

Quick Look Sensitivity Monitoring. V.

Checking for sensitivity variations of the IUE cameras by analysis of a subset of repeated observations of low dispersion standard stars (Holm and Schiffer 1980) has been continued. The data base for this check has been enlarged by including spectra acquired since the last report was generated.

The rate of change coefficients derived from linear regressions give no measurable change in sensitivity for the SWP, when only data taken after 1979.3 are used. As reported earlier a rapid decrease in sensitivity was seen at 1550 and 1850 Angstroms during 1978. Linear regressions to the LWR spectra give a sensitivity decrease per year of 2.1% at 2400 Angstroms, and of 0.8% at 2900 Angstroms. These rates of decrease are the same as reported previously. Using only the data since 1980.5, the rates of decrease in sensitivity are much more pronounced: 3.3%/year at 2400 Angstroms, 1.0%/year at 2600 Angstroms, and 1.8%/year at 2900 Angstroms.

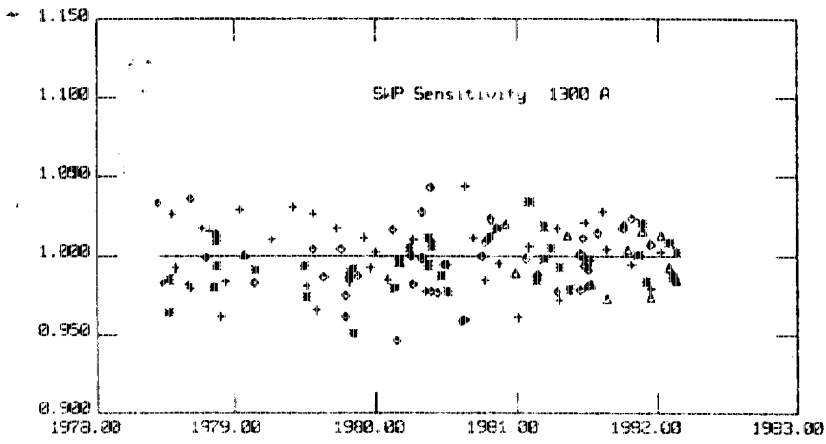
In Schiffer (1982) the results of fitting temperature to the sensitivity variation was reported. The SWP data was fit best with a 0.5%/degree decrease in sensitivity. The LWR data was fit best with a 1.1%/degree decrease. In both cases the variation was fitted to the head amplifier temperature (THDA). These rates were used for this report. In addition the temperatures of both operational cameras were examined for a time dependence similar to that seen in other spacecraft subsystems. Both cameras can be fit to a linear increase in average operating temperature with time. This increase was approximately 0.6 degrees/year for the LWR and 0.8 degrees/year for the SWP. In addition the rms error for an individual observation was 2 degrees for either camera.

Basically the techniques used are the same as described earlier. The new spectra were ratioed to reference spectra, smoothed, and binned. The smoothing was done with a median filter to eliminate the effects of wavelength misregistration and reseau marks. Some but not all of the older data were recomputed with this technique and the results were not significantly different. For this reason the earlier measurements were included in this analysis for all cases not recomputed. The temperature coefficients for each camera and zero point shifts for each star were computed by a multiple linear regression to a subset of these data. The results were applied to all of the data and linear regressions done on each wavelength to determine the rate of change of sensitivity with time. The RMS error in the fits was about 3% for the SWP camera and 3.5% for the LWR when the times of rapid change were excluded. As earlier work had shown no major differences between the stars and none are suspected of UV variability no effort was made to fit each star independently as was done earlier.

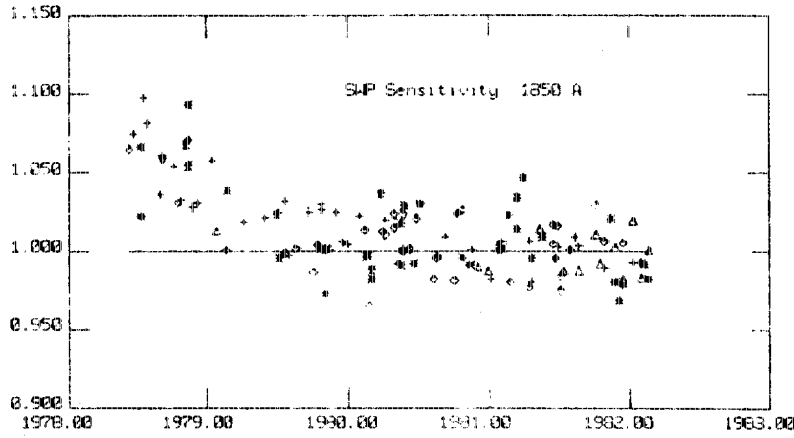
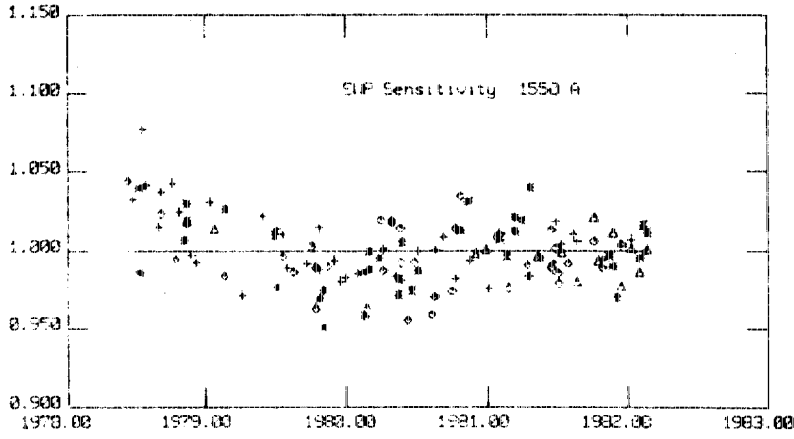
F.H. Schiffer 3rd
23 March 1982

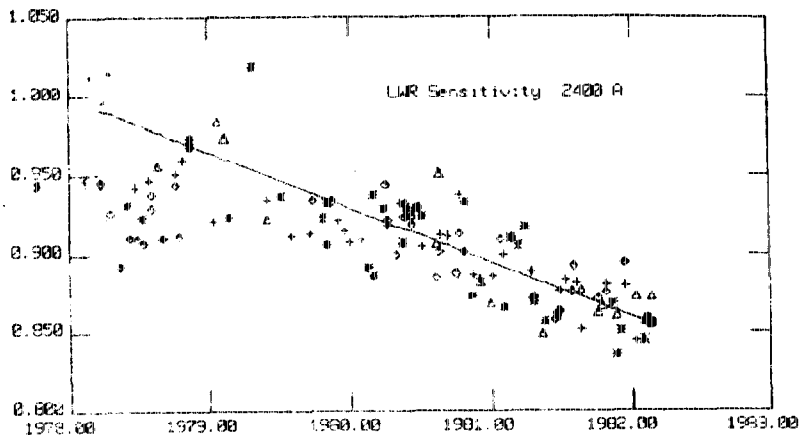
Holm, A.V., and Schiffer, F.H. 1980, NASA IUE Newsletter, No. 9,8.

Schiffer, F.H. 1982, NASA IUE Newsletter No. 18, 64.



- o Low-dispersion, point-source spectra
- o Broad band averages
- o Temperature corrected
- o Plus BD+28 4211
- o Asterisk HD 93521
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