OSURC Nightlog 20220323 UT

Observer*: Olga Kuhn
Lead Partner Observer*: Peter Garnavich
Other Partner Observers*: Emily Griffith, Miqaela Weller (OSU)
Special Assistants*:
AO Operator*:
Telescope Operator: Josh Williams
*** = from home**

Plan:

Start with MODS:
  ND_V808 (if winds are acceptable)
 OSU_ASASSN/NGC5273 (support SWIFT TOO)
LUCI after Moon rise

Summary:

The conditions were not very favorable: the seeing was ~2-3" all night, there were high winds and, for a short while, cirrus, but nevertheless a few targets were observed, none strictly within their weather constraints. We started with MODS and observed OSU_XMDs_MODS/DDO68 and OSU_ASASSN/ASASSNci. We tried NGC5723, but it was still rising and pointing into the NNE wind. The wind speeds rose and we had to close for 2h20m. When we reopened, we observed Feige 67 and switched to LUCI for OSU_XMDs_LUCI/UM570 and its telluric. We then reconfigured to MODS to try again to get NGC5723, which by that time was pointing out of the wind. We tried a final PEPSI target, but could not get it before it got too light.

At the end of the night, I repeated the G200 zJ 1" slit flats and arcs, since I had realigned the LUCI2 field stop the night before.

Issues:

There was one more instance of the error in configuring the detector (IT 8603), this time with LUCI1. PEPSI-PFU SX AzCam7 had to be rebooted. Otherwise no instrument issues.

With the programs, there was some uncertainty about the position angle needed for NGC5723; we first had changed it to match the parallactic but then settled on the PA in the original script because of the hour angle constraints. Unfortunately, it had to be observed starting at HA=2.5.

Weather:

2.3 hrs (from 05:10-07:31) lost when we had to close for high winds, gusting above 22 m/s. Additional time was lost when two targets had to be abandoned due to to high winds at the adSec.The observations were not started, but some time was spent slewing to and acquiring them.

Preparations:

luci[1|2].20220323.0NNN.fits
mods[1|2][b|r].20220323.NNNN.fits

Last night I realigned the LUCI2 field stop; the pupil was well aligned. The field stop was offset by +28,-10 pix (X,Y). I checked the FS alignment once again this evening since the N30_fieldstop was still in place. It looks fine. There were some unexplained shifts in the LUCI2 field on 20220319 - Dave has been looking into this. It may be the camera wheel(that could cause a vertical field shift). He said there were no fold mirror motions that would have explained the 70 pix shift seen, and uncompensated flexure should only produce shifts of ~6 pix.

LUCI1: I checked the FS alignment. The FS is centered at 1032, 1043. It is pretty close, but it has moved up since the evening of 20220319 when the N30 FS was centered at (1030, 1033). The 20220319 UT data and calibrations match, but the 20220320 data are shifted up by about 10 pixels.

Overview (times are given in UT):

01:35 Josh opened the enclosure

01:36 sunset

02:00 Josh checked and corrected the pointing. Now going to a collimation star. The WFS Shack spots have an average FWHM ~ 1.25 (SX) and 1.05 (DX).

ND_V808

not observed - pointing into the wind

02:10 acqBinoMODS v808_pa0.acq

m1r: 3,4→ 5 dx = -0.21" → 6 looks ok
m2r: 3,4 →5 dx=0.21" → 6 dx=-0.123" → 7, looks ok

02:26 12-deg twilight

The SX M2 shell ripped - we have to move out of the wind. Gusts at M2 were exceeding 6 m/s.

OSU_XMDs_MODS/DDO68

02:40 acqBinoMODS DDO68_0300UT.acq
m1r: 7,8 → offsetxy -0.474 10.960 rel → 9 dx = -0.123" → 10, still may be a tad to the right, but it is OK.
m2r: 8,9 → offsetxy 3.535 8.383 rel → 10, looks good

02:44 During the acquisition, the average FWHM of the Shack spots is ~1.1" and on the guide images, ~1.5".
02:55 18-deg twilight

02:57 execBinoMODS DDO68.obs

	m1b	m1r	m2b	m2r	AM	seeing
02:57	3-6	11	3	11	1.149	1.51" guiders 1.12" WFS

03:14 Average FWHM on the guide cameras is ~1.7" and on the WFS images 1.15" (when seeing is poor, the FWHM of the Shack spots don't give an accurate seeing estimate - there is not enough background. I'm unsure what the threshold is, though).
Zenith-corrected DIMM seeing is 1.8-2".

