OSURC Nightlog 20220125 UT

Observer*: Olga Kuhn
Lead Partner Observer*: Mark Whittle (UVa)
Other Partner Observers*: Charlotte Wood (ND)
Special Assistants*: Bentley
Telescope Operator: Josh Williams (LBT)
*** = from home**

Plan:

Tonight's plan is to start with MODS and then switch to PEPSI to get the Thompson and Griffith targets (the nova will be for the next night).

Summary:

A good night - the telescope and instruments ran smoothly and the conditions were good. We started with MODS and observed a spectrophotometric standard and two targets from OSU_ASASSN: J062307 and ASASSN14dj.
Then we switched to PEPSI and observed the two OSU_BH_Binaries targets and 23 OSU_AbundLowZ targets. The SNR well exceeded the criterion for the BH_Binaries (SNR>~40 in CD5) although for the AbundLowZ targets, while SNR>100 was always achieved in the red arm (CD4), the SNR was for most objects ~80 in the blue arm (CD2; it ranged from ~70 for the faintest targets to -120 for the brightest ones).

The log of PEPSI observations: 20220125UT_pepsi_obs.log

Issues:

Initially, the DX collimation was not converging and the DX mirror panicked. Josh slewed to a higher elevation target - we were at 50 deg and he slewed up to 76 deg, and it converged. We did not have any more problems with collimation.

We noted one instance of a small <~3" jump on the SX side (note added to IT 8290) during a PEPSI observation.

Once the OSA's obs1 workstation froze up and once my vncsession to the PEPSI computer froze. Both were fairly quickly recovered from.

Weather:

Clear skies at sunset and RH 49%. The skies looked clear skies throughout the night and the seeing trend was as predicted by ALTA - starting ~1", dropping to sub-arcsec from ~05-10 UT and then rising again at the end of the night.

Preparations:

mods[1|2][b|r].20220125.NNNN.fits

Overview (times are given in UT):

00:47 Josh opened the enclosure. *Tam=-2.2 Tch=2.2 Tgl(ref):SX=0.0(-1.0),DX=1.0(-1.0) Hum=45.1% Wind=10.6@8°. Particle counts look good. Clear skies. Starting with binoMODS for O/RC*

01:20 Pointing check done. Collimating. DX is taking it's time… SX collimated and FWHM ~ 1.3" on the guide image.

01:22 Starting PEPSI calibrations - 18:30 these are done.

01:31 Still having some problems collimating on DX side - the initial acq images looks out of focus. Tamb=-1.7 Tglass=0.5 (but GCS usually handles these temp differences pretty well and its about the same for SX).

01:37 DX primary panicked.

01:49 After recovering from panic, Josh checked pointing & collimation on a target at higher elevation. Lot of coma on DX to start with.
This works - converging. Elevation 76:50. Elevation at first target where there were problems was 49 deg.

01:54 Back to collimate near G191B2B (now elev = 56 deg). Looks good now. FWHM on guiders: 1.1" on average, but getting down to sub-arcsec.

G191B2B dual

01:57 acqBinoMODS g191b2b.acq

m1r: 3 → 4, looks well-centered
m2r: 3 → 4, needs offsetxy -0.937 -0.069 rel, 5 offsetxy -0.223 0.259 rel→ 6,

02:11 execBinoMODS g191b2b_dualGrating.obs

UT	m1b	m1r	m2b	m2r	AM	FWHM SX/DX
02:11	6-8	5-7	3-5	7-9	1.14	0.82/0.92"

OSU_ASASSN/J062307

02:25 acqBinoMODS J062307_edit.acq
Edits are that we changed the PA from 80 to 112 deg and the acq exposure time from 60 to 5 for the field image, 10 for the slit image.

m1r: 8,9 → 10, looks well-centered. Taking a 10-sec exp to confirm while tweaking mods2 → 11, looks a little off to the left, gave x=0.1" → 12
m2r: 10,11 → 12, off to the right. dx=-0.123 -> 13, too far to the left, dx=0.09 → 14, dx=0.12" → 15

02:41 execBinoMODS J062307.obs

UT	m1b	m1r	m2b	m2r	AM	FWHM SX/DX
02:45	9-	13	6-	16-	1.239	0.78/0.93

03:07 Finished

OSU_ASASSN/ASASSN19dj

03:07 acqBinoMODS ASASSN19dj_UT0730.acq

average seeing during the acquisition is 1" - despite the fact that we are at pretty low elevation, 35 deg.

