Tuesday, March 13, 2007
SPECIAL SESSION: VOLCANISM AND TECTONISM ON SATURNIAN SATELLITES
1:30 p.m. Crystal Ballroom A

Chairs: **A. C. Barr**
P. M. Schenk

1:30 p.m. Abramov O. * Spencer J. R.
South Polar Thermal Anomaly on Enceladus: Modeling and Observations **[#2343]**
Observations from July 2005 and November 2006 Cassini flybys of Enceladus are used to constrain a thermal model of cryovolcanism in the south polar region. Results suggest that surface temperatures of up to 225 K are consistent with Cassini data.

1:45 p.m. Glein C. R. * Zolotov M. Yu. Shock E. L.
Hydrothermal Geochemistry as the Source of Plume Gases on Enceladus: A Thermodynamic Evaluation **[#1251]**
Thermodynamic modeling indicates that hydrothermal systems that existed at temperatures near 300°C and oxidation states corresponding to PPM redox buffering could have produced fluids with compositions that are consistent with the plume's chemistry.

2:00 p.m. Newman S. F. * Buratti B. J. Brown R. H. Jaumann R. Bauer J. Momary T.
The Search for Hydrogen Peroxide on Enceladus **[#1769]**
Using observations from the VIMS aboard the spacecraft Cassini, we have searched for the presence of H_2O_2 on Enceladus. Our results suggest a tentative detection of H_2O_2 in a condensed form, using the 3.5 μm combination mode band as an indicator.

2:15 p.m. Nimmo F. * Spencer J. R. Pappalardo R. T. Mullen M. E.
Shear Heating at the "Tiger Stripes" of Enceladus? **[#1876]**
Shear heating due to tidal stresses may be responsible for the high heat flux and vapour plume observed at the south pole of Enceladus.

2:30 p.m. Hurford T. A. * Helfenstein P. Hoppa G. V. Greenberg R. Bills B. G.
Tidal Control of Geyser-like Eruptions on Enceladus **[#1290]**
Enceladus' finite eccentricity causes daily oscillations in the magnitude and location of the tidal bulge, producing patterns of stresses on its surface. We have analyzed the stresses along each tiger stripe rift to check whether any of the features were under tension during the observations.

2:45 p.m. Moore J. M. * Schenk P. M.
Topography of Endogenic Features on Saturnian Mid-Sized Satellites **[#2136]**
(1) Dione has ridge-bounded high-standing plains; (2) Rhea has a N-S belt of well-defined graben and extensional faults at ~270° that are co-incident with its "wispy terrain"; and (3) Tethys' plains unit boundary (at least in the first region we examined) is gradational.

3:00 p.m. Leisner J. S. * Khurana K. K. Russell C. T. Dougherty M. K. Persoon A. M. Blanco-Cano X. Strangeway R. J.
Observations of Enceladus and Dione as Sources for Saturn's Neutral Cloud **[#1425]**
With the Cassini magnetometer, we observe ion cyclotron waves through most of Saturn's neutral cloud and magnetic perturbations near Enceladus and Dione. We use these to determine the cloud's ionization rate and each moon's mass-loading rate.

3:15 p.m. Sotin C. * LeMouelic S. Brown R. H. Barnes J. Soderblom L. Jaumann R. Buratti B. J. Clark R. N. Baines K. H. Nelson R. M. Nicholson P.
Cassini/VIMS Observations of Titan During the T20 Flyby **[#2444]**
This paper describes high resolution hyperspectral images of Titan's surface obtained during the recent T20 flyby. It outlines features that are most likely related to endogenic processes.

3:30 p.m. Le Corre L. * Le Mouélic S. Sotin C. Rodriguez S. Tobie G. Brown R. H. Barnes J. Buratti B. Soderblom L. A. Jaumann R. Lopez R. Baines K. H. Clark R. Nicholson P. D.
Combined Analysis of RADAR T3 and VIMS T20 Observations: Preliminary Results on Possible Cryovolcanic Flows on Titan **[#1828]**
The comparison between high resolution infrared images and SAR observations suggests the presence of cryovolcanic flow-like features.

3:45 p.m. Nelson R. M. * Kamp L. Matson D. L. Irwin P. G. J. Baines K. H. Boryta M. D. Leader F. E. Jaumann R. Smythe W. D. Sotin C. Clark R. N. Cruikshank D. P. Drossart P. Pearl J. C. Hapke B. W. Lunine J. Combes M. Bellucci G. Biebring J. -P. Capaccioni F. Cerroni P. Coradini A. Formisano V. Filacchione G. Langevin R. Y. McCord T. B. Mennella V. Nicholson P. D. Sicardy B.
Saturn's Titan: Cassini VIMS Reports Regional Reflectance Change Consistent with Surface Activity **[#2158]**
We present evidence for active surface processes on Titan. Spectral analysis suggests occasional effusion events involving juvenile ammonia from Titan's interior being deposited on its surface.

4:00 p.m. Choukroun M. * Grasset O. Le Menn E. Morizet Y. Tobie G.
Methane Clathrate Hydrates Stability During Cryovolcanic Processes: Evidence from Their Experimental Study in the H_2O-NH_3-CH_4 System **[#1606]**
Studying methane hydrates (MH) stability under pressure in presence of ammonia shows that MH dissociation cannot occur at equilibrium on Titan. Warm ice intrusions could bring MH to the surface or induce outgassing if ammonia hydrates are present.

4:15 p.m. Wood C. A. * Mitchell K. L. Lopes R. M. C. Radebaugh J. Stoffan E. Lunine J.
Volcanic Calderas in the North Polar Region of Titan **[#1454]**
Some lakes in Titan's north polar region occur in circular structures that appear to be calderas. Some have raised rims, some are nested — smaller craters within larger ones. A few have bright flows. Are such calderas limited to this area?

4:30 p.m. Kargel J. S. * Furfaro R. Hays C. C. Lopes R. M. C. Lunine J. I. Mitchell K. L. Wall S. D. Cassini RADAR Team
Titan's GOO-Sphere: Glacial, Permafrost, Evaporite, and Other Familiar Processes Involving Exotic Materials **[#1992]**
A new Geologic Operating Organon (GOO) for Titan is based on the cryogenic activity of many hydrocarbon and organic substances. This model derives insight from volcanic, fluvial, lacustrine, permafrost, and glacial processes on Earth and beyond.