

Monday, March 15, 2004
MARS TECTONISM AND VOLCANISM
2:15 p.m. Salon B

Chairs: S. S. Hughes
R. A. Schultz

- 2:15 p.m. MacKinnon P. * Fueten F. Stesky R. M.
Structural Attitudes of Large Scale Layering in Valles Marineris, Mars, Calculated from Mars Orbiter Laser Altimeter Data and Mars Orbiter Camera Imagery [#1127]
 Strike and dip of large planar features such as strata and faults within Valles Marineris, Mars, are determined accurately by combining MOLA and MOC data using our software Orion. The strata tend to have a shallow dip into the chasmata.
- 2:30 p.m. Beyer R. A. * McEwen A. S.
Stratigraphy of Eastern Coprates Chasma, Mars [#1430]
 Layering in eastern Coprates Chasma indicates that the wallrock consists of alternating strong and weak layers. These layers are used to show how the massif in this area has subsided. This structure has depositional and tectonic implications.
- 2:45 p.m. Okubo C. H. * Schultz R. A.
Temporal Variability in Tharsis Stress State Based on Wrinkle Ridges and Strike-Slip Faulting [#1101]
 An observed transition from wrinkle ridge formation to strike-slip faulting suggests a decrease in circum-Tharsis compressional stress from ~3–4x lithostatic load (rgz) during the Mid Hesperian to ~1.5x rgz by the start of the Amazonian.
- 3:00 p.m. Turcotte D. L. * Shcherbakov R.
State of Stress in the Martian Lithosphere [#1160]
 In this paper we present a quantitative analysis of the state of stress associated with the preservation of the Hellas impact basin on Mars.
- 3:15 p.m. Schultz R. A. * Okubo C. H. Wilkins S. J.
Displacement-Length Scaling of Faults on Earth, Mars, and Beyond [#1157]
 Faults on smaller planets and satellites than Earth have less offset D per unit length L, resulting in smaller D/L ratios. This systematic reduction is real and results from gravity scaling of the faulting process. Quantitative scaling predictions closely match the observations.
- 3:30 p.m. Buczkowski D. L. * Frey H. V. Roark J. H. McGill G. E.
Topographic Analysis of Quasi-Circular Depressions Around the Utopia Basin, Mars [#1150]
 QCDs are believed to represent buried impact craters. If the cover material differentially compacts, then the surface relief of the QCD should be proportional to its diameter. This relationship holds true for 106 QCDs surrounding the Utopia Basin.
- 3:45 p.m. McGovern P. J. * Smith J. R. Morgan J. K. Bulmer M.
The Olympus Mons Aureole Deposits: New Evidence for a Flank-failure Origin [#1980]
 The origin of the Olympus Mons aureole deposits is controversial. MGS data demonstrate that aureole lobes are derived from the volcano's flanks in large catastrophic mass movement events, leaving behind headwalls that constitute the basal scarp.

- 4:00 p.m. Sakimoto S. E. H. * Gregg T. K. P.
Cerberus Fossae and Elysium Planitia Lavas, Mars: Source Vents, Flow Rates, Edifice Styles and Water Interactions [#1851]
The Cerberus Fossae/Elysium Planitia region is young and has extensive lava/volatile relationships. We model volcanic emplacement, and consider the modest flow rate results in context with eruption styles, vent locations, and water interactions.
- 4:15 p.m. Hughes S. S. * Sakimoto S. E. H. Gregg T. K. P. Chadwick D. J. Brady S. B. Farley M. A. Holmes A. A. J. Semple A. M. Weren S. L.
Topographic Evidence for Eruptive Style Changes and Magma Evolution of Small Plains-style Volcanoes on Earth and Mars [#2123]
Topographic profiles and surface characteristics of small (5–25 km diameter) plains-style shield volcanoes on the eastern Snake River Plain are evaluated to compare eruptive processes and magmatic evolution on Martian volcanic plains.