03:21 First spectra read out - we see Halpha, Hbeta/[OIII] - [NII] not visible in the first MODS1R spectrum.
03:31 Seeing is better - now ~1.37" on the guiders. DIMM reads 1.41" for zen-corrected seeing.

04:00 The 3rd exposures are almost done. Seeing is back to 1.6". We'll take a 4th set.

OS_ASASSN/ASASSNci

04:28 acqBinoMODS ASASSNci_edit.acq

We modified the POSANGLE from 95 to 75 to better match the parallactic angle at the midpoint and we had to select a new guide star (R=14.1)

No guide star was found on the left side. Josh is checking pointing.

04:38 (start time of first image) acqBinoMODS ASASSNci_edit.acq
m1r: 15,16 → offsetxy -0.298 9.964 rel → 17 → dx = -0.123 → 18
m2r: 15,16 offsetxy 4.015 6.642 rel → 17

04:51 execBinoMODS ASASSNci.obs

UT	m1b	m1r	m2b	m2r	AM	seeing
04:51	7-(8)	19-(20)	7-(8)	18-(19)	1.206	1.8/2 SX/DX

04:59 Seeing is about 1.84/1.94" on the guiders. The wind speeds are skirting limits. At the adSec, they are OK.
05:06 The first exposures are done - the guide star on SX jumped a bit. Winds are high, ~20-21 m/s outside and they are starting to skirt the 6 m/s limit at the adSec. Both guiders are jumping.

05:09. We had to move out of the wind. I stopped the 2nd set of exposures about midway through.

05:10 Josh is closing - there was a wind gust up to 25 m/s.

07:31 Josh is opening again - the wind speeds have been below limits for 20 min.

OSU_ASASSN/NGC5273

not observed - pointing into the wind

Edited the POSANGLE from 105 to 80 to better match the parallactic angle at the midpoint of the observation and selected a new guide star.

07:42 acqBinoMODS NGC5273_edit.acq

The guide star was in the middle of the acquisition image, but it was fuzzy - the preset failed with no guide star found. Verified with SDSS Finding Chart tool that the guide star is a star, not a galaxy.
The target is in the NE and now the wind is coming from that direction. The winds are too strong at the adSec. The adSec RIP'd.

Feige67

07:55 Josh is correcting pointing and collimating near Feige 67. The seeing has gotten worse since we closed and is now 2-2.5".

m1r: 21 → offsetxy -0.716 12.038 rel → 22
m2r: 20 → offsetxy -0.716 12.038 rel → 21 → offsetxy -0.437 0.009 rel → 22

08:13 execBinoMODS feige67_DualGrating.obs

UT	m1b	m1r	m2b	m2r	airmass	seeing SX/DX
08:15	9-11	23-25	9-11	23-25	1.039	2.2/2.4"

08:28 Finished

Reconfiguring from MODS → LUCI

08:29 Starting to reconfigure. The DX primary panicked - reason unknown but looks like there was a lot of 3rd order spherical being driven in.

08:43 Josh is going to a star near the first LUCI target to correct pointing.
08:53 Collimation - Seeing is even worse here, ~ 2.6".

OSU_XMDs_LUCI/UM570

UM570

08:55 Starting the acquisition.
L1: 4 & 5, 6 → 0.417", -0.2486" to put target at X,Y = 1029.61, 1048.62 (the field is shifted up ~10pix) → 7
L2: 4 & 5, 6 → -0.0893",-0.5688" to put target at X,Y = 1026.14, 1037.82 → 7

It's hard to see the target through the slit on the confirmatory through-slit image. For unknown reasons, I have been noticing that it's harder to see objects on the LUCI2 through-slit images than on LUCI1 (for this run and previous ones) - the background in the subtracted image &7 minus 4) seems noisier.

