

42nd Lunar and Planetary Science Conference

March 7-11, 2011

Highlighted Abstracts

Oral Presentations:

* Asterisks denote speaker

Monday Afternoon, March 7, 2011

MERCURY

2:30 p.m. Waterway Ballroom 1

- 2:30 p.m. Solomon S. C. * McNutt R. L. Jr. Bedini P. D. Anderson B. J. Blewett D. T. Evans L. G. Gold R. E. Krimigis S. M. Murchie S. L. Nittler L. R. Phillips R. J. Prockter L. M. Slavin J. A. Zuber M. T.
[MESSENGER at Mercury: Flyby Accomplishments and Orbital Observing Plans](#) [#1781]
MESSENGER's three Mercury flybys revealed a planet with a rich geological history and strong interactions among the solar wind, magnetosphere, exosphere, and surface. MESSENGER's year-long orbital operations are scheduled to commence this month.

Tuesday Morning, March 8, 2011

SPECIAL SESSION: CRYOSPHERES III: ACTIVE ICE PROCESSES

10:15 a.m. Waterway Ballroom 1

- 10:30 a.m. Byrne S. *
[Simulating the Landscape Evolution of the Martian Residual CO₂ Ice Cap](#) [#2728]
I model the observed landscape evolution of the martian ice ca, where expanding pits were interpreted as evidence of climate change. Model results show no such change is necessary and predict an ice cap continuously being destroyed and recreated.
- 10:45 a.m. Becerra P. * Byrne S. HiRISE Team
[Modeling the Formation of CO₂ Frost Halos on the South Polar Residual Cap of Mars](#) [#2252]
We introduce a model for the formation of bright halos seen by HiRISE on the edges of scarps and "swiss cheese" features in the south polar residual cap of Mars. We propose that they are formed from differences between the sublimation rates of sloped and flat surfaces.

Tuesday Morning, March 8, 2011 (continued)

SPECIAL SESSION: CRYOSPHERES III: ACTIVE ICE PROCESSES

10:15 a.m. Waterway Ballroom 1

- 11:00 a.m. Aye K.-M. * Pommerol A. Portyankina G. Thomas N. Hansen C. J.
[*Martian South Polar Terrains in Spring: I. Multi-Instrumental Observations*](#) [#2320]
Data from several instruments have been used to identify evolutionary stages in the seasonal development of large-scale surface brightnesses and small features' shapes, sizes, and numbers in the martian south polar terrains.
- 11:15 a.m. Portyankina G. * Thomas N. Pommerol A. Aye K.-M. Hansen C. J. Herkenhoff K.
[*Martian South Polar Terrains in Spring: II. Modelling of Relevant Physical Processes*](#) [#1709]
In this work we summarize our attempts to model various physical processes that shape the surface of southern polar terrains during local spring and are commonly accepted to be related to the sublimation of seasonal CO₂ cap.
- 11:30 a.m. Schmidt F. * Dupire R. Doute S. Portyankina G.
[*Active Jets and Slab Ice in the Seasonal South Polar Cap of Mars*](#) [#1942]
Unexpectedly, geomorphological analysis of 5000 images show that CO₂ jets are active outside the martian cryptic region, some without apparent spiders. Additional spectral studies will be presented to test the necessity of translucent slab ice.

TERRESTRIAL IMPACT CRATERS

8:30 a.m. Waterway Ballroom 5

- 11:15 a.m. Huber M. S. * Crne A. E. Lepland A. Melezhik V. A. Koeberl C. FAR DEEP Science Team
[*Possible Occurrence of Distal Impact Ejecta from the Vredefort Impact Event in Drill Cores from the Onega Basin, Russia*](#) [#1487]
Round-ovoid, millimeter-scale features are described from drill cores from the Onega Basin, Russia, in a stratigraphic unit with age constraints including the Vredefort impact event.

