Monday, May 21, 2012
THE PHYSICAL EVOLUTION OF THE EARLY MARTIAN ENVIRONMENT I
1:30 p.m. Lakeside A/B

1:30 p.m. Tanaka K. L. * Platz T. Michael G. Robbins S. Fortezzo C. M. Skinner J. A. Jr. Dohm J. M. Irwin R. P. III Kolb E. J. Hare T. M. [INVITED]
Early Mars Revisited by New Global Geologic Mapping and Crater Counting **[#7033]**
Based on our new geologic map of Mars at 1:20M scale and detailed crater counts, we reassess the earliest geologic evolution of Mars, noting degrees and styles of resurfacing for each of the earliest Martian epochs.

1:55 p.m. Lillis R. J. * Manga M. Minton D. A. Roberts J. H. Frey H. V. Bottke W. F. Kuang W. Jakosky B. M. [INVITED]
Magnetic, Interior, Crustal and Climate Evolution of Early Mars **[#7072]**
We will present a review of early martian history from a geophysical standpoint, concentrating on the magnetic, impact and interior evolution of Mars and the consequences for the evolution of the crust and atmosphere.

2:20 p.m. McCubbin F. * [INVITED]
Compositional Evolution of the Early Martian Crust as Revealed by the SNC Meteorites

2:45 p.m. Chassefiere E. * Leblanc F. [INVITED]
The Impact of Subsurface Sources and Sinks on the Evolution of Early Atmospheric CO_2, CH_4, and D/H **[#7002]**
Escape cannot explain the removal of an atmosphere of several 100 mbar of CO_2 and of several 100 m thick water GEL since the late Noachian. Volatiles may rather have been lost by subsurface alteration processes (carbonate deposition, serpentinization).

3:10 p.m. *Coffee Break*

3:25 p.m. Howard A. D. * Irwin R. P. III Moore J. M. Craddock R. A. Matsubara Y. Hobley D. E. J. [INVITED]
The Hydrologic and Climatic Evolution of Early Mars as Inferred from the Geologic Record **[#7032]**
The hydro-climatic evolution of Mars can be subdivided into four epochs with distinct environments: Earliest Mars, the Noachian, the Noachian-Hesperian boundary, and later events. Many uncertainties remain about their enviroments and history.

3:50 p.m. Forget F. * Wordsworth R. D. Millour E. Madeleine J.-B. Kerber L. Haberle R. M. Head J. W. [INVITED]
Modeling the Global Early Martian Climate and Water Cycle **[#7073]**
We use a 3D Global Climate Model to explore the possible climates on a Mars-like planet with a thicker atmosphere and a fainter sun. Simulations including the water cycle allows to model precipitations and the evolution of surface water and ice.

4:15 p.m. Scanlon K. E. * Head J. W. Madeleine J.-B. Wordsworth R. D. Forget F.
Orographic Precipitation on Early Mars: Towards New Climate Constraints **[#7046]**
To test the idea that Mars' valley networks were precipitation-sourced, we compared valleys in several regions with the predictions of an orographic precipitation model. We hope to develop new constraints on the Noachian climate using this framework.

4:35 p.m. Hauber E. * Platz T. Kleinhans M. Le Deit L. Carbonneau P. De Haas T. Marra W. Reiss D.
Old or Not So Old: That is the Question for Deltas and Fans in Xanthe Terra, Mars **[#7078]**
The activity of water was probably most intense on early Mars, and has decreased since then. However, new dating results of deltas and fans, formerly thought to be late Noachian or early Hesperian in age, reveal that they are actually much younger.

4:55 p.m. Mangold N. *
Key Observations for a Better Determination of Noachian and Hesperian Climates from Fluvial Landforms **[#7016]**
This talk summarizes several new results related to fluvial landforms and crater degradation in order to extract key observations and link interpretations to climate evolution.

5:15 p.m. Moore J. M. * Howard A. D. Parsons R. Hobley D. E. J.
The End of the Beginning: The Hesperian-Amazonian Transition Climate Optima **[#7035]**
Fluvial landforms of the Hesperian-Amazonian transition are of particular interest because they may represent the last widespread episode of aqueous activity. This activity took place during a time probably characterized by a thin cold atmosphere.

5:35 p.m. MODERATED OPEN DISCUSSION