

**Thursday, March 10, 2011**  
**POSTER SESSION II: MARS FLUVIAL PROCESSES AND HYDROLOGY**  
**6:00 p.m. Town Center Exhibit Area**

De Hon R. A.

[\*Hydrologic Provinces of Mars\*](#) [#1447]

A large-scale map of the hydrogeologic provinces of Mars provides insights into global drainage and sedimentation patterns.

Matsubara Y. Gochenour J. P. Howard A. D.

[\*Hydrology of Early Mars: Relative Channel Discharges from Depth of Valley Network Incision\*](#) [#2602]

Assessment of early Mars climate through analysis of valley incision depth.

DeLano K. Hynek B. M.

[\*Intracratcrater Layered Deposits Support Ancient Ocean on Mars\*](#) [#2636]

A majority of intracratcrater layered deposits on Mars are geographically and topographically close to the shoreline of a putative ocean. We argue that these deposits formed from a fluctuating water table during the time of an ancient ocean on Mars.

Atkins C. M. Barlow N. G.

[\*Investigating Indicators of Volatile-Rich Material in Arabia Terra, Mars\*](#) [#1972]

Arabia Terra impact craters display various morphologies suggesting the influence of subsurface and surficial volatiles. We are investigating the characteristics of these morphologies and what they imply about the role of H<sub>2</sub>O over Arabia Terra's history.

Kostama V. -P. Kukkonen S.

[\*Analysis of the Upper Parts of Reull Vallis and the Morpheos Basin, Mars: Preliminary Results\*](#) [#2408]

The crater counts of the Morpheos basin floor at the eastern Hellas rim region imply that around 3.55 Ga ago the surface of the basin below the contour level of 500 m was modified by a resurfacing event, such as filling with water.

Warner N. H. Gupta S. Kim J. Lin S. Muller J.

[\*Retreat of a Giant Cataract in a Long-Lived Catastrophic Outflow Tributary Canyon to Ares Vallis, Mars\*](#) [#1420]

In this analysis we posit that cataract initiation and retreat within a tributary canyon to Ares Vallis were triggered by drops in base level at its mouth, a direct result of incision of the main branch of Ares Vallis during long-lived episodic flooding within both systems.

Barnhart C. J. Howard A. D. Moore J. M.

[\*The Influence of Cratered Slopes on Late-Noachian Valley Network Formation\*](#) [#1983]

We use a landform evolution model to explore the effects that regional slope and impact crater basins have on valley network formation and integration. We find that low regional slopes, and impact basins frustrate valley network formation.

Luo W. Howard A. D. Trischan J.

[\*Estimating Incision Depth in Martian Valleys: Comparing Two Methods\*](#) [#1418]

Regional variation of valley network (VN) depths may be informative of past climatic variation across Mars. Both black top hat transformation and search radius approach provide reasonable estimates of VN depths, but require careful interpretation.

de Villiers G. Postma G. Kleinhans M. G.

[\*Interpretation of Martian Delta Morphology and Processes Based on Experimental Work\*](#) [#1784]

We compare DTM data of Mars and of controlled laboratory experiments with a morphological model to infer sediment transport mode, surface processes, formative duration and climatic conditions at the time of formation.

Chan M. A. Nicoll K. Jewell P. W. Parker T. J. Okubo C. H. Ormö J. Komatsu G.

Bills B. G. Barker D.

[\*The Significance of a Mars Hydrograph: Shoreline Synthesis Constrained from Integrated Terrestrial Analog Studies\*](#) [#2322]

Interpretations of shorelines and landforms on Mars can be guided by terrestrial analog studies to generate a Mars hydrograph with the potential to provide a crucial planetary reference datum.

Goudge T. A. Head J. W. Mustard J. F. Fassett C. I.

[\*A Comprehensive Look at Martian Open-Basin Lake Morphology\*](#) [#2131]

Two hundred twenty-four open-basin lakes (OBL) are classified based on: 1) whether they have lacustrine deposits; and 2) what post-fluvial-activity process may have resurfaced them. 104 OBLs have possible lacustrine deposits; however, all 224 are resurfaced to some degree.

Parker T. J.

[\*Sinuuous Ridges in Peta Crater, Mars\*](#) [#2776]

Peta Crater (21°S,351°E) contains a system of sinuous ridges similar to, but smaller than, the well-known Dorsa Argyre and Dorsa Argentea ridges. Recent CTX and HiRISE images of the Peta crater ridges is enabling a detailed examination of this confined system of ridges.

Dohm J. M. Ferris J. C. Baker V. R. Komatsu G. Buczkowski D. L. El Maarry M. R. Hare T. M.

Mahaney W. C. Kim K. J. Davila A. F. Fairén A. G.

[\*Did a Large Argyre Lake Source the Uzboi Vallis Drainage System?: Post-Viking-Era Geologic Mapping Investigation\*](#) [#2255]

A newly-identified paleolake basin on the western margin of the greater Argyre Basin and surroundings points to a potentially larger role for surface water and hydrogeomorphic processes in the early Noachian than previously discussed.

Treiman A. H.

[\*An Effusive Dome on a Crater Wall Near Mawrth Vallis: A Possible Mud Volcano Near an MSL Landing Site\*](#) [#1083]

The wall of an impact crater near Mawrth Vallis sports a dome, which looks like it formed by material erupted out of the crater wall. It may be a mud volcano, consistent with the widespread exposures of clays around Mawrth Vallis.