m1r: 16 & 17 → offsetxy -0.091 12.163 rel → 18, dx=-0.18" → 19, looks pretty well-centered
m2r: 19 & 20 → offsetxy 4.179 8.371 rel → 21, looks well-centered

03:25 execBinoMODS ASASSN19dj

UT	m1b	m1r	m2b	m2r	AM	FWHM SX/DX
03:25	12-	20	9	22	1.608	1.05/1.01

We see [OIII]4959,5007 emission with some kinematic structure in the galaxy - in the red, there are also a couple of bright lines, H-alpha & [NII]

04:17 MODS2 blue fitsflush to bring over 0010.

04:32 FWHM on the guiders 0.93/0.95".
05:20 FWHM on the guiders 0.60/0.66" (elevation 62 deg)

05:39 Finished

Reconfiguring: MODS→ PEPSI-PFU

05:39 Slewing to zenith to reconfigure.

05:52 Once authorized, I clicked "Engage" to open the hatch & enable the ADC.

05:52 obs1 froze up. Josh is calling Yang (SW on-call). It came back at 23:02 - unsure what was wrong.

05:58 Meanwhile, sending the first target/OB to the queue which is configuring the instrument for the observation: 300 mic fiber, CDs 3 & 5, BS1.

06:09 Pointed, now going to collimation star.

OSU_BH_Binaries/2MASS J07570459+4300544

06:12 Slewing to target
06:15 Starting the exposure: 20-min CDs 3 & 5
06:17 Seeing is 0."5 on the guiders.
SNR estimates: CD5 293, CD3 175

OSU_BH_Binaries/2MASS J09330083+3417090

06:36 Slewing to target
06:38 Starting the exposure: 20-min CDs 3 & 5
06:41 Avg FWHM on guiders ~ 0.44/0.52"
SNR estimates CD5 ~161 & CD3 ~81

OSU_AbundLowZ/2MASS J10212078+2902550

06:59 Slewing to target
07:02 Starting the exposure: 15-min CDs 2 & 4
SNR CD2 ~ 94, CD4 ~ 216

OSU_AbundLowZ/2MASS J10480474+1751079

07:17 Slewing
07:19 Starting the exposure: 15-min CDs 2 & 4
SNR CD2 ~ 83, CD4 ~ 199

SNR is low on the blue side

OSU_AbundLowZ/2MASS J10572030+1559110

07:35 Slewing
07:37 Starting the exposure: 15-min CDs 2 & 4
07:40 FWHM on guiders ~ 0.61/0.63"

SNR CD2 ~ 80, CD4 ~191 – low on the blue side, observers decided it was close enough to 100 to continue on.

