

Friday, March 23, 2012
MARS CLIMATE TALES: METEORITES, MORPHOLOGY, MODELS
3:15 p.m. Waterway Ballroom 4

Chairs: Laura Kerber
Robina Shaheen

- 3:15 p.m. Shaheen R. * Niles P. B. Corrigan C. M. Thiemens M. H.
[*The Carbonates in ALH 84001 Record the Evolution of the Martian Atmosphere through Multiple Formation Events*](#) [#2594]
 A new Ca-rich carbonate phase highly enriched in C and O isotopes is reported. The O isotopic anomaly ($\Delta^{17}\text{O} = 0.7\text{‰}$) indicates incorporation of oxygen from an atmospheric source of martian origin.
- 3:30 p.m. Manga M. Patel A. Dufek J. Kite E. S. *
[*Wet Surface and Dense Atmosphere on Early Mars Suggested by the Bomb Sag at Home Plate*](#) [#1241]
 We use analogue experiments to interpret the volcanic bomb sag at Home Plate, and infer a wet surface at the time of impact. The modest penetration depth suggests a dense atmosphere.
- 3:45 p.m. Kerber L. * Forget F. Madeleine J. B. Wordsworth R. Head J. W. III Wilson L.
[*The Effect of Atmospheric Pressure on the Dispersal of Pyroclasts from Martian Volcanoes*](#) [#1295]
 Explosive eruptions into the martian atmosphere are modeled under various atmospheric pressures using a Mars global climate model adapted to paleoatmospheric applications.
- 4:00 p.m. Madeleine J.-B. * Forget F. Head J. W. Navarro T. Millour E. Spiga A. Colaitis A. Montmessin F. Määttänen A.
[*Amazonian Glacial Cycles on Mars: Response of the New LMD Global Climate Model to Orbital Variations*](#) [#1661]
 The goal of this study is to analyze the response of the Mars climate system to changes in the orbital conditions using the new version of the LMD/GCM, and to better understand glacial cycles as represented in the geological record.
- 4:15 p.m. Haberle R. M. * Kahre M. A. Hollingsworth J. L. Schaeffer J. Montmessin F. Phillips R. J.
[*A Cloud Greenhouse Effect on Mars: Significant Climate Change in the Recent Past?*](#) [#1665]
 Under favorable orbital conditions, a cloud atmospheric greenhouse effect may have warmed Mars by several tens of degrees Kelvin in the recent geological past.
- 4:30 p.m. Bills B. G. * Mischna M. A.
[*Mars Gravity and Climate*](#) [#2369]
 We examine the measurement accuracy required for Mars gravity field variations, as seen from an orbiting spacecraft, in order to constrain Mars climate models. It appears that among existing techniques, gravity gradiometry is most promising.