

Monday, March 20, 2017

[M151]

ROLL OVER, MAGMA OCEAN:

CRYSTALLIZATION AND OVERTURN IN THE LUNAR MAGMA OCEAN

2:30 p.m. Waterway Ballroom 1

Chairs: Nicholas Dygert
Melanie Barboni

- 2:30 p.m. Zhang Y. *
[Why is the Whole Moon More Oxidized Than the Whole Earth, But the Lunar Mantle is More Reduced Than Earth's Upper Mantle?](#) [#1499]
Moon has a much smaller core than Earth, meaning that Moon is more oxidized than Earth. But lunar basalts are more reduced than terrestrial basalts. Why?
- 2:45 p.m. Neal C. R. * Draper D. S.
[Interpretation of Ferroan Anorthosite Ages and Implications for the Lunar Magma Ocean](#) [#1175]
FAN samples are notoriously difficult to age date. A relative method is presented that allows FANs to be age dated and put within a petrogenetic framework.
- 3:00 p.m. Torcivia M. A. * Neal C. R.
[Ferroan Anorthosite 60025: Magma Ocean Product – and More!](#) [#1480]
Does lunar sample 60025 represent a mix of FAN lithologies? An overview of the petrology of a Ferroan Anorthosite.
- 3:15 p.m. Laneuville M. * Breuer D. Plesa A.-C. Schwinger S.
[Lunar Surface Mg# Distribution and Magma Ocean Crystallization](#) [#1434]
Which crystallization scenario can explain the observed surface Mg# distribution? This question has implications for interior properties and lunar evolution.
- 3:30 p.m. Dygert N. * Lin J. F. Marshall E. W. Kono Y. Gardner J. E.
[Viscosity and Structure of a Late Lunar Magma Ocean Liquid: Implications for the Purity of Ferroan Anorthosites and the Partially Molten Layer Around the Core](#) [#2421]
We measured the viscosity and structure of a late lunar magma ocean liquid. Its low viscosity promotes the formation of a very pure flotation crust.
- 3:45 p.m. Boukare C.-E. * Parmentier E. M. Parman S. W.
[Did Lunar Mantle Overturn Before the End of Magma Ocean Solidification?](#) [#2494]
Most models of the early evolution of the Moon's interior are based on post lunar magma ocean overturn. We explore cumulate overturn during LMO solidification.
- 4:00 p.m. Tokle L. * Hirth G. Raterron P. Dygert N. Liang Y. et al.
[The Pressure and Mg# Dependence of Ilmenite and Ilmenite-Olivine Aggregate Rheology: Implications for Lunar Cumulate Mantle Overturn](#) [#2070]
Deformation experiments on ilmenite and ilmenite/olivine aggregates at relevant lunar mantle T and P.
- 4:15 p.m. Zhao Y. * van den Berg A. P. van Westrenen W.
[On the Participation of Ilmenite-Bearing Cumulates in Lunar Mantle Overturn: A Parameter Study](#) [#2216]
Our numerical simulations measure the amount of ilmenite-bearing cumulates sinking to the mantle in the overturn, quantifying the effect of several parameters.
- 4:30 p.m. Barboni M. * Boehnke P. Keller C. B. Kohl I. E. Schoene B. et al.
[The Age of the Moon](#) [#1900]
New data on Apollo 14 zircons require the formation of the Moon by ~4.51 Ga, therefore within the first ~60 million years of the solar system.