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.

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

Moynier F. Herzog G. F. Albarède F. A.
Isotopic Fractionation of Copper and Zinc in Lunar Materials **[#1382]**
Cu and Zn isotope abundance measurements for lunar samples fall into three groups: Ti-rich basalt 74275 has near normal isotope abundances; orange glass 74220 is enriched in the lighter isotopes; ten soils are enriched in the heavier isotopes.

Farquhar J. Wing B. A.
Sulfur Multiple Isotopes of the Moon: ^{33}S and ^{36}S Abundances Relative to Canon Diablo Troilite **[#2380]**
We are measuring sulfur multiple isotope abundances in 10 lunar basalts, a suite of terrestrial igneous rocks, and samples of Canon Diablo Troilite (CDT). Ongoing measurements suggest that the acid volatile sulfur (AVS) in lunar basalts is only slightly enriched in ^{34}S relative to CDT.

Ranen M. C. Jacobsen S. B.
Isotopic Composition of Lunar Soils and the Early Differentiation of the Moon **[#2023]**
This study will measure Hf-W, Rb-Sr, Lu-Hf, and $^{147,146}Sm$-$^{143,142}Nd$ isotopes of Apollo 14 and 16 soils to estimate the average isotopic composition of the lunar crust in order to constrain timescales and magnitude of magma ocean crystallization.

Nemchin A. A. Whitehouse M. J. Pidgeon R. T. Meyer C.
Isotopic Composition of Oxygen in Lunar Zircons **[#1274]**
Oxygen isotope analyses are reported for zircons from three lunar samples. They fall on the $\delta^{17}O$ vs. $\delta^{18}O$ terrestrial fractionation line. All samples with an exception of one show a restricted range of $\delta^{18}O$, similar to that reported for lunar rocks.

Pidgeon R. T. Nemchin A. A. Meyer C.
A Further Investigation of the Exceptional Zircon Aggregate in Lunar Thin Section 73235,82 **[#1275]**
The exceptional zircon aggregate is interpreted as fragments of an original large zircon set within a matrix of secondary zircon formed during a major impact. The two U-Pb ages in this zircon register the primary zircon age and the age of impact.

Thursday, March 17, 2005
POSTER SESSION II: IMPACTS AND THEIR EFFECTS ON EARTH AND ABOVE
7:00 p.m. Fitness Center

Carmona J. A. Cook M. Cooper M. Schmoke J. Reay J. Matthews L. Hyde T. W.
Construction of a PZT Sensor Network for Low and Hypervelocity Impact Detection **[#1127]**
This paper will discuss a multiple PZT sensor network capable of determining both impactor momentum and location currently in development within CASPER.

Welten K. C. Hillegonds D. J. Jull A. J. T. Kring D. A.
Atmospheric Fragmentation of the Gold Basin Meteoroid as Constrained from Cosmogenic Nuclides **[#2352]**
We studied the atmospheric fragmentation of the large Gold Basin meteoroid (R = 3–5 m) by evaluating a possible relationship between shielding depth (derived from cosmogenic nuclides in 40 Gold Basin samples) and the location of find in the strewnfield.

Chapman M. G.
Newly Discovered Meteor Crater Metallic Impact Spherules: Report and Implications **[#1907]**
This report documents the discovery and implications of large (3 mm to 1.5 cm), nonvesicular metallic spherules 82 km from Meteor (Barringer) impact crater.

Herzog G. F. Alexander C. M. O'D. Glass B. P. Berger E. L. Delaney J. S.
Potassium Isotope Fractionation in Australasian Microtektites: Evidence for Evaporation and Re-Condensation in a Vapor Plume **[#1167]**
Values of δ^{41}K (‰) for 13 Australasian microtektites range from –10.2±0.5 to +14.1±0.5; no such large effects are seen in tektites. We propose that the isotopic fractionation took place in a plume, initially hot but rapidly cooling, associated with microtektite formation.

