

## **Generating Digital Terrain Models using LROC NAC Images**

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The Lunar Reconnaissance Orbiter Camera (LROC) consists of one Wide Angle Camera (WAC) for synoptic multispectral imaging, and two Narrow Angle Cameras (NAC) to provide high resolution images (0.5 to 2.0 m/pixel) of key targets. LROC was not designed as a stereo system, but can obtain stereo pairs through images acquired from two orbits (with at least one off-nadir slew). Off-nadir rolls interfere with the data collection of the other instruments, so LROC slew opportunities are limited to three per day.

This work describes a methodology of DTM generation from LROC stereo pairs and discusses the error analysis of those results. DTMs are important data products that can be used to analyze the terrain and surface of the Moon for scientific and engineering purposes. As of 2 May, 2010, we have processed 8 NAC stereo pairs to DTMs with absolute control to the Lunar Orbiter Laser Altimeter (LOLA) dataset. The DTM precision error is expected to be less than 1 meter, and the fitting error to the LOLA data varies between 1 to 3 meters. There are five independent groups generating DTMs (ASU, UA, USGS, OSU, and Ames), and collaboration will result in a detailed error analysis that will allow us to fully understand the capabilities of the DTMs made from LROC datasets.