

The Interstellar Medium viewed by the AKARI Far-Infrared All-Sky Survey

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We present a far-infrared all-sky atlas made from a sensitive all-sky survey using the Japanese AKARI satellite. The survey covers $> 99\%$ of the sky in four photometric bands centred at $65 \mu\text{m}$, $90 \mu\text{m}$, $140 \mu\text{m}$, and $160 \mu\text{m}$ with spatial resolutions ranging from 1 to 1.5 arcmin. Having four to five times better spatial resolution as well as data at longer wavelengths comparing to IRAS, the data provide crucial information for the investigation and characterisation of the properties of dusty material in the Interstellar Medium (ISM). The comprehensive wavelength coverage from $50 \mu\text{m}$ to $180 \mu\text{m}$ provides SED information at the peak of the dust continuum emission, enabling us to make a precise evaluation of its temperature, which leads to a detailed investigation of the total amount of dust particles, and their irradiation environment. The large-scale distribution of dust in interstellar clouds, their temperatures and column densities, can be investigated in great detail from the largest spatial scales of entire giant molecular clouds down to those as small as individual molecular cloud cores. In addition to the point source distribution, the large-scale distribution of ISM cirrus emission, and its filamentary structure, are well traced. We have made the first public release of the full-sky data to provide a legacy data set for use by the astronomical community. The AKARI FIR images are a new powerful resource from which to investigate the detailed nature of ISM from the smallest scales that trace individual star forming cores, to the complex structures revealed that span the full sky.