

Tuesday, March 15, 2005
POSTER SESSION I: VENUS
7:00 p.m. Fitness Center

Elkins-Tanton L. T. Hess P. C. Smrekar S. E. Parmentier E. M.
Volcanism and Volatile Recycling on Venus from Lithospheric Delamination [#1893]

Lithospheric delamination on Venus can produce low- and high-viscosity lavas, consistent with surface observations, and can refertilize the mantle. Delamination reduces the mantle melting temperature with time and encourages catastrophic resurfacing.

Grosfils E. B. Drury D. E. Hurwitz D. M. Kastl B. Long S. M. Richards J. W. Venechuk E. M.
Geological Evolution of the Ganiki Planitia Quadrangle (V14) on Venus [#1030]

Here we summarize our ongoing analysis of the complex material unit stratigraphy in V14 and some of the major implications for the formation and evolution of this part of Venus.

Venechuk E. M. Hurwitz D. M. Drury D. E. Long S. M. Grosfils E. B.
Analysis of the Tectonic Lineaments in the Ganiki Planitia (V14) Quadrangle, Venus [#1047]

We analyzed compressive and extensional tectonic lineaments from the Ganiki Planitia (V14) Quadrangle, Venus to determine relative trends regarding orientation and length. We compared the trends to synthesize a stress history of the quadrangle.

Richards J. Hardin J. Grosfils E. B.
Classification of Geological Material Units in the Ganiki Planitia Quadrangle (V14) of Venus Using Statistical Clustering Methods [#1115]

Using mixture models and the expectation-maximization (EM) algorithm, we perform statistical clustering with the numerical data of radar backscatter and four physical property data sets to analyze an existing geologic map of the V14 quadrangle of Venus.

Ivanov M. A. Head J. W. III
Geological Mapping of Quadrangles V-3, V-7, and V-57, Venus: Preliminary Results [#1062]

Preliminary results of geological mapping in three quadrangles (V-3, V-7, V-57) are presented.

McColley S. M. Head J. W. III
Venus Geologic Mapping: Insights into Crustal Evolution on Local, Regional, and Global Scales [#1405]

A discussion of high resolution mapping results from within the Lada Terra quadrangle and the connection between geologic observations and geodynamic models.

Oshigami S. Namiki N.
Cross-Sectional Profile of Baltis Vallis Channel on Venus: Reconstruction from Magellan SAR Brightness Data [#1555]

We develop a new method to reconstruct small scale topography from brightness of SAR images, and reconstruct cross-sectional profiles of Baltis Vallis. The results indicate that Baltis Vallis have been formed by mechanical erosion in general.

Carter L. M. Campbell D. B. Campbell B. A.
Physical Properties of Volcanic Deposits on Venus from Radar Polarimetry [#1745]

Arecibo dual-polarization maps are compared to Magellan images and emissivity data to investigate the physical properties of volcanic deposits in shield fields and highland areas.

Lang N. P. Hansen V. L.
Venusian Channel Formation as a Subsurface Process [#2320]

We propose the alternative hypothesis that some channels form as the result of a subsurface fluid eroding overlying material.

Hansen V. L.

New Observations of Crustal Plateau Surface Histories, Venus: Implications for Crustal Plateau Hypotheses [#2000]

Geohistories documented for four crustal plateaus surface presents challenges to both downwelling and plume hypotheses of plateau formation, and lead to a third hypothesis, plateau formation involving crystallization of a huge lava pond.

McDaniel K. Hansen V. L.

Circular Lows, a Genetically Distinct Subset of Coronae? [#2367]

We mapped several circular lows, coronae marked by amphitheater-like depressions to evaluate models of formation. These features are not easily accommodated by a diapiric model and suggest that coronae may form by more than one mechanism.

Hoogenboom T. Martin P. Houseman G. A.

