Tuesday, March 20, 2018 **[T201]**

EARLY MARS SURFACE PROCESSES I: VALLEY NETWORKS, OCEANS(?), AND THE HYDROLOGIC CYCLE

8:30 a.m. Waterway Ballroom 1

Chairs: **Marisa Palucis**
Laura Kerber

8:30 a.m. Kite E. S. *
Key Parameters for Early Mars Climate Research **[#1661]**
New data analyses provide better constraints on Mars river-forming climates. I summarize parameters that can be used as input/test data for climate models.

8:45 a.m. Head J. W. III * Forget F. Wordsworth R. Turbet M. Cassanelli J. et al.
Two Oceans on Mars?: History, Problems, and Prospects **[#2194]**
Evidence for the presence of Hesperian- and Noachian-aged northern lowlands oceans is examined and issues remaining to establish their presence are discussed.

9:00 a.m. Baker V. R. *
Long-Term Hydrological Cycling on Early Mars **[#1831]**
Mars had early episodes of dynamic hydrological cycling that shaped its surface, but its global hydrology is not adequately represented by GCM modeling efforts.

9:15 a.m. Citron R. I. * Manga M. Hemingway D. J.
Evidence of Early Martian Oceans from Shoreline Deformation Due to Tharsis **[#1244]**
Variations in Mars shoreline topography can be explained by Tharsis emplacement/loading, suggesting the presence of oceans before and during Tharsis growth.

9:30 a.m. Fawdon P. * Gupta S. Davis J. Sefton-Nash E. Adler J. et al.
Hypanis Valles Delta: The Last High-Stand of a Sea on Early Mars **[#2839]**
Hypanis Valles has the largest proposed delta on Mars. Multiple lobes separated by inverted channels step out over 100 km into Chryse Plantia.

9:45 a.m. Kerber L. * Schwamb M. E. Portyankina G. Hansen C. J. Aye K.-M.
Global Polygonal Ridge Networks: Evidence for Pervasive Noachian Crustal Groundwater Circulation **[#2972]**
Polygonal ridge / Everywhere we look on Mars / Where the crust is old.

10:00 a.m. Soare R. J. * Conway S. J. Godin E. Hawkswell J. Osinski G. R. et al.
Possible Ice-Wedge Polygonisation in Utopia Planitia, Mars, and Its Poleward Latitudinal-Gradient **[#1084]**
Here we present new evidence, cartographical and statistical, suggesting that low-centred polygons in the northern plains are underlain by ice at their margins.

10:15 a.m. Edgett K. S. * Edgar L. A. House C. H. Grotzinger J. P. Bennett K. A. et al.
Multi-Cycle Sedimentary Rocks on Mars and Implications **[#1669]**
Mars has a sedimentary rock cycle. Some of the sandstones and conglomerates in Gale Crater contain clasts that were once part of previous sedimentary rocks.

10:30 a.m. Palucis M. C. * Jasper J. T. Garczynski B. Dietrich W. E.
Assessing the Timing of Hydrologic Activity on Mars Using a Probabilistic Cratering Model **[#1991]**
We propose a model to quantify the effects of sample area size and crater obliteration on age estimates of depositional features derived from crater counting.

10:45 a.m. Irwin R. P. III * Cawley J. C.
Variable, Low-Magnitude Fluvial Erosion on Early Mars **[#2894]**
Low-magnitude fluvial erosion best explains the long-term patterns of erosion and deposition prior to the Noachian/Hesperian boundary on Mars.

11:00 a.m. Bahia R. S. * Jones M. Mitchell N. Covey-Crump S.
The Evolution of Surface Topography and Environment of Mars from Channel Networks **[#1924]**
We examine water drainage channels and flows associated with glacial activity, to investigate topographic and environmental changes on Mars.

11:15 a.m. Cardenas B. T. * Goudge T. A. Hughes C. M. Mohrig D. Mason J. et al.
Testing the Preservation of River Channel Properties in Earth Analogs to Martian Fluvial Sinuous Ridges **[#1541]**
Sinuous ridges / Preserve centerline quite well / In analog work.

11:30 a.m. Cassanelli J. P. * Head J. W.
Assessing the Formation of Valley Networks on a Cold Early Mars: Predictions for Erosion Rates and Channel Morphology **[#1124]**
We explore the influence of cold and icy conditions and the presence of an ice-cemented substrate on the formation of valley networks on early Mars.