

Tuesday, March 11, 2008

POSTER SESSION I: LUNAR SCIENCE PRESENT: KAGUYA (SELENE) RESULTS

6:30 p.m. Fitness Center

Goossens S. Matsumoto K.

*Determination of the Lunar  $k_2$  Love Number from Satellite Tracking Data* [#1536]

The lunar potential Love number  $k_2$  has been determined from available satellite tracking data. The best estimate in this research yields  $k_2 = 0.0213 \pm 0.0075$  ( $10\sigma$ ), which is closer to results based on lunar laser ranging than a previous satellite-based estimate.

Demura H. Hodokuma T. Hirata N. Asada N. Haruyama J. Ohtake M. Matsunaga T. Yokota Y. Morota T. Honda C. Ogawa Y. Torii M. Araki H.

*Preliminary Integration of Digital Terrain Model (LISM) and Topographic Profile (LALT), Kaguya* [#1792]

The goal of our team is the establishment of a lunar global DEM, and here we show a preliminary evaluation for putting a topographic profile (LALT) on a strip of a digital terrain model (LISM), which were obtained in the initial checkout phase of Kaguya (SELENE).

Kikuchi S. Asada N. Hirata N. Demura H. Tanaka S.

*Development of Operation Plan and Log Management System for LISM/Kaguya* [#1543]

We develop a database system to manage observation plans of LISM/Kaguya. This system stores all observation plans and logs into a database, and has a function of KML exportation to visualize status of observation.

Hirata N. Haruyama J. Ohtake M. Matsunaga T. Yokota Y. Morota T. Honda C. Ogawa Y. Torii M. Demura H. Asada N.

*Morphology of Large Lunar Craters: Views from LISM/Kaguya* [#1588]

The Lunar Imager/Spectrometer (LISM) onboard the Kaguya lunar explorer will provide high-resolution and multi-spectral mapping data of the Moon. The purpose of this study is to reveal details of impact cratering processes with the data from LISM.

Asada N. Harada N. Hirata N. Demura H. Haruyama J. Ohtake M. Matsunaga T. Yokota Y. Morota T. Honda C. Ogawa Y. Torii M.

*Recognition Tool of Craters and Linear Features on Digital Terrain Model Derived from LISM/TC, Kaguya* [#2431]

We show a tool for automatic recognition of craters and linear features on the digital terrain model of Kaguya (SELENE). This core technique is an application of generalized Hough transform and optimization of preprocessing and refitting.

Yokota Y. Haruyama J. Ohtake M. Matsunaga T. Honda C. Morota T. Abe M. Torii M. Ogawa Y. Demura H. Hirata N. LISM Working Group

*Mapping of Lunar Topographic Roughness by Digital Terrain Model* [#1921]

To prepare digital terrain models from the the Kaguya Terrain Camera, a median differential slope method is applied to the test dataset made from Apollo images. It is expected that the lunar highlands will be classified with at least three levels of surface roughness.

Ono T. Kumamoto A. Yamaguchi Y. Yamaji A. Kobayashi T. Kasahara Y. Nakagawa H.

Oshigami S. Oya H.

*Initial Results of Lunar Radar Sounder (LRS) Experiment On-Board the Kaguya (SELENE) Spacecraft* [#1572]

Lunar Radar Sounder (LRS) passed the initial test of the LRS instrument. The present LRS experiment is continuing the standard observation phase of the Kaguya (SELENE) spacecraft. This paper provides initial results from the LRS observation onboard the Kaguya (SELENE).

Crotts A. P. S. Austin D. E. Bergier A. Cecil G. Cseresnjcs P. Hickson P. Hummels C. B. Joner M. Pfrommer T. Radebaugh J.

*Monitoring Lunar Surface Changes During and After the Kaguya Mission* [#2430]

We describe ongoing imaging at high spatial and spectral resolution of the lunar surface, with optimal sensitivity to changes caused by outgassing. Of great utility is our coordination of these observations with  $^{222}\text{Rn}$   $\alpha$  particle monitoring by Kaguya.

