

PRELIMINARY PROGRAM
New Views of the Moon II: Understanding the Moon Through the
Integration of Diverse Datasets
September 22–24, 1999

Wednesday, September 22, 1999

7:30 – 8:30 a.m. REGISTRATION AND CONTINENTAL BREAKFAST

INTRODUCTION

8:30 a.m. *Welcome, Workshop Overview*
L. Gaddis and C. Shearer

8:40 a.m. *Lunar Initiative, Workshop Purpose*
B. Joliff and G. Ryder

8:50 a.m. Spudis P.* (INVITED)
Lunar Science: A Look at How Far We've Come

9:15 a.m. Ryder G. *
Intention and Intension in the Integration of Lunar Datasets: The Great Instauration

**LUNAR DIFFERENTIATION: EARLY EVENTS, INTERIOR
PROCESSES, AND GLOBAL ASYMMETRY**

9:30 a.m. Warren P. H. *
Siderophile Element Systematics and the Moon's Core-Mantle Differentiation History

9:45 a.m. Parmentier E. M. * Zhong S. Hess P. C.
Asymmetric Evolution of the Moon: A Possible Consequence of Chemical Differentiation

10:00 a.m. Hess P. C. * Parmentier E. M.
Petrogenesis of Magnesian-suite Troctolites and Norites

10:15 BREAK

10:30 a.m. Neal C. R. *
The Interior of the Moon, Core Formation, and the Lunar Hotspot: What Samples Tell Us

10:45 a.m. Williams J. G. Boggs D. H. Ratcliff J. T. * Yoder C. F. Dickey J. O.
A View of the Lunar Interior Through Lunar Laser Range Analysis

11:00 a.m. Schmitt H. H. *
Origin and Evolution of the Moon: Apollo 2000 Model

11:15 a.m. Korotev R. L. *
Lunar Meteorites and Implications for Compositional Remote Sensing of the Lunar Surface

11:30 a.m. Fernandes V. A. * Burgess R. Turner G.
Laser Argon-40–Argon-39 Age Studies of Lunar Meteorite Dar Al Gani 262

11:45 DISCUSSION

12:15 p.m. LUNCH BREAK

GLOBAL PERSPECTIVES: GEOCHEMISTRY AND ATMOSPHERE

- 1:15 p.m. Lawrence D. J. * Feldman W. C. Barraclough B. L. Elphic R. C. Maurice S. Binder A. B. Lucey P. G.
Iron Abundances on the Moon as Seen by the Lunar Prospector Gamma-Ray Spectrometer
- 1:30 p.m. Maurice S. * Feldman W. C. Lawrence D. J. Elphic R. E. Gasnault O. d'Uston C. Lucey P. G.
High-Energy Neutrons from the Moon
- 1:45 Chevrel S. D. * Pinet P. C. Barreau G. Daydou Y. Richard G. Maurice S. Feldman W. C.
Integration of the Ultraviolet-Visible Spectral Clementine Data and the Gamma-Ray Lunar Prospector Data : Preliminary Results Concerning Ferrous Oxide, Titanium Dioxide,, and Thorium Abundances of the Lunar Surface at a Global Scale
- 2:00 p.m. Clark P. E. * Evans L.
The Distribution of Titanium in Lunar Soil on the Basis of Sensor and In Situ Data Fusion
- 2:15 p.m. DISCUSSION: Updates on Clementine and Lunar Prospector Datasets
- 2:45 p.m. Anderson J. M. * Kieffer H. H.
Photometric Imaging of the Moon from the Robotic Lunar Observatory
- 3:00 p.m. Stern S. A. * (INVITED)
The Lunar Atmosphere and Its Intimate Connection to the Lunar Surface: A Review
- 3:30 p.m. Hood L. L. * Yingst A. Mitchell D. L. Lin R. P. Acuna M. Binder A. B.
Higher-Resolution Mapping of Lunar Crustal Magnetic Fields: Correlations with Albedo Markings of the Reiner Gamma Class
- 3:45 p.m. DISCUSSION
- 5:30 – 7:00 p.m. RECEPTION

