A NARRATIVE REPORT OF THE IUE USER'S COMMITTEE MEETING
FRIDAY APRIL 5, 1991

The IUE User's Committee met on Friday April 5, 1991 at Goddard Space Flight Center. The members present at this meeting were S. Starrfield (ASU, Chair), B. Balick (UWA), S. Baliunas (CFA), R. Bohlin (STScI), M. McGrath (JHU), and N. Evans (UTO). Unable to be present were G. Reichert (GSFC), G. Sonneborn (GSFC), T. Simon (UH), and M. Urry (STScI). J. Nichols-Bohlin (CSC), representing the Final Archive Definition Committee, and J. Mathis (UWI) representing the Three Agency Committee were also present as were Y. Kondo (GSFC-Observatory Director) and A. Michalitsianos (GSFC-Observatory Associate Director). The User's Committee expressed its gratitude to J. Mathis who had served as Chair for the two previous years.

The first part of the meeting was devoted to reports on the current status of the spacecraft by T. Jackson who reported that IUE has been doing well over the past few months with the exception of two problems neither of which impacted GO observations. He also reported that the one-gyro system performed well in a recent spacecraft test. While only engineering tests have been performed up to now, science tests are planned. The major impact of the one-gyro system on GO observations, as presently understood, is that blind offsets will be possible only if the coordinates of the guide star are also well known. In addition, fast trails (rapidly moving solar system objects) will probably not be possible although slow trails should be possible.

The two anomalies mentioned in the last paragraph were discussed in detail by T. Teays. The first problem, the FES anomaly, first appeared on January 27, 1991 but was not discovered until February 5, 1991. The first indications of the problem to the Observatory was that the background scattered light had increased in FES images and this extra light was equivalent to that of a 12th mag star. Spectra of this additional light, which filled the aperture, showed that it was coming from the Sun. The actual cause has not yet been determined and may never be determined. The predictions of the suggestion that a piece of tape has become loose in the light path do not fit all of the data. Data shown at the meeting indicated that the scattered light had a strong dependance on beta angle with intensity peaks at 60, 105, and 135 degrees (a beta angle of zero degrees is the anti-sun position). An 8-hour LWP exposure, at a high beta angle, showed significant contamination from a solar spectrum. Such exposures should now be done only at very low beta angles.

However, over the past two months the intensity of this background has decreased by more than a factor of two and it is currently not considered a major problem. Nevertheless, continued monitoring of this problem is continuing and it is now important to come to the observatory with good co-ordinates for both your targets and offsets from nearby bright stars.

The second anomaly, which occurred on the same day that the FES anomaly was discovered, was that the measured current to gyro 5 went to zero. However, the gyro has continued to function, albeit, with somewhat increased noise. As was learned later, each gyro has two windings but only one is monitored by the spacecraft controllers. In the case of gyro 5, the unmonitored winding is now controlling the gyro and the one that was monitored has burned out. This has not affected spacecraft operations.

Of more importance to GO programs and already announced, is that the Observatory has tested the On Board Computer (OBC) at higher temperatures (57 degrees C) and they find no impact on its performance. Therefore, it is now possible to relax some of the hot-OBC constraints that were previously thought necessary.

T. Teays also reported that the Sun, in its decline from its 1989 maximum, has continued to plague the satellite with solar proton storms that increase the radiation to levels (over 2 volts) preventing long exposures in US 1 for a few days. The frequency of such storms should continue to decrease as the Sun declines from maximum. We note that a solar storm in March 1991, which strongly affected US 1 observations, also caused Rosat to shut down for a few days.

The Users Committee was quite impressed with the rapid characterization of the above problems by the IUE staff. They expressed their thanks to the Staff for their dedication which resulted in virtually no impact on GO programs.

Finally, T. Teays reported on the decision to replace the Experiment Display System (EDS) with a workstation based system. Because of spacecraft security concerns, it was decided to make as few changes as possible in this system which implies that the Observatory will go to a VMS product in the control center. The switch to a workstation environment in the control room should improve the data display capabilities while observing.

E. Brugel and R. Thompson reported on the usage at the University of Colorado and Goddard Space Flight Center RDAF's, respectively. Of particular note was the continued expansion in the use of the RDAF's by remote users. Both Cygnus at Boulder (128.138.238.76) and IUE at GSFC (128.183.84.15) can now be reached via Internet so that it is possible to obtain an account and work at an RDAF from your home institution. They also noted that the number of accesses of IUE archival images regularly exceeds 6000 images a month. The port of the RDAF software to a UNIX environment is now complete. All of the IUE reduction software is written in IDL and they are currently converting to a C-based IDL that should make it very portable. Once a particular workstation has IDL available, the IUE reduction software can be obtained over the network. The committee asked E. Brugel to inquire about a general IDL license for members of the IUE Community.

