

Tuesday, March 19, 2013
POSTER SESSION: ICY SATELLITES
6:00 p.m. Town Center Exhibit Area

[T629]

Carter J. Gourgeot F. Dumas C. Poulet F. **POSTER LOCATION #436**
[Reconnaissance Compositional Mapping of the Icy Satellites of Jupiter Europa and Ganymede: Early Results](#) [#1748]

We conducted a groundbased compositional mapping campaign of the icy moons of Jupiter to identify possible endogenous processes imprinting on their surfaces.

Cameron M. E. Smith-Konter B. R. Pappalardo R. T. Collins G. Nimmo F. **POSTER LOCATION #437**
[Tidally-Driven Strike-Slip Failure Mechanics on Ganymede](#) [#2711]

Strike-slip tectonism may be important to the development of Ganymede's surface. Diurnal stress alone cannot drive motion; NSR shear stress may induce creep.

Bland M. T. McKinnon W. B. **POSTER LOCATION #438**
[Reevaluating Groove Formation on Ganymede: Forming Larger-Amplitude Grooves at Smaller Extensional Strains](#) [#2176]

New models of groove formation yield large-amplitude, graben-like structures at smaller strains. Non-associated plasticity and strain weakening are the key.

Nahm A. L. Cameron M. E. Smith-Konter B. R. Pappalardo R. T. **POSTER LOCATION #439**
[Stress-Triggered Faulting Along Agenor Linea, Europa](#) [#2968]

Fault segments making / Up Agenor cause triggered / Faulting on others.

Kattenhorn S. A. Hoyer L. Watkeys M. K. **POSTER LOCATION #440**
[Multi-Stage Dilational and Shearing History of Agenor Linea, Europa](#) [#1801]

Agenor Linea formed in at least three stages under different stress conditions. The first two stages were dilational; the third stage dextral transtension.

Culha C. Hayes A. G. Manga M. Thomas A. **POSTER LOCATION #441**
[Identifying Contraction and Expansion Along Double Ridges and Bands on Europa with Strike-Slip Displacements](#) [#2085]

Our research dissects the kinematics of each lineament on Europa's surface and defines the leading mechanisms of double ridges and bands.

Johnston S. J. Montési L. G. **POSTER LOCATION #442**
[The Role of Plastic Deformation and Crystallizing Water Intrusions in European Ridges](#) [#2932]

Determining the potential role of crystallizing water intrusions in an elastic-plastic ice shell on ridge formation on Europa using finite-element modeling.

Craft K. L. Patterson G. W. Lowell R. P. **POSTER LOCATION #443**
[Sill Emplacement in Europa's Ice Shell as a Driving Mechanism for Double Ridge Formation](#) [#3033]

We explore the viability of a sill emplacement mechanism involving fracturing and pressure-driven ascent of ocean water in a thickening ice shell on Europa.

Vance S. Goodman J. C. **POSTER LOCATION #444**
[The Structure and Evolution of Europa's Ocean and Ice Shell in the Presence of Aqueous MgSO₄](#) [#1877]

Finite difference applied to ocean mixing stores heat at seafloor.

ElShafie A. Heggy E. **POSTER LOCATION #445**
[Radar Detection of the Brittle-Ductile Transition on Icy Satellites Based on Ice's Mechanical and Electrical Properties](#) [#2300]

Detection of the brittle-ductile transition is challenging. We are proposing a detection method based on correlating mechanical and electrical properties of ice.

