

The IUE All-Sky Survey (1978-1992)

The International Ultraviolet Explorer (IUE) satellite was launched to geosynchronous orbit on January 26, 1978 and has been in continuous operation since in a "real time", pointed observing mode. The IUE Observatory is currently conducting 15th episode observations and planning for 16th episode operations is underway. Although not designed as a survey mission, the remarkable longevity of this satellite project has permitted astronomers to observe the ultraviolet sky with amazing completeness and detail as demonstrated by the accompanying Figure.

This Figure, intended to illustrate the current status of the IUE "All-Sky Survey" shows the location on the sky of all IUE observations made from launch to the present (approximately June, 1992). It thus displays positional information, not flux distribution, for UV sources brighter than approximately 17th visual magnitude. It also contains a unique historical observational bias introduced by the IUE project. For NASA's part, this includes contributions from the more than 1200 guest investigators and 15 peer review panels that have participated in the IUE project so far. It was produced by an IDL plot routine in conjunction with the new updated version of the IUE Merged Log. The new Merged Log, formatted in INGRES as a relational database, contains an updated description of the over 80,000 observations made so far during IUE's continuing, productive span of operations. About 8,000 individual points are visible at the resolution of the Figure reproduced here. The sinusoidal Aitoff projection used represents the entire sky in galactic coordinates.

IUE's many observations of solar system objects trace out the ecliptic plane, visible as a diagonal line near the center of the figure. Clearly visible in the lower right quadrant of the Figure are the LMC and SMC (below $b = -30$ degrees), and the Orion and Monoceros complexes. The Carina complex is represented by the concentration of points near the galactic plane at $l = -60$ degrees. The large extinction near the galactic center leads to a relatively low concentration of points except in the direction of known "windows". Many open clusters are also visible near the galactic plane. A galactic feature known as the Perseus arm is marked by a line of open clusters in the center left of the Figure. An investigation of the spatial distribution of object classes reveals, as expected, that the majority of the objects seen near the galactic poles are extragalactic sources such as quasars, normal galaxies, AGN and giant H II regions.

Jerry Bonnell and Mario Pérez - Goddard Space Flight Center, Summer 1992.

IUE All Sky Survey (1978-1992)

