

THE PDS SMALL BODIES DATA FERRET. M. V. Sykes¹, R. Early¹, J. Stone¹, M. Wendell¹, C. Neese¹, D. R. Davis¹, L. Kolokolova², M. F. A'Hearn², T. Farnham², and L. Feaga², ¹Planetary Science Institute (1700 East Fort Lowell, Suite 106, Tucson, AZ 86719, USA; sykes@psi.edu), ²University of Maryland (Astronomy Department, Farm Dr. Bldg. 224, Rm. 1204, College Park, MD 20742, USA).



Introduction: NASA archives all of its planetary mission data in the Planetary Data System (<http://pds.nasa.gov>). This data is curated by Discipline Nodes covering specific areas of expertise: Geosciences, Atmospheres, Planetary Rings, Planetary Plasma Interactions, and Small Bodies. Small Bodies covers a broad range of target bodies and structures: asteroids, comets, small satellites, KBOs, Pluto-Charon, and interplanetary dust. PDS data holdings covering these objects include not only spacecraft data, but ground-based telescope observations, laboratory measurements and model outputs and simulations. Data types include spectra, lightcurves, phase curves, broadband colorimetry, spectral and broadband imagery, shape models, mass and charge measurements (dust), orbital information, and much more. Given the large numbers of asteroids and comets in the solar system for which we have some data, the ability to sift through the diverse holdings of the PDS for information specific to any particular target has its challenges. To facilitate the search and access of asteroid, comet and planetary satellite data by researchers, the PDS Small Bodies Node (SBN) has developed the Small Bodies Data Ferret, at: <http://sbn.psi.edu/ferret/>

Small Bodies Data in the Ferret: As of March 1, 2012, the Ferret contains links to data for 256668 asteroids, 118 comets, 58 satellites, and Pluto. More data on these objects, particularly comets, is in the process of being added. Mission data includes Galileo (Ida and Gaspra images), NEAR (just shape and gravity models of Eros, image data forthcoming), Hayabusa (all images and spectra, in addition to the Itokawa shape model), IRAS (Minor Planet Survey), MSX (images of comets and asteroids, plus MSX Infrared Minor Planet Survey), Stardust (Wild 2 shape model), and Deep Impact (Tempel 1 images, spectra, photometry, temperature maps, shape model).

A separate tool is under development for searching large image databases of resolved objects such as 433 Eros (NEAR), 25143 Itokawa (Hayabusa), and 4 Vesta and 1 Ceres (Dawn). SBN data on interplanetary dust, meteorites, meteors, and laboratory samples are not accessed through the Ferret and are directly available at: <http://pdssbn.astro.umd.edu/>

Using the Ferret: To find data on a specified target body, use the "Search" utility and enter the name of the body. For a list of all data sets currently included in the Ferret, with links to the data, select the "Data Sets" link. Use the "Support/Feedback" link to ask questions, provide feedback, or report problems.

Ferret Search

Enter the name(s) and/or designation(s) to list all SBN data on the object(s).

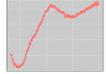
Target(s):

A search returns a listing of all data on the target object with thumbnail displays of spectra, time series data and imagery along with links to specific data products and the supporting information describing the data and how they were acquired. A partial return for Itokawa is shown below.

Data sets with data for Asteroid 25143 Itokawa:

- Asteroid Absolute Magnitudes V12.0 (1 data product)
- Asteroid Lightcurve Derived Data V12.0 (1 data product)
- Asteroid Masses V2.0 (1 data product)
- Asteroid Names and Discovery V12.0 (1 data product)
- Asteroid Polarimetric Database V6.0 (1 data product)
- Asteroid Radar V17.0 (1 data product)
- Asteroid Spin Vector Compilation V5.0 (1 data product)
- Delbo Thermal Infrared Asteroid Diameters and Albedos V1.0 (1 data product)
- Gaskell Itokawa Shape Model V1.0 (8 data products)
- Hayabusa AMICA V1.0 (1441 data products)
- Hayabusa NIRS Calibrated Spectra V1.0 (111216 data products)
- IRTF Near-IR Spectroscopy of Asteroids V2.0 (1 data product)
- Polarimetry of Asteroid Itokawa V1.0 (1 data product)
- Small Body Radar Shape Models V2.0 (1 data product)
- Stooke Small Bodies Maps V1.0 (3 data products)

IRTF Near-IR Spectroscopy of Asteroids V2.0 (1 data product)



NEAR-IR SPECTRUM OF ASTEROID 25143 ITOKAWA

time: 2001-03-28T13:48:42 file: binzeleta2001/25143_010328t134842.tab V2.0

Asteroid spectrum obtained with SpeX at the NASA Infrared Telescope Facility (IRTF). Preprocessing of the SpeX data, as well as extraction of the 1-D spectrum and wavelength calibration was carried out using various tasks in IRAF. Telluric correction was achieved with IDL code that utilizes model atmospheric transmission spectra generated with ATRAN. Multiple solar-analog stars were used in calibrating this spectrum in units of relative reflectance. Spectrum has been normalized to 1.0 at ~ 1.215 microns (center of the J-band).