- Hansen G. B. **POSTER LOCATION #446**
[Modeling of Galileo/NIMS Europa Spectra of the Anti-Jovian and Trailing Sides Using Two Endmembers and Water Ice](#) [#2998]
 We have successfully modeled Europa spectra from Galileo/NIMS with two endmembers, including an average hydrate and sulfuric acid hydrate, and water ice.
- Hodyss R. Johnson P. V. Meckler S. M. **POSTER LOCATION #447**
[Far Ultraviolet Spectroscopy and Photochemistry of Sulfur Dioxide/Water Ice Mixtures](#) [#2328]
 Photolysis of sulfur dioxide/water ices at 280 nm results in significant photochemistry. This may be the dominant mechanism for SO₂ photochemistry on Europa.
- Patthoff D. A. Kattenhorn S. A. **POSTER LOCATION #448**
[The Contribution of Ancient Tiger Stripes to Plume Activity and Energy Flux on Enceladus](#) [#1675]
 New model suggests ancient tigers erupt plumes, contribute to heat.
- Khankhoje U. K. Mitchell K. L. Castillo-Rogez J. C. Janssen M. **POSTER LOCATION #449**
[Enceladus's Brilliant Surface: Radar Modeling](#) [#2531]
 Cassini RADAR reveals Enceladus to exhibit very high RADAR returns. Plausible scattering geometries are investigated by an electromagnetic computational tool.
- Matson D. L. Davies A. G. Johnson T. V. Castillo-Rogez J. C. Lunine J. I. **POSTER LOCATION #450**
[Forming CO₂ Ice On Enceladus' Surface](#) [#1373]
 "We found traces of free CO₂ ice..." [Brown et al., 1976]. How did pure CO₂ ice come to be on the surface? We offer an explanation.
- Roberts J. H. **POSTER LOCATION #451**
[Tidal Dissipation in a Frozen Enceladus](#) [#1317]
 Weak rubble-pile core / Tides may heat Enceladus / Ocean optional.
- Czechowski L. Losiak A. **POSTER LOCATION #452**
[Differentiation, Mineralogy and Melting of Rhea](#) [#2558]
 Thermal history of Rhea is investigated including possible chemical reactions. The heat of these reactions could be a substantial factor determining evolution.
- Phillips C. B. Hammond N. P. Roberts J. H. Nimmo F. Beyer R. A. et al. **POSTER LOCATION #453**
[Stereo Topography and Subsurface Thermal Profiles on Icy Satellites of Saturn](#) [#2766]
 Stereo topography, combined with numerical modeling, provides evidence for subsurface water on Saturn's satellites early in their history.
- Johnston R. White O. **POSTER LOCATION #454**
[Crater Chain Classification and Origins on Rhea](#) [#2581]
 After observations of crater chains possibly formed by tidally disrupted comet impacts on jovian satellites, Rhea is searched for similar morphological features.
- Herrick R. R. **POSTER LOCATION #455**
[The Shapes of Simple Craters in the Outer Solar System Determined with an Enhanced Shadow Measurement Technique](#) [#2825]
 I use an enhanced shadow measurement method to examine simple craters on outer planet moons. The method does not require the shadow to cross the crater center.
- Singer K. N. McKinnon W. B. Schenk P. M. **POSTER LOCATION #456**
[Large Landslides on Icy Satellites: New Examples from Rhea and Tethys](#) [#2955]
 We present an extended dataset of long-runout landslides on icy satellites (now including Tethys!), which exhibit reduced effective coefficients of friction.

Royer E. M. Hendrix A. R. **POSTER LOCATION #457**

[Far-Ultraviolet Photometric Characteristics of Tethys, Dione and Mimas](#) [#2338]

We investigate here the exogenic processes occurring on the surface of the larger icy satellites of Saturn located in the E ring, from the Cassini-UVIS dataset.

Galuba G. G. Denk T. **POSTER LOCATION #458**

[On the Thermal Feedback Process Leading to the Global Brightness Dichotomy of Iapetus Including the Effect of Orbital Precession](#) [#2195]

Calculation of the global migration of water ice on Iapetus taking into account exogenic infall on the leading side and precession of the orbit.

Cartwright R. Emery J. P. Rivkin A. Trilling D. **POSTER LOCATION #459**

[Near-Infrared Spectroscopy of Uranian Satellites: Searching for Carbon Dioxide Ice on Umbriel, Titania, and Oberon](#) [#1195]

We explore the distribution of CO₂ on uranian moons in order to investigate whether CO₂ is produced by charged particle bombardment of H₂O and C-rich material.

Dones L. Levison H. F. **POSTER LOCATION #460**

[The Impact Rate on Giant Planet Satellites During the Late Heavy Bombardment](#) [#2772]

Comets fly through space / Icy moons live through troubled times / Whew, we see them still.

Mookherjee M. Castilo-Rogez J. Bassett W. Wang Z. **POSTER LOCATION #461**

[High Pressure Behavior of Hydrous Silicates: Insights into the Cores of Icy Planetary Bodies](#) [#1817]

We will present results on static and thermal equation of state of serpentine. We will be using these results to develop new core models for Titan and Europa.

Walker M. E. Mitchell J. L. **POSTER LOCATION #462**

[Using Elastic Torque to Predict Libration on Icy Satellites](#) [#2763]

An elastic restoring torque can predict a set of elastic libration amplitudes that are dependent on the layering and rheology of the ice shells on icy moons.

Van Hoolst T. Baland R.-M. **POSTER LOCATION #463**

[The Effect of Tides on the Forced Libration of Large Icy Satellites](#) [#2036]

We study the effect of elastic tidal deformation on the libration of icy satellites. Deformation strongly reduces libration if a subsurface ocean exists.

Tian B. Y. Stanley S. **POSTER LOCATION #464**

[Interior Structure of Water Planets: Implications for Their Dynamo Source Regions](#) [#1638]

Using interior structure modeling to determine the planetary dynamo source region geometries for "ice" giants of various masses and compositions.