Palomar LGSAO Engineering Summary 04/03/07 UT

Night log:
1845 Opening dome to perform AO checkout on a bright star.
Sky is overcast with thick high clouds.
1851 Moving to Beta Geminorum (Pollux). For AO checkout.
Seeing ~0.25" in K. P18 reads 0.84" in V.
2011 Test complete.
2015 Moore and Petrie going to prime focus for LLT boresighting.
2030 Slewing back to Beta Geminorum and starting LLT boresighting procedure. Found star off of LLT secondary.
2130 Adjusted LLT to bring star into center of primary mirror hole. However, no image seen in LLT Pulnix.
2200 Moving to WDS32108 for Acq platescale calibration.
Acq spot: acq_cal_ngs1, acq_cal_ngs2, acq_cal_bkgd.
Acq dich: acq_cal_lgs1, acq_cal_lgs2, acq_cal_bkgs2.
PHARO: frames 12-13. bkg=14.
2215 Moving to WDS31873
Acq spot: acq_cal_ngs1_2, acq_cal_ngs2_2, acq_cal_bkgd3
Acq dich: acq_cal_lgs1_2, acq_cal_lgs2_2, acq_cal_bkgd4
PHARO: frames 15-16, bkg=17
2230 Moore and Petrie heading to prime focus for LLT image quality optimization.
2245 PF crew evaluating alignment of LLT Pulnix.
22XX Moving to Delta Leo...
Image aprox. 1" by visual estimate.
2345 Recording images with LLT Pulnix at finest platescale:
Timetags: 83091 - 83265 (10 images in 2 positions, 10" apart). Platescale = 0.1"/pix. Star FWHM ~ 1.2".
2356 Recording seeing with PHARO: 0.55 = 0.76 in V.
0000 Laser at 5W with some instability. Kibblewhite and Tripathi stopping work.
0010 Beginning LOWFS transfer curve experiment.
0020 Tripathi preparing laser for BTO alignment.
0035 Bouchez aligning laser to BTO in Coude room.
0045 BTO stimulus laser no longer aligned to polar axis.
Aborting alignment.
0050 Coude stimulus laser alignment is off by >1 deg.
Restarting BTO alignment from scratch.
0140 Found leaky mirror mount loose on Coude BTO bench.
Realigned entire Coude bench and found new BTO default positions.
0140 Beginning BTO alignment in dome.
0206 Filed Laser Status Report with 1SPCS.
0215 Sending spotters out.
0230 Laser focus at 4000
acq_z at 10250
0230 Laser propagating – came in 60" of HOWFS field stop.
Centered LGS on Acq: llt_a 60.0 llt_b -30.0
0235 UTT Calibration:

Images	llt_a	llt_b	(2sec integration)
92923	60	-30	
93190	90	-30	
	30	-30	

0245 Laser shuttered (ASC)
0250 Laser propagating again

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    94017       30    -30
    94056       60    -60
    94108       50    0
    New center position:  60    -20
0300 Starting LGS focus loops:
    /data/03apr07/llt_foc
    Initial FWHM: 18pix
    Initial llt focus: 11730
    Background: bkg1
    llt1 – 11780, FWHM=10pix
    Initial acq focus: 10250
    acq1 – 9950, FWHM = 9.5pix
    95115  FWHM – 13pix  final llt and acq_z positions
0310 laser focus (return flux)
    Initial = 4000
    lfoc1    Focus=7000   Integrated flux=7015
0320 Starting zenith optimization procedure
0330 Laser shuttered – wildlife issues
0340 Laser propagating again.
      300cts at 50Hz
      Going to 150Hz – 80cts
      llt_a 64 llt_b 1.5
0345 Laser shuttered - airplane
0348 Laser propagating again
      Trying pupil registration on laser – more issues with
automatic log interval changes
0405 Chopper adjusted – new delay value 52400
0410 Optimizing UTT gains
      Gain      HO_a       HO_b
      0.2             .110       .110
      0.4       .080       .080
      0.8       .085       .085
      1.6       .080       .080
      3.2       .100       .100
      5         worse
      Final subap flux ~140cts at 150 Hz (sky clearing?)
      More telemetry problems – lost 15 min
0445 Laser shuttered - moving to zenith to reset AO system.
0454 Acquiring first LGS target: TYC 2594-0845-1. Acquisition
    went smoothly until LGS projection; some trouble
    acquiring LGS.  Closed loops. Diffraction-limited images
    at BrG.
0530 Shuttering for FAA compliance.  Shutting down laser.
    Ending power=4.0W.
0535 Restarting LOWFS transfer curve experiment.
0545 Calling night due to database access problems.  Unable
to access telemetry for transfer curve experiment.
0650 Shutting down BTO (laser, coude port, LLT primary).
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