

Monday, March 21, 2016

[M102]

SPECIAL SESSION:

CERES UNVEILED: DAWN EXPLORES A NEW WORLD

8:30 a.m. Waterway Ballroom 4

Chairs: Carol Raymond
Thomas Prettyman

- 8:30 a.m. Russell C. T. * Raymond C. A. Ammannito E. Buczkowski D. L. De Sanctis M. C. et al.
[*Dawn Arrives at Ceres: Exploration of a Small Volatile-Rich World*](#) [#1275]
Dawn arrives at Ceres, finding evidence for a desiccated, porous lag layer, a rigid crust over a weak asthenosphere above a rocky core.
- 8:45 a.m. Prettyman T. H. * Yamashita N. Castillo-Rogez J. C. Feldman W. C. Lawrence D. J. et al.
[*Elemental Composition of Ceres by Dawn's Gamma Ray and Neutron Detector*](#) [#2228]
Elemental mapping of Ceres by Dawn's Gamma Ray and Neutron Detector reveals a hydrogen-rich regolith and evidence for near-surface water ice at high latitudes.
- 9:00 a.m. De Sanctis M. C. * Ammannito E. Ciarniello M. Carrozzo F. G. Frigeri A. et al.
[*Ceres Composition by VIR on Dawn: Highlights of the First Year of Observation*](#) [#1832]
VIR on Dawn confirmed previous observation of bands at 3.1, 3.3–3.5, and 3.9 μm and clearly identified a band at 2.72 μm distinctive of OH-bearing minerals.
- 9:15 a.m. Jaumann R. * Stephan K. Krohn K. Matz K.-D. Otto K. et al.
[*Age-Dependent Morphological and Compositional Variations on Ceres*](#) [#1455]
Extended smooth spectrally blue young plains cover the interior of a number of craters on Ceres including multiple flows, pits, fissures and cracks.
- 9:30 a.m. McSween H. Y. * Castillo-Rogez J. Emery J. P. De Sanctis M. C. Dawn Science Team
[*Rationalizing the Composition and Alteration of Ceres*](#) [#1258]
Ceres mineralogy is consistent with a more pervasively altered CM/CI chondrite, as appropriate for its large size.
- 9:45 a.m. Neveu M. * Desch S. J.
[*Geochemistry, Thermal Evolution, and Cryovolcanism on Ceres with a Muddy Ice Mantle*](#) [#1384]
Mud throughout Ceres / Liquid even now at depth / Cryovolcanoes?
- 10:00 a.m. Marchi S. * O'Brien D. P. Schenk P. Fu R. Ermakov A. et al.
[*Cratering on Ceres: The Puzzle of the Missing Large Craters*](#) [#1281]
Dawn revealed that Ceres surface is rich in small craters (<100 km), while lacks large craters (>300 km). This is odd, and we discuss possible explanations.
- 10:15 a.m. Schenk P. * Marchi S. O'Brien D. Bland M. Platz T. et al.
[*Impact Cratering on the Small Planets Ceres and Vesta: S-C Transitions, Central Pits, and the Origin of Bright Spots*](#) [#2697]
Craters big and small on planets mostly small. Is Ceres icy or is it not? The pictures say perhaps, but craters do not disappoint: Bright Spots resolved.
- 10:30 a.m. Bland M. T. * Raymond C. A. Schenk P. M. Fu R. R. Park R. et al.
[*Evidence for Limited, Laterally Heterogeneous Ice Content on Ceres from Its Deep \(and Not-So-Deep\) Impact Craters*](#) [#1267]
Craters of great depth / Pure ice will not maintain them / Rock. Salt. Little ice.

- 10:45 a.m. Castillo-Rogez J. C. * Bowling T. Fu R. R. McSween H. Y. Raymond C. A. et al.
[Loss of Ceres' Icy Shell from Impacts: Assessment and Implications](#) [#3012]
Dawn observations revealed Ceres' outer shell is dominated by rock, not ice. We model the removal of a 50 km ice shell via impact-induced sublimation.
- 11:00 a.m. Park R. S. * Konopliv A. S. Bills B. Castillo-Rogez J. Asmar S. W. et al.
[Gravity Science Investigation of Ceres from Dawn](#) [#1781]
The Dawn gravity science investigation utilizes the DSN radio tracking and on-board images to determine the global shape and gravity of Ceres.
- 11:15 a.m. Ermakov A. E. * Zuber M. T. Smith D. E. Fu R. R. Raymond C. A. et al.
[Evaluation of Ceres' Compensation State](#) [#1708]
We evaluate Ceres' topography compensation state based on the Dawn gravity and shape data. This helps constrain Ceres' internal structure and evolution.
- 11:30 a.m. Raymond C. A. * Marchi S. Bland M. T. Castillo-Rogez J. C. Park R. S. et al.
[Evidence for Large-Scale Heterogeneity in Ceres' Subsurface](#) [#3016]
Ceres surface exhibits morphologic variations that may indicate compositional and/or rheological variability in the volatile-rich outer shell.