

Spectroscopic Observations of Zodiacal Emission by AKARI

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Mid-infrared spectroscopic observations by infrared satellites, such as IRTS/MIRS and ISO, revealed that the mid-infrared spectrum of zodiacal emission has a weak and broad silicate emission band in 10-micron wavelength region, and suggest that the excess feature has a small peak at 11.2 micron and can be most reasonably accounted for by a combination of amorphous and crystalline silicate particles [1, 2]. AKARI, the Japanese infrared satellite, was launched on February 22, 2006 (JST) [3, 4], and its spectroscopic capability can remove the uncertainty and derive the more precise information on the composition and size distribution of interplanetary dust particles. During its one and half year lifetime of liquid helium, about 70 pointing observations were dedicated to the mid-infrared spectroscopy of zodiacal emission. Observed regions widely covers from the ecliptic plane and the asteroidal dust bands to high ecliptic latitude regions. Although there may be still some uncertainties of calibration, the 10-micron excess feature can be seen in the preliminary zodiacal emission spectra. We will compare the results of AKARI observations with the zodiacal emission spectra obtained by IRTS and ISO, and discuss the possible spatial variations of excess feature in the spectra because of the difference of dust sources.

References

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