

## Effects of Temperature Fluctuations on IUE Data Quality

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Analysis of IUE calibration lamp images has shown that variations in both spectral location and reseau positions are independently correlated with changes in the scientific instrument temperatures. Results are that a camera head amplifier temperature difference of  $5^{\circ}\text{C}$  between high dispersion images corresponds to a spectral shift in the direction of dispersion of 4 pixels for LWR and 2 pixels for SWP. Shifts perpendicular to the dispersion (for the same temperature difference) are less than one pixel for both cameras. Similar shifts are found in low dispersion spectra, although the shifts are orthogonal to those described above and are thus greatest in the direction perpendicular to the dispersion. In both dispersion modes, the observed shifts appear to be independent of wavelength.

Studies of reseau motion support earlier findings of Heap et al. that decreases in temperature lead to an overall expansion of the grid of reseaux. For example, in SWP reseaux near the edge of the tube were found to move  $\sim 1$  pixel with a temperature variation of  $10^{\circ}\text{C}$ .

Under development are procedures for utilizing these temperature correlations to correct the reseau-position and dispersion-relation calibration files to the temperature of each target image and thereby achieve improved photometric and wavelength accuracy in reduced IUE spectra.