# April 4, 2006 Palomar LGS IPT Meeting Minutes

A. Bouchez, 4/5/06

Caltech: Bouchez, Cromer, Dekany, Morrissett, Petrie, Pickles, Shelton, Troy, Velur. Palomar: Henning, Thicksten, Sweet.

# 1. LGS tasks before engineering run

### Close HOWFS loop on LGS at zenith

- 1. Improved laser stability at LLT CS
  - Tested on 3/23 with the LLT FSM-300. Will resume test this Thu. 4/5, hopefully with repaired FSM-200. JA can go to Palomar to assist.
  - BTO test laser requirements are still uncertain. Based on 4" mirror transmission spectrum, best wavelengths appear to be 540-600 and 720-800 nm, but this ignores polarization and incidence angle effects. CS will test transmission of 690 nm laser to Q1 on 4/5. AB will purchase or borrow a bright polarized 633nm He-Ne laser to test next week.
  - Ground plate for BNC connections to Coude lab is completed (JH).
- 2. New LLT focus mechanism HP
  - Some problems with hardware made at the Caltech show. Installation and collimation of the LLT may have to be postponed until the weekend. HP still plans on completing this before Monday 4/10.
  - May need to add software limit to focus motion. HP will coordinate with JA.
- 3. Improved LLT optical quality AB
  - 10" mirror arrived last Friday. AB needs to call about missing interferograms.
  - Parts for mirror cell and handling cart still coming in.
  - Palomar is building a stand to support a flat above the LLT, to allow testing of the new focus and mirror cell mechanisms.
- 4. Verify HOWFS timing module performance MT
  - Tested with the signal generator at Palomar. Will test with laser in daytime on first day of run.
- 5. Verify laser alignment and performance VV
  - VV will go to Palomar 4/11 to align and test the laser. Need to identify the cause of the apparent lack of sufficient power for both the laser drivers and support equipment, calibrate the photodiode output, and install near- and far-field cameras.
- 6. LGS operations checklist AB
  - Safety checklist already is written and included in the SOP. AB to write an "afternoon checklist" by next meeting.

### Off-zenith LGS science demonstration

- 7. Send targets to US-STRATCOM AB
  - AB will send first targets on to STRATCOM on Monday 4/10. Please send any proposed science targets before then.
- 8. Off-zenith BTO control AB
  - Still need debug of open-loop pointing software. CS will cover for JA if not available.
  - We will test open-loop BTO control on 4/12-4/13 noon-4pm.
- 9. DAC upgrade TT
  - Done. Tested. Works.
- 10. Fix TT offload problem TT
  - Done. Not tested. Will test on sky.
- 11. Implement LGS focus control loop MT

- Some software written (AB tool). Jenny has generated reconstructor. Database communication works. TCS status message being is added to database (SG). MT will write an IDL database guery tool once this is done.
- 12. Improve LGS automation scripts AB
  - Still need to add control of the UTT FSM to the acquisition tool.

#### Test aircraft cameras against spotters

- 13. ASCAM and IRCAM software tasks AM
  - IRCAM is now running the differencing algorithm.
  - Software review planned for Friday 4/7, 10am-noon, 012 Robinson.
  - Need to work on test plan for spotter validation of ASCAM.

#### Laser upgrade

- 14. Test power supplies VV
  - Tests show a voltage spike on trailing edge of pulse due to inductance in system. Will repeat tests with Schotke diodes this week.
- 15. Prepare Palomar labs VV
  - Meet with Bob and Merle about landing addition next week.
  - New 220V are available in laser lab. UPS also available in AO lab.
  - New cabinets for Coude lab will be needed. Will make measurements next wk.
  - It was noted that the current laser optical bench is the widest which will easily fit through the Coude lab doors.

	Tue. 4/11	Wed. 4/12	Thu. 4/13	Fri. 4/14	Sat. 4/15
Angione	Х	Х	Х		
Bouchez	Х	Х	Х	Х	Х
Cromer			arrive ~7pm	Х	Х
Dekany			?	?	
Guiwitz			Х	Х	Х
Morrissett			Х	Х	
Petrie			Х	?	?
Roberts		Х	Х	Х	
Shelton		Х	Х	Х	Х
Thomsen	Х	Х	Х	Х	Х
Troy		Х	X	Х	Х
Velur	Х	Х	Х	Х	Х

## 2. Personnel schedule for April engineering run

• Please make your Monastery reservations as soon as possible if you have not done so already. The cost goes up 7 days prior to the run.

• We will be using hired spotters for this run. The first laser projection is expected to be around midnight on 4/13. Danish exchange student Michael Thomsen can spot as well.

# 3. April engineering run draft test plan

The following draft schedule was only briefly presented. The final night is not yet planned out, but includes an unprioritized list of NGS test. Please send any comments or additions to Antonin. I will distribute a more thorough experiment plan by Friday 4/7.

04/	11	/06	
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0-1								
1	8:00	10:00	Install LLT	closed	zen		1	
2	10:00	16:00	BTO FSM checkout	closed	zen		1	

04/	12/06						
3	8:00	16:00	BTO open-loop calibration	closed	slew	constrained by possible Echelle work	1
4	8:00	13:00	Install LGS dichroic	closed	lab		1
5	20:00	23:00	Test focus offloading script	closed	lab		1

04/1	3/06		19:23 20:11 13:43 5:24 6:12				
4	8:00	12:00	Install AO	closed	zen		1
6	12:00	13:00	Test HOWFS gating	closed	zen		1
5	13:00	16:00	BTO open-loop calibration	closed	slew		1
7	16:00	18:00	Test BTO FSM with Na laser	closed	zen		1
	18:00	20:00	dinner				
8	20:00	20:30	AO Checkout	NGS	V=8	check seeing & closed-loop performance.	1
9	20:30	22:30	LLT boresighting	NGS	V=3		1
10	22:30	23:30	LLT image quality	NGS	V=3	measure NGS image quality using Pulnix	1
11	23:30	0:30	LGS characterization	LGS	zen	project laser at zenith, measure photometry.	1
12	0:30	3:30	Close HO loop on laser	LGS	zen		1
13	3:30	5:30	contingency				1

04/1	4/06		19:24 20:12 13:47 5:23 6:11				
14	12:00	14:00	Measure UTT FSM noise	closed	stim		2
15	14:00	16:00	contingency	closed			1
16	16:00	18:00	Demo off-zenith laser projection	closed	off-z		1
	18:00	20:00	dinner				
16	20:00	20:30	AO Checkout	NGS	V=8	check seeing & closed-loop performance.	1
17	20:30	22:30	LOWFS focus test	NGS	binary		1
18	22:30	2:30	LGS off-zenith acquisition	LGS	V=8		1
19	2:30	6:30	contingency				1

20	12:00	18:00	contingency	closed	stim		2
	18:00	20:00	dinner				
21	20:00	20:30	AO Checkout	NGS	V=8	check seeing & closed-loop performance.	1
22	20:30	21:30	Acquisition camera sensitivity	NGS	stars		2
23	21:30	23:30	LOWFS bandwidth vs. star mag.	NGS	stars		2
24	23:30	0:30	Flatmap test	NGS	stars		3

Meeting was adjourned at 4:05 pm, and followed by a presentation by Roger Smith on IR detector performance for wavefront sensing applications.