

PRINT ONLY: MOON AND MERCURY

Andersen V. Wilson T. L. Pinsky L. S.

Helium Production of Prompt Neutrinos on the Moon [#1870]

The use of the moon as an astrophysical neutrino observatory is limited by the neutrino background produced by the interaction of galactic cosmic rays with the surface of the moon. We present the results of simulations of neutrino production by GCR Helium.

Basu A. Wentworth S. J. McKay D. S.

Vapor Deposition and Solar Wind Implantation on Lunar Soil-Grain Surfaces as Comparable Processes [#1551]

Vapor deposited patina and nanoscale Fe globules therein should behave as solar wind implanted elements do in lunar soils. Hence, much of nanoscale Fe should reside in agglutinates as volume correlated component.

Gaddis L. Tanaka K. Hare T. Skinner J. Hawke B. R. Spudis P. Bussey B. Pieters C. Lawrence D.
A New Lunar Geologic Mapping Program [#1418]

We describe a new pilot program for systematic, global lunar geologic mapping. A 1:2.5 M mapping scale will be used to map a single quad encompassing the Copernicus crater region.

Holin I. V.

Physical Backgrounds to Measure Instantaneous Spin Components of Terrestrial Planets from Earth with Arcsecond Accuracy [#1056]

A new study for radar astronomy physical effect of far coherence (speckle displacement) is analysed in detail. Far coherence in radar fields scattered by inner planets can be used to measure their instantaneous transverse spin vectors and variations very precisely from Earth.

Jackson N. W. Spudis P. D. Carter B. D.

Preliminary Findings of a Study of the Lunar Global Megaregolith [#1055]

Preliminary finding of a study of the megaregolith of the Moon by mapping the iron and titanium concentration in the ejecta of 2059 craters between 60N to 60S. This new study will provide new information for the understanding the geological development of the Moon.

Kaydash V. Shkuratov Yu. G. Stankevich D. Omelchenko V. Pieters C. Taylor L.

Maps Characterizing the Lunar Regolith Maturity [#1508]

With LSCC and Clementine data we map three maturity-correlated parameters: the maturity degree Is/FeO , the agglutinate content, and the content of crystalline component finding close correlations between these parameters.

Kozlova E. A.

Probable Model of Anomalies in the Polar Regions of Mercury [#1528]

Among craters of Mercury investigated here, possessing abnormal reflective properties, craters D, W, E, F, X and G can except water ice, uncovered a layer of regolith, and other volatiles connections, such as CO_2 and NH_3 (except for crater G).

Korokhin V. V. Velikodsky Yu. I.

Parameters of the Maximum of Positive Polarization of the Moon [#1306]

The maps of parameters of the positive polarization maximum for 461 nm and 669 nm for the east hemisphere of the Moon have been constructed. The analysis of relationships between various optical parameters of lunar surface was carried out.

Kurpichev A. V.

Database Structure Development for Space Surveying Results by Moon "Zond" Program [#1196]

Database structure development is considered for solar system bodies surveying results of the Russian space programs (an example of the Moon surface surveying by the "Zond" program).

Langevin Y. Maurette M.

CM2-type Micrometeoritic Lunar "Winds" During the Late Heavy Bombardment [#1610]

A lunar "wind" produced by the volatilization of CM2-type juvenile micrometeorites, during the late heavy bombardment conjectured by W. K. Hartmann, accounts for the contents of Ir measured by J. Wasson and collaborators in lunar samples from the 6 landing sites.

Mulcahy C. K. Taylor L. A. Goodrich C. A.

A Comparison of Textural and Chemical Features of Spinel Within Lunar Mare Basalts [#1331]

Compositional ranges of the spinels in lunar mare basalts reported in this study agree well with data presented by El Goresy [1]. However, our data maintain that a compositional gap does exist in the 12018 spinel as well as 12063.

Opanasenko N. Shkuratov Yu.

The Reiner Gamma Formation as Characterized by Earth-based Photometry at Large Phase Angles [#1493]

Using new telescope CCD observations we do not confirm that the Reiner gamma forward scattering effect is strong. Moreover, in the range of phase angles 87–134 degrees we have found the opposite effect.

Petrycki J. A. Wilson L. Head J. W. III

The Significance of the Geometries of Linear Graben for the Widths of Shallow Dike Intrusions on the Moon [#1123]

Depths of lunar graben with and without volcanic features suggest that within several km of the surface the dikes feeding eruptions were typically ~50 – 100 m wide, suggesting dikes rising mainly from shallow depths in the mantle.

Pugacheva S. G. Shevchenko V. V.

Lunar Prospector Data, Surface Roughness and IR Thermal Emission of the Moon [#1225]

The correlation of the Lunar Prospector data with structure of the lunar surface of the thermal anomalies was considered. Probably, Th and FeO enter into composition of ejecta terrain, KREEP materials, these are located on the surface or small depth.

Scott R. S. Wilson L.

The Influence of a Magma Ocean on the Lunar Global Stress Field Due to Tidal Interaction Between the Earth and Moon [#1543]

We address the influence a magma ocean has on the tidally induced stress field acting on a growing lunar crust. Normal and strike-slip faulting are shown to operate to great depths within the crust.

Shevchenko V. V.

Variations of the Mercurian Photometric Relief [#1052]

Differential photometry of the surface of Mercury is carried out with result of Mariner 10 imaging the planet. It is obtained surface distribution of the photometric relief (or roughness characteristics) along visible disk of the planet.

Velikodsky Yu. I. Korokhin V. V. Akimov L. A.

A Model of Positive Polarization of Regolith [#1311]

An approximate model of positive polarization of regolith is proposed. It takes into account light scattering on particles compatible with wavelength, shadow effect and mirror reflection. The model is in good agreement with lunar observations data.

Warren P. H.

Ground Truth and Lunar Global Thorium Map Calibration: Are We "There" Yet? [#1718]

Despite recent improvements in the Lunar Prospector Th data calibration, mis-matches with Luna 20 and particularly Luna 24 indicate the low-end data are still too high. Assuming the calibration's high end is OK, the whole-Moon average surface Th is still overestimated by ~1.1 (or more).

Wentworth S. J. McKay D. S. Keller L. P.

Space Weathering of Apollo 16 Sample 62255: Lunar Rocks as Witness Plates for Deciphering Regolith Formation Processes [#2078]

Space-exposed lunar rock surfaces allow the study of space weathering at several scales, and should help us understand space weathering as a whole. 62255 (and other rock) data can complement that being obtained for individual lunar soil grains.