

Palomar LGSAO Engineering Summary 08/24/07 UT

Afternoon:

- Laser 8.1W, power steady.
- BTO aligned and ready.
- AO A-OK.

Night log:

1950 Starting NGS checkout.
Strehl=65% after multiple flatmaps (very astigmatic primary).
Seeing=0.70".

2025 Preparing to project laser.

2035 Projecting toward TYC 2631-1484-1
Shuttered several times by BTO. Adjusted laser polarization
stage +2 deg to increase Q2 counts.
2s background frame: 118801357

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|-------|----|-------|-----------------------|
| 11150 | 40 | 16x15 | |
| 12150 | | 27 | 15x15 |
| 11150 | | 33 | 15x14 |
| 10150 | | 44 | 16x16 |
| 9150 | | 55 | 14x16 |
| 8150 | | 50 | 16x17 |
| 7150 | | 60 | 16x16 |
| 6150 | | 55 | 19x15 |
| 5150 | | 60 | 19x15 |
| 7150 | | 62 | 16x14 (FWHM=3.0x2.5") |

2130 Many BTO, IRCAM (insect) shutters. Laser return very poor
through variable clouds and smoke. Moving to new target in
less cloudy region of sky.

2150 Trouble acquiring laser with BTO. After much trouble-
shooting determined that open-loop track file was not being
loaded.

2225 BTO table loading problem solved. Acquiring TYC 3934-1468-1

2237 Strange aerotech stage error...
HOWFS: 50 Hz, 170cts
gain=0.2 strehl=21% fr=
0.3 strehl=12% fr=21-23
0.1 strehl=13% fr=24-26

2245 Most aberrations appear to be static astigmatism.
Remeasuring flatmap.
HOWFS: 50Hz, 250cts.
Found tt loop unstable at 0.7 gain. Reduced to 0.5 &
Strehl increased to ~35%.
co_default4 & co_zero give approximately the same
performance.
HOWFS: 100Hz, 150 cts. Avg. strehl ~30%.

1120 Switching to science.

1126 Slewing to first target, V=13 TTref @ 55"

1150 Acquisition complete.
HOWFS: 100Hz, 200 cts. LOWFS: 200 Hz, 550 Cts. laser=7.6W

Taking LOWFS performance data.
1205 On science field, loops locked.
HOWFS: 50Hz, 250cts, LOWFS: 200Hz, 500cts.
IRCAM shuttered repeatedly by bats.
0102 Moving to target #2, V=15 TTref @ 23"
0120 Clouds too thick. Switching to NGS backup program.
0220 Pausing observations due to thickening clouds.
0315 Sending spotters out again - clouds clearing.
0315 Moving to NGS calibrator for SN2007gr (V~13.5)
0335 Acquisition complete.
HOWFS: 50 Hz, 220 cts. LOWFS: 200 Hz, 425cts.
HOWFS: 50 Hz, 300 cts. LOWFS: 400 Hz, 250cts.
System running smoothly, but 3 IRCAM shutters due to bats.
0450 LGS return gradually improving with airmass.
HOWFS: 100 Hz, 190cts, LOWFS: 400 Hz, 240cts.
FWHM=4.0pix
0519 Shuttering for FAA compliance.
0520 Starting NGS LOWFS vignetting test.
0540 Calling night. Laser power 7.4W.