OSURC Nightlog 20220526 UT

Observer*: Olga Kuhn
Lead Partner Observer*: Jack Neustadt (OSU)
Other Partner Observers*:
Special Assistants*:
AO Operator*:
Telescope Operator: Josh Williams
*** = from home**

Plan:

MODS

- During twilight: MODSPhotCal/hz44
- UTC 04:00 - 05:30 -- ND_sn21hpr/sn21hprMODS
- UTC 05:40 - 07:20 -- OSU_ASASSN/SN2021adlw
- UTC 07:30 - 08:45 -- OSU_ASASSN/ASASSN22ci
- If extra time: OSU_ASASSN/J190107 (Priority #3)

switch to LUCI

- UTC 09:05 - 10:15 -- UVa_nirjets/G35.58

Summary:

We started with two challenging, late-time, SN observations: ND_sn21hpr/ and OSU_ASSASN/SN2021adlw. sn21hpr seemed fainter than expected and we did not see SN2021adlw in the image. Then we observed the OSU_ASASSN targets, ASASSN22ci and J190107. After that, we reconfigured for LUCI to observe the UVa_nirjets target, G035.58-00.03. The seeing was good and the IR images had FWHM as good as 0.4-0.5". There was some question about the whether the ARGOS dichroic was in or not (the images looked fine, but the GUIs showed it "out" and with a red background), so we stopped the BrG+H2 set early, after 10 of 15 images, to reauthorize. After the script had finished, we repeated the BrG+H2 set and this time obtained 12 of 15 images before it became too light to guide.

Issues:

With MODS there was one MODS1R imcslock at low elevation (elevation 36, rotangle 44 deg)

LUCI+ARGOS and not just LUCI was authorized on SX when we started the imaging program. We corrected this later on and do not think it impacted the observations.

Weather:

The skies were clear and conditions were good. The seeing was about 1" to start, but there were some patches of ~1.5" seeing before it went down to subarcsecond levels at the end of the night.

Preparations:

mods[1,2][b,r].20220526.NNNN.fits
luci[1,2].20220526.NNNN.fits

Overview (times are given in UT):

02:21 Josh opened the enclosure

02:52 Already checked and corrected pointing, now sending the preset to a collimation star. Seeing was ~1"

HZ44

02:56 acqBinoMODS hz44.acq
m1r: 20220525.0041 → offsetxy 0.384 10.770 rel → 1 → offsetxy -0.236 -0.108 rel → 2 → offsetxy 0.179 -0.080 rel → 3
m2r: 20220525.0041 → offsetxy 5.210 7.521 rel → 1 → offsetxy -0.932 0.238 rel → 2 → offsetxy 0.348 -0.203 rel → 3

