

Thursday, March 10, 2011
SPECIAL SESSION:
RESULTS FROM HAYABUSA!
8:30 a.m. Waterway Ballroom 4

Chairs: Takahiro Hiroi
Tomoki Nakamura

- ★ 8:30 a.m. Tsuchiyama A. * Ebihara M. Kimura M. Kitajima F. Kotsugi M. Ito S. Nagao K. Nakamura T. Naraoka H. Noguchi T. Okazaki R. Uesugi K. Uesugi M. Yurimoto H. Ireland T. R. Sandford S. A. Zolensky M. Fujimura A. Abe M. Yada T. Mukai T. Okada T. Ishibashi Y. Shirai K. Ueno M. Kawaguchi J. Yoshikawa M.
[*Preliminary Examination of Particles Recovered from the Surface of the Asteroid 25143 Itokawa by the Hayabusa Mission* \[#1788\]](#)
Particles of <~100 μm were recovered from the surface of the asteroid Itokawa by the Hayabusa mission. Preliminary examination of these particles will start from January 2011. The outline of the examination and results will be presented.
- ★ 8:45 a.m. Fujimura A. Abe M. Yada T. * Nakamura T. Noguchi T. Okazaki R. Ishibashi Y. Shirai K. Okada T. Yano H. Zolensky M. E. Sandford S. Ueno M. Mukai T. Yoshikawa M. Kawaguchi J.
[*Processes to Open the Container and the Sample Catcher of the Hayabusa Returned Capsule in the Planetary Material Sample Curation Facility of JAXA* \[#1829\]](#)
Processes in the curation facility of the container and the sample catcher in the reentry capsule of the Japanese spacecraft Hayabusa, which returned from near-Earth asteroid Itokawa to the Earth on June 13, 2010, is presented here.
- ★ 9:00 a.m. Nakamura T. * Noguchi T. Tanaka M. Zolensky M. E. Kimura M. Nakato A. Ogami T. Ishida H. Tsuchiyama A. Yada T. Shirai K. Okazaki R. Fujimura A. Ishibashi Y. Abe M. Okada T. Ueno M. Mukai T.
[*Mineralogy and Major Element Abundance of the Dust Particles Recovered from Muses-C Regio on the Asteroid Itokawa* \[#1766\]](#)
Mineralogy, mineral chemistry, and micro-textures of the Itokawa particles are characterized using synchrotron radiation X-ray diffraction and transmission and field-emission electron microscopes.
- ★ 9:15 a.m. Tsuchiyama A. * Uesugi M. Uesugi K. Nakano T. Nakamura T. Noguchi T. Noguchi R. Matsumoto T. Matsuno J. Nagano T. Takeuchi A. Suzuki Y. Ebihara M. Ireland T. R. Kitajima F. Nagao K. Naraoka H. Okazaki R. Sandford S. A. Yurimoto H. Zolensky M. E. Fujimura A. Abe M. Yada T. Mukai T. Kawaguchi J. Yoshikawa M.
[*Three-Dimensional Structures of Particles Recovered from the Asteroid Itokawa by the Hayabusa Mission and a Role of X-Ray Microtomography in the Preliminary Examination* \[#1777\]](#)
Three-dimensional structures of particles of regolith on the asteroid Itokawa will be examined by microtomography as a part of the preliminary examination, which began in January 2011. A role of the tomography in the examination will be also presented.

