

Palomar LGSAO Engineering Summary 06/13/06 UT

Daytime results:

1. Laser is running reliably at 7.0W
2. HOWFS display problem solved by commandeering PHARO fiber.
3. 660nm laser aligned to LLT optical axis.
4. BTO open-loop control on meridian successfully tested.

Night log:

1915 Trouble-shooting Q3 performance. Realigned lens and quad cell to beam, solving apparent sign flip in Y.

2030 Testing BTO servo modes on 660nm laser.

2110 Moving to Arcturus to begin LLT boresighting.

2115 In parallel, trouble-shooting alarm system.

2150 Offsetting 15deg north, moving back to check repeatability. Repeatability looks good.

2200 Focusing LLT on Arcturus.  
Focus run 1: ll\_t\_1 (7840-300, 100, 7)  
Focus run 2: ll\_t\_2 (7750, 50, 7). Best focus = 7900 (28 pix = 2.0" for 0.07"/pix)

2218 Moving to SAO 100924 to measure seeing: 1.07 with TT at BrG = 1.48 uncorrected V at zenith. MASS/DIMM reports 1.50".

2223 Taking another LLT image (ll\_t\_2): FWHM=33pix. Pulnix center pixel (fine platescale mode)= [365,292]

2225 Testing secondary flexure.

2235 Moving to Delta Herc to test flexure. Moved 3h East; Recovered star at W37", S9".

2240 Hal taking closer look at cause of flexure. Found large offset can be caused by adjusting radial nylon screws.

2255 Moving to A CorBor (near zenith): Star came in ~10" W. Best LLT focus: 7865. FWHM 23 pix = 1.60"

2310 Checking platescale by dithering star on LLT & PHARO:  
position 1: ll\_t: [514,351] pharo: [166,776]  
position 2: ll\_t: [637,356] pharo: [557,771]  
LLT Pulnix platescale = 0.061 "/pixel

2320 Preparing to project red light in dome.

2325 Aligning laser to LLT. Aligning.

2330 Preparing for 589nm laser propagation in Coude lab.

0000 Having trouble bypassing dome shutter interlock.

0024 BTO signal levels:  
660 only: Q1:1150(0), Q2:350(0), Q3=100(20)  
660+589: Q1:33000, Q2:1800, Q3:7500

0030 Adjusted 660nm alignment to match 589nm laser.

0050 Installed RG630 filter in Q1.  
660 only: Q1:1150(0), Q2:350, Q3:90  
660+589: Q1:1500(0), Q2:350, Q3:7500

0110 Testing Q3 safety interlock.  
Required re-aligning red laser to 589. Co-aligned to within 3mm at Q3. Demonstrated Q3 interlock operation with threshold=1000cts, delay=100ms.

0215 Successfully tested 589nm laser projection in dome at:  
      (ha=0, dec=20), (ha=0, dec=0), (ha=+2h, dec=0).  
0220 Ready to open, unable due to 80% overcast skies.  
0230 Beginning BTO open-loop motor calibrations in dome:  
0235 20060613\_dec\_0: Dec=0, 3h W, 3h E.  
0243 20060613\_dec\_10: Dec=10, 3h W, 3h E.  
0253 20060613\_dec\_20: Dec=20, 3h W, 3h E.  
0258 20060613\_dec\_30: Dec=30, 3h W, 3h E.  
0304 20060613\_dec\_40: Dec=40, 3h W, 3h E.  
0310 20060613\_dec\_50: Dec=50, 3h W, 3h E.  
0320 20060613\_meridian\_north: Dec=+45 to +65.  
0400 20060613\_meridian\_south: Dec=+05 to -15  
0425 Calling night.