03:18 execBinoMODS hz44.obs

03:20 12-deg twilight

UT exp start	m1b	m1r	m2b	m2r	seeing	AM
03:20	1-3	4-6	1-3	4-6	0.9"	1.033

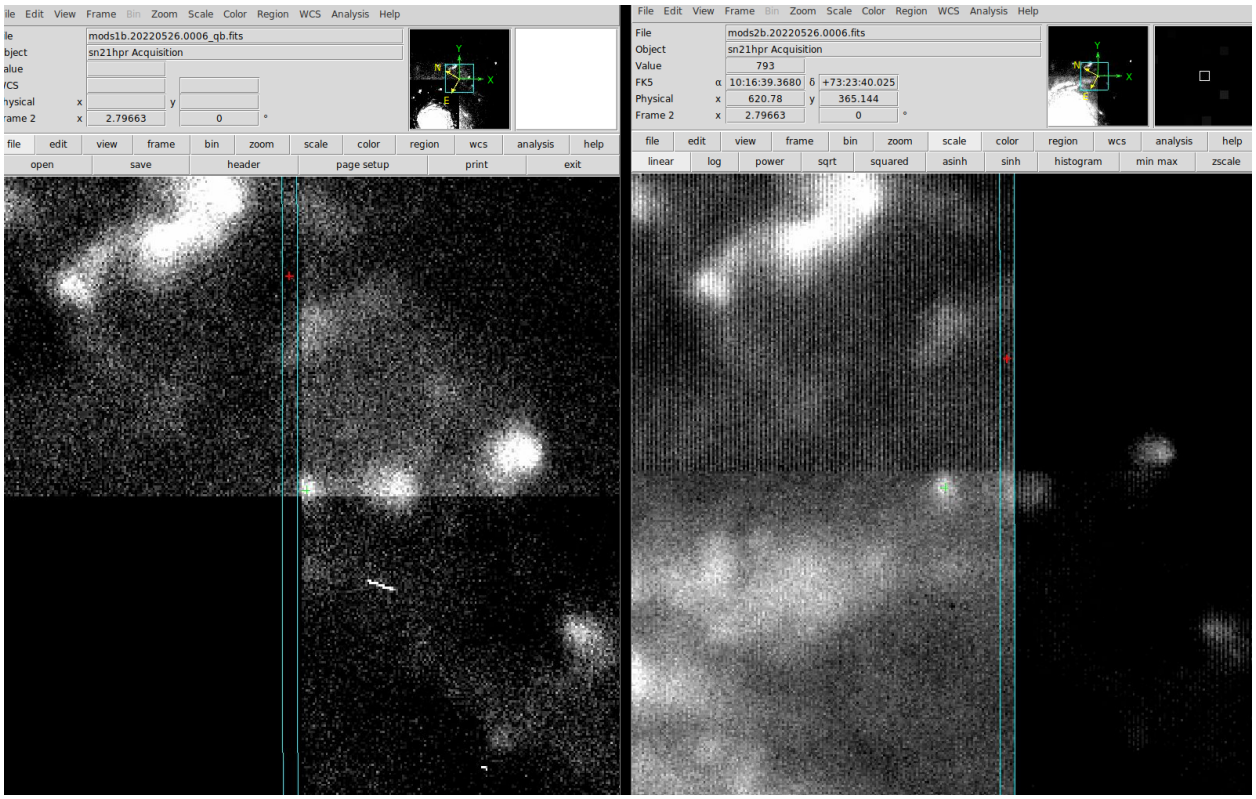
03:32 Finished.

ND_sn21hpr/sn21hprMODS

03:32 acqBinoMODS hpr_pa_edit.acq (pa = -60)

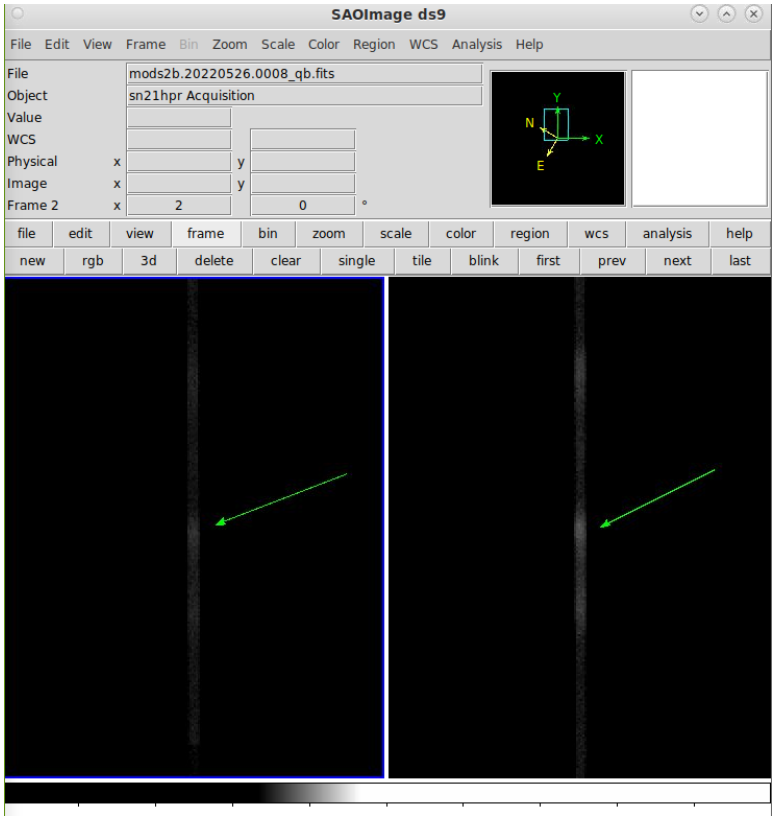
Blue acquisition - avg FWHM on the guiders 1/1.12" on SX/DX.

