## Processing Status Report

The IUE data processing system is currently experiencing some operational difficulties and, as a consequence, there is a temporary increase in the data delivery backlog. The major contributing factor to the backlog has been a series of Photowrite malfunctions. These problems should be resolved by mid September at the latest, at which time additional hardcopy operation shifts will be employed to clear up the backlog.

Due to an interruption in the delivery of gridded CalComp paper, the backup supply which is always kept on hand had become depleted. A project decision was made to continue data output on plain paper rather than to cease operations until supplies were replenished.

It is anticipated that within the next several months additional disk space and core storage will be obtained for the IUE Sigma-9 Image Processing Computer. This system upgrading should significantly improve the data reduction throughput.

P. Perry

## IUE Image Processing

The current image processing software system, Release 2 issued 22 May 1978, incorporated several significant improvements over the initial release of 3 April 1978. These include the use of more carefully defined intensity-transfer-functions (ITF) for the SWP and LWR cameras, a more versatile low dispersion reduction program (EXTLOW), and an improved method for registering images with the analytical dispersion relations.

A number of sub-release enhancements have also been introduced since 22 May, including streamlined CalComp plot axes (July), improved LWR echelle ripple-correction parameters (July, supplied by VILSPA), and, most recently, a new option for reducing low-dispersion large-aperture spectra of extended or trailed targets with a scheme which includes the signal from the entire length of the large aperture and measures the background in an area completely outside the large aperture (August, suggested by VILSPA). The previous standard reduction scheme is still available for use with point-source targets.

Wavelength calibration. The calibration of the IUE wavelength scale and geometric distortion is normally updated several times monthly as new calibration images are obtained. Recently, D. A. Klinglesmith has devoted a portion of his allotted observing time to obtaining nearly daily calibrations in the high dispersion mode for both the LWR and SWP cameras. These results will be studied to improve our understanding of the time variability (or lack thereof) of the wavelength calibration.

Problems seen occasionally in the past with the SWP low dispersion wavelength scale (pseudorandom changes in the computed scale of about 1 or 2 percent) are now being controlled by retaining a recent calibration known to be reasonably accurate. The causes of this problem are currently being examined. The parameters used to define the offset of the LWR large aperture from the LWR small aperture were recently refined (August). As a result, the LWR large aperture wavelength calibration zero-point should now be more accurate than in the past.

IUE Guest Observers are cautioned to bear in mind the following points which have become a source of possible confusion in the interpretation of IUE data.

1) Since May 22, 1978, low dispersion spectra have been extracted with the program EXTLOW. Prior to that time, the program COMPARE was used. Instrumental fluxes extracted with EXTLOW are larger than the instrumental fluxes extracted with COMPARE by a factor of 1.78 for the LWR camera and a factor of 1.83 for the SWP camera. Note also that the instrumental gross and background spectra extracted with COMPARE contained a 20,000 count zero-point offset which EXTLOW spectra do not contain. Intercomparison of low dispersion spectra reduced before and after May 22, 1978 must take these factors into account. High dispersion spectra are unaffected.

2) Photowrite hardcopy images should be carefully examined to guard against the interpretation of noise in the image. Radiation spots can produce spurious "emission features" in extracted spectra and reseaux produce spurious "absorption features." The reseaux are predictable and hence they can be flagged, whereas discrete radiation events are random, making their identification more difficult. Careful inspection of the photowrite images can be of great utility in identifying radiation effects.

3) Extracted "background" spectra are smoothed by a double-pass running average filter to reduce random noise. For SWP large aperture low dispersion spectra exhibiting measurable geocoronal Lyman $\alpha$ emission, the wavelength smearing induced by the smoothing process broadens the Lyman $\alpha$ line profile in the background spectrum. Guest Observers interested in recovering accurate data in the vicinity of Lyman $\alpha$ must be aware of this and must exercise the appropriate cautions.

4) Image labels ("science headers") are not guaranteed to be accurate in all respects. Where critical data are involved, the use of corroborative information is is urged wherever possible.

5) Fixed-pattern noise is not completely removed by the photometric correction process. In particular, photometrically corrected LWR images possess considerable noise near the tube center, an effect which is observable on photowrite images as well as extracted spectra.

B. Turnrose