NASA, the U.S. Geological Survey, the National Science Foundation, and the British Antarctic Survey, the Landsat Image Mosaic of Antarctica (LIMA) is a completed map of Antarctica. Unlike previous maps of the Antarctic continent, the resolution is 10 times greater than previously taken images. The image at the right is an example of how scientists are able to get better detail of Antarctica from the Landsat 7 satellite. Landsat 7 was able to depict features of approximately half the size of a basketball court in true-color.



We've come a long way! Look at all the detail!

"This mosaic of images opens up a window to the Antarctic that we just haven't had before," said Robert Bindshadler, chief scientist of the Hydrospheric and Biospheric Sciences Laboratory at NASA's Goddard Space Flight Center in Greenbelt, Md. "It will open new windows of opportunity for scientific research as well as enable the public to become much more familiar with Antarctica and how scientists use imagery in their research. This innovation is like watching high-definition TV in living color versus watching the picture on a grainy black-and-white television. These scenes don't just give us a snapshot, they provide a time-lapse historical record of how Antarctica has changed and will enable us to continue to watch changes unfold."

(http://www.nasa.gov/vision/earth/lookingatearth/lima_feature.html)

This Antarctic map composite was created by piecing together approximately 1,100 images from three years of Landsat 7 observations, 1999-2001. The images used consisted of nearly cloudless satellite images. This mosaic contains virtually no gaps in the landscape and seams, except for the doughnut hole shaped area at the South Pole.

LIMA is sure to play an important role in the International Polar Year (IPY). "The mosaic represents an important U.S.-U.K. collaboration and is a major contribution to the International Polar Year," said Andrew Fleming of British Antarctic Survey in Cambridge, England. "Over 60,000 scientists are involved in the global International Polar Year initiative to understand our world. I have no doubt that polar researchers will find this mosaic, one of the first outcomes of that initiative, invaluable for planning science campaigns."

(http://www.nasa.gov/vision/earth/lookingatearth/lima_feature.html)

Please visit the following websites for more information on the LIMA project:

- <http://lima.nasa.gov/>
- http://www.nasa.gov/vision/earth/lookingatearth/lima_feature.html
- <http://svs.gsfc.nasa.gov/vis/a000000/a003400/a003482/>

Science News



NASA Science News has published several articles last month. Please follow the links to read the full stories. Check out our RSS feed at <http://science.nasa.gov/rss.xml>!

Mars Doubles in Brightness

During the past month, Mars has doubled in brightness and now it is putting a nice show for backyard stargazers. A good night to look is Nov. 26th when Mars has an eye-catching close encounter with the Moon. http://science.nasa.gov/headlines/y2007/21nov_marsdoubles.htm

Watch Out for Flying Moondust

New research by NASA scientists shows that moondust kicked up by the jets of lunar landers can go on a fantastic journey, completely circling the Moon before settling back to the ground. This interesting phenomenon may affect the planning of lunar outposts and other activities as NASA prepares its return to the Moon. http://science.nasa.gov/headlines/y2007/23nov_flyingmoondust.htm?list907815

Chandra Discovers a Cosmic Cannonball

Astronomers using NASA's Chandra X-ray Observatory have discovered one of the fastest stars ever seen--a "cosmic cannonball" that is challenging theories to explain its blistering speed. http://science.nasa.gov/headlines/y2007/28nov_cosmiccannonball.htm?list907815

Improving Drought Forecasts

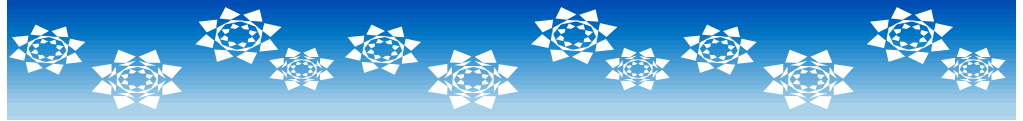
From the deserts of the American southwest to the pine forests of the Deep South, drought-weary residents have one thing on their minds: "I wish it would rain!" Technically, what they should be wishing for is "more streamflow." Find out why in today's story. http://science.nasa.gov/headlines/y2007/30nov_streamflow.htm?list907815

Asteroid Shower

The best meteor shower of 2007 peaks on Friday, December 14th. http://science.nasa.gov/headlines/y2007/03dec_asteroidshower.htm?list907815

New Discovery: The Sun is Bristling with X-ray Jets

Astronomers using Japan's Hinode spacecraft have discovered an important new form of solar activity: abundant x-ray jets. http://science.nasa.gov/headlines/y2007/06dec_xrayjets.htm?list907815



Exploring the Moon at the Malvern Public Library by Linda Meachen

Fifteen boys and girls "explored" the Moon at the Malvern Public Library the days of August 14 – 15 – 16. The first day they discovered how far it is from Earth using balloons to demonstrate not only distance but



size relationship. Mars and the International Space Station were included in the demonstration. We discovered we could still see each other as we measured relative distance between Earth and Moon but we would have to travel by car to place Mars! Phases, features seen with the naked eye, and Apollo landing sites using the moon globe were discovered, discussed and demonstrated.