Kobayashi M. Hasebe N. Shibamura E. Miyachi T. Takashima T. Okudaira O. Yamashita N. Kobayashi S. Hareyama M. Karouji Y. Kodaira S. Ebihara M. Arai T. Sugihara T. Takeda H. Iwabuchi K. Hayatsu K. Nemoto S. Hihara T. d'Uston C. Maurice S. Gasnault O. Diez B. Reedy R. C.

*Current Status of the Gamma-Ray Spectrometer on SELENE (Kaguya)* [#2012]

The Japanese lunar polar orbiter Kaguya (SELENE) was launched last summer and carries a  $\gamma$  ray spectrometer. In this presentation, the current status of the GRS observation and early observation data are shown.

Okada T. Shirai K. Yamamoto Y. Arai T. Ogawa K. Shiraishi H. Iwasaki M. Kawamura T. Morito H. Kato M. SELENE XRS Team

*X-Ray Fluorescence Experiments on the SELENE (Kaguya) Spacecraft* [#1960]

We present here the scientific objectives and instrumentation of the X-Ray Spectrometer onboard Kaguya (SELENE), as well as its current status in lunar orbit, which will start the observation of X-rays off the Moon and off the standard sample.

Imamura T. Iwata T. Yamamoto Z. Oyama K.-I. Nabatov A. Kono Y. Matsumoto M. Liu Q. Noda H. Hanada H. Futaana Y. Saito A.

*Initial Results of the Lunar Ionosphere Observation with SELENE Radio Science* [#1659]

The electron density distribution near the lunar surface in various conditions are being observed by radio occultation technique in the Kaguya (SELENE) mission using the Vstar sub-satellite. Initial results from this experiment are presented.

Morota T. Haruyama J. Ohtake M. Matsunaga T. Yokota Y. Honda C. Torii M. Ogawa Y. Abe M. LISM Working Group

*Age Determination of Mare Basalts Surrounding the Crater Lichtenberg: Preliminary Results Using SELENE (Kaguya)/Terrain Camera Data* [#1513]

In this study, we present results of age determination of mare basalts overlaying the rays of the crater Lichtenberg using Kaguya (SELENE)/Terrain Camera data.

Ogawa Y. Matsunaga T. Ohtake M. Haruyama J. Yokota Y. Morota T. Honda C. Torii M. Nakamura R. Kodama S. LISM Working Group

*Initial Calibration of the Spectral Profiler and Some Examples of the Observed Lunar Surface Spectral Signatures* [#2498]

SP onboard the Kaguya (SELENE) spacecraft could identify the mineralogical compositions of the lunar surface. The data processing currently focuses on validation of on-site lamp data for calibration. We show some examples of the observed spectral signatures.

Honda R. Mitsuhashi S. Yamazaki J. Yamauchi M. Tachino J. Shirao M.

*Initial Results of Imaging of Lunar Features by High-Definition Television (HDTV) Onboard SELENE (Kaguya)* [#1876]

The specification of the High-Definition Television (HDTV) on board Kaguya (SELENE), the data obtained up to this point, and the preliminary report on the potential application of HDTV data for lunar science are presented.

Terazono J. Asada N. Demura H. Hirata N. Saiki K. Iwasaki A. Oka R. Hayashi T. Suzuki T.  
Miyamoto H. Haruyama J. Ohtake M. Matsunaga T. Sobue S. Okumura H. Fujita T.  
*Construction of a WebGIS System for Lunar Science Data* [#1052]

The Japanese lunar explorer, Kaguya (SELENE), is now conducting nominal lunar observations. To utilize these data for scientific use, we are now constructing a WebGIS-based co-working system.

Shibata Y. Kimura K. Hirata N. Demura H. Asada N.  
*Preliminary Research for Image Classification with Texture and Spectral Features for Lunar  
Geological Mapping* [#1234]

Geologic mapping is a result of image segmentation and classification. A geological unit is characterized as a congenetic surface area. We try to consider a capability of automatic mapping with both texture and spectral features from a viewpoint of computer science.