We've identified the target on the 50-sec exposure but it is faint and we'll take a 100-sec field image, especially as we are early. The target fell on the sweet spot. Experimented with using quick-bias and not using it - OK for MODS1, but on MODS2, the galaxy in the lower left affected this.



m1b: 4 & 6 → offsetxy -0.918 11.706 rel → 7, repeated with 150-sec → 8
m2b: 4 & 6 → offsetxy 3.417 7.056 rel → 7, repeated with 150-sec → 8

It's hard to see it well enough to refine the centering in the slit - though we can tell that it is in the slit. I used modsAlign -y 11 for MODS1 and -y 9 for MODS2, to put the target 11" and 9" above the mask center. On the blue camera, the object is at Y=614 on MODS1b and at Y=561 on MODS2b. There is a blob below it and one above it.



04:06 execBinoMODS hpr.obs

UT	m1b	m1r	m2b	m2r	seeing	AM
04:08	9-13	7-12	9-13	7-12	1/1.1, then 1.3/1.4	1.43 1.478

04:08 MODS1 IMCSLOCK failed, retry worked. ROTANGLE 36 deg, elevation 44

04:48 The avg FWHM on the SX/DX guiders is 1.14/1.17", but there were excursions up to 1.5+" a few minutes ago.

We can see the trace on the red channel spectra and I think also on the blue, though it is fainter. No emission lines stand out. Ran the quickreduce pipeline on the mods1 data (the quickreduce is not yet working for mods2) and stacked the first 4 mods2r spectra. It's faint!

22:17 Finished - the seeing had settled back to ~1" near the end.

OSU_ASASSN/SN2021adlw

22:19 acqBinoMODS SN2021adlw.acq

Josh is unwrapping the AZ

m1r: 12 & 13 →offsetxy -1.880 11.004 rel → 14
m2r: 12 & 13 → offsetxy 2.487 7.579 rel →14

At the position indicated on the finding charts, there is resolved emission -

22:47 execBinoMODS SN2021adlw

22:59 aborting - we're not on the object (blinked the FITS image from 20220211 & tonight. What we had centered on lies closer to the center of the galaxy than the line connecting the star to the SE of the galaxy's nucleus and the bright knot to the SW. The SN, on the other hand, is a bit farther from the nucleus. There is no emission at the SN's position on the Feb image.

