

Current status of Hayabusa data

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JAXA

Definition of data level

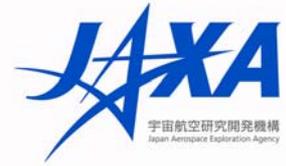
Level-0: raw data (telemetry data)

Level-1: data preserved after format change of
telemetry data (only telemetry data
necessary

for each instrument is included.)

Level-2: data produced by processing the Level-1
data

Status of readiness to release data for each instrument



AMICA: Level-1 imaging data (in FITS format)

NIRS: Both spectral data of Level-1 & Level-2 (in FITS format)

Level-1: voltage data, Level-2: I/F (reflectance) data

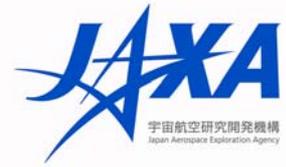
LIDAR: Level-2 ranging data (in ASCII format)

Data reduced in offset

XRS: Level-1 x-ray spectral data (in ASCII format)

Histogram data of channel number & x-ray counts

Status of readiness to release ancillary data



SPICE kernels:

SPK - Position of spacecraft

HK data (Only data in rendezvous phase is available.)

O.S. Barnouin-Jha's corrected SPK

CK - Attitude of spacecraft

HK data derived from the onboard star tracker

PMK & PCK - Asteroid shape and orientation

The latest version of shape model by R. Gaskell

IK - Instrument field-of-view size, shape and orientation

Pre-flight calibration data

Others (FK, LSK, SCLK)

Everything is set.

Date of public release

Data has been released through a data distribution server placed at ISAS/JAXA.

Data download system

We are building a system allowing access to these data freely using a web-interface.

URL: <http://hayabusa.sci.isas.jaxa.jp/>

Look of website



The screenshot shows a web browser window with the title "Hayabusa Project Science Data Archive : JAXA". The address bar contains the URL "http://hayabusa.sci.isas.jaxa.jp/". The page features the JAXA logo and the text "Japan Aerospace Exploration Agency Institute of Space and Astronautical Science". A large banner image shows the Hayabusa spacecraft orbiting an asteroid, with the text "HAYABUSA PROJECT SCIENCE DATA ARCHIVE" overlaid. Below the banner, there is a navigation menu on the left and a main content area on the right.

Hayabusa Project Science Data Archive : JAXA
http://hayabusa.sci.isas.jaxa.jp/

JAXA Japan Aerospace Exploration Agency Institute of Space and Astronautical Science

HAYABUSA PROJECT SCIENCE DATA ARCHIVE

– Welcome to Hayabusa Project Science Data Archive Information System –

This archive site provides access to Hayabusa (MUSES-C) mission derived data of the main mission target asteroid, 25143 Itokawa and of in-flight instrument calibration.

Mission Overview

The Hayabusa (the original code name was MUSES-C) engineering spacecraft, launched by the fifth Mu V launch vehicle on 9 May 2003, was designed to acquire samples from the surface of near-Earth asteroid 25143 Itokawa (1998 SF36) and return them to Earth. The main objectives of the mission were to demonstrate the performance of various technical items such as ion engines, autonomous navigation, sampling of the asteroid's surface, and high-speed reentry into the Earth's atmosphere. In addition, important scientific results were expected from this mission.

After cruising with nearly continuous operation of the ion engines and an Earth swingby on 19 May 2004, the spacecraft arrived at an altitude of about 20 km (Gate position) near the sub-Earth point on 12 September 2005. After a period of reconnaissance operation, the spacecraft transferred to the nominal hovering position (Home position) on 30 September 2005, at an altitude of about 7 km from the asteroid's surface and near the sub-Earth point. During 8 to 28 October 2005, the spacecraft left the home position and made tours to various altitudes and solar phase angles to access the polar regions. A sampling location on a smooth terrain called Muses Sea was selected. The touchdown, the 30-min stay on the asteroid surface, and the liftoff were performed on 19 and 25 November.

Home
Instruments
Data

- AMICA
- NIRS
- LIDAR
- XRS
- SPICE

Documentation
Tools
Related Sites

AMICA page

Users can view and select any AMICA imaging data to download.



Hayabusa Project Science Data Archive : JAXA

http://hayabusa.sci.isas.jaxa.jp/amica.p?phase=hp&date=20051022

AMICA (Asteroid Multiband Imaging CAMERA)

This page provides access to the imaging data taken by Hayabusa AMICA. If the operation phase and observation date are selected through the following select boxes, thumbnails of the specified imaging data will appear at the bottom of this page. Please fill the check boxes of imaging data that you want and click on the download button. To search when and how the images were obtained, you can consult the [AMICA observation log](#).