POSTER SESSION

- 6:00 – 7:00 p.m. Reedy R. C. Vaniman D. T.
Lunar Elemental Abundances from Gamma-Ray and Neutron Measurements
- Wittenberg L. J. Sviatoslavsky I. N. Kulcinski G. L. Mogahed E. A.
A Study of an Unmanned Lunar Mission for the Assay of Volatile Gases from the Soil
- Pinori S. Bellucci G.
Regional Dark Mantle Deposits on the Moon: Rima Bode and Sinus Aestuum Analysis
- Heather D. J. Dunkin S. K. Spudis P. D. Bussey D. B. J.
A Multispectral Analysis of the Flamsteed Region of Oceanus Procellarum
- Head J. W. Wilson L.
Lunar Gruithuisen and Mairan Domes: Rheology and Mode of Emplacement
- Haruyama J. Otake H. Matsunaga T. LISM Working Group
The LISM (Lunar Imager/SpectroMeter) for SELENE Mission
- Farrand W. H. Gaddis L. R.
Subpixel Detection of Pyroclastic Materials in Clementine Ultraviolet-Visible Data

POSTER SESSION, CONTINUED

Gaddis L. R.

Progress Toward Characterization of Juvenile Materials in Lunar Pyroclastic Deposits

Cook A. C. Robinson M. S.

Digital Elevation Models of the Lunar Surface

Bussey D. B. J. Spudis P. D. Gillis J. J.

Lunar Global Petrologic Variations

Asmar S. Schubert G. Konopliv A. Moore W.

The Lunar Crustal Thickness from Analysis of the Lunar Prospector Gravity and Clementine Topography Datasets

Rosiek M. R. Kirk R. Howington-Kraus A.

Lunar South Pole Topography Derived from Clementine Imagery

Thomsen D. R. Lawrence D. J. Vaniman D. T. Feldman W. C. Elphic R. C.

Barracough B. L. Maurice S. Lucey P. G. Binder A. B.

Global Geochemical Variation on the Lunar Surface: A Three-Element Approach

Thursday, September 23, 1999

8:00 a.m. CONTINENTAL BREAKFAST

LUNAR SURFACE: REGOLITH COMPOSITION AND SPACE WEATHERING

- 8:30 a.m. Basu A. * McKay D. S. Wentworth S. J.
Three Paradigms of Lunar Regolith Evolution
- 8:45 a.m. Taylor L. A. * Pieters C. Patchen A. Morris R. V. Keller L. P. Wentworth S.
McKay D. S.
Apollo 17 Soil Characterization for Reflectance Spectroscopy
- 9:00 a.m. Keller L. P. * Wentworth S. J. McKay D. S. Taylor L. A. Pieters C. Morris R. V.
Space Weathering in the Fine Size Fraction of Lunar Soils: Soil Maturity Effects
- 9:15 a.m. Le Mouélic S. * Langevin Y. Erard S. Pinet P. Daydou Y. Chevrel S.
Discrimination Between Maturity and Composition from Integrated Clementine Ultraviolet-Visible and Near-Infrared Data
- 9:30 a.m. DISCUSSION
- 10:00 a.m. BREAK
- 10:15 a.m. Jolliff B. L. * Gillis J. J. Haskin L. A. (INVITED)
Thorium Enrichment Within the Procellarum KREEP Terrane: The Record in Surface Deposits and Significance for Thermal Evolution
- 10:45 a.m. Gillis J. J. * Jolliff B. L.
Lateral and Vertical Heterogeneity of Thorium in the Procellarum KREEP Terrane: As Reflected in the Ejecta Deposits of Post-Imbrium Craters
- 11:00 a.m. Spudis P. D. * Bussey D. B. J. Hawke B. R.
Structure and Composition of the Lunar Crust
- 11:15 a.m. Peterson C. A. * Hawke B. R. Lucey P. G. Taylor G. J. Blewett D. T. Spudis P. D.
The Distribution of Anorthosite on the Lunar Farside
- 11:30 Lucey P. G.* Holtzmann J. Blewett D. T. Taylor G. J. Hawke B. R.
Topographic-Compositional Relationships Within South Pole-Aitken Basin
- 11:45 a.m. DISCUSSION
- 12:15 p.m. LUNCH BREAK