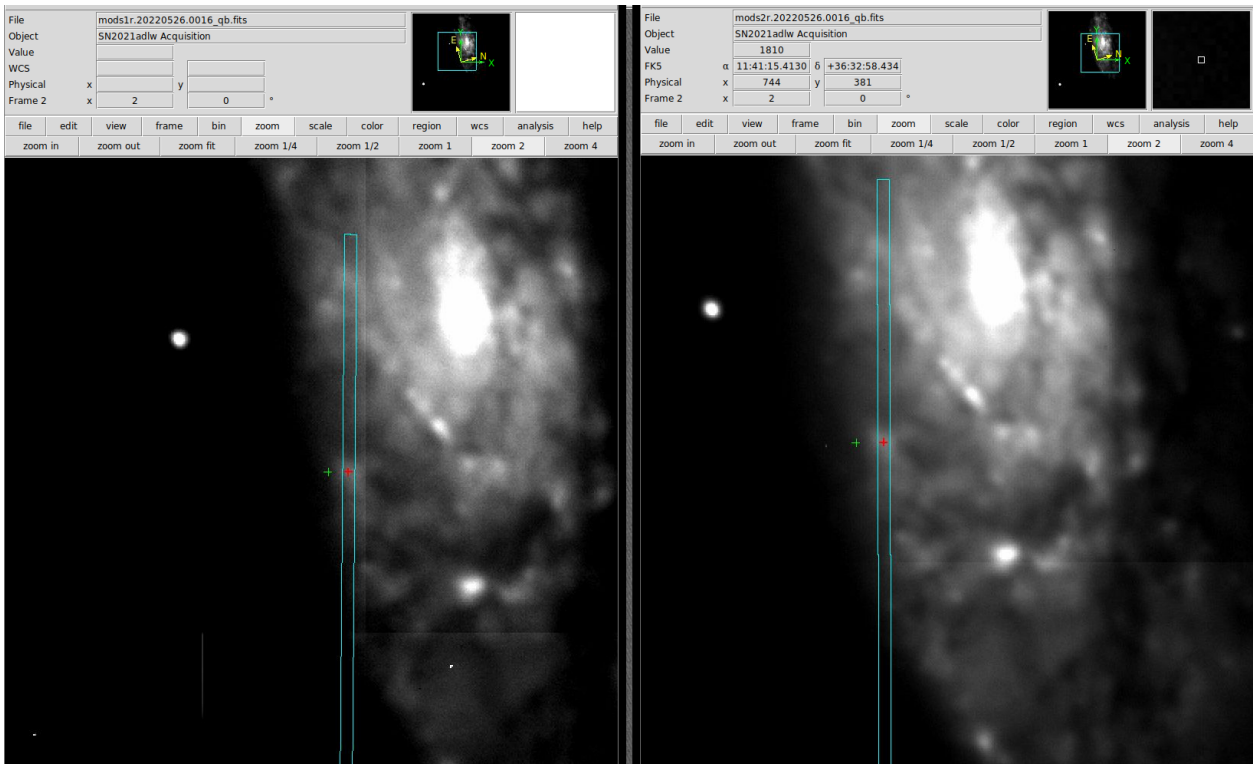
We took the acquisition images again (but without repeating the preset):

23:05 acqMODS –mods[1,2] -i SN2021adlw_long.acq (long has a 40-sec slit and 120-sec field image), followed by -a to take the acquisition images 15 & 16.

We ran modsAlign again, and effectively gave an ~2" offset on each side to put what looked like the position of the SN in February (the green "+") on the slit.

modsAlign -y 11 mods1r.20220526.0015.fits mods1r.20220526.0016.fits → offsetxy 1.636 -0.013 rel

modsAlign -y 9 modsAlign -y 9 mods2r.20220526.0015.fits mods2r.20220526.0016.fits → offsetxy 2.210 0.034 rel



06:28 execBinoMODS SN2021adlw.obs

UT	m1b	m1r	m2b	m2r	seeing	AM
06:28	14-16	17-19	14-16	17-19	0.8" (06:42)	1.48 (06:42UT)

OSU_ASASSN/ASASSN22ci

00:35 (about) acqBinoMODS ASASSN22ci_edit.acq

m1r: 20 & 21 → offsetxy -0.991 11.119 rel → 22, well-centered
m2r: 20 & 21 → offsetxy 3.339 7.616 rel → 22 → dx=0.07"
00:39 execBinoMODS ASASSN22ci.obs

UT	m1b	m1r	m2b	m2r	seeing	AM
00:30	17-20	23-26	17-20	24-27	1"	1.593

Got only 4 out of 5 exposures before the object got too close to the 30-deg elevation limit.

The seeing was ~1.5" at the end.