OSU_AbundLowZ/USNO-A2.0 1200-06860134

08:00 Slewing
08:05 Starting the exposure

SNR CD2 ~ 80, CD4 ~ 180

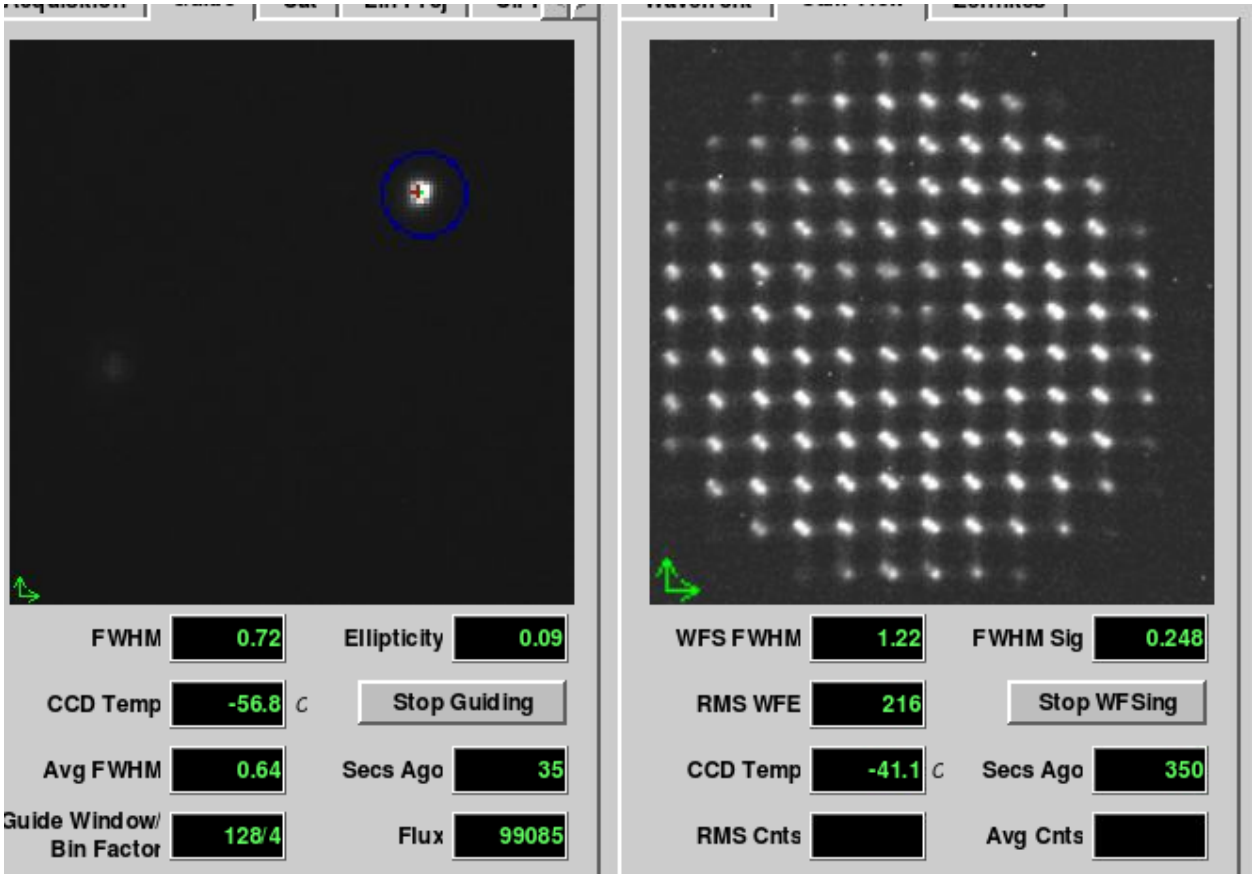
OSU_AbundLowZ/2MASS J11513833+1732059

08:21 Slewing
08:23 Starting the exposure
08:28 FWHM on guiders is 0.76/0.58"

SNR 83 for CD2, 183 for CD4

OSU_AbundLowZ/UCAC4 473-046951

08:40 Slewing
08:42 Starting the exposure
08:46 - a tiny jump on SX. The Shack spots appeared double. But the next image they are back to single spots. Elev 53 deg, HA=-01:34
SNR CD2 ~ 109, CD4 ~ 233



OSU_AbundLowZ/2MASS J11250185+0145032

08:58 Pointing check - Slewed to it but star was not found on the SX side. For the previous 2 targets, the star was close to the edge of the acq image.
09:01 Slewing back to target
09:03 Starting exposures

SNR ~ 115 in CD2 and 238 in CD4

OSU_AbundLowZ/2MASS J11270364-0133472

09:20 Slewing
09:22 Starting exposures

SNR ~ 82 CD2 and 196 CD4

OSU_AbundLowZ/2MASS J11370572+0158262

09:37 Slewing
09:40 Starting exposures

09:40 FWHM on guiders 0.5/0.6"

SNR ~82 CD2 and 197 CD4

OSU_AbundLowZ/2MASS J11455870+0034031

09:55 Slewing
09:58 Starting the exposures

My vnc session froze - quit & restarted it.

SNR ~ 102 CD2 and 234 CD4

OSU_AbundLowZ/ 2MASS J11501383+0207081

10:14 Slewing
10:17 Starting the exposures
SNR ~ 80 in CD2 & 194 in CD4

OSU_AbundLowZ/2MASS J12172774-0154034

10:33 Slewing
10:36 Starting the exposures
10:43 FWHM on SX/DX guiders 0.42/0.57"

SNR ~ 110 CD2 and 238 CD4

OSU_AbundLowZ/2MASS J13515802+4002269

10:52 Slewing
10:55 No guide star on the left. We need to check pointing.
10:57 Slewing again.
10:59 Starting exposures

