

The Legacy of IUE and Future Directions for UV Astrophysics

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The important advances in astrophysics made possible by the unique attributes of the IUE mission and by a major increase in understanding of the IUE instrumentation and calibrations are highlighted. For example, the flexible operational mode, longevity of the mission, broad simultaneous coverage, photometric stability of the instrumentation, and simplicity of instrument operation have enabled many scientific analyses that were completely unforeseen prior to the launch of IUE. The significant increases in signal-to-noise and accuracy of the flux and wavelength calibrations realized in the IUE Final Archive have also contributed to important scientific results, and made possible a fully intercomparable archive of over 100,000 spectra. A description of the performance of the IUE instrumentation and a history of the calibrations of IUE is presented. A review of the IUE Final Archive for the benefit of perspective users includes a quantitative assessment of the data accuracy achieved with NEWSIPS processing, a comparison of IUESIPS and NEWSIPS data for purposes of specific investigations, as well as a description of improvements not implemented in the Final Archive for lack of sufficient resources.

Now that the operations phase of the IUE mission and the creation of the Final Archive are behind us, we can allow ourselves some introspection concerning the successes and lessons learned. An assessment of the value of the IUE mission to UV astrophysics and to space astronomy as a whole is proposed, particularly in relation to current and planned missions.