Tuesday Afternoon, March 8, 2011

CARBON ON MARS: SURFACE TO ATMOSPHERE AND IMPLICATIONS FOR EXOBIOLOGY

1:30 p.m. Waterway Ballroom 1

- 1:30 p.m. Wray J. J. * Murchie S. L. Ehlmann B. L. Milliken R. E. Seelos K. D. Noe Dobrea E. Z. Mustard J. F. Squyres S. W.
[Evidence for Regional Deeply Buried Carbonate-Bearing Rocks on Mars](#) [#2635]
Carbonates are key minerals for understanding ancient martian environments. CRISM orbital spectroscopy reveals a spectral phase consistent with Fe- and/or Ca-rich carbonate exposed from the subsurface by impact craters across a ~1000-km-wide region.
- 1:45 p.m. Niles P. B. * Michalski J.
[Evolution of CO₂ and H₂O on Mars: A Cold Early History?](#) [#2471]
Recent high-precision isotopic measurements of the martian atmosphere and discoveries of carbonates on the martian surface provide new constraints that we use to model the history of the martian climate and test the cold early Mars scenario.
- 2:00 p.m. Shaheen R. * Thiemens M.
[Oxygen Isotope Anomaly in Terrestrial Atmospheric Carbonates: Earth and Mars Linkage](#) [#1677]
Oxygen isotope anomaly in μm sized terrestrial carbonates (0.4 - 3.9‰) have been identified for the first time and its implications to understand isotopically anomalous carbonates found in the SNC martian meteorites will be discussed using laboratory and field data.
- 2:15 p.m. Ruff S. W. *
[Is Comanche Carbonate Evidence for a Lake in Gusev Crater, Mars?](#) [#2708]
Evidence from Mini-TES spectra and MI images support the idea that Comanche carbonate was produced by the precipitation of mixed Mg and Fe-rich carbonates in Algonquin class rocks, perhaps by evaporation of a brine.
- 2:30 p.m. Blake D. F. * Treiman A. H. Morris R. Bish D. Amundsen H. E. F. Steele A.
[Carbonate Cements from the Sverrefjell and Sigurd fjell Volcanos, Svalbard Norway: Analogs for Martian Carbonates](#) [#2167]
Carbonates from volcanos in Svalbard, Norway are the best analogs for martian carbonates from the ALH 84001 meteorite, the Comanche carbonate at Gusev Crater, and the Nili Fossae carbonate. The mineralogy of these cements is described.
- 2:45 p.m. Morris R. V. * Blake D. F. Bish D. Ming D. W. Agresti D. G. Treiman A. H. Steele A. Amundsen H. E. F. AMASE Team
[A Terrestrial Analogue from Spitsbergen \(Svalbard, Norway\) for the Comanche Carbonate at Gusev Crater, Mars](#) [#1699]
Carbonate from the Bockfjord volcanic complex on the island Spitsbergen (Svalbard, Norway) is a terrestrial analogue for the Comanche carbonate at Gusev Crater.
- 3:00 p.m. Amundsen H. E. F. * Benning L. Blake D. F. Fogel M. Ming D. Skidmore M. Steele A. AMASE Team
[Cryogenic Origin for Mars Analog Carbonates in the Bockfjord Volcanic Complex, Svalbard \(Norway\)](#) [#2223]
Carbon and oxygen isotope data on Mars analog carbonates in the Bockfjord Volcanic Complex on Svalbard indicate that they formed by cryogenic processes during freezing of basalt hosted aquifers following subglacial eruptions.

Tuesday Afternoon, March 8, 2011 (continued)

