

Caltech Optical Observatories / NASA Jet Propulsion Laboratory  
Palomar Adaptive Optics

Palomar LGSAO Engineering Summary 12/06/06 UT

Daytime results:

1. Laser power increase to 5.5W, still some stability problems with 1.06 um laser KTP crystal.
2. Prime focus diagnostics bench installed and aligned using 660nm laser.

Night log:

1715 Opening dome.

Ongoing setup: testing safety interlocks, checking out system, adjusting laser alignment, testing laser frequency servo.

1800 AO system calibration complete. Starting AO checkout.

1820 AO checkout complete. Moving to zenith for LLT pulnix final alignment. Hal and Anna heading to prime focus.

1920 Slewing to alpha Andromeda for LLT boresighting. Located star in LLT wide platescale.

2010 Aligning laser to BTO in Coude lab. Completed in 15 minutes.

2015 Located star in LLT wide platescale.

Wide platescale best focus = 12721 um.

Fine platescale best focus = 11721 um.

Image has substantial coma, extended to lower left.

2030 Translating LLT secondary: 0.25 turns N, 0.75 turns W

2050 LLT focus loop: beta\_and\_sky\_1; ll\_t\_focus\_1; steps of 50.

Pulnix lens focal length is 120mm.

best focus = 11640, FWHM=14.0 pix.1

2055 Measuring Pulnix platescale:

PHARO		LLT	
frame	pixel	frame	pixel
0009	(508,869)	beta_and_1	(259,264)
0010	(519,270)	beta_and_2	(208,267)
0011	(906,273)	beta_and_3	(209,236)

Platescale ~0.29 "/pix

2100 1.50 turns N.

2120 LLT focus loop: ll\_t\_focus\_3. Best focus=11730. FWHM=9.9 pix.

2130 0.5 turns W. Best focus = 11755.

2130

0005 Opening dome. Starting up Radar, ASCAM, IRCAM. Sending out spotters.

0008 Filed laser status report with US-STRATCOM.

0014 LLT calibration experiment.

0027 Shuttered by nearly full moon in IRCAM.

0035 Detuned image: laser\_detune\_1. Problems retuning - found LLT focus had jumped. Restored to 11730.

0045 Focusing on Na layer.

Acq.: laser\_focus\_1. Acq\_z = 12350. FWHM=11.6 pix

LLT: laser\_focus\_2. LLT = 11730. FWHM = 11.5 pix = 1.84".

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0105 Saving tuned, focusd image: laser\_with\_filter1,  
laser\_with\_filter2. (2s integ.)  
0055 Moving to Landolt 98-185 (V=10.54) for photometric  
calibration (fainter of 2 stars in field).  
landolt98-185\_1,\_2 (2s integ.)  
0132 Acquiring TYC 2495-0822-1  
0211 Locked at 100Hz, 400 cts/subap.  
0250 Starting bright star optimization.  
0300 Running at 100Hz, 500 cts/subap. Major problems with KTP  
crystal in 1.06 laser, causing power to be very unstable.  
0310 PHARO background (10s, BrG): ph0013.fits  
0340 Optimizing servo loops; poor seeing (~1.7" from DIMM)  
0405 Starting LLT flexure test.  
0520 End of test. Calling night.