11:13 FWHM on SX/DX guiders = 0.76/0.96
SNR ~ 70 CD2 and 170 CD4

OSU_AbundLowZ/2MASS J14094066+4512161

11:15 Slewing
11:17 Starting exposures
11:23 Avg FWHM on guiders 0.6"/1.26" on SX/DX —We are pointing to the NE and the wind is from the SW.
11:28 Avg FWHM SX/DX 0.85/1.14"
SNR ~ 71 on CD2 and 180 on CD4

OSU_AbundLowZ/2MASS J14193534+3634466

11:33 Slewing
11:36 Starting exposures
11:50 Avg FWHM on SX/DX 1.24/0.8" (now SX is > DX).
SNR ~ 72 for CD2 & 177 for CD4

OSU_AbundLowZ/2MASS J14200701+3953535

11:52 Slewing
11:56 Starting the exposures

OSU_AbundLowZ/2MASS J15093137+3935355

12:11 Slewing
12:14 Starting exposures

The seeing is degrading - at 12:20, the average FWHM is 1.52/1.20" on SX/DX.

OSU_AbundLowZ/2MASS J15130073+3558326

12:26 Slewing
12:28 Starting exposures
SNR ~ 82 CD2 and 198 CD4

OSU_AbundLowZ/2MASS J15142618+3300386

12:43 Slewing
12:46 Starting exposures
12:51 Avg FWHM ~ 1.13/0.69" on SX/DX
SNR ~ 142 CD2 and 322 CD4

OSU_AbundLow/2MASS J14085081+2706519

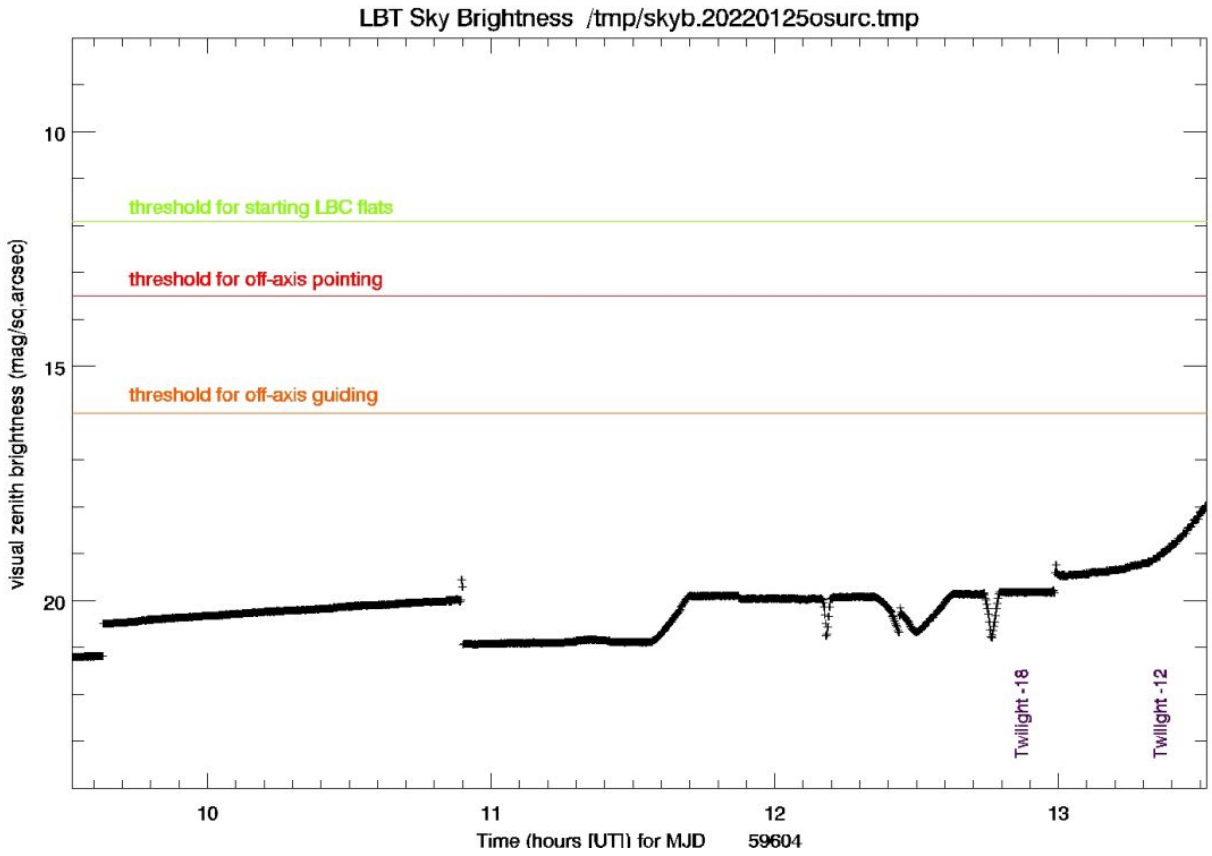
13:00 Slewing - did not find the star on DX and barely on SX. Josh is doing a pointing check.
13:05 Slewing again -
13:07 Starting exposures: 10-min
SNR ~ 124 CD2 and 278 CD4