The second day we discussed what we need to live on the Moon, where we might land, and how we would get there. Newton's Laws were discussed using the "teachertech.rice.edu" web

site. We built 3 kinds of rockets and had lots of fun launching them. The third day was devoted to what happens to our bodies in space. The feed from the ISS set up the demonstrations. They loved Barbara Morgan's hair floating around her, the bouncing balls and floating liquids! Using the ideas from the "Explore" newsletters, 6 stations were set up for them to experience. UV Man was very popular! Feed back has been enthusiastic. One parent reported an astronaut-wanna-be daughter. One girl wants to be an artist for NASA. We had an exciting time!

Happy Holidays!!

What programs are you planning for the winter or 2008? Drop us an email and let us know! Our assistant, Mr. Logan, is just *waiting to hear from you*. So let us know what you have been up to.



Links of the Month...

- Follow the "Adventures in Earth and Space - Our experiences as education and outreach specialists for NASA Earth and Space Science Missions" blog. New information is put up weekly. <http://geosteph-adventuresinearthandspace.blogspot.com/>
- Interested in finding out more about IPY? Check out: <http://www.ipy.org/>
http://www.nasa.gov/mission_pages/IPY/main/index.html
<http://passporttoknowledge.com/polar-palooza/pp0408.php>

Did you know??

January 14th marks the **FIRST** flyby MESSENGER makes of Mercury. So mark your calendars and check out <http://messenger.jhuapl.edu/>

On November 12th several members of the LRO Project team gave a tour to members of the Thrill Hill Gang. This was all possible because of Stephanie.

“It started with a tweet: "I wonder if Bruce Springsteen and the E Street Band and the Crew would like a tour of Goddard while they are in town?" A twitter friend bbluesman offered to put me in touch with one of the roadies on the tour. I passed the invitation to Aron (also on twitter) who passed the invitation to the entire crew. When I went to the concert on Sunday, Aron gave me a behind the scenes tour of the technology it takes to put on a Rock ‘n Roll show. On Monday, some of the crew the "Thrill Hill Gang" came to Goddard to see what it takes to put a space craft on a rocket...we had a great visit and tour... I just wish that Aron didn't have to work that morning”

For more pictures, visit: <http://flickr.com/photos/geosteph/sets/72157603180018308/>

The LRO Project and the Thrill Hill Gang



Craig, Toby, Heather, Brooke, Driver, Lora, Steph, Kurt, John, Chris, Boo, Cathy, Lef

Monthly Activity

Mars Pathfinder Egg Drop and Landing (EDL)

<http://mars.jpl.nasa.gov/classroom/pdfs/MSIP-MarsActivities.pdf>

Materials:

1 cereal box,
4 balloons,
5 m of string,
newspaper,

1 egg, tape,
scissors, ruler,
pencil,
hole punch

Lander

1. Starting with a cereal box, unfold the box
2. On one side of the box, trace an equilateral triangle, 22 cm (8.5 in) on a side.
3. Cut out the triangle and punch a single hole near each vertex.
4. Fold the triangle into a tetrahedron to form a "lander".
5. Place the egg inside the tetrahedron and tape closed along each seam.
6. Tie a 1-m (40 in) piece of string through the holes at the vertices.

Parachute

1. Unfold a large piece of newspaper.
2. Cut off the edge of the newspaper sheet to form a square.
3. Cut off each corner of the square to form an octagon.
4. Using four 1-m (40 in) pieces of string, tape each end of each string to adjacent corners of the octagon parachute.

Air Bags

1. Inflate four 25-cm (10 in) balloons.
2. Using tape rolled back on itself, tape each balloon to each face of the lander.
3. Gather the four strings on the parachute and tie them to the string on the lander.

Entry, Descent and Landing (EDL)

Drop your "Pathfinder" from a high place and see if your payload (egg) survives!

National Technology Education Standards:

NT.K-12.3 Technology Productivity Tools

NT.K-12.6 Technology Problem-Solving and Decision-Making Tools

National Science Education Standards:

Standard A: Abilities of inquiry science

Standard E: Abilities of technological design

Template:

