

Monday, March 20, 2017

[M102]

**SPECIAL SESSION: MARS VOLATILE SURFACE-ATMOSPHERIC INTERACTIONS:  
PAST AND PRESENT**

8:30 a.m. Waterway Ballroom 4

**Chairs: Ganna Portyankina  
George Nikolakakos**

- 8:30 a.m. Titus T. N. \* Cushing G. E.  
[Mars Seasonal Cap Edges and CO<sub>2</sub> Ice Column Density](#) [#1198]  
We present the seasonal cap edges as a function of season and location. These functions are then used to determine the local column density of seasonal CO<sub>2</sub> ice.
- 8:45 a.m. Piqueux S. Kleinböhl A. Hayne P. O. \* Heavens N. G. Kass D. M. et al.  
[Widespread Low-Latitude Diurnal CO<sub>2</sub> Frost on Mars](#) [#1485]  
Using Mars Climate Sounder atmospherically corrected surface temperature observations, we show that low-latitude nighttime CO<sub>2</sub> frost on Mars is widespread.
- 9:00 a.m. Hayne P. O. \* Piqueux S. Kleinböhl A. Kass D. M. McCleese D. J.  
[Global Patterns and Inter-Annual Variability in Carbon Dioxide Deposition on Mars: Infrared Observations from the Mars Climate Sounder](#) [#2873]  
We present multi-year observations from the Mars Climate Sounder that show both patterns and variability in the deposition of CO<sub>2</sub> at the poles of Mars.
- 9:15 a.m. Calvin W. M. \* Seelos K. D.  
[Compositional Variation of the Icy Units of the South Residual Polar Cap of Mars Using CRISM](#) [#1604]  
CRISM targeted observations show CO<sub>2</sub> ice spectra don't vary strongly while water ice is an important and variable constituent in troughs and erosional surfaces.
- 9:30 a.m. Portyankina G. \* Aye K.-M. Hansen C. J.  
[Diffusion-Limited Aggregation Model for Araneiform Pattern Formation](#) [#2441]  
A 2-D diffusion-limited aggregation model is implemented to describe the araneiform structures with the aim to study araneiform development process.
- 9:45 a.m. Thomas P. C. \* Calvin W. M. James P. B.  
[CO<sub>2</sub> Deposition and Removal on Mars' Residual South Polar Cap: Clues from Inverted Relief](#) [#2041]  
Inversion of relief in the CO<sub>2</sub> southern ice cap of Mars indicates local control of much of the deposition and erosion.
- 10:00 a.m. Litvak M. L. \* Mitrofanov I. G. Sanin A. B. Boynton W. V.  
[Inter-Annual Variations of Martian Seasonal Cycle from Longstanding Neutron Spectroscopy Observations Onboard Mars Odyssey](#) [#2432]  
Using all available HEND/GRS/Odyssey data (from 2002 until now) we summarized results of multiyear observations of seasonal variations of atmospheric CO<sub>2</sub>.
- 10:15 a.m. Pathare A. V. \* Feldman W. C. Prettyman T. H. Maurice S.  
[Driven by Excess? Climatic Implications of New Global Mapping of Near-Surface Hydrogen on Mars](#) [#2543]  
We present improved maps of near-surface WEH (Water Equivalent Hydrogen) on Mars that have intriguing implications for the global distribution of excess ice.

- 10:30 a.m. Bramson A. M. \* Byrne S. Bapst J.  
[Survival of Mid-Latitude Ground Ice on Mars](#) [#2692]  
We report on subsurface structure and martian climate variability over the past 10s of Myr that predicts ice preservation matching observational constraints.
- 10:45 a.m. Primm K. M. \* Gough R. V. Tolbert M. A.  
[Water Uptake and Release by Magnesium Perchlorate Mixed with Mars-Relevant Minerals](#) [#1544]  
Results show that neither Mojave Mars Simulant (MMS) nor montmorillonite has an effect on the water uptake and release of magnesium perchlorate hexahydrate.
- 11:00 a.m. Wang A. \* Ling Z. C. Yan Y. C. McEwen A. S. Mellon M. T. et al.  
[Atmosphere – Surface H<sub>2</sub>O Exchange to Sustain the Recurring Slope Lineae \(RSL\) on Mars](#) [#2351]  
The deliquescence rate of Cl-bearing salts matches w/RSL development and their rehydration occur at low T with H<sub>2</sub>O supplied by martian atmospheric circulation.
- 11:15 a.m. Nikolakakos G. \* Whiteway J. A.  
[Laboratory Studies of Perchlorate Deliquescence and Water Adsorption at the Surface of Mars](#) [#2683]  
Experiments show that samples of perchlorate and chabazite are capable of rapidly exchanging water with the atmosphere through deliquescence and adsorption.
- 11:30 a.m. Ehlmann B. L. \* Sutter B. Edgett K. Litvak M. Achilles C. N. et al.  
[The Nature, Carriers, and Exchangeability of Volatiles in Martian Soils: Evidence for Distinct Reservoirs from the Bagnold Dune Campaign and Other Measurements](#) [#3011]  
What are the volatile reservoirs in the soils? How do they exchange? Here, we identify and describe two discrete volatile reservoirs: One geological, one modern.