

## March 21, 2006 Palomar LGS IPT Meeting Minutes

A. Bouchez, 3/21/06

Caltech: Shelton, Troy, Roberts, Bouchez, Velur, Cromer, Trinh  
Palomar: Thicksten

### 1. Laser upgrade schedule

Viswa, Antonin, and Ed met yesterday to plan the upgrade of the Chicago Sum Frequency Laser. Previous plans called for prototyping the new gain modules at Palomar in April-May, and installation of the CSFL-3 3-head laser in the Coude lab in early June. This schedule has slipped, and we are now proposing one detailed in Figure 1.

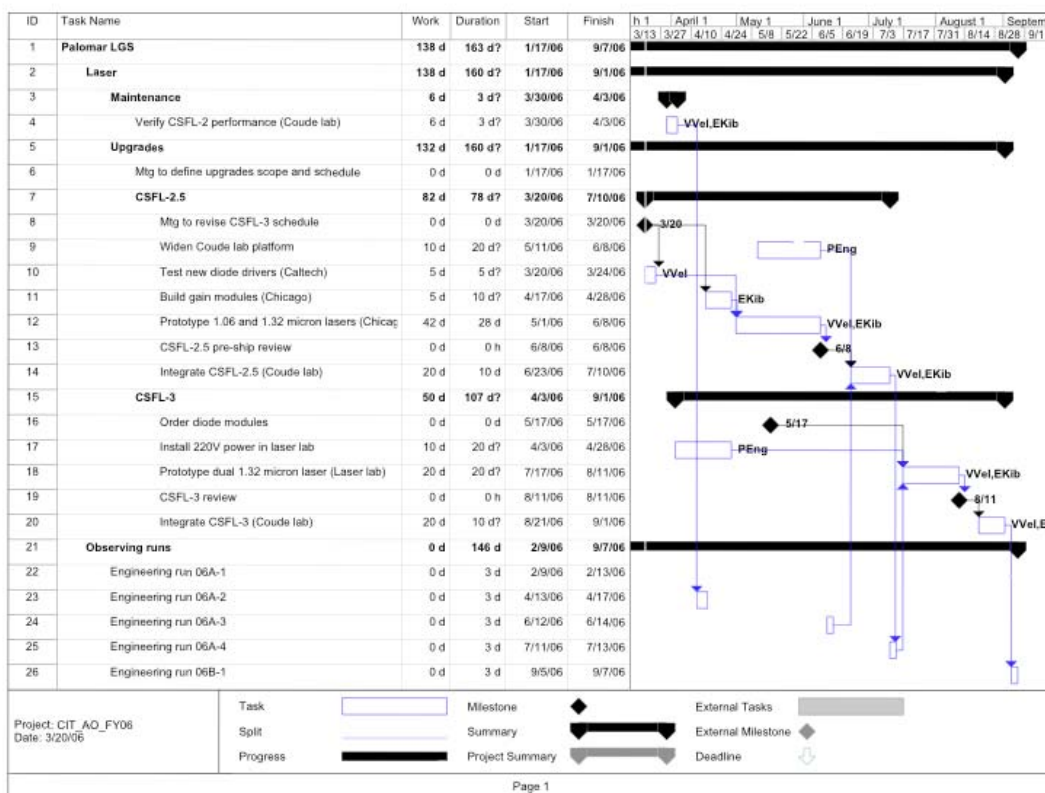


Figure 1: Revised CSFL upgrade schedule, based on 3/20/06 telecon.

Viswa is currently testing the new diode drive electronics at Caltech. He has encountered some difficulty with the test diodes being incorrectly configured, but is making progress. Other near-term priorities are ordering parts (YAGs, non-linear crystals, sapphire) to allow Ed to begin integrating the new gain modules in Chicago in mid-April.

Prototyping the new 1.06 and 1.32  $\mu\text{m}$  lasers will begin in Chicago May 1, with a pre-ship review tentatively schedule for the week of June 5. Installation of the CSFL-2.5 (new single-head 1.06 and 1.32  $\mu\text{m}$  lasers) could occur between the June and July runs. Mitch points out that we have the option at the review to, if not limited by laser power at that point, proceed instead with dual 1.32  $\mu\text{m}$  channel prototyping in the Palomar laser lab.

