Thursday, March 17, 2005
POSTER SESSION II: LUNAR GEOPHYSICS
7:00 p.m. Fitness Center

Wilson T. L.
Moonshine Versus Earthshine: Physics Makes a Difference **[#1201]**
The Moon is treated as a calorimeter for measuring its cosmic-ray (CR) albedo produced by energetic CRs striking its surface. Monte Carlo results are used to predict this albedo as a component of lunar luminescence. The dark of the Moon is redefined.

Petrova N. Gusev A.
Modeling of the Free Lunar Libration **[#1448]**
Results of modeling of free lunar rotation modes in dependence on a size, ellipticity, densitiy and state of aggregation of a lunar core, effects of dissipation are considered for the two- and three-layer Moon.

Gusev A. Kawano N. Petrov N.
Fine Phenomena of the Lunar Libration **[#1447]**
The geophysical evolution processes for formation of a fluid outer/solid inner core in the Moon are considered. In a case of free rotation of a three-layer Moon four modes in its polar motion might be observed.

Kikuchi F. Ping J. Hong X. Aili Y. Liu Q. Matsumoto K. Asari K. Tsuruta S. Kono Y. Hanada H. Kawano N.
VLBI Observation of Narrow Bandwidth Signals from the Spacecraft **[#1551]**
We carried out a VLBI observation of GEOTAIL by using a narrow bandwidth system. A few carrier waves with frequency interval of 1.5 MHz were correlated by software. As a result, the group delay was estimated within an error of less than 1 ns.

Bulow R. C. Johnson C. L. Shearer P. M.
Detection of New Deep Moonquakes in the Apollo Lunar Seismic Data: Implications for Temporal and Spatial Distribution **[#1581]**
New deep moonquakes found in the Apollo seismic data create a complete event catalog and larger numbers of stackable waveforms for a given deep cluster. These findings permit more robust analyses of tidal periodicities and source locations.

Khan A. Mosegaard K. Williams J. G. Lognonné P.
The Core of the Moon — Molten or Solid? **[#1122]**
We have inverted the second degree tidal love number, tidal quality factor, mass and moment of inertia to obtain information on the lunar core. Our results show that a small core of radius 350 km, density of 7 g/ccm and shear wave velocity around 0 km/s is the most likely outcome.

Barkin Yu. V. Ferrandiz J. M. Garcia Ferrandez M.
Earth, Moon, Mercury and Titan Seismicity: Observed and Expected Phenomena **[#1076]**
Using a dynamical analogy in translatory-rotary motions of the Moon and others synchronous satellites and Mercury we have obtained evaluations of periods of variations of the seismic activity of the Titan and Mercury.

Koyama J.
Chaotic Occurrence of Some Deep Moonquakes **[#1077]**
By a nonlinear method of Poincare map to time distribution in the newly-revised Apollo seismic event catalogue, we have revealed previously undetected features of hidden periodic components on the deep moonquake activity.

Nakamura Y.
Spatial Extent of a Deep Moonquake Nest — A Preliminary Report of Reexamination **[#1168]**
Spatial extent of A1 deep moonquake nest was reexamined with a recently expanded list of events. Contrary to expectation, the spread of hypocenters remained about the same — less than a km. A question remains why the nest is so compact.

Williams J. G. Boggs D. H. Ratcliff J. T.
Lunar Fluid Core and Solid-Body Tides **[#1503]**
Solutions for lunar science parameters continue to improve. A fluid core and strong tidal dissipation are inferred from the effect of dissipation on rotation. A second line of evidence for a fluid core, the core-mantle boundary flattening, appears significant.

Johnson C. L. Stixrude L. Lithgow-Bertelloni C. Bulow R. C. Shearer P. M.
Mineralogical and Seismological Models of the Lunar Mantle **[#1565]**
We construct self-consistent mineralogical models of the moon, calculating their associated physical properties, including seismic velocities. We assess models compatible with new and published travel times from lunar seismograms.

Beck A. R. Morgan Z. T. Liang Y. Hess P. C.
Dunite Dikes in the Lunar Mantle? **[#2220]**
We investigate mechanisms for melt migration through the lunar mantle with a series of harzburgite dissolution experiments. High-Ti magmas preferentially dissolve orthopyroxene and precipitate olivine forming dunite.

Seki K. Terada N. Shinagawa H. Ozima M.
Estimation of Ion Escape Rates from Non-Magnetic Earth: On Contribution of Terrestrial Ion Flows to Non-Solar Components Implantated in Lunar Soils **[#1200]**
Loss rates of heavy atmospheric constituents (e.g., N and Ar) from early non-magnetic Earth through the solar wind induced escape are estimated in order to access whether these escaping ions contribute to non-solar components implanted in lunar soils.