Serefiddin F. Herzog G. F. Koeberl C.
Beryllium-10 in Ivory Coast Tektites **[#1466]**
^{10}Be concentrations in Ivory Coast tektites are consistent with formation from near surface terrestrial soils. Concentrations 77% lower than in Australasian tektites reflect differences in source materials, longer decay and environmental factors.

Lee S. R. Horton J. W. Jr. Walker R. J.
Osmium-Isotope and Platinum-Group-Element Systematics of Impact-Melt Rocks, Chesapeake Bay Impact Structure, Virginia, USA **[#1700]**
Low ^{187}Os/^{188}Os ratios and enriched PGE concentrations in impact-melt rocks from the late Eocene Chesapeake Bay impact structure clearly confirm the presence of as much as 0.1 to 0.2% of an extraterrestrial component in the structure.

Sklute E. C. Dyar M. D. Minitti M. E. Leshin L. A. Guan Y. Luo S. Ahrens T. J.
Mössbauer Spectroscopy of Shocked Amphiboles **[#2040]**
Room temperature Mössbauer data from unshocked and shocked amphiboles are used to understand the oxidation/reduction effects of simulated impact on hydrous minerals.

McHone J. F. Fries M. Steele A.
Raman Imaging of Natural Coesite in Archived Petrographic Thin Sections: Vredefort Impact Structure **[#2315]**
Using a confocal Raman imager, natural coesite from the Vredefort Dome, South Africa has been nondestructively detected and mapped in petrographic thin sections.

Langenhorst F. Kyte F. T. Retallack G. J.
Reexamination of Quartz Grains from the Permian-Triassic Boundary Section at Graphite Peak, Antarctica **[#2358]**
A reexamination of quartz grains from the P/T boundary at Graphite Peak, Antarctica shows no evidence of planar deformation features characteristic of shock metamorphism.

Huson S. A. Pope M. C. Watkinson A. J. Foit F. F.
Possible Planar Elements in Zircon as Indicator of Peak Impact Pressures from the Sierra Madera Impact Crater, West Texas **[#2048]**
Shock features in zircon grains to tentatively place an upper limit on pressure during the Sierra Madera impact event.

Öhman T. Raitala J.
Geochemistry of the Dark Veinlets in the Granitoids from the Söderfjärden Impact Structure, Finland: Preliminary Results **[#1738]**
Peculiar dark veinlets in the granitoids on the rim of Söderfjärden impact crater haven't yet revealed any petrographic or geochemical evidence of friction melting or shock metamorphism. Thus their genetic connection to the impact remains unresolved.

Harris R. S. Schultz P. H. Bunch T. E.
Evidence for Shocked Feldspars and Ballen Quartz in 450,000 Year Old Argentine Impact Melt Breccias **[#1966]**
Shocked feldspars (containing PDFs and diaplectic glass) and ballen quartz identified in Centinela del Mar (450 ka) melt breccias support the impact origin of these glasses and provide insights into the shock deformation of porous sediments.

Sakamoto M. Gucsik A. Ninagawa K. Nishido H. Shichi R. Toyoda S. Bidló A. Brezsnyánszky K.
Mt. Oikeyama Structure: First Impact Structure in Japan? **[#1242]**
The pillaring texture of the microdeformations and PDFs of the quartz from Oikeyama, Japan, suggest that this structure was formed by an impact event.

Di Achille G.
A New Candidate Impact Site in Northeastern Sudan Detected from Remote Sensing **[#1606]**
A new possible impact structure has been observed in the northeastern Sudan. Using remote sensing analysis, geomorphologic and topographic evidence had been inferred to propose the impact site candidature for the study structure.

Belhai D. Merle O. Vincent P. Afalfiz A. Devouard B.
Are the Complex Algerian Meteoritic Craters Potential Hydrocarbon Traps? **[#1023]**
The geological analysis of the meteoritic craters of Tin Bider and Ouarkziz (Sahara, Algeria) reveals identical characters to those of Ava and Viewfield. Their detailed study will make it possible to slice as for the presence or not of hydrocarbons.

