Introduction to IRAS

- IRAS Explanatory Supplement
- Explanatory Supplement to the IRAS Sky Survey Atlas
- IRAS Small Scale Structure Catalog (PDF) (12.9 MB)
- Explanatory Supplement to the IRAS Serendipitous Survey Catalog (PDF) (15.1 MB)

For a complete listing of available IRAS documents, please see the IRAS Documentation Site Map.

The Infrared Astronomical Satellite (IRAS) was a joint project of the US, UK and the Netherlands. The IRAS mission performed an unbiased, sensitive all sky survey at 12, 25, 60 and 100 μm.

IRAS increased the number of cataloged astronomical sources by about 70%, detecting about 350,000 infrared sources. IRAS discoveries included a disk of dust grains around the star Vega, six new comets, and very strong infrared emission from interacting galaxies as well as wisps of warm dust called infrared cirrus which could be found in almost every direction of space. IRAS also revealed for the first time the core of our galaxy, the Milky Way.

The satellite design and survey strategy were optimized for maximally reliable detection of point sources. Pointed observations, known as Additional Observations or AOs, were also done, interspersed with the survey observations.

The Infrared Science Archive (IRSA) makes available the following catalogs through the Gator query engine:

- IRAS Faint Source Catalog v2.0 (FSC)
- IRAS Point Source Catalog v2.1 (PSC)
- IRAS Cataloged Galaxies and Quasars
- IRAS Serendipitous Survey Catalog
- IRAS Small Scale Structure Catalog
- IRAS Additional Observations (AO) Catalog
- IRAS Faint Source Catalog Rejects
- IRAS Point Source Catalog Rejects
- IRAS PSC joined with Working Survey Database (WSDB)
- IRAS PSC joined with Hours Confirmed (HCONs) and WSDB

Copies of these catalogs are available on permenent media from the Astrophysics Data Facility.

IRSA also makes available the IRAS Sky Server Atlas (ISSA) and the two IRAS Galaxy Atlases. Finally, all these data products may be studied interactively and fused with data from other missions through the OASIS Java interface.

Although IRAS was not built with imaging primarily in mind, IRAS images have proven remarkable. The IRAS Sky Survey Atlas (ISSA) is a set of FITS images of the infrared sky at 12, 25, 60 and 100 μm. The ISSA images were made from coadded Infrared Astronomical Satellite (IRAS) survey data at moderate resolution. Full details of the ISSA images and their construction are given in the Explanatory Supplement to the IRAS Sky Survey Atlas.

For more detail about the design and performance of IRAS refer to the IRAS Catalogs and Atlases: Explanatory Supplement (1988, ed. C.A. Beichman, G. Neugebauer, H.J. Habing, P.E. Clegg and T.J. Chester, Washington, DC: GPO). In particular, there are some peculiarities of IRAS data, especially for the image data, of which the user should be aware.

In addition to the two online documents mentioned above and printed copies of the IRAS Faint Source Survey and IRAS Serendipitous Survey, a very brief outline of the IRAS satellite design and survey mission strategy is available. It is by no means a complete discussion and is entirely aimed at introducing subjects which have a very direct reflection in the data. The level of detail is intended to be just sufficient to allow conceptual understanding of the issues and is not intended to be complete. The IRAS Explanatory Supplement offers much more detail and should be consulted.

IRAS contained a Low Resolution Spectrometer (LRS), a slitless spectrometer sensitive from 7.5 to 23 μm with a resolving power of about 20. Unfortunately, IPAC has no expertise in that instrument. Hence for questions or further information on the Dutch LRS instrument, see http://www.sron.rug.nl/irasserver/irasserverman.html or http://www.iras.ucalgary.ca/database.html .

Next Section -->
(IRAS Satellite & Mission Strategy)

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