OSU_ASASSN/J190107

08:44 acqBinoMODS J190107.acq

m1r: 27 & 28 → 29
m2r: 28 & 29 → 30, dx=0.123" → 31, -0.07 → 32, dx=+0.04" -> 33, +0.123" → 35

09:05 execBinoMODS J190107.obs

UT	m1b	m1r	m2b	m2r	seeing	AM
09:06	21-23	30-32	21-23	36-38	0.63/0.71	1.024

Just under ~45000 counts in the peak on m2r.

02:27 Finished

02:27 Reconfiguring to LUCI

02:40 Sending pointing preset - copointing limit violation - the usual after a reconfigure. Josh restarted PCS (the fix).
02:41 Trying again.
02:49 Sending the collimation preset.

UVa_nirjets/G035.58-00.03

02:51 Starting the observation

Noticed partway through the first filter set that on SX we are authorized for LUCI+Argos and not just LUCI. Looking at the configuration file for the different instruments, there is only a minor difference (0.4 deg) in the rotator zeropoint for LUCI1+ARGOS vs LUCI. The IIFGUI says the dichroic is out, but there is a red background - is it really out? It was used for testing yesterday. We reauthorized after the first 10 (of 15) BrG+H2 exposures - this worked and the red background under dichroic out went away in the IIF GUI.

	L1	L2	
K+K	60-70	2-12	
BrG+H2	71-80	13-22	
J+H	81-91	23-33	
PaB+FeII	92-107	34-49 on L2 43, collimation falling apart.	0.45" (0.57/0.7 on the guiders)
BrG+H2	108-119 L1 109-110 have poor collimation. L1 111 is better. 113 - WFS paused, but working on 114 not working 115 but 0.5"	50-61 WFS not working on 57	0.5 on the H2 L1 116 and L2 59 — 0.42"

L1 80 and L2 22 — reauthorizing SX to just LUCI (may be a dtheta of 0.4 rotation).

10:39 reauthorization to LUCI+LUCI complete - Starting the J & H set

11:13 DX collimation started to go diverge but snapped back into shape within a few cycles

11:25 Starting BrG+H2 again to try to get the complete set. We ended up getting 12 of the 15. Backgrounds were rising at the

11:44 Amazing IQ even though WFS has not been working for a few minutes. Guiding is still holding but about to be lost. L1 118 and L2 60

11:47 Lost the guide star (R=14.6). This was after 119 and 61

In summary, we obtained the full set at K+K and 10 of 15 BrG+H2 images with some question about the configuration - dichroic in or out. We cleared the issue and observed the J+H and PaB+FeII sets, then we repeated the BrG+H2 images, getting this time

Twilight sky flats

Mainly to repeat the K+K set that was taken the
 which were taken through thin cirrus at the start of 20220524 UT. The rest were taken at the end of the night and were ok.

	L1	L2	
K+K	120-124 125-130	62-66 67-71	10k-14k 20-30k
BrG+H2	148-172	91-116	10k-25k