- ★ 9:30 a.m. Ebihara M. * Sekimoto S. Hamajima Y. Yamamoto M. Kumagai K. Oura Y. Shirai N. Ireland T. R. Kitajima F. Nagao K. Nakamura T. Naraoka H. Noguchi T. Okazaki R. Tsuchiyama A. Uesugi M. Yurimoto H. Zolensky M. E. Abe M. Fujimura A. Mukai T. Yada T.
[Neutron Activation Analysis of Single Grains Recovered by the Hayabusa Spacecraft](#) [#1902]
Single grain samples returned by the Hayabusa spacecraft are analyzed by neutron activation for characterizing the material in terms of chemical composition. Gamma ray counting is performed by using a well-type Ge detector at the heavily shielded counting facility.
- ★ 9:45 a.m. Yurimoto H. * Abe M. Ebihara M. Fujimura A. Hashizume K. Ireland T. R. Itoh S. Kawaguchi J. Kitajima F. Mukai T. Nagao K. Nakamura T. Naraoka H. Noguchi T. Okazaki R. Sakamoto N. Seto Y. Tsuchiyama A. Uesugi M. Yada T. Yoshikawa M. Zolensky M.
[Oxygen and Magnesium Isotopic Compositions of Asteroidal Materials Returned from Itokawa by the Hayabusa Mission](#) [#1755]
We will present the first results of the oxygen and magnesium isotopic compositions of asteroid Itokawa by the Hayabusa Mission.
- ★ 10:00 a.m. Noguchi T. * Nakamura T. Kimura M. Zolensky M. E. Tanaka M. Hashimoto T. Konno M. Nakato A. Ogami T. Fujimura A. Abe M. Yada T. Mukai T. Ueno M. Okada T. Shirai K. Ishibashi Y. Okazaki R.
[SEM and TEM Observation of the Surfaces of the Fine-Grained Particles Retrieved from the MUSES-C Region on the Asteroid 25413 Itokawa](#) [#1596]
As a part of the initial analysis of the particles retrieved from the asteroid Itokawa by the Hayabusa spacecraft, we are performing SEM and TEM observation of the surfaces of the particles to identify the cause of the asteroidal space weathering.
- ★ 10:15 a.m. Okazaki R. * Nagao K. Miura Y. N. Osawa T. Bajo K. Matsuda S. Nakamura T. Shirai K. Abe M. Yada T. Noguchi T. Ishibashi Y. Fujimura A. Mukai T. Ueno M. Okada T. Yoshikawa M. Kawaguchi J.
[Noble Gases Recovered from the Hayabusa Sample Container](#) [#1653]
The Hayabusa sample capsule was successfully recovered on the earth in 2010. The sample container was recovered from the capsule and opened in a clean chamber at the curation facility of JAXA. Noble gases collected from the container have been investigated.
- ★ 10:30 a.m. Nagao K. * Okazaki R. Nakamura T. Miura Y. N. Osawa T. Bajo K. Matsuda S. Ebihara M. Ireland T. R. Kitajima F. Naraoka H. Noguchi T. Tsuchiyama A. Uesugi M. Yurimoto H. Zolensky M. Shirai K. Abe M. Yada T. Ishibashi Y. Fujimura A. Mukai T. Ueno M. Okada T. Yoshikawa M. Kawaguchi J.
[Noble Gases of the Itokawa Samples Returned by the Hayabusa Mission](#) [#2119]
Noble gas isotopic compositions of the Itokawa samples returned by the Hayabusa mission will be presented. The noble gases will be extracted from single particles by the laser heating method.

- ★ 10:45 a.m. Kitajima F. * Kotsugi M. Ohkochi T. Naraoka H. Ishibashi Y. Abe M. Fujimura A. Okazaki R. Yada T. Nakamura T. Noguchi T. Nagao K. Tsuchiyama A. Mukai T. Sandford S. A. Okada T. Shirai K. Ueno M. Yoshikawa M. Kawaguchi J.
[*A Micro-Spectroscopic Approach to the Carbonaceous Matter in the Particles Recovered by the Hayabusa Mission*](#) [#1855]
We are planning to analyze the insoluble organic matter (IOM) in the particles recovered by the Hayabusa mission using micro-spectroscopic techniques. Their spectroscopic features can be a clue to the formation history of Itokawa.
- ★ 11:00 a.m. Naraoka H. * Mita H. Hamase K. Mita M. Yabuta H. Saito K. Fukushima K. Kitajima F. Sandford S. A. Nakamura T. Noguchi T. Okazaki R. Tsuchiyama A. Yada T. Shirai K. Fujimura A. Ishibashi Y. Abe M. Okada T. Ueno M. Mukai T.
[*Preliminary Organic Compound Analysis of Particles Returned from Asteroid 25143 Itokawa by the Hayabusa Mission*](#) [#1672]
A preliminary organic compound analysis is performed for the particles returned from Itokawa by the Hayabusa mission.
- 11:15 a.m. Hiroi T. * Sasaki S. Noble S. K. Pieters C. M.
[*Space Weathering of Ordinary Chondrite Parent Bodies, its Impact on the Method of Distinguishing H, L, and LL Types, and Implications for Itokawa Samples Returned by the Hayabusa Mission*](#) [#1264]
A new space weathering index is found useful for ordinary chondrites. Three band strength ratio method using only the 1- μ m band of reflectance spectrum is less subject to space weathering than the BAR method in distinguishing H, L, and LL types.
- 11:30 a.m. Hirata N. * Ishiguro M.
[*Properties and Possible Origin of Black Boulders on the Asteroid Itokawa*](#) [#1821]
A large and very black boulder is found on the head region of the asteroid Itokawa. Nature and possible origin of the boulder are discussed.