Heggy E. Paillou P. Mills D. Clifford S. M.
Mapping Buried Impacts Craters Using Ground-penetrating Radar: Mapping Some Structural Elements of the Largest Impact Field in the Western Egyptian Desert **[#2375]**
We present ground penetrating profiles of a number of relatively small buried craters of 30 to 100 m diameters and 3 to 10 m deep located in the largest impact crater field recently discovered in Southwest of the Egyptian by Paillou et al. in early 2004.

Earl J. Chicarro A. F. Koeberl C. Marchetti P. G. Milnes M.
Automatic Recognition of Crater-like Structures in Terrestrial and Planetary Images **[#1319]**
We describe new efforts regarding recognition and detection of impact craters on Earth and Mars by using remote sensing images. In particular, approaches based on the Hough Transform and on the Radial Consistency measure are considered and compared.

Milam K. A. Deane B.
Petrogenesis of Central Uplifts in Complex Terrestrial Impact Craters **[#2161]**
An examination of the petrogenesis of central uplifts in complex terrestrial craters and the common paragenetic sequence that deformation features display.

Horton J. W. Jr. Gohn G. S. Jackson J. C. Aleinikoff J. N. Sanford W. E. Edwards L. E. Powars D. S.
Results from a Scientific Test Hole in the Central Uplift, Chesapeake Bay Impact Structure, Virginia, USA **[#2003]**
A test hole in the Chesapeake Bay impact structure provides the first cores from the central uplift; reveals previously unknown suevites, melt rocks, shock-metamorphic features, and hydrothermal alteration; and serves as a pilot for future drilling.

King D. T. Jr. Petruny L. W.
Sedimentology of Impactoclastic Breccias, Cretaceous-Tertiary Boundary, Belize **[#1045]**
Impactoclastic breccias related to Chicxulub impact structure were analyzed using standard sedimentologic techniques in an attempt to better understand their origin and mode(s) of emplacement.

Zurcher L. Lounejeva-Baturina E. Kring D. A.
Preliminary Analysis of Relative Abundances of Hydrothermal Alteration Products in the C1-N10, Y6-N19, and Yax-1_863.51 Impact Melt Samples, Chicxulub Structure, Mexico **[#1983]**
Impact melt rocks from the C-1, Y-6, and Yax-1 boreholes in the Chicxulub structure sampled what may be a continuous crater-sized hydrothermal system. The purpose of this study is to estimate mineral modes to review possible alteration zonation patterns at the scale of the impact structure.

Kalleson E. Dypvik H. Naterstad J.
Sedimentary Infill of the Gardnos Impact Crater — A Field Report **[#1182]**
Recent field and core studies of the late Precambrian Gardnos impact structure have resulted in an updated and redrawn geological map, and a proposed sediment infill history, describing the sedimentary processes acting in the fresh crater.

Lindgren P. Parnell J.
Liquid Immiscibility in Suevite Melt, Gardnos Impact Crater **[#1629]**
Suevite melt from Gardnos impact crater show textures of liquid immiscibility between two silicate phases. These textures include intermingling tunnels, budding structures, flow of one phase within the other and curved menisci between the two phases.

Ormö J. Lindström M. M.
New Drill-Core Data from the Lockne Crater, Sweden: The Marine Excavation and Ejection Processes, and Post-Impact Environment **[#1124]**
Three short core drillings were performed in August 2004. They give information on the post-impact, geochemical environment, and the excavation process when strongly influenced by a thick layer of water in the upper part of the target.

Tsikalas F. Faleide J. I.
Post-Impact Deformation of Impact Craters: Towards a Better Understanding Through the Study of Mjølnir Crater **[#1022]**
The study of Mjølnir Crater has clearly shown the great importance of long-term deformation processes operating after impact. It appears that the establishment of a “post-impact modification correction factor” is prerequisite for several structures.