CARBON ON MARS: SURFACE TO ATMOSPHERE AND IMPLICATIONS FOR EXO BIOLOGY

1:30 p.m. Waterway Ballroom 1

- 3:15 p.m. Halevy I. * Eiler J. M.
[*Carbonates in ALH 84001 Formed in a Short-Lived Hydrothermal System*](#) [#2512]
Clumped isotope thermometry suggests that the carbonates in ALH 84001 formed in shallow hydrothermal systems, at temperatures just below 100°C, from water that was isotopically light and in contact with the ancient atmosphere.
- 3:30 p.m. McKay D. S. * Thomas-Keprta K. L. Clemett S. J. Gibson E. K. Jr. Le L. Rahman Z. Wentworth S. J.
[*Organic Carbon Features Identified in the Nakhla Martian Meteorite*](#) [#2673]
We report, for the first time, the identification of specific carbonaceous phases present within iddingsite alteration zones of the Nakhla meteorite that possess discrete, well defined, structurally coherent morphologies.
- 3:45 p.m. Fu Q. * Socki R. A. Niles P. B.
[*Carbon Isotope Systematics in Mineral-Catalyzed Hydrothermal Organic Synthesis Processes at High Temperatures and Pressures*](#) [#1057]
Experiments involving mineral-catalyzed hydrothermal organic synthesis processes were conducted at high temperatures and pressures. Carbon isotope data of generated organic compounds were used to unravel the reaction pathways.
- 4:00 p.m. Craddock P. R. * Dauphas N.
[*Assessing the Antiquity of Microbial Metal Respiration in the Geologic Record*](#) [#1148]
We present Fe and C isotope data of Fe-carbonates in Archean banded iron formations (Hamersley, Australia and Isua, Greenland) that support their formation in marine sediments by microbial Fe respiration and record evidence of Fe catabolism at 3.8 Ga.
- 4:15 p.m. Schwenzer S. P. *
[*Quantifying Low Temperature Production of Methane on Mars*](#) [#1803]
Potential anorganic production of methane from a range of martian rock compositions is quantified and compared to the concentration of methane observed on Mars. Impact-craters are suggested as potential sites of methane formation and storage.
- 4:30 p.m. Zahnle K. * Freedman R. Catling D.
[*Is There Methane on Mars? Part II*](#) [#2427]
There have been several reports of transient methane in the martian atmosphere at 10–60 ppbv. We review why abundant variable methane on Mars should be seen as an extraordinary claim and show why the published reports fall short of providing extraordinary evidence.

Tuesday Afternoon, March 8, 2011 (continued)

**COSMOCHEMICAL ORIGINS II: ISOTOPIC CONSTRAINTS ON
EARLY SOLAR SYSTEM CHRONOLOGY**

1:30 p.m. Waterway Ballroom 4

1:45 p.m. Dauphas N. * Pourmand A.

[*Very Rapid Accretion of Mars and Implications for its Magmatic Evolution*](#) [#1040]

We present a new method to estimate the Hf/W ratio of the martian mantle from which we conclude that Mars was a stranded planetary embryo formed within a few million years of solar system formation.

IMPACTS: MODELING AND REMOTE SENSING

1:30 p.m. Waterway Ballroom 5

3:30 p.m. Daubar I. J. * McEwen A. S. Byrne S. Dundas C. M. Keska A. L. Amaya G. L. Kennedy M. Robinson M. S.

[*New Craters on Mars and the Moon*](#) [#2232]

New discoveries of recent, dated impacts on Mars now total 189. We have now discovered five new craters on the Moon using similar techniques and LROC data.