Operation Phase: Home Position Phase Obs. Date: 20051022

Check all Reset Download



ST_2480981469_v.fits (1MB) ST_2481211873_v.fits (1MB) ST_2481442195_v.fits (1MB)



Summary of archiving status for Hayabusa PDS



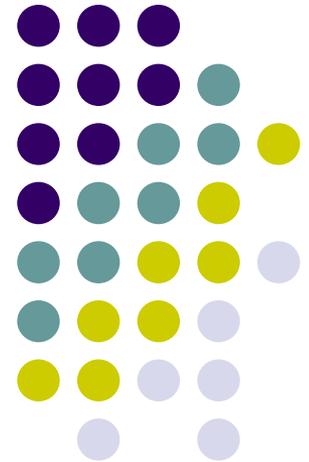
-
- AMICA - Complete image set for the mission has been prepared for archiving and underwent peer review on June 12.
 - LIDAR - Complete set of EDRs and CDRs underwent peer review on June 12.
 - NIRS - PDS will not be able to prepare the NIRS data for archiving until we receive information characterizing the data and the instrument. The NIRS team has agreed to send this information and have also agreed to send a revised NIRS data. When we have received the information and revised data files, we will prepare the data set for peer review.
 - Shape Models - The Gaskell Itokawa shape models underwent peer review on June 12.
 - XRS – Under discussion for proceeding with archiving.
 - SPICE – Under discussion for proceeding with archiving.

Recent activity using Hayabusa data

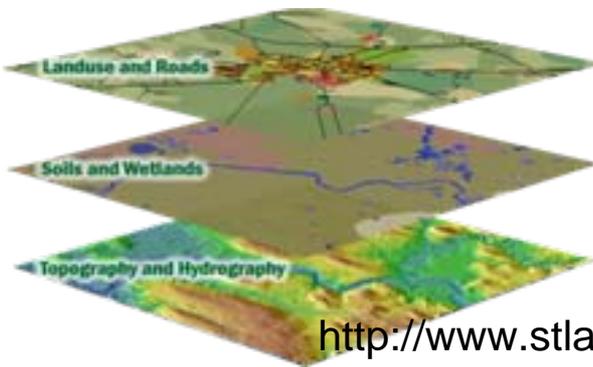
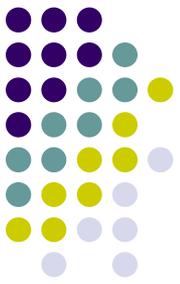
- I will show an example for handling map data of an irregular shaped small body.

3-D GIS for Irregular Shaped Small Bodies

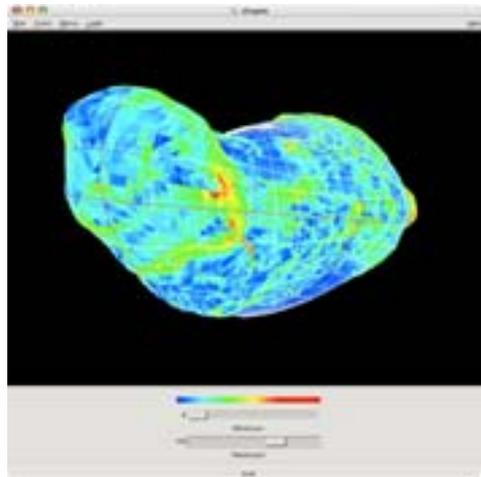
N. Hirata, Y. Fujii, H. Demura,
and N. Asada
The University of Aizu