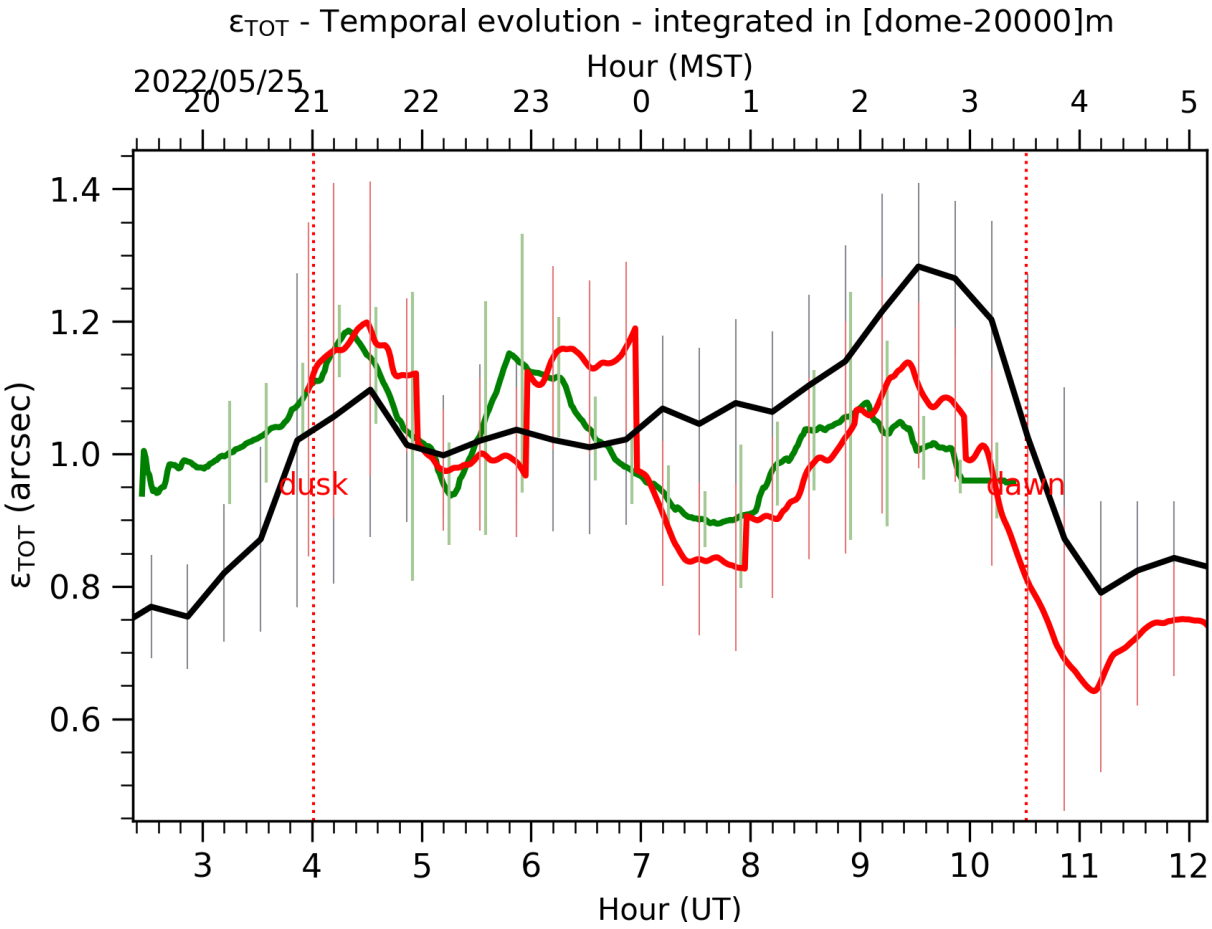
12:09 - I loaded the wrong PaB+FeII script (internal vs skyflat) Ignore images L1 131-147 and L2 72-90.

