Thursday, March 10, 2011
MINI-MIMAS AND THOSE BATTERED SATURNIAN SATELLITES
1:30 p.m. Montgomery Ballroom

Chairs: **Michael Bland**
Gerald Patterson

1:30 p.m. Schenk P. *
Geology of Mimas? **[#2729]**
Mimas is not just a battered lump of rock (err, I mean ice). Nor is it the wreck of the Death Star. A global thermal event resets topography, global fracturing created grooves, Herschel bashed it, and plasma and electron bombardment alter its surface today.

1:45 p.m. Buratti B. J. * Brown R. H. Clark R. N. Mosher J. A. Cruikshank D. P. Filacchione G. Baines K. H. Nicholson P. D. Sotin C.
Mimas Between 0.35–5.1 Microns from Cassini VIMS Observations **[#1634]**
Cassini VIMS observations show that the trailing side of Mimas has smaller ice grains and is coated with Saturn's E-ring.

2:00 p.m. Schmedemann N. * Neukum G.
Impact Crater Size-Frequency Distribution (SFD) and Surface Ages on Mimas **[#2772]**
We present new results from crater counting on Mimas. We derived surface ages for the heavily cratered plains (4.3 Ga) as well as the crater Herschel (4.1 Ga) and have morphologic evidence for an impact structure larger than the crater Herschel.

2:15 p.m. Bierhaus E. B. * Dones L. Zahnle K. J.
The Role of Ejecta in Mid-Sized Saturnian Satellites' Crater Distributions **[#2616]**
We investigate the role, by measurement and by analytics, of primary crater ejecta in the mid-sized Saturnian satellites' crater distributions.

2:30 p.m. White O. L. * Schenk P. M.
Crater Shapes on the Saturnian Satellites: New Measurements Using Cassini Stereo Images **[#2283]**
Preliminary crater depth/diameter measurements have been made for the saturnian satellites using Cassini data, updating those of Voyager data. Rhea and Iapetus depth/diameter curves have been used to assess impact basin relaxation on Rhea.

2:45 p.m. Nimmo F. * Parsons R. A. Thomas P. C. Bills B. G.
Long Wavelength Satellite Topography from Limb Profiles: Geophysical Implications **[#1523]**
Limb profiles are used to derive long-wavelength satellite topography and variation in roughness with wavelength. Most satellites show a reduction in roughness at long wavelengths, perhaps due to a transition from elastic to isostatic support.

3:00 p.m. Hammond N. P. * Phillips C. B. Robuchon G. Beyer R. Nimmo F. Roberts J.
Crater Relaxation and Stereo Imaging of Rhea **[#2633]**
We use stereo images to measure crater depth and relaxation on Rhea. We compare our observations with a viscoelastic relaxation model to investigate Rhea's thermal history and subsurface properties.

3:15 p.m. Robuchon G. * Nimmo F. Roberts J.
Impact Basin Relaxation on Iapetus **[#1133]**
We combine thermal evolution models with basin relaxation calculations. Our results show a maximum relaxation of roughly 30% for the older and bigger basins and 5% for the smaller and are consistent with crater counts given by the Neukum team.

3:30 p.m. Kay J. P. * Dombard A. J.
Unstable Deformation and the Formation of the Equatorial Bulge of Iapetus **[#2441]**
By simulating a pole-to-equator variation in lithospheric thickness during an epoch of planetary contraction, we can tectonically reproduce the observed shape of Iapetus. Thus, the flattening may not be a frozen rotational bulge, as has been assumed.

3:45 p.m. Walsh K. J. * Levison H. F. Barr A. C. Dones L.
Ridge Formation and Despinning of Iapetus via an Impact-Generated Satellite **[#2562]**
We present a scenario that both builds the equatorial ridge and despinsIapetus through an impact-generated disk and satellite.

4:00 p.m. Rivera-Valentin E. G. * Blackburn D. G. Ulrich R.
Using Surface Thermal Inertia to Estimate the Thickness of the Iapetian Dark Material **[#1073]**
Using CIRS surface temperature readings of Iapetus, the new global Iapetian bolometric Bond albedo map, and our thermal model, we provide thermal constraints on the thickness of the dark material overburden.

4:15 p.m. Blackburn D. G. * Rivera-Valentin E. G. Ulrich R. Roe L. A.
The Upper Bound for CO_2 Transport on Iapetus: Narrowing in on the Nature of CO_2 in the Dark Material **[#1216]**
We modeled the loss rate of a hypothetical CO_2 polar cap on Iapetus in order to determine the upper bound flux of CO_2 entering the polar systems. Our model narrowed the potential candidates for the nature of CO_2 in the dark material.

4:30 p.m. Howard A. D. * Moore J. M. Schenk P. M.
Hypothetical Hyperion **[#1256]**
A simulation model of Hyperion's surface includes impact cratering, weathering, and mass wasting. The unique "swiss cheese" morphology is due to the non-retention on the surface of most of the impact debris and low crater rim heights.