09:15 Starting to take spectra. No - we had the "failure to set MER, 10" error, this time on LUCI1. I aborted the LUCI2 exposure and restarted at 09:20.

UT	L1	L2	AM	Seeing SX/DX
09:20-10:12	9-14	8-13	1.234	2.1 / 2.0

We see at least 3 emission lines in the first L1 and L2 spectra.

09:53 The seeing is mostly ~2" but puffing up to 3" at times. There is some cirrus visible on the allsky image now.

HIP67004

10:25 Slewing to the target. I changed the script to set DIT=2.51 and NDIT=1. It was DIT=5, NDIT=1. The star has V=6.5. The poor seeing & clouds may "help".

L1 15, 16 → -9.5819, -0.1520" to put star at X,Y = 1032.67, 1051.95 → 17
L2 14, 15 → -8.6061, -0.49 → 16

UT	L1	L2	AM

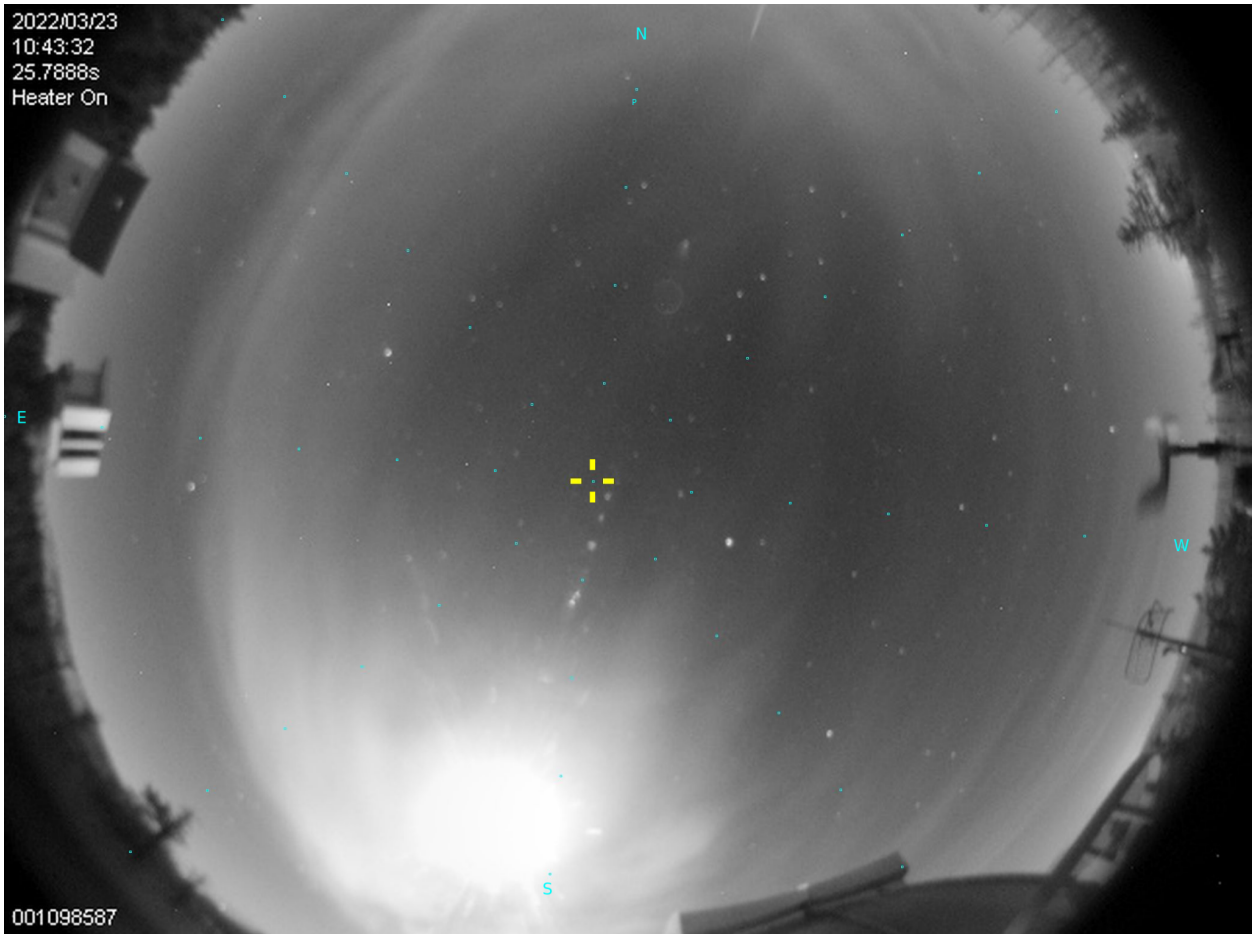
10:33	18-19	17-18	1.38

The spectrum is not saturated - about 5000-6000 counts in the peak.

Reconfiguring for MODS

10:38 Starting to reconfigure.
10:49 Sending pointing preset.

Now that NGC5273 has crossed the meridian and the wind is still coming from the NE and has gone down a little bit, we'll try this again.



OSU_ASASSN/NGC5273

04:01 acqBinoMODS NGC5273_edit.acq (PA=105, but I chose a new guide star)

We decided to use the supplied PA=105. The HA range of -4.5 to 2.5 and the instructions in the readme to change the PA to match the parallactic are inconsistent, but it seemed like a PA=105 deg might have been desired.

m1r: 26, 27 → 28, dX=-0.18" → 29
m2r: 26,27 → 28, dx=-0.06" → 29

04:12 execBinoMODS NGC5273_edit.obs (corrected the object name in the supplied script).

UT	m1b	m1r	m2b	m2r	AM	seeing
11:12-11:39	12-17	30-35	12-17	30-35	1.15	2.1 / 2.2
11:39-12:03	18-21	36-39	18-22	36-41	1.226	2.2"

11:57 18-deg twilight

Reconfiguring to PEPSI

Starting at 12:05
Needed to reboot AzCam7
Finished reconfiguring at 12:17

12:18 Josh is sending the pointing preset. The star was not immediately found on the right side.
~12:30 Ready to start the exposure, but 1) the WFS is not collimating and 2) it's getting too bright. We're going to close up.
12:26 12-deg twilight
12:44 Josh is closing up.

