

**Thursday, March 16, 2006**  
**MARS: IMPACT CRATERING**  
**1:30 p.m. Crystal Ballroom A**

**Chairs: J. A. Skinner Jr.**  
**N. G. Barlow**

- 1:30 p.m. Barlow N. G. \* Hillman E.  
*Distributions and Characteristics of Martian Central Pit Craters* [#1253]  
An analysis of ~1500 central pit craters on Mars finds that floor pits are more common and larger than summit pits. Pit craters are commonly associated with multiple layer ejecta morphologies. Regional variations in pit crater distribution are seen.
- 1:45 p.m. Osinski G. R. \*  
*Role of Volatiles in the Emplacement of Ejecta Deposits Around Martian Impact Craters* [#1060]  
A new mechanism for the emplacement of fluidized ejecta deposits is presented, based on considerations of the terrestrial impact cratering record and observations of martian impact craters.
- 2:00 p.m. Baloga S. M. \* Barnouin-Jha O. S.  
*Formation of Mars Impact Crater Ramparts by Volatile Degassing of the Overland Ejecta Flow* [#1309]  
We present a two component crater ejecta flow model where solids are conserved and volatiles are released. The presence of a gaseous component that is lost during emplacement may uniquely distinguish Mars rampart deposits from those of impact-generated deposits on other planetary surfaces.
- 2:15 p.m. Berman D. C. \* Crown D. A. Bleamaster L. F. III  
*Survey of Mid-Latitude Martian Craters: Volatile-driven Degradational Morphologies* [#1781]  
We have identified 16 craters in the southern mid-latitudes of Mars with lobate flow features on their walls. These craters typically contain several such lobes, typically on the pole-facing side, with a dependence on latitude and crater diameter.
- 2:30 p.m. Thomson B. J. \*  
*Cut Craters on Mars: A Study of Impact Craters Exposed in Cross Section* [#1906]  
This study presents reconstructed cross sections of craters that have been exposed along the edges of Valles Marineris. Such craters permit direct observation of crater substructure and can provide mechanical constraints on wall rock layering.
- 2:45 p.m. Fristad K. E. \* Frey H. V.  
*Age Variations in the Martian Lowlands* [#1406]  
Areas in Utopia and Vastitas Borealis have identical cratering and resurfacing histories, with a total N(100) crater retention age of 10. Amazonis appears to be much younger with N(100) = 5 (west) and 2 (east). The eastern side appears more buried.
- 3:00 p.m. Frey H. V. \* Fristad K. E.  
*Martian Lowland Basement Ages: Is Amazonis Really Younger?* [#1391]  
Amazonis appears to be much younger than other Mars lowlands, but crustal thickness data suggests there is a population of very deeply buried basins. The basement of Amazonis may be just as old as that elsewhere in the martian lowlands.
- 3:15 p.m. Buczkowski D. L. \*  
*Surface Relief and Geographic Distribution of QCDs on the Northern Plains of Mars and Implications Towards Lowland Material Thickness* [#1333]  
QCDs in the northern lowlands are mapped. QCD locations are compared to geologic units and materials and are identified only in units where differential compaction is possible. Relative thicknesses of cover for lowlands regions are evaluated.

- 3:30 p.m. Skinner J. A. Jr.\* Hare T. M. Tanaka K. L.  
*Northern Plains Craterforms: Evidence for the Accumulation and Degradation of Paleo-Mantles* [#1476]  
An inventory of lowland craterforms may be remnants of a ~35-m-thick, Amazonian-age paleo-mantle at mid- to high-latitude. Our observations suggest most lowland craterforms are not volcanic in origin but rather impact craters that were modified due to cyclic mantling and exhumation.
- 3:45 p.m. Boyce J. M. \* Mougini-Mark P. J. Garbeil H. Soderblom L. A.  
*History of Major Crater Degradational Events on Mars: Preliminary Results from Carter Depth and Diameter Measurements* [#2354]  
Crater depth and diameter measurements have been made for 4355 craters planetwide on Mars to investigate degradational history of Mars.
- 4:00 p.m. Wrobel K. E. \* Schultz P. H.  
*The Generation and Distribution of Martian Impact Melt/Glass: A Computational Study with Implications for the Nature of Dark Surface Materials* [#2386]  
Estimates of the accumulation and distribution of distal impact melt across the surface of Mars since the Hesperian support the proposal of an impact glass-based origin for the concentrated regions of dark material found on the present-day surface.
- 4:15 p.m. Ivanov B. A. \*  
*Giant Martian Impact Basins — Numerical Modeling* [#1263]  
The reconnaissance study of giant basin formation on Mars with the numerical modeling is presented. The model shows the giant melt pools formation. Solidification of the melt pool may result in new crust/mantle boundary formation under impact basins.
- 4:30 p.m. Mohit P. S. \* Phillips R. J.  
*Mid-sized Martian Basins: A Window into Early Martian History* [#1975]  
We investigate the importance of viscous relaxation of impact basins on early Mars. Our results show that this is likely to have been an important process and has significant implications for early martian thermal history.