LUNAR SURFACE: REGOLITH COMPOSITION AND SPACE WEATHERING, CONTINUED

- 1:15 p.m.. Koehler U.* Head J. W. III Neukum G. Wolf U.
North-Polar Lunar Light Plains: Ages and Compositional Observations
- 1:30 p.m. Grier J. A. * McEwen A. S. Lucey P. G. Milazzo M. Strom R. G.
The Optical Maturity of Ejecta from Large Rayed Craters: Preliminary Results and Implications
- 1:45 p.m. Hawke B. R. * Blewett D. T. Lucey P. G. Peterson C. A. Bell J. F. III Campbell B. A.
Robinson M. S.
The Composition and Origin of Selected Lunar Crater Rays
- 2:00 p.m. Dombard A. J. * Gillis J. J.
Simulating the Formation of Lunar Floor-Fracture Craters Using Elastoviscoplastic Relaxation

**BASALTIC VOLCANISM: MARE BASALTS, CHRONOLOGY, PYROCLASTIC
DEPOSITS, AND TRANSPORT MECHANISMS**

- 3:00 p.m. Shearer C. K. * Papike J. J. Gaddis L. R. (INVITED)
*Mare Basaltic Magmatism: A View from the Sample Suite With and Without a Remote
Sensing Prospective*
- 3:30 p.m. Ryder G. *
Naming Lunar Mare Basalts: Quo Vadimus Redux
- 3:45 p.m. Staid M. I. * Pieters C. M.
The Mineralogy of the Youngest Lunar Basalts
- 4:00 p.m. Hiesinger H. * Head J. W. III
Ages of Oceanus Procellarum Basalts and Other Nearside Mare Basalts
- 4:15 p.m. Wieczorek M. A. * Phillips R. J.
The Transport of Magma from the Mare Source to the Surface
- 4:30 p.m. Sharkov E. V. * Bogatikov O. A.
Mare Magmatism of the Moon and Oceanic Magmatism of the Earth: Similarities and Distinctions
- 4:45 p.m. Sharkov E. V. * Bogatikov O. A.
*Magmatism of the Lunar Highlands and the Early Paleoproterozoic Magmatism of the Earth:
Similarities and Distinctions*
- 5:00p.m. DISCUSSION

Friday, September 24, 1999

8:00 a.m. CONTINENTAL BREAKFAST

GLOBAL RESOURCES, SITE CHARACTERIZATIONS, FUTURE INVESTIGATIONS, AND MISSIONS

8:30 a.m. Schmitt H. H.* (INVITED)
Commerce May Take Science Back to the Moon

8:45 a.m. Feldman W. C.* Maurice S. Lawrence D. J. Getenay I. Elphic R. C. Barraclough B. L.
Binder A. B.
Enhanced Hydrogen Abundances Near Both Lunar Poles

9:00 a.m. Johnson J. R.* Swindle T. D. Lucey P. G.
Solar-Wind-implanted Volatiles in the Lunar Regolith

9:15 a.m. Allen C. C.*
Prospecting for Lunar Resources with Global Geochemical and Multispectral Data

9:30 a.m. Duke M. B.* Clark B. C. Gamber T. Lucey P. G. Ryder G. Taylor G. J.
Sample Return Mission to the South Pole-Aitken Basin

9:45 a.m. Mendell W.* (INVITED)
Human exploration of the Moon

10:15 a.m. BREAK

LUNAR INITIATIVE: FUTURE PLANS

10:30 – 12:00 noon DISCUSSION of Future Plans

12:00 noon ADJOURN

PRINT-ONLY PRESENTATIONS

Kochemasov G. G.
The Deepest Lunar South Pole-Aitken Basin and Its Unusual Infilling: Constraints Imposed by Angular Momentum Considerations

Pieters C. M.
The Moon as a Spectral Calibration Standard Enabled by Lunar Samples: The Clementine Example