Morphology of Degraded Lunar Impact Basins: Results from Analysis of LROC Stereo Topographic Models

J. Oberst, F. Scholten, H. Unbekannt, I. Haase, H. Hiesinger, M. Robinson

A Digital Terrain Model (spatial resolution of 500 m), produced from LRO (Lunar Reconnaissance Orbiter) stereo images, is used to study the morphology of degraded lunar impact basins. The DTM was derived from overlapping Wide Angle Camera images obtained in adjacent orbit tracks [1]. The basin inventory of C. Wood [2], which has 58 entries categorized in 4 groups, is used as a working list. We study highly degraded basins in categories 3 and 4, some of which are only tentatively identified as basins. First, relevant portions of the DTM were extracted and re-projected to the reported centers of the basins. Special colorcoding, shaded relief models, and perspective views were used to identify small height differences and study details in surface morphology. Center coordinates, and circular or ellipsoidal shape parameters of confirmed basins were measured, in addition to numbers and heights of basin rings, which will be reported at the meeting. Our new inventory of basins, which is compiled from a terrain model of unprecedented high spatial resolution, will provide important input for the history of the Lunar surface and cratering.

References

[1] Scholten et al. (2010) LPSC

[2] Wood C.A. (2004): Impact Basin Database: A summary of the available information for each basin. http://www.lpod.org/cwm/DataStuff/Lunar Basins.htm

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