TELESCOPE OPERATIONS NEWS

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One-Gyro Spacecraft Test

In September we conducted the latest in a series of spacecraft tests of the one-gyro attitude control system. Details on the results of this test are given in Rich Arquilla's report elsewhere in this issue, but the bottom line is that the test was an outstanding success. We feel well prepared to restart operations after a gyro failure, with only a brief hiatus.

Update on the FES Scattered Light Anomaly

We have continued to study the scattered light in the Fine Error Sensor (FES). A more detailed report is given in this issue by Resident Astronomer Mike Carini.

Failure of the Particle Flux Monitor

The particle flux monitor on the spacecraft, which has been used to predict the background levels in images, has quit functioning. GOs are accustomed to using the telemetry values (FPM) from this device to estimate exposure times. It began giving spurious readings May 14, and steadily got worse. By the latter part of September it had become completely useless, giving increasingly high voltage readings. On October 4 it was turned off. The RAs are using images that are read down to track the radiation background contribution, monitoring solar activity levels, and relying heavily on past experience to advise the GOs about what might be expected, but the loss of the FPM is a significant handicap. We have had some very promising results with relating the IUE background levels to the GOES satellite electron flux measurements, but precisely how these data may be applied to IUE observing shifts is still being worked out.

Replacement of the EDS

In the last Newsletter we gave a report on our plans to replace the Experiment Display System (EDS) with modern equipment, and noted that a new Telescope Operations Control Center (TOC) would be constructed in Building 21. Many of the IUE staff have contributed long hours to bringing up this new system, which is based on a VAXStation 3100. As in the present system, there will be three EDSs, two in Building 21 and one in Building 14. The first of the new workstations is up and running at the Operations Control Center in Building 14, and is in the final testing phases. On November 12 the remodeling of the old Telescope Operations area will begin. This will be done in phases, to prevent any significant impact on observations. The first phase will include the current backup control center and GO office, and is scheduled to last 30 days. When the room modifications are complete we

will install the new hardware, and then begin the final phase, which will include pulling out the old equipment in the current TOC. There will be some unavoidable inconvenience to the staff and Guest Observers during this period, but we are attempting to minimize this with alternate arrangements.

Though the principal motivation for replacing the EDSs was the difficulty of keeping these antique machines running, there are a number of fringe benefits to be derived from switching to modern hardware and software. I would like to mention a few of these. The new arrangement will have the GO's terminal in the TOC itself, so that he or she can work while still being in close touch with the shift activities. We are developing simple image handling tools which allow us to clean up FES images, and help to make fields that are contaminated with scattered light more identifiable. We will be able to store more than two images at a time, so that the GO can go back to an image taken earlier that shift, or even the previous day. We will have the HST Guide Star Catalog on-line, and tools for displaying star charts, which can speed up target identification, and guide star selection.

We now have in place the capability of generating sky maps in real time for a GO's targets, using the TOC support computer. Since the IBM mainframe which has been used to generate these for so many years is going to be retired soon, it has become imperative that we do it this way, but the new sky maps are also a major improvement. These new maps are slightly different in format from the old ones, since numerous improvements have been made by Resident Astronomer Lloyd Rawley in writing this program. These sky maps are generated from GO target lists which reside on the TOC support computer. This also represents a departure from the previous procedure, where the target lists were part of the IBM's data base, and were not altered once they were loaded at the beginnng of the episode. I have strongly urged all GO's who are submitting fifteenth episode proposals to send their target lists electronically, as well as in the written form in the proposal. This greatly facilitates our technical feasibility reviews and our support of the peer review. Lloyd has also written a user-friendly program to alow the input of the data for the target lists. This program is in the menu for remote observer support on the TOC support computer (SPAN node, iuesoc). (As a reminder, anyone may log into this account and perform a variety of observational calculations. Please contact a Resident Astronomer or Denise Taylor for the account name and passwords.)

Another consequence of the new EDS is that we can expand our capabilities for remote observing. Currently, specialized equipment is needed to do this. With the new hardware, we expect to be able to work in this mode for any site which has: a network connection, a workstation or other display device, and IDL (Version 2). We expect to export a small IDL package which will allow the user to display FES and spectral images that we can send over the network. The details of this are still being worked out, so stay tuned.

In addition to the new EDS, its new habitat will be a marked change for long-time IUE observers. The new TOC will be a larger room (containing both a primary and back-up EDS), which will actually have a window to the outside world. It will have modern temperature and humidity control and a raised floor. If that isn't luxury enough, the noise level promises to be much reduced, so that the GO may even be able to talk to the RA without yelling! The new GO office will be smaller than the current space, but that will be the room's only function, so that it will be more peaceful. Construction is scheduled to begin on November 14 and the first phase is expected to last $\approx$ 30 days.

Staff Changes

We have a new Resident Astronomer, Martin England, who will finish his training and start on shift in mid-November. A native of New Zealand, Martin received his Ph. D. from the University of Florida, and came to us after having worked at Goddard for several years on another project. Telescope Operator Nancy Eaton has left us to take a position at CfA. Daryl Weinstein replaced Nancy, and has recently begun shift work. She comes to us from Smith College. Our newest Telescope Operator, Jim Caplinger, has just begun his training. Jim recently received his master's degree from the University of Toledo.