

Thursday, August 8, 2013
IMPACT CRATERING ON MARS
8:30 a.m. Fraser Auditorium

Impact cratering on Mars.

Chairs: Nadine Barlow
Livio Tornabene

- 8:30 a.m. Roberts J. H. * Arkani-Hamed J.
[Impact Heating and Coupled Core Cooling and Mantle Dynamics on Mars](#) [#3042]
Impact shock heats Mars / Drives large mantle upwelling / Halts core dynamo.
- 8:50 a.m. Ding N. * Bray V. J. McEwen A. S. Mattson S. S. Chojnacki M.
Tornabene L. L. Okubo C. H.
[Mapping the Ritchey Crater Central Uplift, Mars](#) [#3021]
To map the 3-dimensional geology of the central uplift of Ritchey and reconstruct the pre-impact stratigraphy, to better understand the Noachian stratigraphy of Mars.
- 9:10 a.m. Barlow N. G. *
[Insights into the Formation of Martian Central Pit Craters and Implications for These Craters on Other Solar System Bodies](#) [#3051]
Characteristics of martian central pit craters provide constraints on the possible formation mechanism for these features on other solar system bodies.
- 9:30 a.m. Tornabene L. L. * Osinski G. R. McEwen A. S.
[Meter- to Decameter-Scale Morphology of Melt Rocks, Breccias, Bedrock and Structures in Central Uplifts Revealed by the Mars Reconnaissance Orbiter](#) [#3107]
MRO observations elucidating various aspects of the impact process, particularly with respect to impact melt deposits and various impactites associated with central uplifts (CUs) in complex craters are summarized and presented here.
- 9:50 a.m. *Coffee Break*
- 10:05 a.m. Nuhn A. M. Tornabene L. L. Osinski G. R. McEwen A. S.
[Mapping of Layered Bedrock in Martian Craters: Insights in to Central Uplift Formation](#) [#3079]
We will present comparative morphologic and structural mapping of uplifts within three 30-km complex craters on Mars.
- 10:25 a.m. Jones E. * Osinski G. R.
[The Links Between Target Properties and Layered Ejecta Craters in Acidalia and Utopia Planitiae Mars](#) [#3040]
Layered ejecta craters on Mars may form from excavation into subsurface volatiles. We examine a new catalogue of martian craters to decipher differences between the single- and double-layered ejecta populations in Acidalia and Utopia.

10:45 a.m. Michalski J. R. * Bleacher J. E. Wright S. P.

[*A Holey Conundrum: Distinguishing Between Ancient Calderas and Degraded Impact Craters on Mars*](#) [#3078]

We present evidence that some of the most ancient, degraded basins on Mars are not actually impact basins but instead represent ancient calderas that formed in an early phase of explosive volcanism.

11:05 a.m. Montgomery J. * McDonald J.

[*Crater Profile Analysis Using High Resolution Laser Altimetry Data Sets*](#) [#3118]

Current methods for building crater profiles are unable to use recent NASA altimetry data. We present software that generates crater profiles dynamically and supports interactive crater morphometry using high-resolution altimetry data.