Tuesday, March 8, 2011

**POSTER SESSION I: EARLY SOLAR SYSTEM I:
REFRACTORY MATERIALS, ISOTOPIC ANOMALIES, AND THEIR SOLAR ORIGINS
6:00 p.m. Town Center Exhibit Area**

Marin-Carbonne J. McKeegan K. D. Davis A. M. MacPherson G. J.

[*In-Situ Investigation of Silicon Isotope Compositions in a FUN Inclusion.*](#) [#2764]

Si isotopes of the FUN inclusion Vigarano 1623-5 show large degrees of mass fractionation in olivine and melilite, confirming that 1623-5 crystallized while evaporating. In melilite, O, and Si isotopes have been exchanged with a chondritic reservoir.

Moynier F. Day J. M. D. Bouvier A. Walker R. J. Podosek F. A.

[*⁸⁴Sr Anomalies in Carbonaceous Chondrites*](#) [#1239]

Carbonaceous chondrites are enriched by 50 ppm in ⁸⁴Sr/⁸⁶Sr ratio compared to terrestrial samples. These results reflect heterogeneous distribution of the p-process nuclide ⁸⁴Sr in the early solar system.

van Acken D. Brandon A. D. Humayun M.

[*Nucleosynthetic Osmium Isotope Anomalies in Enstatite and Rumuruti Chondrites*](#) [#1034]

Enstatite and Rumuruti chondrites show similar Os isotopic anomalies as ordinary and carbonaceous, suggesting homogeneous distribution of an s-process Os carrier phase throughout the chondrite formation region.

Srinivasan G. Ali A. Jabeen I. Srinivasan S.

[*Ba Isotope Composition of Tagish Lake Meteorite*](#) [#1953]

The Tagish Lake meteorite was analyzed for Ba isotope composition, and different fractions show excess and deficit in s-process isotopes. The ¹³⁵Ba excess is modelled to have ¹³⁵Cs/¹³³Cs of 2×10^{-3} .

Burkhardt C. Kleine T. Dauphas N. Oberli F. Wieler R.

[*Nucleosynthetic Mo Isotope Anomalies in Acid Leachates of the Murchison Chondrite and Their Relevance for Early Solar System Processes*](#) [#2592]

Mo-isotopic anomalies in Murchison leachates and an acid residue are consistent with variable amounts of s-process Mo and correlate with anomalies in Zr, but not with the ones in Os. Implications for planetary-scale nucleosynthetic anomalies are discussed.

Nagashima K. Krot A. N. Huss G. R. Yurimoto H.

[*Oxygen Isotope Distributions in Type A CAIs from Kaba, CV Carbonaceous Chondrite*](#) [#2509]

Oxygen-isotope mapping on melilite-rich CAIs from the least-metamorphosed CV chondrite, Kaba, shows ¹⁶O-rich melilites are common and O-isotope distributions in melilites are complex and highly heterogeneous.

Rubin A. E.

[*A New Model for the Origin of Type-B CAIs*](#) [#1015]

Most CAIs formed near the Sun, but Type-Bs formed in the CV-CK region after Type-As collided inelastically, incorporated some forsterite-rich dust, melted and partially evaporated. B3s formed after greater amounts of forsterite were incorporated.

Lin B. E. Weisberg M. K. Ebel D. S.

[*Refractory Inclusions in MET 00426, a CR3 Chondrite*](#) [#1297]

A petrological description of the CAIs, AOAs, and chondrules of MET 00426 to test its classification as a CR3. We found evidence of pre-accretion alteration on one of the CAI's rims, and find the meteorite is a highly unequilibrated assemblage.

Ivanova M. A. Lorenz C. A. Krot A. N. MacPherson G. J.

[Complex Refractory CAIs from The NWA 3118 and Efremovka CV3 Chondrites](#) [#1738]

Several complex and compound refractory inclusions were discovered among a new suite of CAIs from the Efremovka and NWA 3118 CV3 chondrites.

Ivanova M. A. Krot A. N. Nagashima K. Lorenz C. A. Logan M. A. V. Kononkova N. N.

MacPherson G. J.

[Compound CAIs Containing Zr-Y-Sc-Rich Inclusions from NWA 3118 and Efremovka CV3 Chondrites](#). [#1728]

CAIs enriched in Zr, Sc and Y provide important records of the refractory element fractionation in the early solar nebula. We described mineralogy, petrology and oxygen isotopes of two Zr-rich CAIs from NWA 3118 and from Efremovka.

Jurewicz A. J. G. Burnett D. S. Woolum D. S. McKeegan K. D. Heber V. Guan Y.

Humayun M. Hervig R.

