Tuesday, March 13, 2007
POSTER SESSION I: MARS VOLCANISM
6:30 p.m. Fitness Center

Plescia J. B.
Volcanology of the Elysium Volcanoes **[#2140]**
Elysium Mons, Albor Tholus, and Hecates Tholus have summit calderas, lava flows, and flank faults. Their morphology indicates they are shield volcanoes. Evidence for pyroclastic volcanism is absent. Surface mantling results from aeolian deposition.

Bleacher J. E.
Observations of the Campout Tube-fed Flow Encountering a Slope Break, Kilauea, Hawaii: An Analogue to Lava Fans on Olympus Mons, Mars **[#1886]**
Lava emplaced from the Campout lava tube over a break in slope at ~10° produced a delta-like feature composed of a network of open channels and smooth flow lobes, similar to lava fans on Olympus Mons, suggesting a similar mode of formation.

Hughes S. S. Heggy E. Clifford S. M.
Mapping Shallow Subsurface Structural Elements in Mafic Pyroclastics Using Polarimetric and Multiple Frequencies Ground Penetrating Radar: Implications for Mars Subsurface Mapping **[#2437]**
Investigation of volcanic features by GPR provides a powerful tool for understanding the processes in their formation. We carried out a parametric study of several features at Craters of the Moon (COM) National Monument in Idaho (USA).

Gunnarsdottir H. M. Linscott I. R. Callas J. L. Tyler G. L. Cousins M. D.
Martian Surface Roughness Using 75-cm Bistatic Surface Echoes Received by Mars Odyssey **[#1215]**
Between August and December 2005, we conducted 76 bistatic scattering experiments using the SRI 46-m antenna in the Stanford foothills to illuminate Mars for 20 minute periods with an unmodulated 75 cm-λ, circularly polarized wave. We report the small scale surface roughness along the specular tracks.

Morris A. R. Anderson F. S. Mouginis-Mark P. J. Haldemann A. F. C. Garbeil H.
Analysis of Topographic Roughness of Martian and Hawaiian Terrains **[#2105]**
We present maps of roughness statistics of analog lava flows in Hawaii derived from various topographic datasets. We seek to identify the roughness scales necessary to constrain the emplacement of volcanic features on the surface of Mars.

Bulmer M. H. Finnegan D. Smith J. Morgan J. McGovern P.
Topographic Constraints and Resolution Necessary to Understand the Emplacement of the Olypmus Mons Aureoles **[#1793]**
The available evidence supports the origin of the aureoles as mass movements. However, the emplacement mechanism remains poorly understood.

Glaze L. S. Baloga S. M.
Topographic Variability on Mars: Implications for Lava Flow Modeling **[#1162]**
Topographic variabity is strongly correlated with flow thickening rates. Thus, topography may be a stronger influence on rheologic changes during lava flow emplacement than previously assumed.

Garry W. B. Zimbelman J. R.
Geologic Mapping of Ascraeus Mons Volcano, Mars at 1:1M Scale **[#1363]**
We will present preliminary results for a 1:1,000,000 scale geologic map of Ascraeus Mons volcano, Mars.

Dohm J. M. Hare T. M.
Comparison of Viking- and THEMIS/MOLA-based Geologic Mapping **[#1403]**
Does the overall Viking-based mapping, including interpretation, change when a mapper uses recently acquired data sets? Here, we report preliminary findings on the re-evaluation of the Viking-based, published geologic map information of the Claritas rise, Thaumasia region of Mars.

Wilson L. Head J. W. III
Dispersal of Tephra in Explosive Eruptions on Mars (2): A Quasi-Ballistic Model **[#1118]**
We develop a quasi-ballistic model of pyroclast dispersal from explosive eruptions under current Mars conditions, valid when conventional convection models fail. High magma volatile content generally enhances coarse (> mm size) clast dispersal.

Mackown J. Wilson L. Mouginis-Mark P. J.
Analysis of Dynamics of Lava Flows from a Fissure Eruption near Jovis Tholus, Mars **[#1546]**
Lengths and widths of 36 lava flow units from a fissure at 18.1°N, 245.3°E near Jovis Tholus, Mars, are combined with flow thicknesses and substrate slopes to derive estimates of flow unit volumes, volume eruption rates and eruption durations.

McInnis D. Sakimoto S. E. H. Grosfils E. B.
Modeling Martian Thermokarst Subsidence with Magmatic Melting of Permafrost **[#2422]**
Computational time dependent models of martian permafrost melting by magma chamber intrusion produce topographic moats around volcanoes in regions where thermal gradients, surface temperatures, or porosities are higher than average.

