First LROC Images!

LROC News System

Thursday, July 2. 2009

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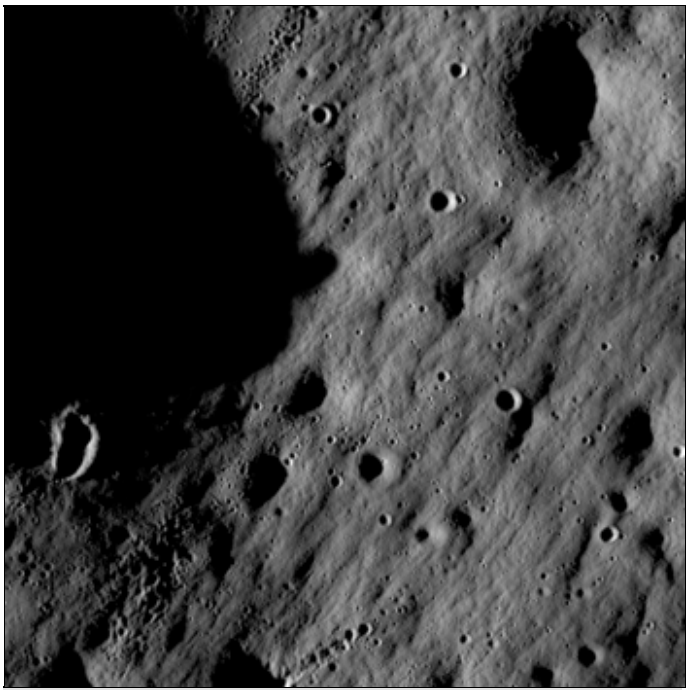

Full resolution detail from one of the first LROC NAC images. At this scale and lighting, impact craters dominate the landscape. Two general types of impact craters are readily identifiable. Solitary craters which most likely represent a single impact event, and clusters or chains of small, fresh craters produced by the impact of lunar material excavated by a larger impact. Image width is 1400 meters, north is down [NASA/GSFC/Arizona State University]

The Lunar Reconnaissance Orbiter is performing exceptionally well and spacecraft checkout is proceeding smoothly. In fact, checkout is proceeding so smoothly that LROC was given an early, but short (two orbits) opportunity Tuesday to measure temperatures and background values while imaging. Since LRO is in a terminator orbit, much of the area photographed was in shadows, which is actually a good situation for performing engineering checks of camera settings. Much to the delight of the LROC Team, a few of the images captured dramatic views of the surface.

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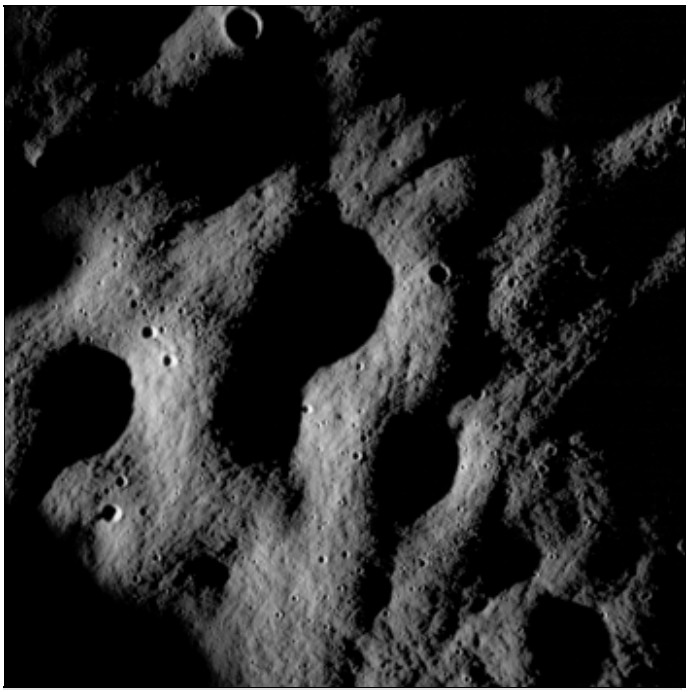


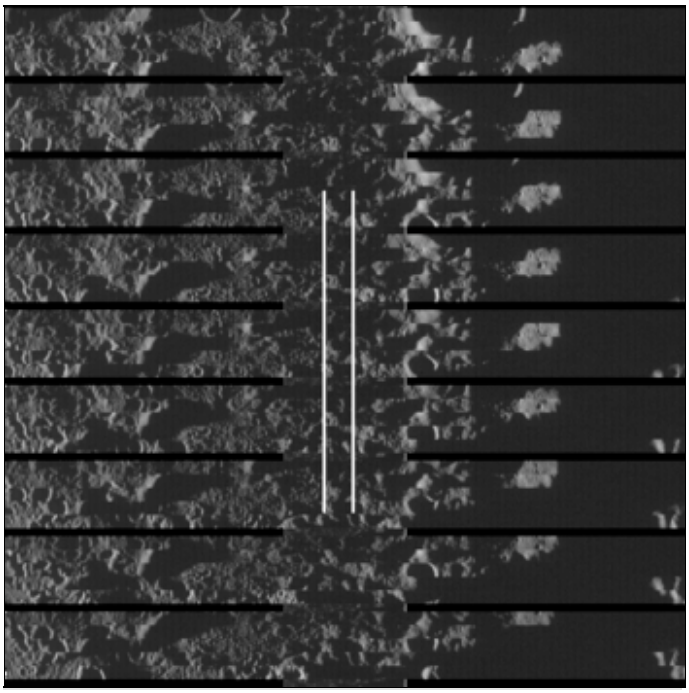
Full resolution detail from one of the first LROC NAC images. Your eye is immediately drawn to the distinctive lineation trends, which are probably remnants of a catastrophic deposition of ejecta from a nearby impact. Older craters are subdued, while younger craters are crisp and sharp. Image width is 1400 meters, north is down [NASA/GSFC/Arizona State University].

What is summed mode? Along the terminator, there simply is not much light – the instrument is "photon-starved," resulting in suboptimal signal-to-noise ratios. Or, to put it another way, without summing, images taken in this circumstance would be underexposed. To compensate for low light levels, we can effectively make the pixels larger by summing adjacent pixels to increase the signal-to-noise ratio, making the image sharper, though with 2x lower resolution.

At this resolution, features as small as three meters wide can be discerned. You see here a starkly beautiful region a few kilometers east of Hell E crater, which is located on the floor of the ancient Imbrian-aged Deslandres impact structure in the lunar highlands south of Mare Nubium. Numerous small, secondary craters can be identified, including several small crater chains. Also identifiable are distinctive lineations made readily apparent by the lighting conditions, which are probably remnants of a catastrophic deposition of ejecta from a nearby impact. The quality of these early engineering test images gives us confidence that the LROC Science Team can achieve our primary goals, including obtaining the data needed to support future human lunar exploration and utilization.

The best is yet to come! Once LRO finishes commissioning operations and enters its 50-km x 50-km mapping orbit, a maneuver currently scheduled for mid-August, the LROC NAC will take images over 8% of the Moon at 50-cm/pixel.

LROC WAC: Seeing the colors of the Moon



Raw WAC image of the Deslandres region showing the WAC's native "venetian blind" effect, about 90 km wide. Representative width of one of our early NAC images is shown as two vertical bars in the center of the image for comparison. [NASA/GSFC/Arizona State University]

Posted by Samuel Lawrence in Featured Image at 11:21