Glimsdal S. Pedersen G. Shuvalov V. Dypvik H. Langtangen H. P. Kristiansen O.
Tsunami Generated by the Mjølnir Impact **[#1287]**
The tsunami generated by the Mjølnir impact is described. Due to shallow water, we have found that the tsunami formed undular bores resulting in trains of solitary waves with amplitudes up to 300 m.

Dypvik H. Wolbach W. S. Shuvalov V. Weaver S. L. W.
Did the Mjølnir Asteroid Impact Ignite the Barents Sea Hydrocarbon Source Rocks? **[#1020]**
The soot particles most likely came from pyrolysis and combustion heating of the organic rich, partly volatile, dark clays of the sea bed (Hekkingen Formation). This heating occurred during shock wave propagation through the target sediments with fire lasting the 20 minutes dry sea bed period.

Graham R. A. Wilson W. F.
Reinvestigation of the Bee Bluff Structure South of Uvalde, Texas, 'The Uvalde Crater.' **[#1086]**
Investigation of the Bee Bluff Structure provides new evidence for an impact crater origin. A 300 kg rock preserving numerous impactite features called the 'Uvalde Crater Rosetta Stone,' promises to provide detail on the first billion nanoseconds of the impact events.

Sandberg C. A. Poole F. G. Morrow J. R.
Milk Spring Channels Provide Further Evidence of Oceanic, >1.7-km-Deep Late Devonian Alamo Crater, Southern Nevada **[#1538]**
New conodont microfossil and stratigraphic data on a deep-water, offshore breccia channel deposit of the marine, early Late Devonian Alamo Impact, Nevada, provide further evidence of its crater depth and off-platform impact site.

Dulin S. A. Elmore R. D. Gardner K. G.
Impacts in Carbonate Target Rocks: A Paleomagnetic Study of the Weaubleau-Osceola and Alamo Breccia Impact Structures **[#1371]**
The objective of this paleomagnetic study is to investigate two impact features in carbonate rocks to develop a model that can be used to constrain the age of impacts and provide insights on the sedimentary processes involved during deposition of bolide related units.

Glass B. J. Domville S. Lee P.
Further Geophysical Studies of the Haughton Impact Structure **[#2398]**
The investigation discussed here examines and surveys the Haughton Impact Structure, characterizing it and the surrounding regional area with newly-added gravity survey data.

Thursday, March 17, 2005
POSTER SESSION II: MER AND MOC RESULTS
7:00 p.m. Fitness Center

Golombek M. P. Arvidson R. E. Bell J. F. III Christensen P. R. Crisp J. Ehlmann B. L. Fergason R. L. Grant J. A. Haldemann A. F. C. Parker T. J. Squyres S. W. Athena Science Team
Assessment of Mars Exploration Rover Landing Site Predictions **[#1542]**
Assessment of Mars Exploration Rover landing site predictions made in the evaluation of remote sensing data during selection indicates most of the important surface characteristics were correctly predicted.

Schwochert M. A. Maki J. N.
The Mars Exploration Rover Cameras: A Status Report **[#1793]**
With more than 68,000 images returned from the surface of Mars, the Mars Exploration Rover camera suite continues to perform extremely well. Image SNRs are greater than 200:1, flat fields remain stable, and single-pixel degradation is negligible.

Fergason R. L. Christensen P. R.
Thermophysics at the MER Spirit and Opportunity Landing Sites: Perspectives from the Surface and from Orbit **[#1265]**
Understanding thermophysical properties of MER landing site surfaces is important for identifying recent processes effecting these regions. We developed a technique to calculate thermal inertia values from Mini-TES spectra and present our results.