GIS - Geographical Information System

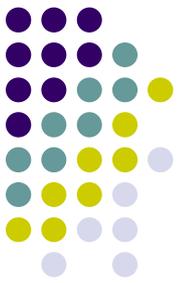


<http://www.stlawu.edu/gis/>



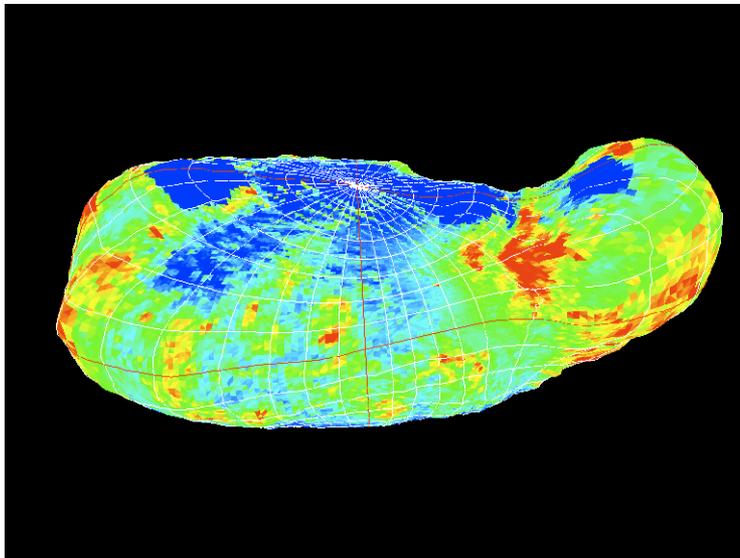
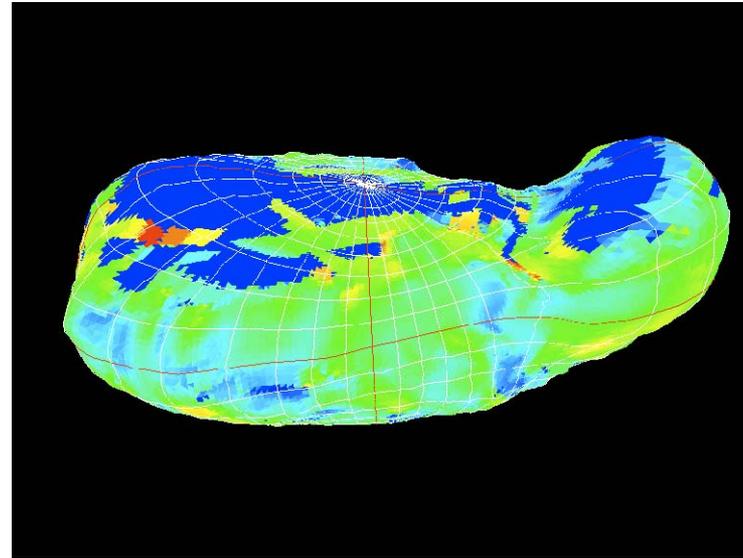
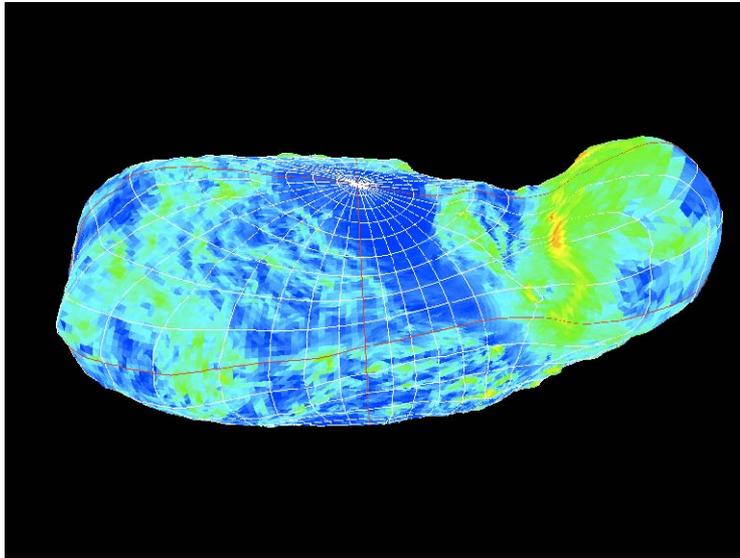
A slope map of Itokawa

- An information system to integrate, visualize, and analyze georeferenced (coordinates are known) multiple data
- The Earth GISs cannot be applied to asteroids
- We develop a specialized tool for GIS-oriented analyses of asteroid data



Main Features of the software

- Visualize 3D shape models of asteroids
 - change a viewing point and a scale
- Overlay and switch multi-layered data
 - change color attributes
- Analyze the data
 - extract a cross-section with overlaid data
- Multi-platform with OpenGL and GTK+ libraries
 - Win, MacOSX, Linux...



- Various data mapped on the Itokawa shape model with the lat/lon grid by the GIS tool
 - Slope map (left top)
 - NIR reflectance map (right top)
 - Visible brightness map (left bottom)