Leverington D. W.
Was the Mangala Valles System Incised by Volcanic Flows? **[#1458]**
Landforms with volcanic characteristics are identified and described for the channels of Mangala Valles.

Jones T. K. Anderson S. W.
Exploring the Effects of Pre-Eruptive Topography on Lava Flow Morphology and Flow Interior Structure Using Wax Analogs **[#1241]**
Little is known about the effect of hummocky pre-eruptive topography on surface morphology development. Lava flow simulations have been a successful approach to questions relating to surface morphology, we will use it to investigate the affect of hummocky topography.

Mandt K. E. de Silva S. Zimbelman J. R. Crown D. A.
A Synoptic Approach to Evaluating the Origin of the Medusae Fossae Formation, Mars **[#1823]**
Many hypotheses have been proposed for the geologic origin of the Medusae Fossae Formation. We have analyzed all the published information and select features which characterize the entire deposit, thus limiting the origin to pyroclastic.

Caprarelli G. Pondrelli M. Di Lorenzo S. Marinangeli L. Ori G. G.
An Investigation of Morphologies in North Tyrrhena Terra, Mars **[#1258]**
We report the findings of an investigation on the surface features of north Tyrrhena Terra (Mars). We used Mars Express High Resolution Stereo Camera data complemented by MOLA DEM and MOC NA datasets. We identified volcanic and tectonic features.

Crumpler L. S. McCoy T. Schmidt M.
Spirit: Observations of Very Vesicular Basalts in the Columbia Hills, Mars and Significance for Primary Lava Textures, Volatiles, and Paleoenvironment **[#2298]**
Extremely vesicular basalts encountered by Spirit within the Columbia Hills on the Gusev crater floor represent one of the more unusual lithologies of the Mars Exploration Rover mission. They may record physical, chemical, and environmental factors existing at the time of eruption.

McSween H. Y. Ruff S. W. Morris R. V. Gellert R. Athena Science Team
Quantifying the Complete Mineral Assemblages in Rocks of Gusev Crater, Mars **[#1269]**
The mineral assemblages comprising igneous rocks analyzed by the Spirit rover are determined by reconciling Mössbauer, APXS, and Mini-TES spectra.

Ennis M. E. Schmidt M. E. McCoy T. Farrand W. Cabrol N.
Hydrovolcano on Mars? A Comparison of Home Plate, Gusev Crater and Zuni Salt Lake Maar, New Mexico **[#1966]**
This is a comparison of deposits at Home Plate in Gusev Crater found by the Spirit Mars Exploration Rover and Zuni Salt Lake Maar, New Mexico.

Nekvasil H. McCubbin F. O'Leary M. C. Lindsley D. H.
Exploring Possible Petrogenetic Links Between Gusev Picrobasalts, Alkalic Rocks from the Columbia Hills, and the Chassignites **[#1312]**
Experimental results have been obtained on possible fractionation relationships between the martian picrobasalts of Gusev crater and the alkalic rocks of the Columbia Hills. Implications are assessed for the Chassigny meteorite.

Filiberto J. Treiman A. H.
Crystallization Experiments on a Gusev Basalt Composition **[#1341]**
Crystallization experiments on a synthetic Humphrey composition suggest that it is not a pristine mantle melt, but is a product of lower-pressure magma fractionation.

Zhao H.-Y. Zimmerman M. E. Kohlstedt D. L.
Influence of Fe Content on the Creep Properties of Olivine **[#1800]**
We investigated the dependence of high-temperature creep behavior and fabric evolution of polycrystalline olivine on Fe content. Samples with $0.5 < Mg/(Fe+Mg) < 0.9$ deformed in triaxial compression yield a flow low with strain rate as a function of stress, temperature, and Fe content.

Byrnes J. M. Finnegan D. C. Ramsey M. S. Anderson S. W.
Multispectral Analyses of Martian-Analog Surfaces, Amboy Crater, Mojave Desert, California **[#1908]**
The Amboy Crater volcanic complex is analyzed as a Mars analog in terms of its spectral and topographic characteristics to quantify how erosion and mantling of primary surfaces affect interpretations of volcanic deposits.

Svensen H. Gisler G. Polteau S. Mazzini A. Planke S.
Hydrothermal Vent Complexes and the Search for Extra-Terrestrial Water **[#2268]**
Hydrothermal vent complexes, as have been recently identified on Earth, may also exist on Mars, and could provide important information as to the history of water on that planet. We suggest that some martian craters could be eruptive complex craters.