Tuesday, March 14, 2006
POSTER SESSION I: MARS TECTONICS
7:00 p.m.  Fitness Center

McGowan E.  McGill G. E.
_The Southwest Tilt of Isidis Planitia, Mars_ [#1170]
The southwest tilt of Isidis Planitia, Mars can be explained by a peripheral bulge created by a load located in Utopia basin.
We use a lithospheric flexure model to calculate the amount and location of a load that would create the current topography.

Wolfe E. M.  Vidal A.  Mueller K. J.
_Interpreting Mascon Wrinkle Ridges on Isidis Planitia, Mars Using Axial Surface Mapping Techniques: Reconstructing Structural Development and Stress Environments_ [#1430]
Isidis Planitia on Mars is a mascon containing radial and concentric wrinkle ridges, surrounded by concentric graben. Using axial surface mapping techniques, we analyze the wrinkle ridges to constrain their blind thrust geometry at depth in order to constrain the nature of basin rheology.

Smart K. J.  Ferrill D. A.  Colton S. L.
_En Echelon Segmentation of Wrinkle Ridges in Solis Planum, Mars, and Implications for Counter-Clockwise Rotation of Shortening Direction_ [#1966]
We hypothesize a 20° rotation in shortening direction and fault reactivation as the cause of the consistent en echelon right-stepping arrangement of wrinkle ridge fold axes mapped from new high-resolution imagery of Solis Planum, Mars.

Colton S. L.  Smart K. J.  Ferrill D. A.
_Wrinkle Ridge Detachment Depth and Undetected Shortening at Solis Planum, Mars_ [#1729]
Martian wrinkle ridges have estimated detachment depths of 0.25 to 60 km. Our alternative method for determining detachment depth reveals differences and has implications for the predominant scale of deformation at Solis Planum.

Öhman T.  Aittola M.  Kostama V.-P.  Raitala J.
_Preliminary Geological Analysis of Polygonal Impact Crater Data from Argyre Region, Mars_ [#1236]
Argyre region’s polygonal craters reveal that fresh craters have straight rim segments parallel to ridges, hinting to a common tectonic origin. Older craters might depict same stresses as graben. Geologic units and polygonality may have no relation.

Grott M.  Hauber E.  Werner S. C.  Kronberg P.
_Thrust Faulting in the Thaumasia Region and Implications for the Structure of the Early Martian Lithosphere_ [#1051]
We use forward mechanical modelling of lobate scarps in the Thaumasia region to gain insight into the thermal state of the early Martian lithosphere.

Knapmeyer M.  Oberst J.  Hauber E.  Waehlisch M.  Deuchler C.  Wagner R.
_Martian Seismicity: Implications of the Global Surface Fault Distribution and of Lithospheric Cooling_ [#1059]
We present a catalog of visible surface faults and use it to simulate marsquake catalogs with realistic moment-frequency and spatial distribution, as tool for seismological experiment development.

Allemand P.  Baratoux D.  Mondoux M.
_Elliptical Craters in Thaumasia, Mars: Consequences on Fault Behavior_ [#2031]
We demonstrate that some elliptical craters in Thaumasia result from tectonic deformation. The amount of extension per fault is discussed given the strain measurement from these craters.

Dimitrova L. L.  Holt W. E.  Haines A. J.  Schultz R. A.
_Towards Understanding the History and Mechanisms of Martian Faulting_ [#1838]
Stresses associated with gradients of GPE provide an excellent fit to most of the normal faults and many wrinkle ridges in Tharsis. The remaining misfit can be removed by adding membrane stresses associated with modest deflections of the lithosphere.
Gravity Observations of Structure in Valles Marineris, Mars

Spatial domain gravity modeling of Valles Marineris provides new constraints on the structure of this system, including possible dike systems and sedimentary deposits.

Structural Attitudes of Large Scale Layering Within Coprates Chasma in Valles Marineris, Mars, Using High Resolution Stereo Camera Data from Mars Express

Measurements of attitudes of layering within the northern canyon wall of Coprates Chasma indicate gentle dips into the chasma. In the pit-chains south of Coprates, layer attitudes are more complex.

3D Structural Analysis of Ophir Chasma Based on HRSC Image Data and Stereo-derived DTM

Layer attitude measurements in Ophir Chasma ILD and wall rock show angular unconformities.

Rifting in Acheron Fossae, Mars, Observed by the High Resolution Stereo Camera (HRSC)

We use HRSC-imagery as well as HRSC- and MOLA-derived topographical data for detailed photogeological mapping and structural evaluation of extensional structures in Acheron Fossea, following earlier studies of the Tempe and Claritas Fossae.