

News Notes

Particle Radiation Levels During June 1980 the radiation background levels observed during the US2 shift were substantially worse than the Aug. 1979-Jan. 1980 averages reported by Ehlers and Schiffer (IUE Newsletter, No. 10, p. 23). In June only 9% of the US2 shifts fell in the lowest radiation range (25% of dynamic range in exposures greater than 150 minutes) but 18% fell in the highest radiation range (25% of dynamic range in less than 10 minutes). The latest data emphasizes the irregular character of the particle levels. Observers with assigned US2 observing runs should be prepared for the worst.

Users Committee Meeting There will be a meeting of the IUE Users committee (Boggess, IUE Newsletter No. 10, p. 45) this fall. It will most likely occur on Sept. 29 and 30.

FES Problems Since the end of October 1979 the Fine Error Sensor (FES) has had occasional errors of up to 5 arcsec in its positional reference. Positional errors of this size could prevent the target's light from being passed through the small aperture. While there are techniques for measuring and compensating for the error during an acquisition, if a change in the offset occurred during an exposure it could pull the small aperture away from the target or widen a large aperture spectrum unknown to the staff and observer. Bruhweiler has shown that there is some tendency for the offset to occur after the large aperture closing/opening mechanism has been used. Accordingly, to reduce the risks of data loss and to minimize the overhead time used in measuring the offset, observers have been asked not to request a change in the status of the large aperture unless there is a strong scientific need to do so. Examples of justifications are a need for a wavelength calibration spectrum to achieve the higher wavelength accuracy possible or a need to prevent light from a nearby bright object from falling on top of a high dispersion spectrum. With the large aperture open, it is possible to observe through either the large aperture or the small aperture in most routine cases with no loss of scientific merit.

Command Decoder Problems

During the spring four LWR images had had preparations because commands to the camera were not being executed. Analysis suggested that the command decoder was missing some commands when the commands were received in near coincidence from two or more sources. To attempt to eliminate the problem the redundant command decoder was switched in on May 27. On June 12, the redundant command decoder combined parts of two commands. The hybrid command turned off the on-board computer and made several other potentially dangerous changes. Since then we resumed use of only the original command decoder. We have not seen any more bad images caused by this unit but, as far as we know, the potential for their occurrence still exists.

Satellite Heating

During the past two months we have had minimal trouble from satellite overheating because the earth is near aphelion in its orbit.

Orbit Adjustment

On June 24th a small adjustment was made to the IUE orbit to alleviate some telemetry problems. The transmission of data from the spacecraft to the ground is usually of poorer quality in midafternoon and shortly before dawn because, unless the telescope is pointing away from the earth, the solar paddles block the signal. In May and June the normal midafternoon situation was worsened because the direction from the receiving antenna to the satellite (which was at perigee then) was very near the horizon limits of the antenna. Several images were lost when the telemetry deteriorated suddenly while they were being read. On June 24th gas jets were used to cause the orbit to begin to drift west. This action, combined with the gradual separation of perigee (on sidereal time) from the time when the solar paddles point toward the earth (on solar time), has improved the telemetry problems.

Image Processing Change

Since 5 a.m. of 1980 July 18 the IUE image processing system has been using mean geometrical corrections and mean wavelength dispersion constants for processing all spectra, both of high and of low resolution. The details and significance of this change are reported elsewhere in the Newsletter.

Ghosts of the Past

At the recent Three Agency Project coordination meeting the camera engineers pointed out that phosphorescence induced by heavily overexposed spectra could affect later images. In the example they used, a 50 times overexposed low-dispersion short wavelength spectrum was obtained of a G star. Six and a half hours later a 12.8 hour exposure on the sky background was started. When the background image was read, it was found to have a positive ghost image of the G star spectrum with a maximum intensity of 15 DN. Clearly observers of very faint sources should be concerned about the recent history of the camera they are using. Observers who need heavy overexposures should be aware of the problems they may cause later users. Discussions with the staff may suggest ways in which the impact of one observer's observations on another observer's results can be minimized.

A. Holm