Bertelsen P. Bell J. F. III Goetz W. Gunnlaugsson H. P. Herkenhoff K. E. Hviid S. F. Johnson J. R. Kinch K. M. Knudsen J. M. Madsen M. B. McCartney E. Merrison J. Ming D. M. Morris R. V. Olsen M. Proton J. B. Sims M. Squyres S. W. Yen A. S.
Dynamic Dust Accumulation and Dust Removal Observed on the Mars Exploration Rover Magnets **[#2250]**
The Mars Exploration Rovers carry a set of Magnetic Properties Experiments designed to investigate the properties of the airborne dust in the Martian atmosphere. This abstract will focus on dust deposition and dust removal on some of the magnets.

Li R. Squyres S. W. Arvidson R. E. Bell J. F. III Crumpler L. S. Des Marais D. J. Di K. Golombek M. P. Grant J. Guinn J. Greeley R. Kirk R. L. Maimone M. Matthies L. H. Malin M. C. Parker T. Sims M. Soderblom L. A. Wang J. Watters W. A. Whelley P. Xu F. Athena Science Team
Results of Rover Localization and Topographic Mapping for the 2003 Mars Exploration Rover Mission **[#1349]**
This paper presents the results of rover localization and topographic mapping for the 2003 MER mission. Topographic maps, rover traverse maps, and updated rover locations have been routinely produced to support tactical and strategic operations.

Seelos F. P. Arvidson R. E. Guinness E. A. Wolff M. J.
Radiative Transfer Photometric Analyses at the Mars Exploration Rover Landing Sites **[#2054]**
MER Pancam radiance data is inverted to optimize bidirectional reflectance model parameters for the Martian surface.

Blaney D. L. Bell J. F. III Cabrol N. A. Christensen P. R. Farand W. Ming D. W. Moersch J. E. Ruff S. Athena Science Team
Spectral Divsersity at Gusev Crater from Coordinated Mini-TES and Pancam Observations **[#2064]**
Spirit has explored Gusev crater with Pancam and Mini-TES. Coordinated and targeted observations were used to determine the spectral diversity. Three classes of rocks were identified spectrally. Natural and brushed surfaces can be spectrally similar.

Ruff S. W. Christensen P. R. Blaney D. L. Athena Science Team
The Rocks of Gusev Crater as Viewed by Mini-TES **[#2155]**
Mini-TES on the Spirit rover has documented three different classes of rocks in Gusev Crater that represent a diverse geological history.

Cabrol N. A. Greeley R. Athena Science Team
Characterization of Non-Organized Soils at Gusev Crater with the Spirit Rover Data **[#2328]**
We surveyed the characteristic of non-organized soils at Gusev crater at microscale and macroscale in four main traverse regions: (1) Landing site to Bonneville crater; (2) Bonneville to West Spur; (3) the West Spur region; and (4) the Columbia Hills up to sol 363.

Wang A. Haskin L. A. Korotev R. L. Jolliff B. L. de Souza P. A. Jr. Kusack A. G. Athena Team
Evidence of Phyllosilicate in Wooly Patch — an Altered Rock Encountered on the Spirit Rover Traverse **[#2327]**
Rock Wooly Patch on West Spur has several specific physical and chemical features. Based on our analyses, phyllosilicates of kaolinite, serpentine, and chlorite types, plus some feldspar and pyroxene are prime candidates to constitute this rock.

Metzger S. M.
Evidence of Dust Devil Scour at the MER Spirit Gusev Site **[#2397]**
Using MOC and MER, this report examines at broadly different scales the effects of dust devil vortices on the surface in Gusev crater. Results include a rare occurrence of proper meteorological and geological formation conditions, and the removal of substantial volumes of dust from the surface.

Edgett K. S. Malin M. C.
The Sedimentary Rocks of Meridiani Planum, in Context **[#1171]**
Sedimentary rocks at the MER-B site are part of a stratigraphic section more than 1 km thick. The rocks are not superimposed on heavily cratered terrain, they are part of it, and they record a rich, diverse history.

