

Wednesday, March 20, 2013

[W305]

**FLUIDS ON MARS: FLOWING, FREEZING, AND SETTLING DOWN**

8:30 a.m. Montgomery Ballroom

**Chairs:** Robert Craddock  
Susan Conway

- 8:30 a.m. Craddock R. A. \* Irwin R. P. III Howard A. D. Latham D. W.  
[\*The History of Water on Early Mars: The Sun, the Wind, and the Rain\*](#) [#1984]  
Here we review our current understanding of fluvial features on Mars and their implications for the history of water and climate.
- 8:45 a.m. Irwin R. P. III \*  
[\*Testing Links Between Impacts and Fluvial Erosion on Post-Noachian Mars\*](#) [#2958]  
The six largest post-Noachian craters on Mars either substantially pre-date erosion or are not strongly eroded. These impacts did not create erosive climates.
- 9:00 a.m. Hauber E. \* Platz T. Reiss D. Le Deit L. Kleinhans M. G. et al.  
[\*Old or not so Old: That is the Question for Deltas and Fans in Xanthe Terra, Mars\*](#) [#2513]  
The morphology of many martian deltas is indicative of short-lived aqueous activity. They formed in the Hesperian/Amazonian and do not imply a dense atmosphere.
- 9:15 a.m. Weitz C. M. \* Grant J. A. Irwin R. P. III Wilson S. A.  
[\*Sedimentary Deposits Associated with Small Upland Basins Around Ladon Basin\*](#) [#2081]  
We have identified more than a dozen outcrops of light-toned layered sedimentary deposits, including clays, in the uplands to the west of Ladon basin.
- 9:30 a.m. McKeown N. K. \* Rice M. S. Warner N. H. Gupta S.  
[\*A Detrital Source for the Phyllosilicates at Eberswalde Crater\*](#) [#2302]  
The material sampled by the Holden and possibly Eberswalde impacts likely contained Fe-Mg phyllosilicates that were then eroded and redeposited in the delta.
- 9:45 a.m. Ori G. G. \* Cannarsa F. Salese F. Dell'Arciprete I. Komatsu G.  
[\*Why Braided Streams are Apparently Absent but There are Meander and Low-Sinuosity Single-Channels River Systems on Mars\*](#) [#2369]  
Among fluvial systems on Mars the most present patterns are low-sinuosity single-channel rivers and meander belts. Braided streams are apparently absent.
- 10:00 a.m. Erkeling G. \* Reiss D. Hiesinger H. Ivanov M. A. Bernhardt H.  
[\*Fluvioglacial Formation Scenario for Valleys and Ridges at the Deuteronilus Contact of the Isidis Basin, Mars: Implications for Esker Formation and a Late Hesperian Isidis Sea\*](#) [#1919]  
We propose a fluvioglacial formation scenario for the geologic setting of small valleys and ridges (eskers) at the Deuteronilus contact of the Isidis basin.
- 10:15 a.m. Harrison T. N. \* Osinski G. R. Tornabene L. L.  
[\*Relationship Between Host Material and Gully Morphology on Mars\*](#) [#1420]  
Here we present observations demonstrating that the substrate material through which gully channels incise plays a significant role in overall gully morphology.
- 10:30 a.m. Dickson J. L. \* Head J. W. Barbieri L.  
[\*Martian Gullies as Stratigraphic Markers for Latitude-Dependent Mantle Emplacement and Removal\*](#) [#1012]  
HiRISE data reveal 108 examples on Mars of stratigraphic relationships of cyclical latitude-dependent mantle emplacement separated by gully activity.

- 10:45 a.m. Conway S. J. \* Soare R. J.  
[\*Gully Morphometrics as Indicators of Degradation Intensity Around the Argyre Basin\*](#) [#2488]  
We use the slope, aspect, and topographic position of gullied slopes in western Argyre, Mars to indicate the degree of degradation (thaw) of the ice-dust mantle.
- 11:00 a.m. Grimm R. E. \* Harrison K. P. Stillman D. E. Michaels T. I.  
[\*Water Budgets of Martian Recurring Slope Lineae\*](#) [#1146]  
Several m<sup>3</sup>/m of water are required seasonally for these flows. If the source is buried ice, sites are active for <kyr or are intermittent over hundreds of kyr.
- 11:15 a.m. Stillman D. E. \* Grimm R. E. Michaels T. I. Harrison K. P.  
[\*Formation of Recurrent Slope Lineae \(RSL\) by Freshwater Discharge of Melted Cold Traps\*](#) [#1737]  
RSL lengthen for  $\sim 97 \pm 31$  sols when surface afternoon temperatures are  $>273$  K. This suggests high concentrations of brine are not necessary to generate RSL.
- 11:30 a.m. Wang Alian. \* Lu Yanli. Chou I-Ming.  
[\*Recurring Slope Lineae \(RSL\) and Subsurface Chloride Hydrates on Mars\*](#) [#2606]  
Preliminary results from a systematic experimental investigation on chloride hydrates support a hypothesis on the source of RSL observed on Mars.