Space and Planetary Informatics Laboratory
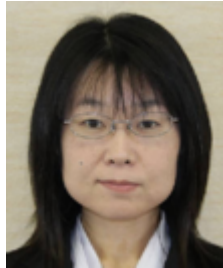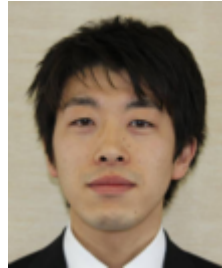

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Unrefereed academic journal

[chonda-311-017-01:2016] Chikatoshi Honda. My favorite view in Planetary sciences 5 - Crater size-frequency distribution on Gaspra -. *Yuseijin*, 25(3):94–95, 9 2016.

[chonda-311-017-02:2016] K. Onodera M. Ohtake Y. Ishihara M. Hareyama C. Honda, M. Matsuoka. A report on the 9th school of lunar and planetary exploration data analyses. *Yuseijin*, 26(1):30–32, 3 2017.

Refereed proceedings of an academic conference

[chonda-311-017-03:2016] H.; Tatsumi E.; Yamada M.; Sawada H.; Kameda S.; Kouyama T.; Honda R.; Morota T.; Honda C.; Ogawa K.; Shirai K.; Hayakawa M.; Ogawa N.; Iijima Y.; ONC Team Sugita, S.; Suzuki. In-flight Spectroscopic Calibration of Hayabusa2 Optical Navigation Cameras (ONC) Using Earth, Moon, Mars, and Stars. In *48th Lunar and Planetary Science Conference*, number 1988, 3 2017.

> Introduction: The optical navigation cameras (ONC) consist of three visible framing cameras (a telescopic multiband camera (ONC-T)), wide-angle panchromatic cameras (W1 and W2) on board JAXA Hayabusa2, the first sample-return mission to a C-type asteroid [1,2]. In particular, observations of visible spectroscopic properties of possible hydrated minerals on Ryugu are of great importance for understanding the nature of this asteroid and for choosing sampling sites [3]. Our pre-flight validation experiments using the actual flight model of ONC-T and carbonaceous chondrites indicates that rather subtle 0.7um absorption band, which are found in many C-type asteroids [e.g., 4] and may also be on Ryugu [5], can be observed with ONC-T [6].

[chonda-311-017-04:2016] Y.; Ishihara Y.; Nakamura R.; Yamamoto S.; Matsunaga T.; Yamada M.; Kameda S.; Sawada H.; Suzuki H.; Honda R.; Morota T.; Honda C.; Ogawa K.; Tatsumi E.; Sakatani N.; Hayakawa M.; Sugita S. Kouyama, T.; Yokota. Investigation of Hayabusa-2/ONC-T Sensitivity Variation Based on Observed Moon Images. In *48th Lunar and Planetary Science Conference*, number 1289, 3 2017.

> Introduction: Reliable and stable quality control of data products of planetary explorers is a key factor to obtain valuable scientific information from the data. Radiometric calibration in space is one of essential issues for image and

spectroscopy data quality. Because the Moon has the long-term stable surface reflectance (less than 1percent variation during 1 million years [1]) and no atmospheric absorption and scattering, it can be an ideal target for the radiometric calibration for spaceborne instrument, once we have a reliable lunar surface reflectance model.

[chonda-311-017-05:2016] Y.; Demura H.; Hirata N.; Honda C.; Kamata S.; Karouji Y.; Kimura J.; Morota T.; Nagaoka H.; Nakamura R.; Yamamoto S.; Ohtake M. Hareyama, M.; Ishihara. Global Classification Map of Absorption Spectrum of Lunar Reflectance Observed by Spectral Profiler/Kaguya. In *48th Lunar and Planetary Science Conference*, number 1706, 3 2017.

