Thursday, March 17, 2005
POSTER SESSION II: OUTER SOLAR SYSTEM
7:00 p.m. Fitness Center

Becker T. Geissler P. E.
Galileo Global Color Mosaics of Io **[#1862]**
Late in the mission, the Galileo SSI experiment at Io accomplished a goal by acquiring global color coverage at a consistent phase angle. An accurate color mosaic of Io will be useful for scientific and education purposes. U.S.G.S. Astrogeology plans to construct global color mosaic products.

Hargitai H. Schenk P. M.
The Io Mountain Online Database **[#2102]**
We describe the complete database of the Mountains of Io, which is available online at http://planetologia.elte.hu/io.

Rathbun J. A. Block M. G. Spencer J. R.
Io from High-Resolution Galileo PPR Data Taken Simultaneously with SSI or NIMS Observations **[#1990]**
Io is the most volcanically active body in the solar system. Here, we present high-resolution Galileo PPR data taken simultaneously with NIMS and SSI. The data are used to examine volcano temperatures at Emakong, Pele, Zamama, Amirani, and other locations.

Thorsos I. E. Davies A. G.
An Impact Genesis for Loki Patera? **[#1950]**
We consider an impact-caused genesis for Loki Patera on Io. Loki may be an example of impact-triggered volcanism. Rapid resurfacing may have obscured original crater morphological features. An impact genesis may explain Loki's thermal excess.

Rainey E. S. G. Stevenson D. J.
Grain Size-dependent Viscosity and Oceans in Icy Satellites **[#2100]**
Scaling laws for grain size in a convective icy satellite are derived, and with scaling laws for non-Newtonian stagnant lid convection, are applied to the question of whether subsurface oceans can exist in large icy satellites.

Lee S. Pappalardo R. T. Makris N. C.
Europa's Porous Ice Rheology and Implications for Ice-penetrating Radar Scattering Loss **[#2346]**
We show that there is no compelling reason to expect large scattering loss for Europa's ice-penetrating radar missions, unlike previous studies. Scattering by inhomogeneities and rough surfaces is investigated at roughly 3-m radar wavelength.

Schenk P.
Landing Site Characteristics for Europa 1: Topography **[#2321]**
Europa's surface is significantly steeper than sites selected for Mars landers. Most terrains slope between 5 and 25 degrees. The smoothest features over 10–50 meter length scales are grey bands.

Fairén A. G. Amils R.
Evidence for Variable Thickness in Europa's Icy Shell: Implications for Astrobiology Mission Design **[#1087]**
Europa's crust is a dynamic non-uniform icy shell, which displays regional and temporal heterogeneity in thickness, originated in spatial variations in tidal heating and/or warm water upwellings from the silicate interior.

Földi T. Hargitai H. Hegyi S. Hudoba Gy. Kovács Zs. Roskó F. Tóth Sz. Pintér A. Bérczi Sz.
Europa Analog Ice-splitting Measurements and Experiments with Ice-Hunveyor on the Frozen Balaton-Lake, Hungary **[#1147]**
To observe Europa-analogous ice cover splitting, on the top of the stable icy surface of Balaton-Lake, Hungary, four new measurements were prepared with Ice-Hunveyor university lander model.

Vetter J. C. Kattenhorn S. A.
Quantifying Exact Motions Along Lineaments on Europa **[#1053]**
Identifying precise motions (combinations of sliding and opening/closing) is critical to the accurate characterization and interpretation of Europan lineaments. We present a technique for accurately determining these motions.

Gleeson D. Crawford Z. Barr A. C. Mullen M. Pappalardo R. T. Prockter L. M. Stempel M. M. Wahr J.
Wavy and Cycloidal Lineament Formation on Europa from Combined Diurnal and Nonsynchronous Stresses **[#2364]**
We consider the parameter space in which cycloidal, wavy, and arcuate structures on Europa can form, and explore the effects on cycloids of adding nonsynchronous rotation and diurnal stresses.

Patterson G. W. Head J. W. III Pappalardo R. T.
A Quantitative Analysis of Plate Motion on Europa: Implications for the Role of Rigid vs. Nonrigid Behavior of the Lithosphere **[#1069]**
We have developed a quantitative technique for determining the Euler pole of rotation between two rigid plates and use it here to help clarify the nature of deformation of Europa's lithosphere (rigid or nonrigid).

