

MEVTV-LPI WORKSHOP

**Early Tectonic and  
Volcanic Evolution  
of Mars**

Easton, Maryland  
October 5-7, 1988

P R O G R A M

MEVTV-LPI Workshop "Early Tectonic and Volcanic Evolution of Mars"  
Easton, Maryland, October 5-7, 1988

PROGRAM

WEDNESDAY, OCTOBER 5, 1988 - First Session begins at 8:30 a.m.  
BUFFET BREAKFAST 7:00-8:15 a.m.

SESSION I - CRUSTAL DICHOTOMY  
Chairman: K. Tanaka

INTRODUCTION  
S. Solomon

\*The Relevance of Knobby Terrain to the Martian Dichotomy  
D. E. Wilhelms and R. J. Baldwin

\*The Martian Crustal Dichotomy  
G. E. McGill

Origin of the Martian Crustal Dichotomy  
H. Frey and R. A. Schultz

DISCUSSION  
COFFEE BREAK - 10:15

Structural Modification Along the Cratered Terrain Boundary, Eastern Hemisphere, Mars  
T. A. Maxwell

Origin of Fluvial Valleys and Early Geological History, Aeolis Quadrangle  
G. R. Brakenridge

Ground Ice Along the Northern Highland Scarp, Mars  
B. K. Lucchitta and M. G. Chapman

Northern Plains of Mars: A Sedimentary Model  
R. S. Saunders

DISCUSSION  
LUNCH - 12:15

SESSION II - CRUSTAL DIFFERENTIATION/VOLCANISM  
Chairman: J. Zimbelman

\*Chemical and Physical Properties of Primary Martian Magmas  
J. R. Holloway and C. M. Bertka

Sulfide Mineralization Related to Early Crustal Evolution of Mars  
R. G. Burns and D. S. Fisher

\*Volatiles, Outgassing and Water Evolution  
B. Jakosky

DISCUSSION  
COFFEE BREAK - 3:00

\*Early Volcanism on Mars: An Overview  
R. Greeley

The Martian Highland Paternae: Evidence for Explosive Volcanism  
D. A. Crown and R. Greeley

Potential Indicators of Pyroclastic Activity near Elysium Mons, Mars  
K. McBride, J. R. Zimbelman, and S. M. Clifford

Conditions on Early Mars: Constraints from the Cratering Record  
N. G. Barlow

DISCUSSION  
SOCIAL 5:00-6:00 p.m.

THURSDAY, OCTOBER 6, 1988 - First Session begins at 8:30 a.m.  
BUFFET BREAKFAST 7:00-8:15 a.m.

SESSION III - THARSIS, ELYSIUM, VALLES MARINERIS  
Chairman: H. Frey

\*Volcanotectonic Provinces of the Tharsis Region of Mars: Identification, Variations, and Implications  
K. L. Tanaka and J. M. Dohm

\*Models for the Origin of Tharsis  
R. Phillips

\*Late Iron Loss from the Martian Lithosphere: Not a Likely Cause of Vertical Tectonics  
N. H. Sleep and K. J. Zahnle

DISCUSSION  
COFFEE BREAK - 10:15

The Role of Mantle Convection in the Origin of the Tharsis and Elysium Provinces of Mars  
W. S. Kiefer and B. H. Hager

Heterogeneities in the Thickness of the Elastic Lithosphere of Mars: Constraints on Thermal Gradients, Crustal Thickness, and Internal Dynamics  
S. C. Solomon and J. W. Head

An Ancient Valles Marineris?  
R. W. Wichman and P. H. Schultz

DISCUSSION  
LUNCH - 12:00

THURSDAY AFTERNOON RESERVED FOR SMALL GROUP DISCUSSIONS

FRIDAY, OCTOBER 7, 1988 - First Session begins at 8:30 a.m.  
BUFFET BREAKFAST 7:00-8:15 a.m.

SESSION IV - RIDGE AND FAULT TECTONICS  
Chairman: S. Solomon

Fault and Ridge Systems: Historical Development in Western Region of Mars  
D. H. Scott and J. Dohm

Noachian Faulting in the Memnonia Region of Mars  
J. R. Zimbelman

Origin and Age of Grooved Features in the Memnonia Quadrangle (MC-16), Mars  
R. A. Craddock, R. Greeley, and P. R. Christensen

Early Resurfacing Events on Mars  
H. Frey, J. Semeniuk, and T. Grant

DISCUSSION  
COFFEE BREAK - 10:00

Towards a Chronology of Compressive Tectonics on Mars  
A. F. Chicarro

Origin of Wrinkle Ridges  
J. Plescia and M. Golombek

Periodically Spaced Wrinkle Ridges in Ridged Plains Units on Mars  
T. R. Watters

The Shallow Structure of the Lithosphere in the Coprates and Lunae Planum Regions of Mars from the Geometries of Volcanic Plains Ridges  
M. T. Zuber and L. L. Aist

DISCUSSION  
ADJOURN  
LUNCH - 12:00

\* Refers to invited papers.

**EARLY TECTONIC AND VOLCANIC EVOLUTION OF MARS**  
**October 5-7, 1988 Easton, Maryland**



**Final Circular**  
August 20, 1988

Thank you for your continued interest in the Workshop on the Early Tectonic and Volcanic Evolution of Mars. We are hoping for beautiful fall weather in Easton and looking forward to a stimulating workshop. The Program Committee is putting the final touches on the program, and in keeping with early promises, have allocated approximately equal time for discussion and presentation. All those who asked to present will be scheduled to speak. As soon as the program is complete, authors of abstracts will be notified as to when and how long they will be speaking. In general, invited talks will be 20 minutes, and contributed talks 15 minutes. Until then, here is the program outline:

October 5, 1988

8:30-12:00	Martian Crustal Dichotomy
12:00-1:30	Lunch
1:30-4:30	Early Chemical and Volcanic Evolution of Mars
5:00-6:00	Social

October 6, 1988

9:00-12:00	Tharsis, Elysium and the Valles Marineris
12:00-1:30	Lunch
1:30-4:30	Ridge and Fault Tectonics

October 7, 1988

9:00-12:00	Early Global Processes on Mars
12:00-1:00	Lunch

Because of the ample time dedicated to discussion, all participants are invited to bring a few slides along to illustrate specific points.

**Visual Aids**

Dual screen projection of 35mm slides and single screen projection of overhead transparencies will be possible at the meeting. If you have other requirements, please call the LPI Projects Office. Cue sheets are enclosed for you to complete and bring to the workshop. Plan to give this sheet together with your slides and overheads to the projectionist 15 minutes *before the session begins*.

**Meeting Location**

The meeting will be held in the historic setting of the Tidewater Inn, located in Easton, Maryland. Known for its fine restaurants and excellent specialty shopping, Easton offers a quiet, small town atmosphere and a break from hectic city life. Rates are \$50 single and \$64 double occupancy. Reservations are due at the hotel by **September 2**; a reservation form is enclosed. Be sure to mail the form to the hotel address as printed on the form.