

U002-05

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Data handling and archiving of the AKATSUKI mission

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We are developing a data processing system for AKATSUKI Level-1 and 2 image data. This presentation shows AKATSUKI data processing, including processing level, data flow, and data format.

* Definition of Data Level

AKATSUKI level data definition is following:

Level 0: Raw data (telemetry data)

Level 1: Data preserved after format change of telemetry data.

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

* Data Flow

AKATSUKI telemetry data are sent to ISAS from multiple ground stations inside and outside of Japan, concatenated, removed duplication, attached data reception time, then kept in the database named ``SIRIUS (Scientific Information Retrieval and Integrated Utilization System)``. The telemetry data (Level 0) are reformatted to FITS format [1] with specific calibrated data (Level 1). After fixing the trajectory and attitude information (about 1 week later), Level 2 data which includes geometry information is processed.

The Level 2 data is released after the proprietary periods (nominal 1 year). Our products will be archived and released in DARDS system (<http://darts.isas.jaxa.jp/>) maintained by the Center for Science-satellite Operation and Data Archive (C-SODA) at JAXA/ISAS.

* Data format

The image data obtained by AKATSUKI onboard 5 cameras are archived in ``Flexible Image Transport System`` (FITS) data format with Planetary Data System (PDS) [2] labels. FITS stands is the standard data format used in astronomy endorsed by NASA and IAU. AKATSUKI Level 2 data includes not only calibrated value of each pixel but also latitude and longitude informations of the center and 4 corners of each pixel. The navigation and ancillary information on the observations of each instrument are available in the form of SPICE kernels.

[1] Hanisch, R. J. et al., ``Definition of the Flexible Image Transport System(FITS)`` , *Astron. & Astrophys.*, 376, 359-380, 2001.

[2] Planetary Data System Data Standards Reference, March 20, 2006, Version 3.7 JPL D-7669, Part 2.

Keywords: Venus Climate Orbiter, AKATSUKI, Planet-C, Data processing, Level Data