Wednesday Morning, March 9, 2011

SPECIAL SESSION: COMET HARTLEY 2 AND RELATED BODIES, *IN SITU* AND REMOTE I

8:30 a.m. Waterway Ballroom 5

- 8:30 a.m. A'Hearn M. F. * DIXI Science Team
[*Comet Hartley 2: A Different Class of Cometary Activity*](#) [#2516]
Observations of Comet Hartley 2 from the DI Flyby spacecraft show that the activity is unlike that of any comet visited thus far. Icy grains are lofted by CO₂ and then sublime to provide a large fraction of the water seen in the coma.
- 8:45 a.m. Thomas P. C. * A'Hearn M. F. Belton M. J. S. Carcich B. T. Lisse C. M. Melosh H. J. Schultz P. H. Sunshine J. M. Veverka J. DIXI Science Team
[*The Shape and Geological Features of Comet 103P/Hartley 2*](#) [#1741]
The shape and geological features were determined from flyby imaging. The bi-lobed nucleus shows a different set of features from others examined at close range.
- 9:00 a.m. Schultz P. H. * Hermalyn B. Bruck M. A'Hearn M. Farnham T. Belton M. J. S. Thomas P. Sunshine J. Sebastian S.
[*Geology of 103P/Hartley 2 and Nature of Source Regions for Jet-Like Outflows*](#) [#2382]
The DI Spacecraft Deep Impact Flyby spacecraft captured the first high-resolution views of the surface of an active comet, 103P/Hartley 2. Here we discuss the geology and structures associated with collimated jets.
- 9:30 a.m. Harmon J. K. * Nolan M. C. Howell E. S. Giorgini J. D. Taylor P. A.
[*Comet 103P/Hartley: Radar Observations of the Nucleus and Large-Grain Coma*](#) [#1480]
Arecibo radar observations of Comet Hartley from October 25–31, 2010, provide data complementing the EPOXI flyby, including spin state (period, pole, etc.), surface density, and large-grain production.
- 9:45 a.m. Feaga L. M. * Sunshine J. M. Groussin O. Besse S. Protopapa S. Merlin F. Farnham T. L. A'Hearn M. F. DIXI Science Team
[*Heterogeneity of Comet 103P/Hartley 2's Gaseous Coma*](#) [#2461]
Spectral data from the DIXI mission show that the distribution of H₂O and CO₂ in Hartley 2's coma is asymmetric. We will focus on the composition and distribution of the coma around perihelion. Implications of heterogeneity will be discussed.
- 10:00 a.m. Sunshine J. M. * Feaga L. M. Groussin O. Besse S. Protopapa S. Merlin F. Farnham T. L. A'Hearn M. F. DIXI Science Team
[*Icy Grains in Comet 103P/Hartley 2*](#) [#2292]
Hartley 2's coma includes μm-sized water ice grains that are spatially correlated with CO₂-rich jets, suggesting that CO₂ is dragging the ice from the nucleus. These ice grains then sublime, thus explaining the small comet's enhanced water activity.

Wednesday Afternoon, March 9, 2011

SPECIAL SESSION: COMET HARTLEY 2 AND RELATED BODIES, *IN SITU* AND REMOTE II

1:30 p.m. Waterway Ballroom 5

- 1:30 p.m. Belton M. J. S. * Thomas P. Li J.-Y. Carcich B. A'Hearn M. F. McLaughlin S. Williams J. Farnham T. McFadden L. Lisse C. Collins S. Besse S. Klaasen K. Sunshine J. Meech K. J. Lindler D. DIXI Imaging Science Team
[*The Spin of 103P/Hartley 2 and Its Evolution During the EPOXI/DIXI Encounter.*](#) [#1607]
We present evidence from the EPOXI/DIXI for an excited spin state for comet 103P. The results of our analysis of this data and the details our proposed spin state and its orientation in space are presented.
- 2:00 p.m. Mueller B. E. A. * Samarasinha N. H. A'Hearn M. F. Farnham T. L. Gersch A.
[*CN Coma Morphology of Comet 103P/Hartley 2 During the 2010 Apparition*](#) [#2116]
We report on the CN coma morphology of comet 103P/Hartley 2 based on our ground-based observations taken between September and December 2010. Implications of the CN coma morphology for the rotation state will be discussed.
- 2:15 p.m. Farnham T. L. * Besse S. Feaga L. M. Sunshine J. M. A'Hearn M. F. Lindler D. Bodewits D. Lisse C. M. Belton M. J. S. DIXI Team
[*Jet Activity in Comet 103P/Hartley 2 as Observed by the Deep Impact Spacecraft*](#) [#2160]
We will present an analysis of the coma and jet activity in comet Hartley 2, as observed during the approach, flyby and departure of the Deep Impact spacecraft.
- 2:30 p.m. Knight M. M. * Schleicher D. G.
[*CN Morphology of Comet 103P/Hartley 2*](#) [#2634]
We report on CN coma morphology of Comet 103P/Hartley 2 observed from August–December 2010 at Lowell Observatory.
- 4:15 p.m. Bauer J. * Walker R. Mainzer A. Masiero J. Grav T. Curti R. Dailey J. McMillan R. Lisse C. M. Fernandez Y. R. Meech K. J. Pittichova J. Tholen D. DeBaun E. Hand E. Blauvelt E. Wright E. L. WISE Team
[*WISE Observations of Comets, Centaurs, and Scattered Disk Objects*](#) [#1222]
The Wide-Field Infrared Survey Explorer (WISE) was launched on December 14, 2009, and imaged more than 99% of the sky in the mid-IR. WISE observed over 120 comets and 20 SDOs and Centaurs; we will review the preliminary results from these observations.