13:16 sunrise

Closed-Dome Calibrations

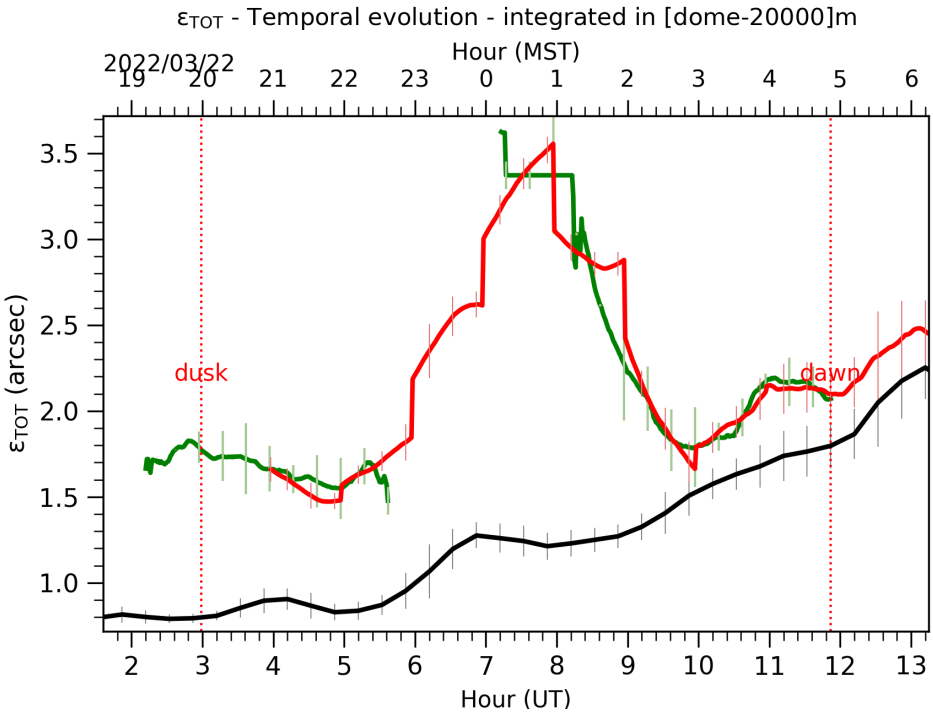
LUCI

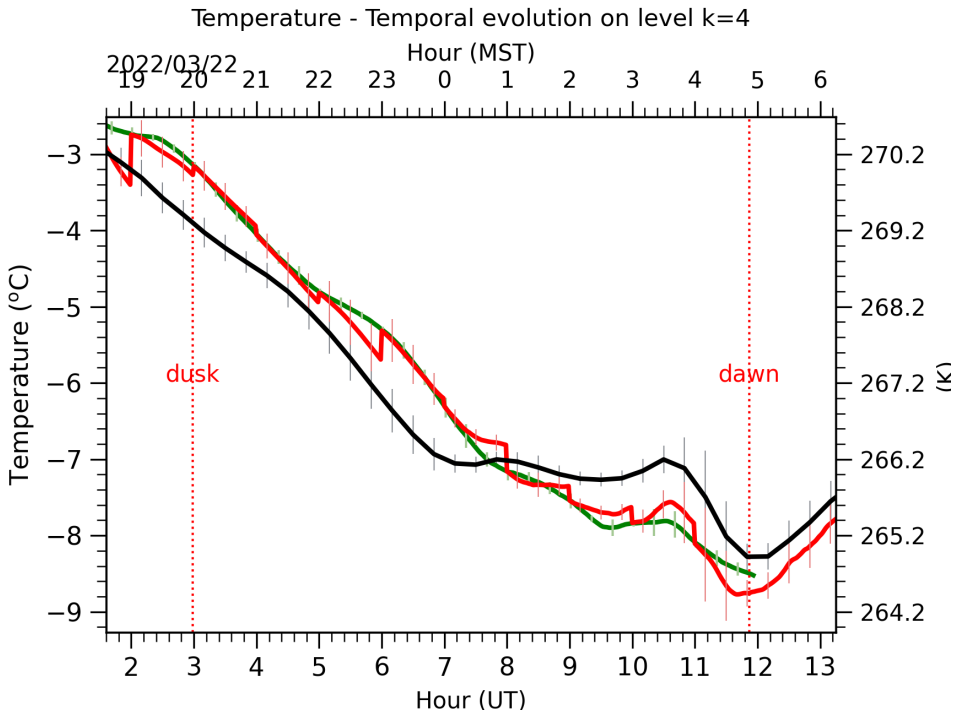
Taking a new set of G200 1" zJ flats since I adjusted the field stop on LUCI2 last night.