In this proposed schedule, development of the CSFL-3 laser (with dual 1.32  $\mu\text{m}$  gain heads) can begin immediately following the July run, but this is contingent on finding funds to purchase new pump diode modules (~\$200,000). Prototyping would occur in the Palomar laser lab (contingent on Ed's availability to be at Palomar much of August), with installation before a September observing run.

## **2. Update on tasks in support of the April engineering run**

### **Close HOWFS loop on LGS at zenith**

1. Improved laser stability at LLT (AB&CS to test FSM at Palomar on 3/22/06)
  - CS and AB at Palomar tomorrow, to test and tune BTO FSM loop (using Q1 and Q2 only).
2. New LLT focus mechanism
  - Mechanical design complete, parts are in the shop. On track for integration before April run.
3. Improved LLT optical quality
  - Hal is still working on mechanical design, using a commercial 10" mirror cell just received. 10" mirror is on schedule, begin figured now and due to be shipped to coatings lab in California later this week.
4. Verify HOWFS timing module performance
  - MT, CS, SG working this on Thursday at Palomar
5. Verify laser alignment and performance
  - EK and VV at Palomar 3/30-4/2 to verify laser performance. Will measure bandwidth if time is available.
6. LGS operations checklist - no progress yet.

### **Off-zenith LGS science demonstration**

7. Off-zenith BTO control
  - Best time for BTO testing will be 4/11-4/12 daytime. Need to check JA's availability.
8. DAC upgrade
  - MT, CS, SG working on this at Palomar Thursday. Still some question of whether the DAC card works in the lab at JPL.
9. Fix TT offload problem
  - New build for upcoming run will address this.
10. Implement LGS focus control loop
  - Held meeting at JPL last Friday to decide on strategy.
  - AB presented IDL tool which provides LGS focus control and monitors sodium height and focus stage positions (see Figure 2). Still needs integration with database.
11. Improve LGS automation scripts – no progress yet.

### **Test aircraft cameras against spotters**

12. ASCAM and IRCAM software tasks
  - Review of ASCAM and IRCAM software is planned for 10-12am, 4/7. Will send out final time when available.

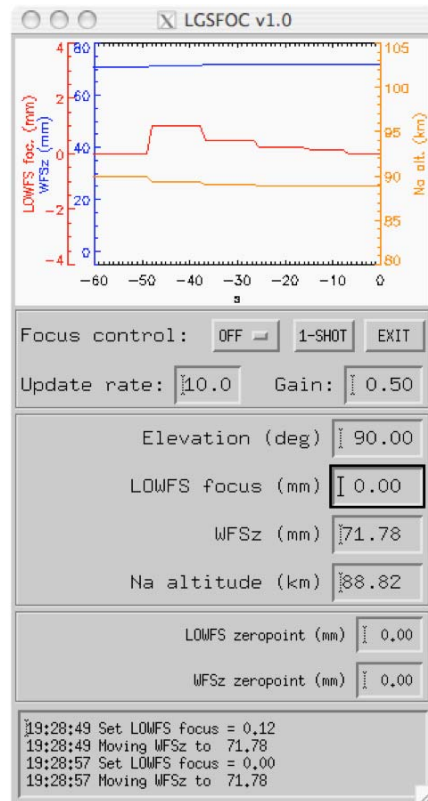


Figure 2: Preliminary design of an LGS Focus control tool.

### 3. Announcements and discussion items

- 18" LLT primary mirror blank has been shipped to Precision Asphere, Fremont CA. A PO was sent to them today for figuring an 18" f/2.0 mirror, using the Chicago Cer-Vit blank. No quote has yet been received from Xinetics for an SiC mirror.
- We have received FAA letter of non-objection for the April engineering run.
- Roger Smith will give a presentation on the performance of IR detectors for wavefront sensors in an upcoming Caltech AO meeting.
- Next week's IPT meeting may be cancelled due to many team members going to the CfAO spring retreat.