

**Thursday, March 10, 2011**  
**POSTER SESSION II: MARTIAN IMPACT CRATER STATISTICS**  
**AND THEIR IMPLICATIONS**  
**6:00 p.m. Town Center Exhibit Area**

Joseph E. C. S. Crown D. A. Berman D. C. Chuang F. C.

[Using CTX-Based Crater Size-Frequency Distributions to Refine the Geologic History of Deuteronilus Mensae, Mars](#) [#1206]

Using CTX imagery, crater size-frequency distributions were made for Deuteronilus Mensae, Mars, providing information on formation ages and the timing/nature of regional degradation. Results are consistent with geologic mapping and refine unit ages.

Berman D. C. Crown D. A. Joseph E. C. S.

[Determining Erosional/Depositional History of Deuteronilus Mensae, Mars Using Categorized Crater Size-Frequency Distributions](#) [#1435]

Categorized crater size-frequency distributions (SFD) of small craters (~25 m–1 km diameter) in Deuteronilus Mensae, Mars provide new insights into the erosional and depositional histories of geologic units as well as refinements of formation ages.

Calef F. J. III Herrick R. R. Sharpton V. L.

[Global Distribution of Small Rayed Craters on Mars: Sequences of Ejecta Retention](#) [#2555]

We quantify the spatial distribution of subkilometer diameter craters that still retain ejecta (i.e., “rays”) and develop an ejecta retention sequence for Mars. Global ejecta formation and retention processes are also discussed.

Berman D. C. Hartmann W. K. Balme M. R.

[Small Impact Crater Statistics: A Tool for Analysis of Geologic Processes in Martian Volatile-Rich Surfaces](#) [#1513]

We update the current statistics on crater formation rates at small diameters and use the refined distribution to compare the behavior of small craters in ice-rich vs. ice-poor areas and show how these can be used to interpret geological processes.

Miller W. I. Stepinski T. F. Mu Y. Ding W.

[Cascading Crater Detection with Active Learning](#) [#1469]

Our strategy for automatic crater detection consists of employing a cascading AdaBoost classifier for identification of craters in images, and using the SOM as an active learning tool to minimize the number of image examples that need to be labeled by an analyst.

Vinković D. Salamunićcar G. Lončarić S. Vučina D. Gomerčić M. Pehnc I.

Vojković M. Hercigonja T.

[Test-Field for Evaluation of Laboratory Craters Using Interpolation-Based Crater Detection Algorithm and Comparison with Martian Impact Craters](#) [#1453]

A test-field for evaluation of laboratory craters was developed. This includes three-dimensional scanning, emplacement in MOLA and LOLA data, evaluation using interpolation-based crater detection algorithm, and comparison with martian impact craters.

Rodrigue C. M.

[Nearest Neighbor Analysis, Regression, and Secondary Crater Prospecting on Mars](#) [#1014]

This paper combines nearest neighbor analysis and regression to detect linearities among small craters in a martian region. This technique could help distinguish secondary from primary impacts at the subkilometer diameter range.

Saraiva J. Pina P. Bandeira L.

[Revisiting the Hollows of Gusev — Preliminary Results](#) [#1835]

This work describes the early stages of a study of the distribution of small craters on an area of the surface of Mars centered in the Gusev Crater.

Pedrosa M. M. Nogueira J. R. Silva E. A.

[Application of Morphological Operators in Detection Impact Craters on Mars](#) [#1987]

The objective of this work is to integrate techniques of digital image processing and remote sensing, aiming the automatic identification of martian surface craters by using mathematical morphology on digital images.

Skinner J. A. Jr. Nava R. A.

[Using Large Crater Clusters to Identify Potential Source Craters on Mars: Technical Methods and Science Applications](#) [#2502]

We present the final technical methods behind a recently developed program that uses large crater clusters to identify potential source craters and summarize ongoing program applications for selected regions of Mars.

Barlow N. G.

[Constraints on the Proposed Formation Models for Martian Central Pit Craters](#) [#1149]

We are conducting a study of the distribution and characteristics of martian central pit craters. Based on an analysis of 1312 central pit craters, we find that the melt-drainage model is most consistent with our data.

Conway S. J. Mangold N. Ansan V.

[Crater Shape Evolution with Latitude in Terra Cimmeria, Mars – Implications for Climate](#) [#2174]

We present results from measuring crater wall profiles in the N, S, E and W directions from HRSC elevation data from 25–50°S. We find HRSC data perform better than MOLA data and there are significant trends in slope and curvature with latitude.