luci#.20220323.00NN.fits

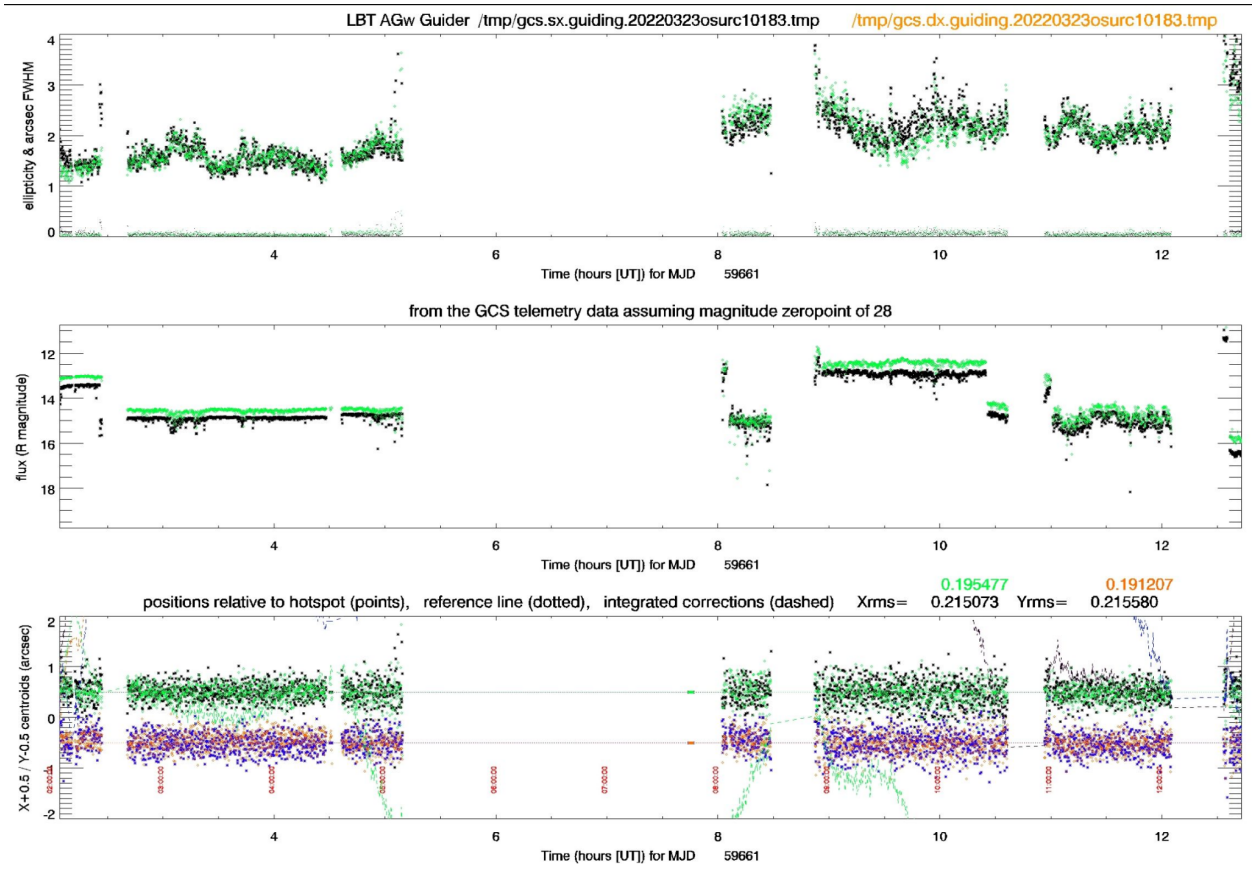
Calibration Type	Lamp (luci1/luci2)	L1	L2
G200 zJ 1" flats and arcs	lamp off halo2/halo1 on lamp off Ne lamp off Ar	20-24 25-29	21-25 26-30 31-32 33-34 35-36 37-38

ALTA predictions




Temperature - Temporal evolution on level k=4
2022/03/22
Hour (MST)
19 20 21 22 23 0 1 2 3 4 5 6
−3 −4 −5 −6 −7 −8 −9
Temperature (°C)
270.2 269.2 268.2 267.2 266.2 265.2 264.2
(K)
dusk
dawn
2 3 4 5 6 7 8 9 10 11 12 13
Hour (UT)

LBTplot


LBT AGw Guider /tmp/gcs.sx.guiding.20220323osurc10183.tmp /tmp/gcs.dx.guiding.20220323osurc10183.tmp
ellipticity & arcsec FWHM
Time (hours [UT]) for MJD 59661
from the GCS telemetry data assuming magnitude zeropoint of 28
flux (R magnitude)
Time (hours [UT]) for MJD 59661
positions relative to hotspot (points), reference line (dotted), integrated corrections (dashed) Xrms= 0.215073 0.195477 Yrms= 0.215580 0.191207
X+0.5 / Y-0.5 centroids (arcsec)
Time (hours [UT]) for MJD 59661