Elastic Thickness Estimates for Coronae Associated with Chasmata on Venus [#1923]

We investigate the relationship between the local elastic lithospheric thickness and the relative ages of coronae on Venus in an attempt to further understand corona and chasmata formation/evolution.

Smrekar S. E. Anderson F. S.

Global Admittance Estimates of Elastic and Crustal Thickness of Venus: Results from Top, Hot Spot, and Bottom Loading Models [#1804]

A global admittance map is classified into 35 admittances classes and used to estimate crustal and elastic thickness from top and bottom loading models, providing a map of lithospheric properties. Small scale (~1000 km) variations are abundant.

Törmänen T. Aittola M. Kostama V.-P. Raitala J.

Distribution and Classification of Multiple Coronae on Venus [#1640]

We have conducted a new survey of multiple coronae on Venus from Magellan images and topographic data. We identified 70 multiple coronae. Results from study of distribution, topographic setting and morphological characteristics are presented.

Stoddard P. R. Jurdy D. M.

Comparing Topographic Profiles on Venus and Earth [#2247]

We compare topographic profiles from Venus chasmata and regions with terrestrial profiles of rift systems and hotspots. Long-wavelength correlations can be made, indicating probable similarities in deep-rooted thermal processes.

Leitner J. J. Firneis M. G.

Why Earth-like Plate-Recycling Cannot Operate on Venus at Present: A Theoretical Estimation of Trench Pull and Ridge Push [#1058]

The theoretical power of trench pull and ridge push forces on Venus has been estimated from a 2D model and resulted in an explanation for the lack of recent plate-recycling processes during the last 500 million years.

Purdie P. Petford N.

Addams Crater, Venus: Outflow Analogous with a Submarine Debris Flow? [#1044]

The extraordinary outflow length and morphology of Addams crater deposits are compared with the Saharan submarine debris flow off Northwest Africa. Vapor cloud modelling and comparison of sonar data with radar images suggest a possible similar origin for the Addams crater outflow deposits.

Bondarenko N. V. Kreslavsky M. A. Head J. W. III

North-South Roughness Anisotropy on Venus: Magellan Altimeter Data Revisited [#1236]

Shift of the strongest radar altimeter echo from nadir is used to map north-south small-scale slope asymmetry. We compare the asymmetry features with geology. The asymmetry map is useful for studies of surficial deposits and their evolution.

Kreslavsky M. A. Ford P. G. Pettengill G. H. Head J. W. III

New Results from the Magellan Bistatic Radar Experiment [#1568]

Polarization of bistatic radar echo gives unambiguous information about electromagnetic properties of the surface material. We report on new results from 1993 Magellan bistatic radar experiment on Venus.

Long S. M. Grosfils E. B.

Quantitative Analysis of Venus Radar Backscatter Data in ArcGIS [#1032]

Here we present methods for performing quantitative analysis of Magellan radar backscatter data from the Ganiki Plantia (V14) quadrangle using ArcGIS 9. This allows for rigorous comparison of mapped units, and yields insight into geologic processes.

Morgan P. Reyes C. Smrekar S. E.

A Prototype Flux-Plate Heat-Flow Sensor for Venus Surface Heat-Flow Determinations [#1454]

Episodic resurfacing of Venus predicts high heat loss followed by decreasing heat flow. At present, several hundred Ma since the last resurfacing, heat flow should be low. A thermal flux-plate sensor has been designed to test this prediction.

Lognonné P. Occhipinti G. Garcia R.

Seismic Interior/Atmospheric Coupling on Venus [#2274]

A large coupling between the interior and the atmosphere is shown, leading to an escape of 15% of the energy of seismic surface waves in the atmosphere. Such coupling can be used to detect seismic signals from future Venus orbiter and must also be taken into account in Venus' spin evolution theories.

Johnson N. M. Fegley B. Jr.

Phlogopite Decomposition, Water, and Venus [#1992]

We present our initial results on the decomposition rate of phlogopite mica and the implications it holds for Venus.