The current status of the Final Archive Project was reported on by N. Oliversen. The Final Archive Project will re-process all the existing IUE images with improved extraction techniques which should significantly improve the S/N (by 10% to 50%) on most exposures. The reprocessing uses the latest information about the characteristics of the detectors on the spacecraft and then stores these images on optical disks. The name is somewhat of a misnomer since the processing used for this Archive will also be used on newly obtained images and is not meant to imply that the satellite is being turned off. The reprocessing will be done both at the CSC IUE Headquarters in Greentech, MD, and at Vilspa. There have been numerous international meetings to ensure the uniformity and quality of this final archive. It is planned to reprocess all of the IUE low dispersion images over the next three years, beginning in November 1991. J. Nichols-Bohlin reported on the results of the Science Verification tests of the NEWSIPS processing system. This is the name of the system that will be used to produce the Final Archive. She noted that the greatest improvement is for those images that are either underexposed or have a high background.

N. Oliversen first reported on a change in the Absolute Calibration. Various investigators have expressed their concerns about the current calibration of the images which is based on rocket and satellite (OAO-2 and TD-1) observations of eta UMa (Bohlin et al. 1980, A&A, 85,1) and may have errors exceeding 15% at some wavelengths. It was suggested that a new calibration be determined based on IUE observations of hot white dwarfs with pure helium atmospheres. One such star is G191-B2B (Finley, Basri, and Bowyer: Ap.J., 359, 483, 1990). The Users committee was concerned about the choice of this star since IUE observations of G191-B2B show features due to CIV 1550 which implies that it does not have a pure hydrogen atmosphere. In addition, there is some controversy in studies of white dwarf atmospheres with respect to the composition of the surface layers. Therefore, the Users Committee recommended that further work be done on this problem before a new Absolute Calibration is placed into use.

In addition, the committee expressed its concern over another feature of the Final Archive, in addition to the above change in the Absolute Calibration. First, it is now planned to provide the data base with only the Line by Line file and one extracted file. The extracted file, called the Optimal Extraction File, is a weighted extraction file and replaces the current extraction which is done with a moving "boxcar". Although in many cases the optimal extraction improves the S/N, there are some cases in which the optimal extraction fails. For example, in a test of the extraction of an image of a Herbig-Haro object, the emission lines were not present in the final spectrum. In view of these problems, the committee recommended that both an optimally extracted and a boxcar extracted image be provided for the final archive. This will provide an immediate estimate of the need for further processing to an investigator who is not familiar with the IUE satellite.

C. Imhoff presented a proposal to include drafts of all of the successful IUE proposals to the NSSDC IUE Archive. This will add to the historical usefulness of this archive so that the motivation for a particular observation with this unique satellite will not be lost. The NSSDC proposes to scan the proposals as submitted and make them available to all users of the Final IUE Archive. A discussion of possible legal and cost problems ensued with the committee recommending that, if implemented, that the Project obtain the consent of the PI before adding a specific proposal to the archive. It was also felt that all of the costs of this addition to the archive be obtained from the NSSDC. Any users who object to this proposal should contact C. Imhoff for further information.

D. Huenemoerder was present as the representative of NASA Headquarters. He discussed the possibility that NASA might begin to fund ground-based observations that are needed, specifically, to support Satellite observations. The User's committee raised the question of whether NASA would insist on archiving the ground based data obtained with its support. In addition, he mentioned that NASA has opened a dialogue with NSF to sort out any overlaps in support.

Y. Kondo discussed the results of the Peer Review for the 14th episode. Approximately 10% fewer proposals were received this year than last year and the acceptance rate was about 50%. The grades suggested that there were fewer weak proposals this year. Three large proposals were approved.

Finally, in order to demonstrate the rapid response of IUE to Targets of Opportunity, S. N. Shore reported on recent observations of Nova Her 1991. This nova had the fastest outburst of any yet recorded and exhibited a completely unique ultraviolet spectrum. Observations are continuing both in the ultraviolet and the optical.

T. Ayres was elected as the new User Member to replace R. Bohlin. The next meeting of the User's Committee will be on October 25, 1991 and we welcome suggestions for Agenda items from members of the community.