SHOCKED MINERAL GRAINS: RECORDERS OF IMPACTS

3:30 p.m. Montgomery Ballroom

- 4:30 p.m. Cavosie A. J. * Moser D. E. Barker I. Radovan H. A. Wooden J.
[*A 3.0 Gyr Geologic History of the Vredefort Impact Basin Recorded in a Single Grain of Sand*](#) [#2192]
We describe a single detrital shocked zircon from modern sand that records a 3 Ga history of the evolution of the giant Vredefort Dome impact basin. This result highlights the importance of detrital mineral records for reconstructing ancient impact events.

Thursday Morning, March 10, 2011

SPECIAL SESSION: RESULTS FROM HAYABUSA!

8:30 a.m. Waterway Ballroom 4

- 8:30 a.m. Tsuchiyama A. * Ebihara M. Kimura M. Kitajima F. Kotsugi M. Ito S. Nagao K. Nakamura T. Naraoka H. Noguchi T. Okazaki R. Uesugi K. Uesugi M. Yurimoto H. Ireland T. R. Sandford S. A. Zolensky M. Fujimura A. Abe M. Yada T. Mukai T. Okada T. Ishibashi Y. Shirai K. Ueno M. Kawaguchi J. Yoshikawa M.
[*Preliminary Examination of Particles Recovered from the Surface of the Asteroid 25143 Itokawa by the Hayabusa Mission*](#) [#1788]
Particles of <~100 microns were recovered from the surface of the asteroid Itokawa by the Hayabusa mission. Preliminary examination of these particles will start from January 2011. The outline of the examination and results will be presented.
- 8:45 a.m. Fujimura A. Abe M. Yada T. * Nakamura T. Noguchi T. Okazaki R. Ishibashi Y. Shirai K. Okada T. Yano H. Zolensky M. E. Sandford S. Ueno M. Mukai T. Yoshikawa M. Kawaguchi J.
[*Processes to Open the Container and the Sample Catcher of the Hayabusa Returned Capsule in the Planetary Material Sample Curation Facility of JAXA*](#) [#1829]
Processes in the curation facility of the container and the sample catcher in the reentry capsule of Japanese spacecraft Hayabusa, which returned from near-Earth asteroid Itokawa to the Earth in June 13st, 2010, is presented here.
- 9:00 a.m. Nakamura T. * Noguchi T. Tanaka M. Zolensky M. E. Kimura M. Nakato A. Ogami T. Ishida H. Tsuchiyama A. Yada T. Shirai K. Okazaki R. Fujimura A. Ishibashi Y. Abe M. Okada T. Ueno M. Mukai T.
[*Mineralogy and Major Element Abundance of the Dust Particles Recovered from Muses-C Regio on the Asteroid Itokawa*](#) [#1766]
Mineralogy, mineral chemistry, and micro-textures of the Itokawa particles are characterized using synchrotron radiation X-ray diffraction and transmission and field-emission electron microscopes.
- 9:15 a.m. Tsuchiyama A. * Uesugi M. Uesugi K. Nakano T. Nakamura T. Noguchi T. Noguchi R. Matsumoto T. Matsuno J. Nagano T. Takeuchi A. Suzuki Y. Ebihara M. Ireland T. R. Kitajima F. Nagao K. Naraoka H. Okazaki R. Sandford S. A. Yurimoto H. Zolensky M. E. Fujimura A. Abe M. Yada T. Mukai T. Kawaguchi J. Yoshikawa M.
[*Three-Dimensional Structures of Particles Recovered from the Asteroid Itokawa by the Hayabusa Mission and a Role of X-Ray Microtomography in the Preliminary Examination*](#) [#1777]
Three-dimensional structures of particles of regolith on the asteroid Itokawa will be examined by microtomography as a part of preliminary examination, which will start from January 2011. A role of the tomography in the examination will be also presented.
- 9:30 a.m. Ebihara M. * Sekimoto S. Hamajima Y. Yamamoto M. Kumagai K. Oura Y. Shirai N. Ireland T. R. Kitajima F. Nagao K. Nakamura T. Naraoka H. Noguchi T. Okazaki R. Tsuchiyama A. Uesugi M. Yurimoto H. Zolensky M. E. Abe M. Fujimura A. Mukai T. Yada T.
[*Neutron Activation Analysis of Single Grains Recovered by the Hayabusa Spacecraft*](#) [#1902]
Single grain samples returned by the Hayabusa spacecraft are analyzed by neutron activation for characterizing the material in terms of chemical composition. Gamma ray counting is performed by using a well-type Ge detector at the heavily shielded counting facility.

