DEIMOS
SSC Presentation: July 21, 1997
Eleventh Quarter

Optics:
- Status of Camera elements:
  - Camera Elements 2,5,7,9 are completed.
  - Element 8 asphere is decentered – implications and cures are still being examined.
  - The spherical side of Element 1 is finished; the severe asphere is waiting to be plunge-ground.
  - The front side of Element 6 is finished; the back sphere is waiting as a final pickup surface.
  - One of the surfaces of Element 4 was mis-generated; we may restart it.
  - Element 3 is not yet started; awaiting CaF_2 blank.
- An improved method of plunge-grinding the severe Element 1 asphere is under development.
- The tent mirror was received from Zygo; looks good.

CaF_2:
- We have not received Element 3 from Optovac (15-in diameter).
- We have not received a replacement for Element 5 (the fractured element).
- Faber visited Optovac in June; they are a small outfit with little technical depth. They are distracted by larger orders but are cooperating. We are holding weekly telephone calls.
- Two new boules for Element 3 have been started at Optovac or are about to start.
- We are consulting/advising them on the high-risk grinding phase to follow.
- The earliest receipt date for Element 3 is Oct 1997; the earliest assembled camera date is Mar 1998.
- We are investigating a possible CaF_2 substitute glass at Ohara.
- The collimator and tent mirror will be installed in October. Optical alignment begins then.

Camera Cell:
- We have hired outside designer Alan Schier (ESI camera), as Eric James is occupied with ESI. $30,000 has been withdrawn from the contingency to cover this.
- Loss of James has caused a delay; the earliest date for assembled camera is March 1998.
- Lab experiments are underway to verify athermal properties of RTV cell design.

Structure/Mechanical:
- The drive-disk bearing is roughly aligned and rotates smoothly. The PA drive is installed and is being tested.
- The grating and slitmask systems are being fabricated; installation and testing are scheduled for October.

Detector and Dewar:
- The detector CDR was held on May 20; the Committee report is attached.
- We placed the CCD order with MIT/LL ($316K). The Committee did not unanimously support the choice of Lincoln. The detailed reasoning behind this decision is presented in the attached report on detector planning.
- The science CCDs will likely not arrive by Jan. 1, as required by the default schedule (see attached detector schedule graphic). **We therefore request approval for a separate interim detector**, as recommended by the CDR Committee. The reasons for this are given in the detector planning report. This will augment the total project cost by $86K.

- This interim detector will be populated with a mixture of thick Orbit CCDs from Lick and thinned MIT/LL CCDs from Phase 1/2.
- **We request that DEIMOS be assigned all MIT/LL CCDs from Phase 1/2 after ESI's needs are met**, with the goal of receiving at least 4.
- Two plans are presented for implementing the interim detector: Plan A would build two dewars and signal chains, Plan B would build only one. The differential cost is $141K. The likely break point between these plans is next spring; no action is needed now.
- Mosaic and dewar designs are about half complete. The dewar Flexure Compensation X-motion drive has been fabricated and tested.

Electronics:

- The Leach II controller cards were received and successfully tested. The Leach II controller has been adopted.
- The new preamplifier design works well.
- A flexible set of interconnect boards has been designed to allow quick reconfiguration of connections between the CCDs and controller elements, including rapid switchover between single-amp and dual-amp modes.

Software/Computers:

- The Software CDR was held on Jun 16; the Committee report is attached.
- This was a good review; high points were the database, automated documentation tools based on the database, and the the flexible GUI toolkit.
- The software schedule shows completion in Oct 1998 provided the staff are allowed to focus 70% time on DEIMOS; this is not likely at present rates. For example, Kibrick and Tucker are critical to instrument testing but DEIMOS has been getting only 25% of their time. **This has got to change.**
- Adjustments to be made:
  - A Deputy Group Leader is being hired to off-load Kibrick.
  - Clarke will take over as official DEIMOS software coordinator and scheduler.
  - **CARA should consider reducing demands on the Lick software staff while ESI and DEIMOS are in assembly and testing.**

TV Guider:

- The mechanical design is finished, and pieces are being assembled. Focal plane images have been obtained.

Schedule and Budget:

- **Delays in several areas have caused us to shift the estimated completion date back by about 6 months. Estimated delivery date on the default schedule is now Oct 1998.** This assumes no interference from other projects, which is unlikely.
- The current pacing items on the default schedule are:
  - CaF_2 delivery.
  - Camera cell design and assembly.
  - CCD delivery from MIT/LL in Phase 1/2 for the interim detector.
  - Software completion.
- Assuming no interference from ESI, we aim to be fully assembled by March 1998 and deliver in October 1998. These dates will be pushed back if ESI goes first.
- A detailed budget and update to the contingency fund will be provided in Quarterly Report No. 11, in preparation.