Weitz C. M. Anderson R. C. Bell J. F. III Cabrol N. A. Calvin W. M. Ehlmann B. L. Farrand W. H. Greeley R. Herkenhoff K. E. Johnson J. R. Jolliff B. L. Morris R. V. Soderblom L. A. Squyres S. W. Sullivan R. J.
Seeing the Soils of Meridiani Planum Through the Eyes of Pancam and Microscopic Imager **[#1362]**
We are using data from the Pancam and Microscopic Imager (MI) on the Opportunity rover to characterize soil grains at Meridiani Planum greater than 0.3 mm in size. In general, the size of most grains within Eagle crater falls between 1.5–3.5 mm, and they are very circular in cross section.

King P. L. Lescinsky D. T. Nesbitt H. W.
Comparison of Predicted Salt Precipitation Sequences with Mars Exploration Rover Data **[#2300]**
We compare predicted salt precipitation sequences with Mars Exploration Rover data.

Kargel J. S.
Aqueous Chemistry, Physical Chemistry, and Sedimentology of Rocks at the Mars Rover Landing Sites **[#2149]**
Observations at Meridiani Planum indicate layer-by-layer aqueous deposition in a highly acidic and hypersaline sea that was very cold, but not as cold as current prevalent conditions. A huge debris flow is likely at Gusev Crater.

Schaefer M. W. Dyar M. D. Agresti D. G. Schaefer B. E.
Error Analysis of Remotely-Acquired Mössbauer Spectra **[#2047]**
Mössbauer spectroscopy is being used to assist in mineral identification on Mars. We discuss the major sources of error associated with peak positions in remotely-acquired spectra, and speculate on their magnitude and influence on interpretation.

Seda T. Irving A. J.
Thin Wafer Transmission Mössbauer Spectra of Four Shergottites: Implications for Mineralogy of Rocks at Mars Exploration Rover Sites **[#2204]**
Mössbauer spectra were obtained on thin wafers of four shergottite meteorites for comparison with data for rocks at the Spirit and Opportunity sites.

Bérczi Sz.
Possibility of Karst Morphology on the Martian Surface at the Meridiani Landing Site from Comparison with Terrestrial Analogs **[#1051]**
On Opportunity images of the 70–74 sols chains of pits forming a trench pattern can be interpreted as dolines, the whole trench pattern as a solution groove, both belonging to counterpart terrestrial karst morphology.

Jolliff B. L. Athena Science Team
Composition of Meridiani Hematite-rich Spherules: A Mass-Balance Mixing-Model Approach **[#2269]**
A mass-balance model using APXS data and microscopic images indicates that the composition of spherules ("blueberries"), found at the Meridiani site by the Mars Exploration Rover Opportunity and thought to be concretions, contain ~45–60 wt% hematite.

Gánti T. Pocs T. Bérczi Sz. Ditroi-Pukas Z. Gal-Solymos K. Horváth A. Nagy M. Kubovics I.
Morphological Investigations of Martian Spherules, Comparisons to Collected Terrestrial Counterparts **[#2026]**
We studied the morphology of the Martian spherules and compared them with their terrestrial counterparts with hematite crust, collected in Venezuela and West Australian deserts, and discussed their possible formation processes.

Stein T. C. Arvidson R. E.
MER Analyst's Notebook: Integrating Data and Documentation for Mission Playback **[#1246]**
The MER Analyst's Notebook provides access to the MER mission data archives by integrating sequence information, engineering and science data, and documentation into Web-accessible pages to facilitate mission "replay."

Malin M. C. Edgett K. S.
MGS MOC: First Views of Mars at Sub-Meter Resolution from Orbit **[#1172]**
Since 2003, MGS MOC has been acquiring images of Mars at sub-meter resolution, revealing new details and testing hypotheses regarding the planet's geology and geomorphology.