Thursday Morning, March 10, 2011 (continued)

SPECIAL SESSION: RESULTS FROM HAYABUSA!

8:30 a.m. Waterway Ballroom 4

- 9:45 a.m. Yurimoto H. * Abe M. Ebihara M. Fujimura A. Hashizume K. Ireland T. R. Itoh S. Kawaguchi J. Kitajima F. Mukai T. Nagao K. Nakamura T. Naraoka H. Noguchi T. Okazaki R. Sakamoto N. Seto Y. Tsuchiyama A. Uesugi M. Yada T. Yoshikawa M. Zolensky M.
[*Oxygen and Magnesium Isotopic Compositions of Asteroidal Materials Returned from Itokawa by the Hayabusa Mission*](#) [#1755]
We will present the first results of the oxygen and magnesium isotopic compositions of Asteroid Itokawa by the Hayabusa Mission.
- 10:00 a.m. Noguchi T. * Nakamura T. Kimura M. Zolensky M. E. Tanaka M. Hashimoto T. Konno M. Nakato A. Ogami T. Fujimura A. Abe M. Yada T. Mukai T. Ueno M. Okada T. Shirai K. Ishibashi Y. Okazaki R.
[*SEM and TEM Observation of the Surfaces of the Fine-Grained Particles Retrieved from the MUSES-C Region on the Asteroid 25413 Itokawa*](#) [#1596]
As a part of the initial analysis of the particles retrieved from the asteroid Itokawa by the Hayabusa spacecraft, we are performing SEM and TEM observation of the surfaces of the particles to identify the cause of the asteroidal space weathering.
- 10:15 a.m. Okazaki R. * Nagao K. Miura Y. N. Osawa T. Bajo K. Matsuda S. Nakamura T. Shirai K. Abe M. Yada T. Noguchi T. Ishibashi Y. Fujimura A. Mukai T. Ueno M. Okada T. Yoshikawa M. Kawaguchi J.
[*Noble Gases Recovered from the Hayabusa Sample Container*](#) [#1653]
The Hayabusa sample capsule was successfully recovered on the earth in 2010. The sample container was recovered from the capsule and opened in a clean chamber at the curation facility of JAXA. Noble gases collected from the container have been investigated.
- 10:30 a.m. Nagao K. * Okazaki R. Nakamura T. Miura Y. N. Osawa T. Bajo K. Matsuda S. Ebihara M. Ireland T. R. Kitajima F. Naraoka H. Noguchi T. Tsuchiyama A. Uesugi M. Yurimoto H. Zolensky M. Shirai K. Abe M. Yada T. Ishibashi Y. Fujimura A. Mukai T. Ueno M. Okada T. Yoshikawa M. Kawaguchi J.
[*Noble Gases of the Itokawa Samples Returned by the Hayabusa Mission*](#) [#2119]
Noble gas isotopic compositions of the Itokawa samples returned by the Hayabusa mission will be presented. The noble gases will be extracted from single particles by laser heating method.
- 10:45 a.m. Kitajima F. * Kotsugi M. Ohkochi T. Naraoka H. Ishibashi Y. Abe M. Fujimura A. Okazaki R. Yada T. Nakamura T. Noguchi T. Nagao K. Tsuchiyama A. Mukai T. Sandford S. A. Okada T. Shirai K. Ueno M. Yoshikawa M. Kawaguchi J.
[*A Micro-Spectroscopic Approach to the Carbonaceous Matter in the Particles Recovered by the Hayabusa Mission*](#) [#1855]
We are planning to analyze the insoluble organic matter (IOM) in the particles recovered by the Hayabusa mission using micro-spectroscopic techniques. Their spectroscopic features can be a clue to the formation history of Itokawa.