Patterson G. W. Head J. W. III Collins G. C. Pappalardo R. T. Prockter L. M. Lucchitta B. K.
Geological Mapping of Ganymede **[#1068]**
We are compiling a global geologic map of Ganymede (at the 1:15M scale) that will represent the most recent understanding of the satellite on the basis of Galileo Mission data. Our progress thus far is presented here.

Bedle H. Jurdy D. M.
Ganymede's Sulci on Global and Regional Scales **[#1161]**
Characteristics of Ganymede's sulci are analyzed based on terrain and global locale, in order to better understand stress regimes of sulcus formation.

Bland M. T. Showman A. P.
Numerical Modeling of Extensional Necking Instabilities: Application to Ganymede's Grooved Terrain **[#2137]**
We present numerical models of extensional necking instabilities under conditions that are appropriate to the formation of Ganymede's grooved terrain. The models produce surface morphologies that are broadly consistent with Ganymede's grooves.

Sasaki T. Kanno A. Ishiguro M. Kinoshita D. Nakamura R.
Presence of Nonmethane Hydrocarbons on Pluto **[#1591]**
Here we report an infrared spectroscopy of Pluto observed by Subaru telescope. Comparing the spectrum with model calculations, we suggest that some absorption features could be an indication of nonmethane hydrocarbons on Pluto's uppermost surface.

Kim K. J. Reedy R. C. Masarik J.
Effects of Cutoffs on Galactic Cosmic-Ray Interactions in Solar-System Matter **[#1397]**
The effects of cutoffs caused by magnetic fields on GCR interactions in the Earth's atmosphere and in the surface of Europa were studied using numerical-simulation codes. Locations of peaks and slopes of rates versus depth vary with cutoff.

De Young R. J. Bergstralh J. T.
New Active Remote-sensing Capabilities: Laser Ablation Spectrometer and Lidar Atmospheric Species Profile Measurements **[#1196]**
A follow on JIMO mission is proposed. A high energy laser is used for both laser ablation surface science and also for lidar measurements of atmospheric species profiles.

Arenberg J. W. Chou M. S. Sollitt L.
Laser Induced Desorption of Cryogenic Water Ice **[#1233]**
We report on continuing efforts to characterize a laser desorption and thermal emission spectroscopic technique that could be used to detect and analyze the abundances of organic and inorganic compounds in the surfaces of Jupiter's icy moons.

Whiddon W. B. Christensen A. Landecker P. Reuter J. Sollitt L.
Landing on Europa **[#1157]**
This paper will look at potential capabilities of a lander payload for the JIMO spacecraft. It will examine science opportunities at Europa that a lander could provide, as well as different classes of landers that could be deployed.

Christensen A. Leavitt K. Johnson T. Reuter J. M.
Unique Science Features of the JIMO Vehicle **[#1463]**
A conceptional design of the JIMO vehicle will be presented describing the entire system from the power source to the mission module, highlighting science features of the design.

Reuter J. Christensen A. Landecker P. Whiddon W. B. Sollitt L.
Nuclear Powered Spacecraft Enables New Science Capabilities for Future Space Science Missions **[#1158]**
This paper examines the use of the Prometheus One technology being developed for use in future space science missions. The paper will focus on mission design and science. Missions examined will include: Neptune/Triton Orbiter, Titan Orbiter, and Kuiper Belt Orbiter.

Spilker T. R. Spilker L. J. Ingersoll A. P.
Outstanding Science in the Neptune System from an Aerocaptured NASA "Vision Mission" **[#1928]**
NASA-funded studies at JPL and Caltech indicate aerocapture at Neptune would allow a Cassini-like mission to the Neptune system, including delivery of multiple Neptune entry probes and many close flybys of Triton, for intensive study of Neptune and its rings, satellites, and magnetosphere.

Weinwurm G. Weber R.
Planetary Gravity Fields and Their Impact on a Spacecraft Trajectory **[#1279]**
Implementation of complex ellipsoidal coordinates for the calculation of gravity field models of small irregular planetary bodies and the impact of the bodies' gravity fields on a spacecraft trajectory for future space mission flyby planning.