OSU_AbundLow/2MASS J14222791+1643457

13:17 Slewing
13:20 Starting exposures: 10-min

13:22 12-deg twilight

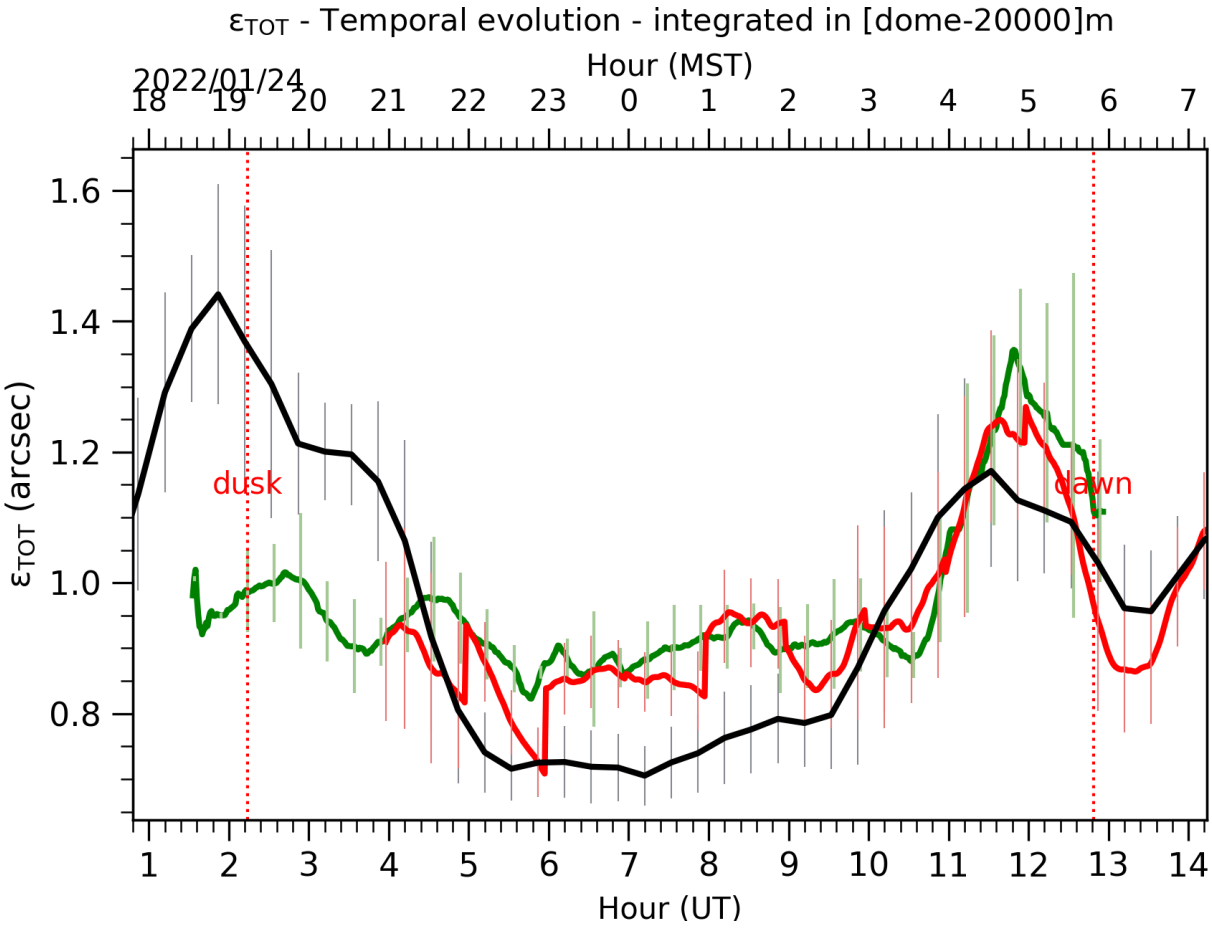
13:30 Reading out. The sky brightness was on our SkyBrightness monitor was 18:

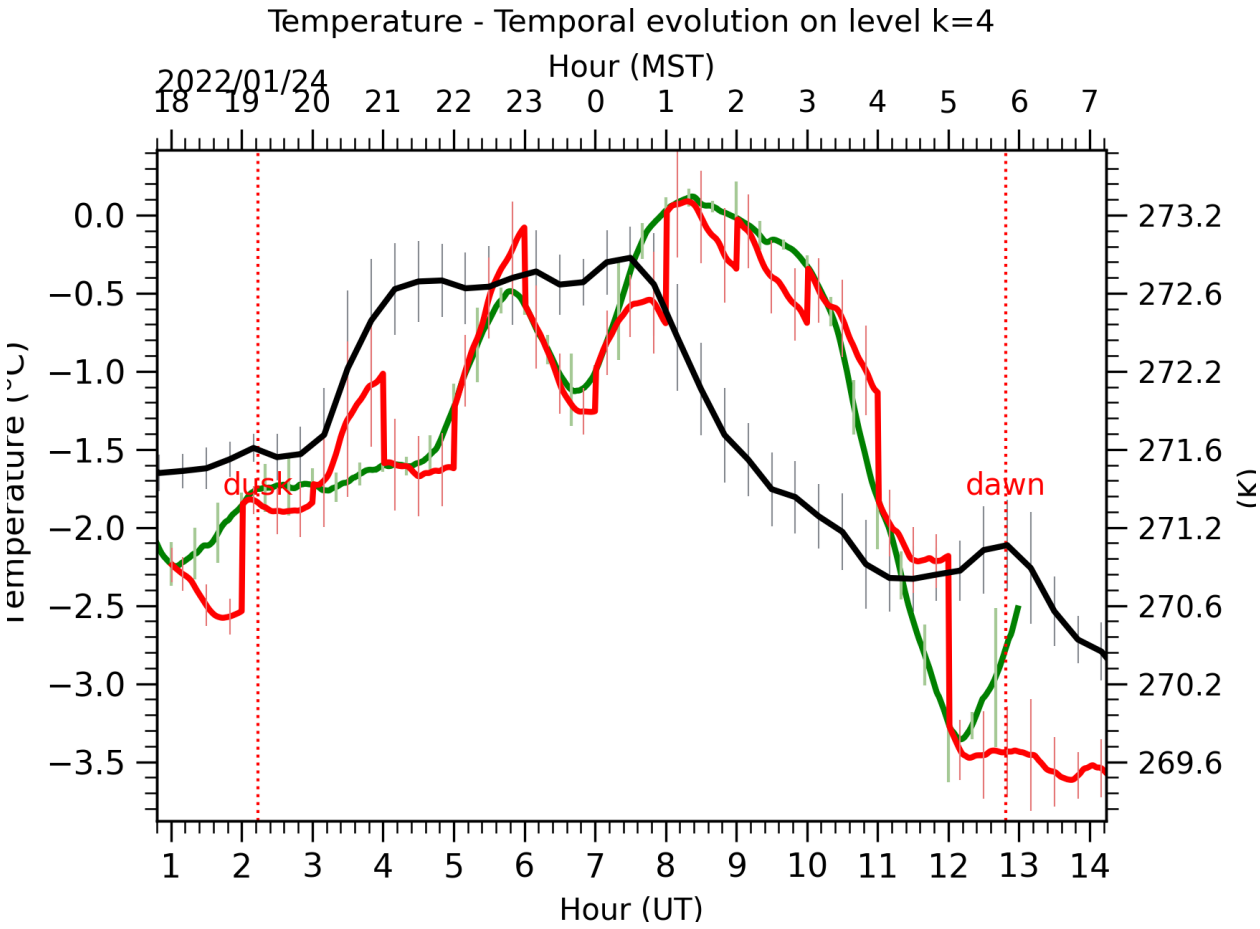


13:40 Josh is closing up.

13:44, I unchecked the "engage" button and closed the PEPSI hatch (via the PEPSI Control Unit). We obtained calibrations at the start of the night, while observing with MODS.