Thursday Morning, March 10, 2011 (continued)

SPECIAL SESSION: RESULTS FROM HAYABUSA!

8:30 a.m. Waterway Ballroom 4

11:00 a.m. Naraoka H. * Mita H. Hamase K. Mita M. Yabuta H. Saito K. Fukushima K. Kitajima F. Sandford S. A. Nakamura T. Noguchi T. Okazaki R. Tsuchiyama A. Yada T. Shirai K. Fujimura A. Ishibashi Y. Abe M. Okada T. Ueno M. Mukai T.

[Preliminary Organic Compound Analysis of Particles Returned from Asteroid 25143 Itokawa by the Hayabusa Mission](#) [#1672]

A preliminary organic compound analysis is performed for the particles returned from Itokawa by the Hayabusa mission.

Thursday Afternoon, March 10, 2011

BRINES, GULLIES, AND THE CRYOSPHERE

1:30 p.m. Waterway Ballroom 1

1:30 p.m. McEwen A. * Ojha L. Dundas C. Mattson S. Byrne S. Wray J. Cull S. Murchie S.

[Transient Slope Lineae: Evidence for Summertime Briny Flows on Mars?](#) [#2314]

TSL form on equator-facing rocky slopes in southern summer from latitudes -32 to -48. This distribution, incremental formation and fading, and associated morphologies and mineralogies suggest the flow of brines.

Friday Morning, March 11, 2011

EARLY SOLAR SYSTEM RESERVOIRS AND PROCESSES III: VOLATILES IN NEBULAR MATERIALS AND THE SOLAR WIND

8:30 a.m. Waterway Ballroom 4

8:30 a.m. Marty B. * Chaussidon M. Jurewicz A. J. G. Wiens R. C. Burnett D. S.

[The Lowest \$^{15}\text{N}/^{14}\text{N}\$ End-Member of the Solar System is the Sun](#) [#1870]

We have measured with a new ion probe the nitrogen isotopic composition of the solar wind sampled by the Genesis spacecraft and found the lowest $^{15}\text{N}/^{14}\text{N}$ value known for solar system objects. We shall discuss its cosmochemical implications.

Poster Presentations:

Thursday, March 10, 2011

**POSTER SESSION II: CRUSTY MARS AND THE ANTARCTIC:
BRINES, CLATHRATES, HYDRATES, SALTS, GULLIES, AND METHANE
6:00 p.m. Town Center Exhibit Area**

Jouannic G. Gargani J. Costard F. Ori G. G. Marmo C. Schmidt F.
[*Geomorphic Study of Debris Flows on the Russell Dune \(Mars\): Comparison of Debris Flows and Present Flows Activity*](#) [#1734]

Recent work shows that the gullies of the Russell Dune are not only extremely youthful but seem to be still active. This study aims to compare the debris flows and present flows activity using morphologies and estimated physical flows properties.

Dundas C. M. Diniega S. McEwen A. S. Byrne S.
[*Observations of Present-Day Gully Activity on Mars*](#) [#2709]

We report on HiRISE observations of activity observed in martian gullies, including significant morphologic changes.