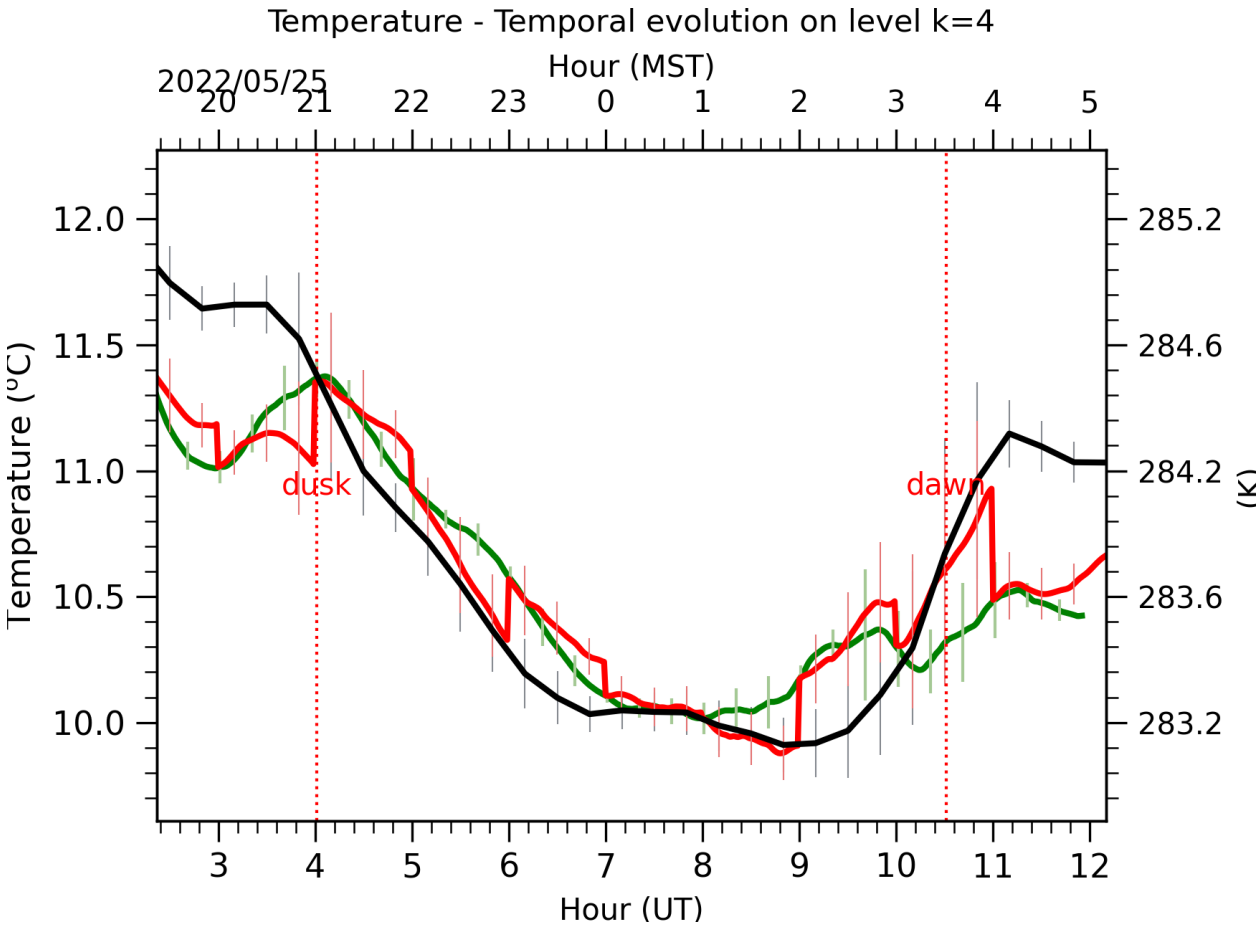
Closed Dome Calibrations

MODS

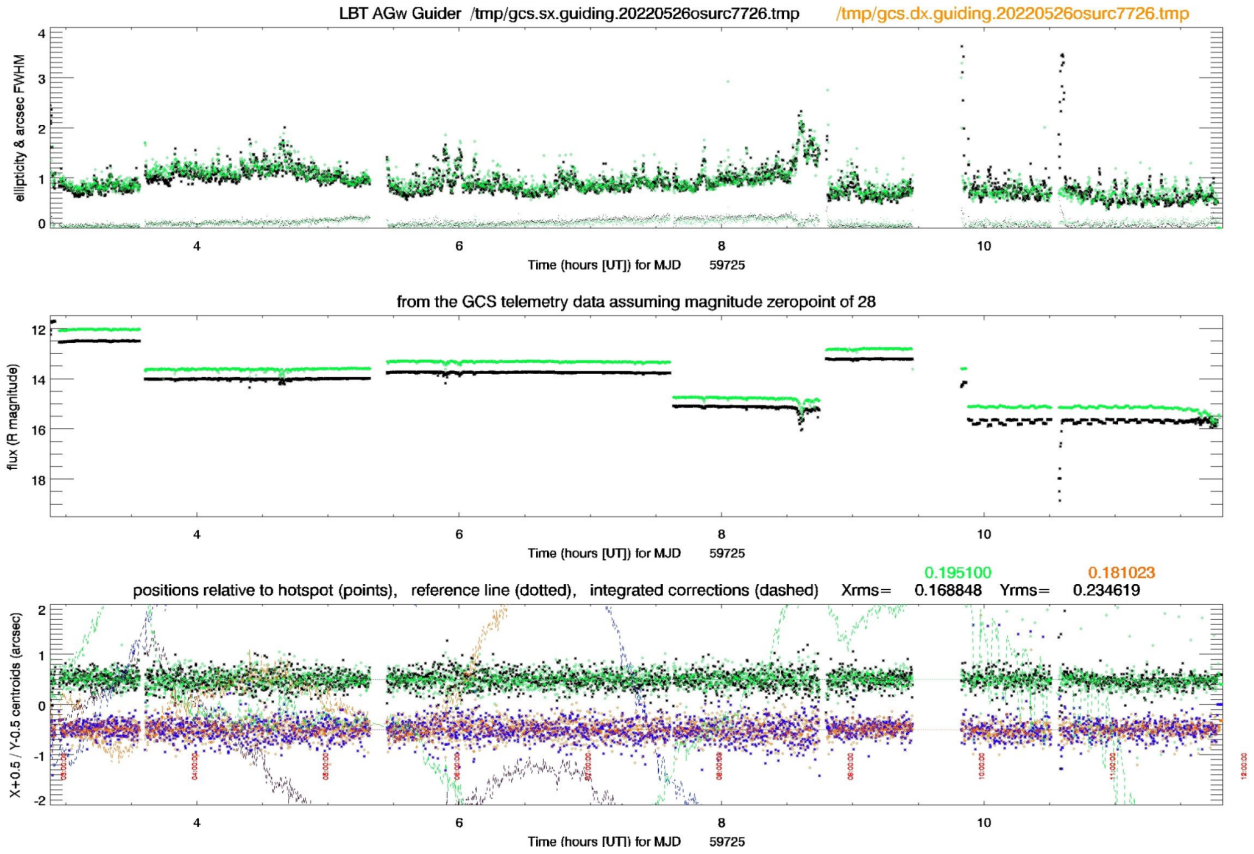
	m1b	m1r	m2b	m2r
bias1K	24-34	33-43	24-34	39-49

ALTA predictions


εTOT - Temporal evolution - integrated in [dome-20000]m
2022/05/25
Hour (MST)
20
21
22
23
0
1
2
3
4
5
1.4
1.2
1.0
0.8
0.6
εTOT (arcsec)
dusk
dawn
3
4
5
6
7
8
9
10
11
12
Hour (UT)


Temperature - Temporal evolution on level k=4
2022/05/25
Hour (MST)
20
21
22
23
0
1
2
3
4
5
12.0
11.5
11.0
10.5
10.0
Temperature (°C)
285.2
284.6
284.2
283.6
283.2
(K)
dusk
dawn
3
4
5
6
7
8
9
10
11
12
Hour (UT)

LBTplot


LBT AGw Guider /tmp/gcs.sx.guiding.20220526osurc7726.tmp /tmp/gcs.dx.guiding.20220526osurc7726.tmp
ellipticity & arcsec FWHM
Time (hours [UT]) for MJD 59725
from the GCS telemetry data assuming magnitude zeropoint of 28
flux (R magnitude)
Time (hours [UT]) for MJD 59725
positions relative to hotspot (points), reference line (dotted), integrated corrections (dashed) Xrms= 0.168848 Yrms= 0.234619
0.195100
0.181023
X+0.5 / Y-0.5 centroids (arcsec)
Time (hours [UT]) for MJD 59725