

Plans for the IUE Final Archive

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The third meeting of the Signal-to-Noise Working Group (SNWG) was held Sept. 8-9, 1988 at GSFC. At that meeting a significant amount of work that had been accomplished by the IUE Project and IUE Guest Observers was presented, particularly in the analysis of the characteristics of the fixed pattern noise and its possible use for performing a more accurate photometric correction. While the analysis is still incomplete, the SNWG concluded that there is now sufficient evidence that substantial improvements can be made to the quality of the IUE Final Archive to warrant the continuation of the analysis currently underway at the IUE Project and at other institutions. The primary topics under investigation are removal of electronically-induced noise, improved alignment of the ITFs, enhanced wavelength assignments, and improved extraction methods. Details of the first and second meetings of the SNWG are available in NASA IUE Newsletters #34 and #36. A full report of the third meeting, including the recommendations of the SNWG, will appear in an upcoming issue of the NASA IUE Newsletter.

At the Three-Agency Coordination Meeting held Sept. 21-23, 1988 in Paris, an agreement was reached concerning the timeframe for reprocessing of the entire IUE archive. A "Pilot" reprocessing effort will begin in December of 1989 at both GSFC and VILSPA on a time-available basis (on-demand reprocessing requests will have priority over systematic reprocessing). This "Pilot" reprocessing is intended to include only a subset of the data which would most benefit from reprocessing to a uniform software and calibration, and will not include any improvements identified for signal-to-noise ratio enhancement. This subset of images has not yet been selected, although it is likely that the LWP data would be most appropriate, due to the one-level ITF in use since August of 1981.

Between now and December of 1989, the IUE Project will continue to enhance IUESIPS as such enhancements are identified and will complete as many of the calibration activities as possible, with the following priorities:

Priority 1 (LWP):

- New high-dispersion ripple correction
- New high-dispersion absolute calibration

Priority 2:

- New SWP low-dispersion absolute calibration
- New LWR low-dispersion absolute calibration

One major task to be done before the December 1989 reprocessing begins is the correction of the labels of the older images which will be included in the Pilot Reprocessing. Many of

the images acquired before 1980 do not contain sufficient information in the label to correctly process the image. In addition, information in the label needed to create a useful data base of the archived data may be missing. The missing and/or inaccurate information in the labels must be identified and corrected using the hand-written records of the IUE Observatory. Please note the article by Karen Levay in this Newsletter, which pertains to the definition of the format for the Final Archive Data Base and solicits input by the user community. Because of the large numbers of images for which the label information must be verified (IUE has acquired nearly 70,000 images to date) and because of the intense manual effort necessary to complete the task, this work has a high priority and is underway at this time.

In December of 1989, the IUESIPS software will be implemented to enable the production of a subset of the archive processed with uniform software. At the completion of the signal-to-noise improvement analysis and the associated final calibrations, the IUESIPS software will undergo one final modification incorporating the changes and improvements identified by these activities. At that time the Final Reprocessing will begin and all images, including those reprocessed during the Pilot Reprocessing, will be reprocessed with the final form of IUESIPS.

The Pilot Reprocessing effort, agreed to at the Three-Agency Coordination Meeting, is not intended to impact the Signal-to-Noise Improvement analysis which has been described in detail in NASA IUE Newsletters #34 and #36. In particular, the suggested schedules in the letter of recommendations from the Sept. 8-9, 1988 meeting of the SNWG will be adhered to and neither hastened or delayed due to the decision to begin a pilot reprocessing in December of 1989. A date of September 1989 has been set by the SNWG to decide which of the various methods of geometric and photometric correction and improved spectral extraction being investigated should be developed for use in the creation of the final archive. After this decision, detailed analysis and testing will still be performed to insure the applicability of the selected algorithms to the entire archive. Depending on the extent of the changes recommended to the software for the final archive, the absolute calibrations may need to be rederived. The expected date of completion of the signal-to-noise improvement analysis, associated recalibrations and implementation of the changes into the code of IUESIPS is January of 1991. This is thus the projected date of initiation of the Final Reprocessing of the IUE data archives.

Questions and comments from the IUE user community concerning the content of Final Archive and the Final Archive Data Base are encouraged and solicited. Please feel free to contact me at (301) 286-5765 or on SPAN at IUE::NICHOLS. The IUE Project would like to insure that the Final Archive is available to users in the most useful form possible, and as rapidly as is practical, but we will need your input, and we will need it soon.