Introduction: A geologic map is important for clarifying the formation of land. Many geologic maps were made for the Moon. Previous maps classified geologic units based on terrain features (e.g. [1]), the reflectance spectrum (e.g. [2]), and the elemental contents (e.g. [3]). However, they were for specific areas of interest to each researcher. Though a global geologic map of the Moon was reported by Wilhelms (1987) [4], that was reconstructed from several geologic maps that were made under different or unknown classification criterions depending on the research.

[chonda-311-017-06:2016] M.; Honda C.; Hirata N.; Morota T.; Ohtake M. Ishihara, Y.; Hareyama. Highland Crust of the Orientale Basin Region Based on Unsupervised Classification of Absroption Specrtra of the Moon. In *48th Lunar and Planetary Science Conference*, number 1704, 3 2017.

Introduction: The Orientale basin is a major impact crater on the Moon. It is also the youngest and best-preserved lunar multi-ring basin (Figs. 1A, B). The Orientale basin is thus one of the best examples for studying how multi-ring basins were formed. Many researchers have conducted numerous studies from such a point of view, and such studies were mainly forcused on impact modeling and gravity analyses [e.g., 1, 2, 3]. A few studies, such as Vaughan et al. [4], also studied the geological/petrological points of view, although they consentrated on impact melt sea and its solidification/differentiation. However, previous studies of ring lithologies and their meaning in the global context of highland crust are limited [e.g., 5].

Unrefeered proceedings of an academic conference

[chonda-311-017-07:2016] Hirotaka Sawada Tomokatsu Morota Rie Honda Shingo Kameda Chikatoshi Honda Hidehiko Suzuki Toru Kouyama Kazunori Ogawa Masateru Ishiguro. Seiji Sugita, Manabu Yamada. Earth-moon images captured by Hayabusa2 visible cameras during Earth swing-by. In *Japan Geoscience Union Meeting 2016*, 2016.

[chonda-311-017-08:2016] Chikatoshi Honda Kohei Utsumiya. Enhancement of lunar topographic data with statistical voting algorithm. In *Japan Geoscience Union Meeting 2016*, 2016.

[chonda-311-017-09:2016] Makiko Ohtake Yuzuru Karouji Naoki Kobayashi Chikatoshi Honda Naru Hirata Tomokatsu Morota Shunichi Kamata Makoto Hareyama, Yoshiaki Ishihara. Lunar geologic map based on auto classification of Kaguya spectral data. In *Japan Geoscience Union Meeting 2016*, 2016.

[kitazato-311-017-01:2016] T. Okada, T. Fukuhara, S. Tanaka, M. Taguchi, T. Arai, H. Senshu, Y. Ogawa, H. Demura, K. Kitazato, R. Nakamura, T. Kouyama, T. Sekiguchi, S. Hasegawa, T. Matsunaga, T. Wada, T. Imamura, J. Takita, N. Sakatani, Y. Horikawa, K. Endo, J. Helbert, T. G. Mueller, and A. Hagermann. Earth and Moon Images by Thermal Infrared Imager TIR on Hayabusa2 and Its Implications to Observations of Asteroid Ryugu. In *48th Lunar and Planetary Science Conference*, number 1964, page 1818. LPI, March 2017.

[kitazato-311-017-02:2016] R. Brunetto, C. Lantz, Z. Dionnet, F. Borondics, A. Aleon-Toppani, D. Baklouti, M. A. Barucci, R. P. Binzel, Z. Djouadi, K. Kitazato, and C. Pilorget. IR Spectral Imaging of Irradiated Carbonaceous Meteorites. In *48th Lunar and Planetary Science Conference*, number 1964, page 1508. LPI, March 2017.

[kitazato-311-017-03:2016] H. Yabuta, A. Nakato, M. Komatsu, T. Morota, M. Matsuoka, S. Sugita, T. Hiroi, K. Kitazato, T. Okada, H. Senshu, S. Sasaki, T. Nakamura, N. Kobayashi, S. Watanabe, and Hayabusa2 Landing Site Selection Team. Scientific Strategy of Landing Site Selection for Hayabusa2. In *79th Annual Meeting of the Meteoritical Society*, number 1921, page 6525. LPI, August 2016.

