

Palomar LGS AO Engineering Summary 05/25/07 UT

Afternoon:

- Laser 5.0W, stable.
- Installed and aligned fold mirror for LLT pulnix.
- BTO and LLT aligned and tested.

Night log:

2015 Starting NGS checkout.

2030 Best strehl = 69%. Seeing = 0.30" in K (0.55" in V).

2045 Sending HP and AM to prime focus for LLT image quality optimization.

2015 Starting LLT focus on Pulnix: ll_t_ngs_1

11875: 27"x23" pixels (3.75" x 6.00")

2132 Measuring LLT Pulnix platescale.

PHARO image 15. pix=(716,810)

ll_t_ngs_3. pix=(275,275)

Offset Tel N 5", E 5"

PHARO images 16. pix=(896,617)

ll_t_ngs_4. pix=(227,311)

Platescale = [0.094, 0.135] "/pix

2140 Going to zenith for laser propagation. Clouds have moved in.

ll_t_3 200 units ll_t_focus, image looks like out of focus NGS

$\frac{1}{4}$ turn east on LLT secondary, ll_t_4 image looks worse

$\frac{1}{2}$ turn west on LLT secondary, total of $\frac{1}{4}$ turn west the "knot" in the image rotated "down" on acqview display

$\frac{1}{4}$ turn north on LLT secondary, looks the same as the last image

$\frac{1}{2}$ turn north on LLT secondary, total $\frac{3}{4}$ N, image is certainly worse

1.5 turns south on LLT sec, total $\frac{3}{4}$ S, Looks better

1.0 turns east, total $\frac{3}{4}$ east, ran out of LLT_B range

0.5 turns west, total $\frac{1}{4}$ east, looks pretty good

re-focus still looks ~21 pixels, no change

put in reticle and center red laser by moving UTT we moved 100 N and 100 W

tilt LLT 160" S and 160" E

Checking spot size... 3.0" on the LGS.

2300 Moving to a bright star to check image quality.

Still ~3.25" FWHM, aberrations have rotated 90 deg.

2315 Bringing HP and AM back down.

0000 AB and HP heading to prime focus

0015 E is up and N is right in the PF video

0025 $\frac{1}{4}$ turn north on LLT secondary, re-boresighting

$\frac{1}{4}$ turn north on LLT secondary, re-boresighting

$\frac{1}{4}$ turn east on LLT secondary, re-boresighting

taking long exposure image ll_t_ngs8_11905, ~1.9x2.6"

out of focus +30 ll_t_ngs9_11935

0040 Space command called on red phone, we can't propagate until further notice (at least 1 hour)

$\frac{1}{4}$ turn east of LLT secondary

llt_ngs1011905 (2.5 x 3.2" and llt_ngs11_11935,
llt_ngs12_11875

llt_ngs13_11905 (2.4 x 2.7")

¼ turn east on LLT secondary, llt_ngs1411905 (2.0 x 3.2")
¼ turn west on LLT secondary, llt_ngs1511905 (2.1 x 2.6")
PHARO seeing is 0.625 at V

Try to record "video" rate acq data
look at star, 7.5A
video cam=acq, interval=1
start_time = 1180081795, stop=81905

LLT pulnix video on V=2.08
start_time = 1180083323, stop=83407

AO Acq video on V=8
start_time = 1180083782, stop=83855

LLT pulnix vide on V=2.08
start_time = 1180080134, stop=80205

0230 Space Command gives the OK again.

0232 Sending out spotters for projection at zenith.

0241 Projecting at zenith.

llt_focus=11865 fwhm=[16.6,14.24], [17.3,15.6]
llt_focus=11895 fwhm=[16.1,16.5]
llt_focus=11925 fwhm=[15.0,17.2]
llt_focus=11955 fwhm=[13.8,19.4]
llt_focus=11890 fwhm=[15.6,15.0] = 2.75"
saved images (2s integ.)=86509, 86533

0251 Moving to LGS target: USNO-B1.0 1234-032613 (V=14)

0309 Star was ~1" binary. Moving to 1233-029130 instead.

0330 Acquisition complete. LOWFS commanded position off by
W 2.6", N 4.0".

Framerate	CentOffset		
200Hz	CO_0	14%	230cts
200Hz	CO_D2	13%	"
400Hz	CO_0	12%	120cts
100Hz	CO_0	17%	420cts
50Hz	CO_0	18%	900cts

0352 V=15.0 star (W 2.1", N 3.8")

50Hz	CO_0	16%	320cts.
0Hz	CO_0	7%	no tt
nothin		2%	

0357 V=16.0 star (W 1.7", N 3.9")

50Hz	CO_0	9%	
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0405 V=17.0 star, CR=005.60 (W 0.2", N 3.5")

...debugging CR dependence of UTTPADDLE.
50Hz CO_0 17% 50cts

0435 Shuttering for FAA compliance.

0435 Testing apparent offset in Acq-LOWFS model.

0445 Calling night.