[Solar-wind FE/MG and a Comparison with CI Chondrites](#) [#1917]

Fe and Mg solar-wind elemental abundances have been measured relative to Fe and Mg implants calibrated using RBS and ICPMS, respectively. Either CI Fe/Mg is high relative to average solar composition, or there is a large FIT-control on solar wind.

Heber V. S. Guan Y. Jurewicz A. J. G. Smith S. Olinger C. McKeegan K. D. Burnett D. S.

[Abundances of Carbon, Nitrogen and Oxygen in the Solar Wind Measured by Backside SIMS Depth Profiling](#) [#2642]

C, N, and O in the solar wind (SW) are key elements to investigate elemental fractionation of the SW, required to deduce solar nebula abundances from SW data. We present first data on O, N, and C fluences in collected and returned SW samples from Genesis.

Lyon I. C. Kuhlman K. R. Burnett D. S.

[Cleaning Strategies and Depth Profiling of Genesis 60130 Silicon](#) [#2528]

Further cleaning strategies for Genesis silicon 60130 were used to remove particulate matter and thin-film contamination. Surface analysis using TOF-SIMS showed that micrometer-sized particulates were, however, still present.

Burkett P. J. Rodriguez M. C. Allton J. H.

[Nuts and Bolts — Techniques for Genesis Sample Curation](#) [#1964]

The Genesis curation staff at NASA JSC provides samples and data for analysis. We are showing: 1) techniques for characterization and measurement of shards; 2) allocation methods; and 3) status of the catalog by collector material, regime, and size.

Rodriguez M. C. Burkett P. J. Allton J. H.

[Higher Magnification Imaging of the Polished Aluminum Collector Returned from the Genesis Mission](#) [#1968]

The returned Genesis polished aluminum collector has had further optical microscope examination using higher magnification to document additional hypervelocity impact craters and surface contamination.



Abe M. Fujimura A. Yano H. Okamoto C. Okada T. Yada T. Ishibashi Y. Shirai K. Nakamura T. Noguchi T. Okazaki R. Zolensky M. E. Sandford S. A. Ireland T. Ueno M. Mukai T. Yoshikawa M. Yamada T. Kuninaka H. Kawaguchi J.

[Recovery, Transportation and Acceptance of the Curation Facility of the Hayabusa Re-Entry Capsule](#) [#1638]

The Hayabusa re-entry capsule was safely carried into the Sagami-hara Planetary Sample Curation Facility in JAXA on June 18, 2010. We report on the capsule recovery operation, and transportation and acceptance at the curation facility of the capsule.

Schmeling M. Burnett D. S. Jurewicz A. J. G.

[Surface Characterization of Genesis Samples by Total Reflection X-Ray Fluorescence Spectrometry: Contaminants and Roughness Variations](#) [#2041]

Surface analysis of Genesis solar wind samples by laboratory-based TXRF in conjunction with different cleaning procedures was carried out. Remaining contaminants and surface roughness were evaluated for different types of collector materials.

Reisenfeld D. B. Steinberg J. T. Wiens R. C. Lepri S. Raines J.

[A Comparison of Solar Wind Conditions During the Genesis Mission with Forty Years of Solar Wind Observations](#) [#2017]

To better understand how the solar wind sample collected during the Genesis mission relates to the average solar wind composition, we analyze the average plasma state of the solar wind during the Genesis mission and compare it to solar wind observations collected over the past 40 years.

Veryovkin I. V. Tripa C. E. Zinovev A. V. Baryshev S. V. Pellin M. J. Burnett D. S.

[Multielement RIMS Analysis of Genesis Solar Wind Collectors — Recent Progress Towards Better Accuracy](#) [#2308]

We report on progress in measurements of Mg, Ca, and Cr fluences in Genesis samples by resonance ionization mass spectrometry. For the first time, we were able to clearly distinguish these solar wind elements from terrestrial surface contamination.

Wiens R. C. Olinger C. T. Reisenfeld D.

[Ion Trajectory Simulations of the Genesis Solar Wind Concentrator Performance](#) [#1555]

We describe improvements to Genesis Solar Wind Concentrator computer simulation, compare results to analyses made on the Concentrator target, and use these to predict the utility of the Concentrator target for analyses of other elements and isotopes.

Hutchinson J. A. Wright D. M. Milan S. E. Grocott A.

[A Superposed Epoch Analysis of Geomagnetic Storms Over a Solar Cycle](#) [#2051]

We have completed and analysed a statistical superposed epoch analysis of geomagnetic storms over the last solar cycle, including CME/CIR driving differences, SW-M coupling, and an interesting new trend seen in the main phase duration with storm size.