[kitazato-311-017-04:2016] K. Kitazato, T. Iwata, M. Abe, and M. Ohtake. Earth and Moon Observations using Hayabusa2 Near-infrared Spectrometer.

In *61st Annual Meeting of the Japan Society for Aeronautical and Space Sciences*, number 1G12. JSASS, September 2016.

[kitazato-311-017-05:2016] T. Inasawa and K. Kitazato. Building Near-infrared Spectral Map of Asteroid Itokawa with Hayabusa NIRS Data. In *2016 Fall Meeting of the Japan Society for Planetary Sciences*, number P2-05. JSPS, September 2016.

[kitazato-311-017-06:2016] S. Nasu, K. Furuhashi, R. Watanabe, Y. Suguro, and K. Kitazato. Simulation of Hayabusa2 Small Lander MASCOT Deployment. In *2016 Fall Meeting of the Japan Society for Planetary Sciences*, number P2-06. JSPS, September 2016.

[kitazato-311-017-07:2016] K. Kitazato, S. Sugita, T. Kouyama, E. Tatsumi, M. Yamada, H. Sawada, H. Senshu, T. Iwata, M. Abe, Y. Nakauchi, T. Morota, R. Honda, S. Kameda, C. Honda, H. Suzuki, K. Ogawa, M. Ishiguro, S. Watanabe, and Hayabusa2 NIRS3-ONC team. Visible and Near-Infrared Spectral Observations of Moon, Earth and Mars using Hayabusa2 NIRS3 and ONC. In *17th ISAS Space Science Symposium*, number P-115. JAXA, January 2017.

Academic society activities

[chonda-311-017-10:2016] Chikatoshi Honda, 2016.

Eeditorial board member

Advisor for undergraduate research and graduate research

[kitazato-311-017-08:2016] Keiya Kato. Graduation Thesis: Photometric Measurements of Sintered Glass Beads, University of Aizu, 2016.

Thesis Advisor: K. Kitazato

[kitazato-311-017-09:2016] Ryohei Omoto. Graduation Thesis: Photometric Measurements of Frozen Surface, University of Aizu, 2017.

Thesis Advisor: K. Kitazato

Summary of Achievement

[kitazato-311-017-10:2016] Yosuke Suguro. Graduation Thesis: Modeling of Rigid Body Bouncing based on Dropping Impact Experiments, University of Aizu, 2017.

Thesis Advisor: K. Kitazato

[kitazato-311-017-11:2016] Kuniaki Furuhashi. Graduation Thesis: Dynamical Simulation of Descent and Landing of Hayabusa2 Small Lander MASCOT, University of Aizu, 2017.

Thesis Advisor: K. Kitazato

[kitazato-311-017-12:2016] Ryota Watanabe. Graduation Thesis: Verification of Dynamical Simulation of MuROS using Hayabusa Trajectory Data, University of Aizu, 2017.

Thesis Advisor: K. Kitazato

[kitazato-311-017-13:2016] Shotaro Nasu. Graduation Thesis: Illumination and Thermal Conditions on Asteroid Surface for Hayabusa2 MASCOT Operation, University of Aizu, 2017.

Thesis Advisor: K. Kitazato

Contribution related to the selection of library or textbook materials

[chonda-311-017-11:2016] Library committee

Did you participate in Public Lectures, and/or Open Campus? (Yes or No) If yes, please describe what you did.

[chonda-311-017-12:2016] Off-campus Lectures (Shirakawa high school)

[chonda-311-017-13:2016] Off-Campus Public Lectures by Dispatched Faculty Members (Katsushika City Museum)

[chonda-311-017-14:2016] Open Campus (summer / autumn)