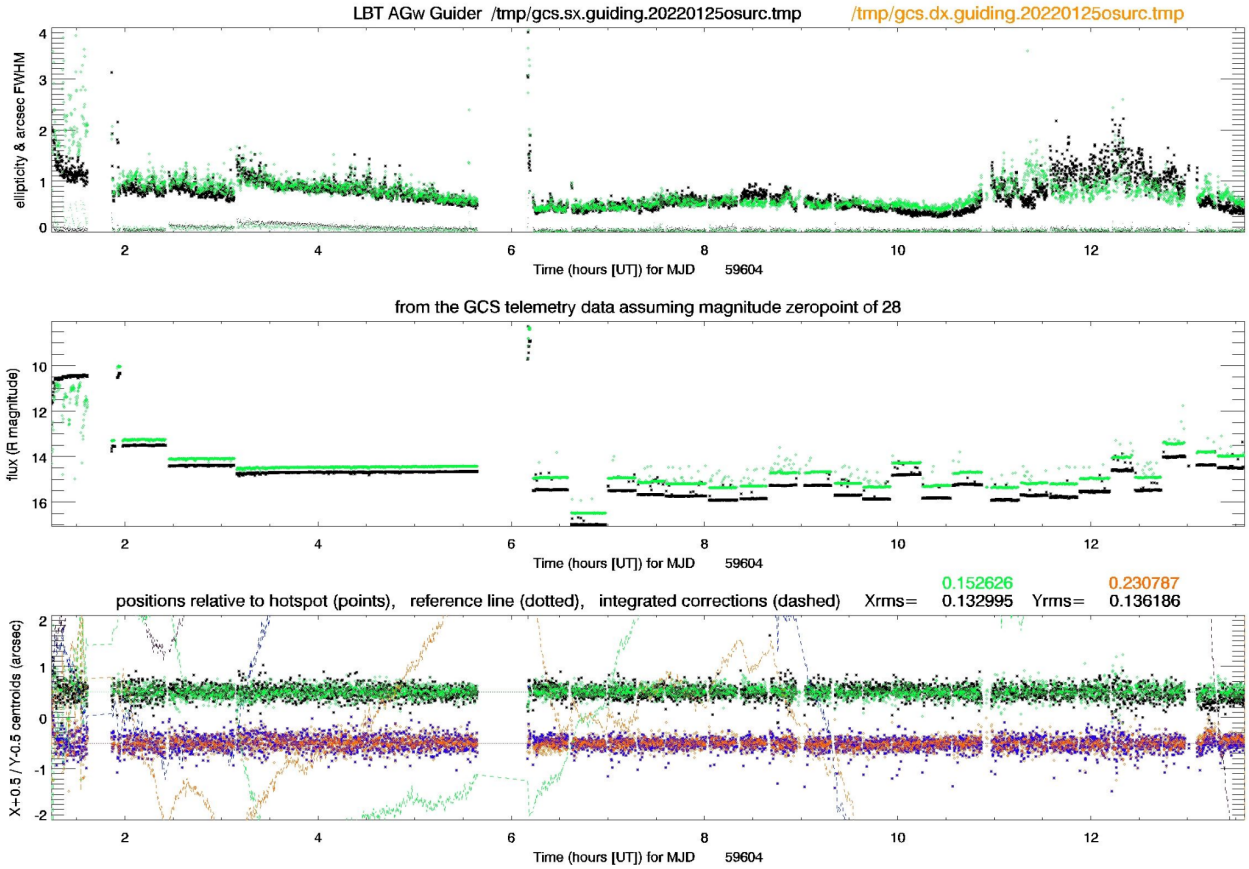
ALTA predictions





LBTplot

The SX (black) and DX (green) guide star FWHM and flux are plotted below.


LBT AGw Guider /tmp/gcs.sx.guiding.20220125osurc.tmp
/tmp/gcs.dx.guiding.20220125osurc.tmp
ellipticity & arcsec FWHM
Time (hours [UT]) for MJD 59604
from the GCS telemetry data assuming magnitude zeropoint of 28
flux (R magnitude)
Time (hours [UT]) for MJD 59604
positions relative to hotspot (points), reference line (dotted), integrated corrections (dashed)
Xrms= 0.132995
0.152626
Yrms= 0.136186
0.230787
X-0.5 / Y-0.5 centroids (arcsec)
Time (hours [UT]) for MJD 59604