

March 15, 1988

Dear Colleague;

In June 1987, the Long Range Planning Committee (LRPC), chaired by Dr. Jeffrey Linsky, recommended to the Three Agencies that serious consideration be given to the improvement of the signal-to-noise (S/N) ratio of IUE data in the final archive. The LRPC urged the IUE Project to immediately initiate a study of various methods to enhance the S/N ratio of the data, particularly by removing the fixed pattern noise. Investigations of the temporal behavior of the fixed pattern noise and its dependence on spacecraft temperature, past overexposures, and the DN of adjacent pixels were suggested. Another area of investigation, the use of templates to flat-field the spectral data, was noted. The LRPC recommended that the astronomical community be surveyed for input into this study, with the intent of identifying those methods which might prove useful in the creation of the final IUE archive. VILSPA agreed at that time to survey European investigators for the purpose of identifying useful methods of S/N improvement, while the IUE Project at GSFC agreed to survey the North American investigators.

At the direction of Dr. Don West, the IUE Operations Scientist, the IUE Project at GSFC organized a workshop to discuss various methods of S/N improvement. The participants in this workshop were selected on the basis of prior publications concerning S/N ratio improvement or the removal of fixed pattern noise, or on current unpublished work in these areas. Sixteen investigators were identified who were able to make significant contributions, based on their own investigations.

The Workshop on Signal-to-Noise Improvement was held on Oct. 19-20, 1987, at GSFC. The methods discussed fell into two categories: improved flat-fielding and photometric correction techniques, and optimal spectral extraction methods. After the scheduled presentations and ensuing discussions, a number of recommendations were formulated by the participants and drafted into a letter to the IUE Project Scientist at GSFC, Dr. Yoji Kondo. Finally, the workshop participants, at the suggestion of Dr. Kondo, formed a standing committee to advise the IUE Project at GSFC on matters relating to the quality of the data in the final archive. This standing committee, now known as the "Signal-to-Noise Improvement Committee", will meet 2-3 times per year to assess progress in development of feasible methods to improve the data quality of the final archive.

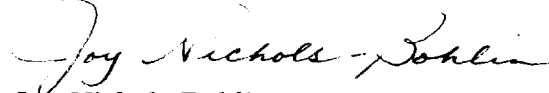
It is important to note that this committee will not address the questions of where the reprocessing will take place, who will do it, what software system will be used, how the archive will be made available to researchers, whether or not the software will be transportable, etc. This committee will confine its interest to the quality and usefulness of the archived spectral data.

Herein are collected six of the monographs prepared by the participants in the workshop. The remaining five monographs have either been previously published or are to be published

elsewhere. In these cases, the individual authors should be contacted for copies of the presentations. The next meeting of this committee is planned for May of 1988.

I wish to express my gratitude to each of the participants of this workshop, for their enthusiasm, hard work and valuable input. Dr. Linsky provided expert guidance to the group in the formulation of scientifically profitable yet responsible recommendations. In addition, I am grateful to Dr. Don West for planning the workshop and playing an instrumental role in its realization. Dr. Yoji Kondo, as always, is to be commended for his steady, visioned support of the IUE Project at GSFC.

Sincerely,

A handwritten signature in cursive script that reads "Joy Nichols-Bohlin". The signature is written in dark ink and is positioned above the printed name.

Joy Nichols-Bohlin

IUE Image Processing Astronomer