Friday, March 22, 2013

MARS VOLATILES FROM MANTLE TO ATMOSPHERE:
WATER, HALOGENS, AND ORGANICS
1:30 p.m. Waterway Ballroom 4

Chairs: Juliane Gross
Suniti Karunatillake

1:30 p.m. Balta J. B. * McSween H. Y. Jr.
The Second Shergottite Age Paradox [#1510]
We present a second shergottite age paradox, the inability to find young shergottites on Mars, and argue that magmatic water can explain this stratigraphy.

1:45 p.m. Gross J. * Bell A. S. Filiberto J.
Water in the Martian Interior: Evidence from Hydroxyl-Rich Apatite in Olivine-Phryic Shergottite NWA 6234 [#2208]
NWA 6234, a mantle-derived melt unaffected by volatile loss, contains hydroxyl-rich apatite representing snapshots of the volatile ratios of the parental magma.

2:00 p.m. Peslier A. H. *
Water in Nominally Anhydrous Minerals from Nakhlites and Shergottites [#1130]
Water contents measured by FTIR in pyroxene, olivine and maskelynite from nakhlites and shergottites could be controlled by shock, degassing, and magmatic history.

2:15 p.m. Mane P. * Hervig R. Wadhwa M. Balta J. B. McSween H. Y. Jr.
Hydrogen Isotopic Composition of Tissint, the Newest Martian Meteorite Fall [#2220]
This abstract reports hydrogen-isotopic analysis of mineral phosphates and maskelynites in the newest martian meteorite fall, Tissint.

2:30 p.m. Usui T. * Alexander C. M. O’D. Wang J. Simon J. I. Jones J. H.
A Moderate D/H Ratio for a Surficial Water Reservoir on Mars [#1454]
Ion microprobe analyses of glassy phases in shergottites from geochemically distinct magmatic sources indicate the presence of a common surface water reservoir.

2:45 p.m. Kurokawa H. * Sato M. Ushioda M. Matsuyama T. Moriwaki R. et al.
Significant Water Loss During Noachian Era: Constraints from Hydrogen Isotopes in Martian Meteorites [#1853]
Based on the D/H data from the meteorites, we determine the amount of water loss during Noachian and post-Noachian periods.

3:00 p.m. Nunn M. H. * Agee C. B. Thiemens M. H.
Oxygen Isotopic Composition of Water in Martian Meteorite Northwest Africa 7034 [#2768]
Water extracted from martian meteorite Northwest Africa 7034 possesses oxygen-isotopic compositions distinct from the bulk rock but similar to bulk SNCs.

A Reduced Organic Carbon Component to Martian Basalts [#2659]
We describe reduced organic carbon in 12 martian basalts. It is either associated with magmatic and/or hydrothermal activity and spans 4.2 Ga of Mars history.

3:30 p.m. Burton A. S. * Callahan M. P. Elsila J. E. Baker E. M. Smith K. E. et al.
Amino Acids from Mars? Clues from the Martian Shergottite Roberts Massif (RBT) 04262 [#2613]
The martian meteorite RBT 04262 was found to contain primarily nonproteinogenic amino acids that may be extraterrestrial in origin.
3:45 p.m. Giesting P. A. * Filiberto J.  
Halogen Systematics During Crystallization of the Chassignites [#3087]
Variations in F and Cl of kaersutite, apatite, and biotite in the chassignites reveal their crystallization sequence and final melt/fluid halogen content.

4:00 p.m. Sharp Z. D. * Shearer C. K. Jr. McCubbin F. M. Agee C. B. McKeegan K. D.  
The Effect of Vapor Pressure on Cl Isotope Fractionation: Application to δ³⁷Cl Value(s) of Mars [#2611]
The Cl-isotope fractionation of NaCl in vacuum and air is the same. Cl isotopes of martian meteorites indicate crustal contamination for nonshergottites.

4:15 p.m. Karunatillake S. * Zhao Y. Y. S. McLennan S. M. Skok J. R.  
Does Martian Soil Release Reactive Halogens to the Atmosphere? [#2428]
Loss to low-T UV photolysis may drive Br variability in the martian soil profile. In contrast, aqueous processes likely influence bimodality of the S/Cl ratio.

4:30 p.m. Zhao Y. -Y. S. * McLennan S. M. Jackson A. W. Karunatillake S.  
Photochemical Effects on Bromine and Chlorine Distributions During Brine Evaporation on the Martian Surface [#3002]
Our UV experiments showed that fractionations of Br/Cl and production of perchlorate can be observed under both Earth and simulated Mars atmospheric conditions.