AKARI: Astronomical Infrared Satellite

AKARI (formerly ASTRO-F), is the second Japanese satellite dedicated to infrared astronomy, from the Institute of Space and Astronautical Science (ISAS) of the Japanese Aerospace Exploration Agency (JAXA). Its main objective is to perform an all-sky survey with better spatial resolution and wider wavelength coverage than IRAS (first US, UK, Dutch infrared satellite launched in 1983), mapping the entire sky in six infrared bands.

FAST: FIS-AKARI Slow-scan Tools

FAST is a program that allows for interactive assessment of the data quality and on-the-fly corrections to the time-series data on a pixel-by-pixel bases in order to manually correct glitches that would have been missed in the pipeline process. These corrections include: (1) eliminate bad on-sky calibration sequences, (2) flag out cosmic-rays and their after-effect affected time-series readings from the data stream and (3) remove real sources from local sky-flat frames, among other options.

MLHES Mission Program

The AKARI MLHES (excavating Mass Loss History in Extended dust shells of Evolved Stars) data set is the largest collection of the most sensitive far-infrared (far-IR) images of the cold extended circumstellar dust shells of evolved stars and it is the key to understanding the dusty mass loss phase of stellar evolution (Pt. Yamamura).

Results

The time-series data for 175 pixels (40 for N60, 60 for Wide-S, 45 for Wide-L, and 30 for N160) in each of 144 objects was loaded and calibrated.

Along with this calibration, feed back was given to help make improvements to the interface, different structures in the LW band were noted, and also errors in the program were recorded. These improvements are scheduled to be included in subsequent updates to the program.

Some suggestions for improvement included moving the upper left corner key seen in figure 10, adding a way to keep track of flagged out data, and making the GUI panels resizable.

Recorded new structures:

LW bad performing pixels to include 47 and 75.

LW pixels 15, 16, 17, 19, 20, 43, 44, 45 have unique and systematic structures such as arcing and more dramatic ramping.

The error in the discrepancy between the gray scale time-series display vs. pixel number and the intensity vs. time-series was noted.

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References


Yamamura, L. 2010, The AKARI Far-Infrared Bright Source Catalogue, COSPAR Scientific Assembly, 38, 2496