MISASA INTERNATIONAL SYMPOSIUM 2015

MISASA V "Comprehensive Exploration of the Solar System: Sample Return and Analysis" at Misasa, Tottori, Japan; March 6–8, 2015

ABOUT THE SYMPOSIUM

The 21st Century is a sensational era in solar system exploration. Human beings have begun (or plan) to make on-site observations and obtain samples directly from asteroids, comets, and Mars and its satellites. Through this exploration, meteorite studies and remote observations of planets, we expect to greatly deepen our understanding of the origin, evolution, and dynamics of the solar system.

Still fresh in our memory is the remarkable journey of the HAYABUSA spacecraft, which delivered to us dust grains from the surface of asteroid Itokawa. Discoveries of sub-micron-sized craters and adhered molten-glasses on the grain surfaces revealed the asteroid surface to be a very active and seemingly hostile environment. In December 2014, the 2nd generation HAYABUSA spacecraft (HAYABUSA 2) was successfully launched toward the C-type asteroid 1999JU3, in this case to collect rocks possibly containing organic matter. The challenges associated with such endeavors serve as motivation to earth and planetary material scientists inspiring us to plan for comprehensive retrieval of information from materials of types never before handled by humans.

Since 1987, the Pheasant Memorial Laboratory (PML), in the Institute for Study of the Earth's Interior (ISEI), has developed a comprehensive analytical system, applying a wide range of analytical techniques to accurately and precisely determining the physico-chemical properties of terrestrial and extra-terrestrial materials. Our approach is applicable to any material for which detailed study could yield insight regarding the cosmosphere, geosphere, and biosphere over the last 4.57 Gyr. The value of this comprehensive approach is also demonstrated in our recent study of the Chelyabinsk meteorite. This meteorite reveals its long history beginning with thermal metamorphism in the parent body around 4.57 Ga and continuing with its break-up and partial melting by a catastrophic impact event at ~150Ma. Moreover, geochemical vestiges of a post-impact free fluid in the rocky fragments suggest that an icy comet took up the fragments and assembled rubble-pile asteroids similar to Itokawa. This scenario has the potential to be generally applicable in explaining how (small) planetary bodies were produced in our solar system.

The theme of MISASAS V will be analyses of extra-terrestrial materials provided by sample-return missions, and insights regarding the evolution of recently sampled asteroids and meteorites, that are possible through comprehensive textural, geochemical, and geochronological analyses. We, therefore, will bring together experts from a wide range of earth, planetary, and space sciences to discuss research related to future solar system exploration in missions such as HAYABUSA 1 & 2, OSIRIS-REx, and MARS2020. We will consider recent scientific achievements investigating sample return materials, for example from Itokawa and the Chelyabinsk meteorite. Hopefully, the symposium will enable attendees to share their knowledge and gain new perspectives in this multidisciplinary setting. Our symposium is also aimed at conceptualizing future collaborative research. We look forward to meeting you at the MISASA V Symposium!

POTENTIAL LECTURERS (*List in alphabetical orders)

Gray BEBOUT (Lehigh University)
Lydie BONAL (Institut de Planétologie et d'Astrophysique de Grenoble)
James DARLING (University of Portsmouth)
Eric GALIMOV (Institute of Geochemistry of the RAS)
Mikhail GERASIMOV (Space Research Institute of the RAS)
Tak KUNIHIRO (ISEI, Okayama University)
Dante LAURETTA (University of Arizona)
Jeremie LASUE (The Research Institute in Astrophysics and Planetology, Toulouse)
Shigenori MARUYAMA (ELSI, Tokyo Institute of Technology)
Scott MESSENGER (JSC/NASA)
Keiko NAKAMURA-MESSENGER (JSC/NASA)
Eizo NAKAMURA (ISEI, Okayama University)
Boris SHUSTOV (Institute of Astronomy of the RAS)
Steven SQUYRES (Cornell University)
Alexander ZAKHAROV (Space Research Institute of the RAS)

REGISTRATION

A fee for registration and banquet, and travel support will be announced later. Please feel free to inquire (misasa5@itokawa.misasa.okayama-u.ac.jp) for details regarding possible travel support.

CALL FOR PRESENTATION

We plan for most presentations to be as posters because of the limited time available in this two-day symposium; however, we will schedule as many oral presentations as

possible. When you submit your abstract, please indicate whether your presentation is particularly suited to a poster format.

SYMPOSIUM VENUE

The symposium will be held at BlancArt Misasa (388-1, Misasa, Misasa-cho, Tottori 682-0123, Japan)

WEBSITE

Please check for the newest information on the following website;
http://sympo.misasa.okayama-u.ac.jp/misasa_v/

SCHEDULE

January 2015: distribution of circular
January 7, 2015: abstract submission and beginning of online registration
January 30, 2015: end of online registration
February 15, 2015: abstract deadline (tentative)
March 6 afternoon – March 8 morning, 2015: MISASA V

ORGANIZING COMMITTEE

Eizo NAKAMURA, Katsura KOBAYASHI, Ryoji TANAKA, Tak KUNIHIRO, Tatsuki TSUJIMORI (Institute for Study of the Earth's Interior, Okayama University)