# OSURC Nightlog 20220320 UT

**Observer*:** Olga Kuhn
**Lead Partner Observer***: Dragon Reed (UM)
**Other Partner Observers***:  Subhash Bose (OSU)
**Special Assistants*:**
**AO Operator*:**
**Telescope Operator**: David Gonzalez Huerta
*** = from home**

## Plan:

Due to cloud conditions:
Stick to LUCI not MODS because of moonlight (2d past full, 95% illuminated)
Observe UM_Flashlights and telluric
Priority after are the shorter OSU_BALQ targets
Alta forecast doesn't look great but it might be better at sunset than later

## Summary:

Started with UM_Flashlights, but we had to stop at 05:09 UT due to a high wind warning from the south (adaptive secondary protection). Got just short of 2h of spectra (0252-0442).  Then observed OSU_BALQ/J0839, and obtained 3 spectra before being forced to close due to high winds. We then took closed dome calibrations for LUCI (mask calibration), MODS (pixel flats, lamps, slit flats and biases) and LBC (biases), finishing at twilight.

## Issues:

At 02:52, L1:  Error: detector focus; L2: Grating would not stabilize. The elevation was too high for grating stabilization.
At 04:14 Losing guide star
At 04:45: Sent a fraternal LUCI MOS acquisition, and with a large initial offset, the offset sent the mirror into the limits.

# Weather:

The night started well, with mostly clear skies and sub-arcsecond seeing, however clouds started to come in not long after twilight and, at times, there were 2.5-3 magnitudes of extinction. At 05:55 UT we closed for clouds and high wind. The clouds and wind speeds both increased during the night and we never reopened.

# Preparations:

**luci[1|2].20220320.0NNN.fits**
**mods[1|2][b|r].20220320.NNNN.fits**

# Closed Dome Calibrations

## LUCI

The UM_Flashlights flats and arcs were done.

## PEPSI

## MODS

Most MODS calibrations were done. See the end of this log.

# Overview (times are given in UT):

01:34 sunset

01:39 David opened and checked pointing and collimated. Seeing is sub-arcsecond.

02:24 12-deg twilight

# UM_Flashlights/

1:59 Started the science script - acquiring.
L1:  4 & 5, 6 →
L2:  4 & 5, 6 →

I needed to use the old rtd to do the alignment. The sky brightness was high at the start, possibly affecting collimation & making the thru-slit confirmation difficult - the sky background was high for the first field image. Also the filters were zJspec and HKspec for the imaging. Repeating with J and H as filters and with better IQ (guide star FWHM now stable at 0.9/0.8").

Good solutions with low RMS, but it was hard to judge from the L1 thru-slit what offsets if any were needed to fine-tune the alignment. Also - unclear why 33 was not used for L1.


L1: 8 & 9, 10 → 11 the two stars in the upper left are a bit to the left, but the bright star in the upper right is about centered. Not applying an offset.
L2: 8 & 9, 10 → 11 tweak it by -0.06, 0.18 as this seems to apply to all stars. → 12. Looks better.

02:53 18-deg twilight
02:41 recentering targets again because they are slightly off DX side
02:43 SX 0.66, DX 0.90

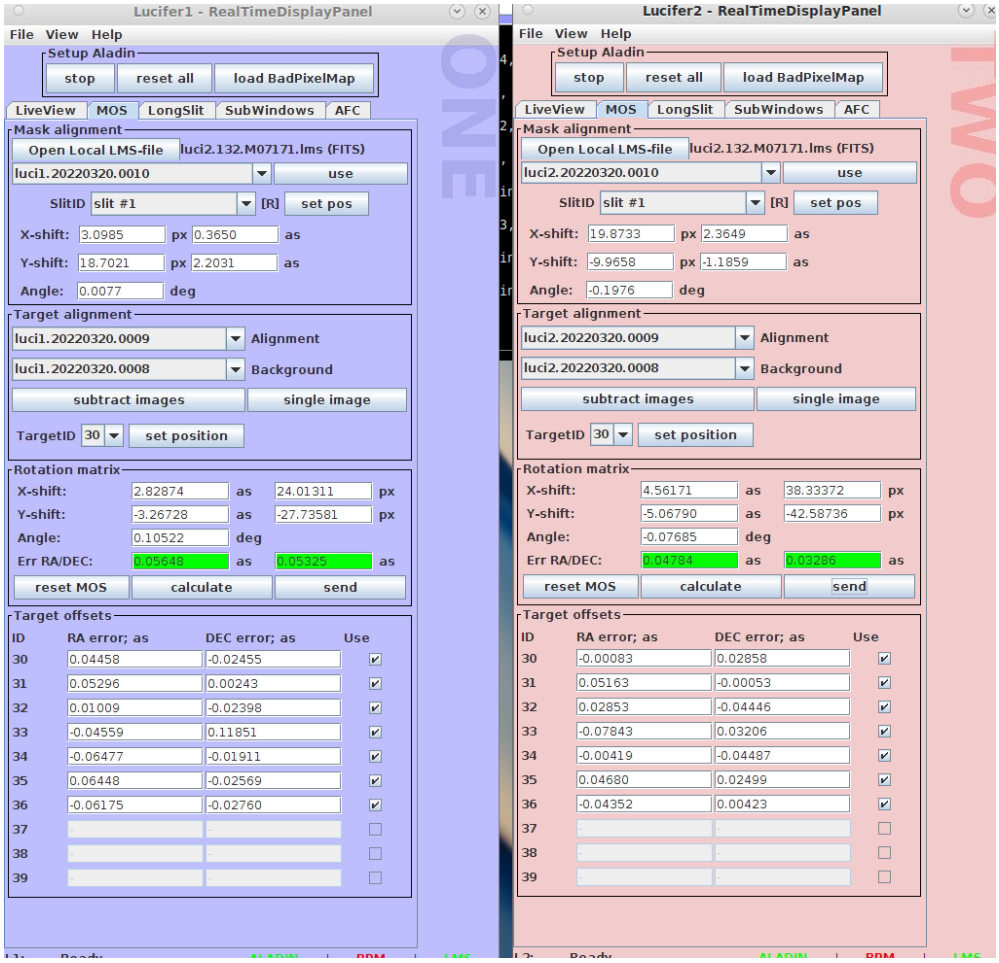
02:49 Starting the science.
02:52 Regenerated scripts for observing Flashlights, changed filters from K acquisition to J and H. The dither pattern is unusual, though, not ABBAABBA, but ABBABBABB… There is a different between the scripts regenerated from the OT file and the supplied scripts.

02:53 Not getting grating tilt properly L2. Pausing both sides.

L1: Error: focus grating; Initialize detector focus L1
L2: Toggling grating unit to mirror, going back to grating

L2: Issue understood: we are at high elevation so it is difficult to stabilize the grating close to the zenith.

02:57 I moved one filter in L1 to blind and so that the instrument configuration could be resent - to make sure the detector focus was being set.
02:58 Taking data on L1, but grating tilt is not setting for L2 (it finally set at 1.93 mic for HK once the elevation had gone down to about 84:30 deg or 84:20 deg).

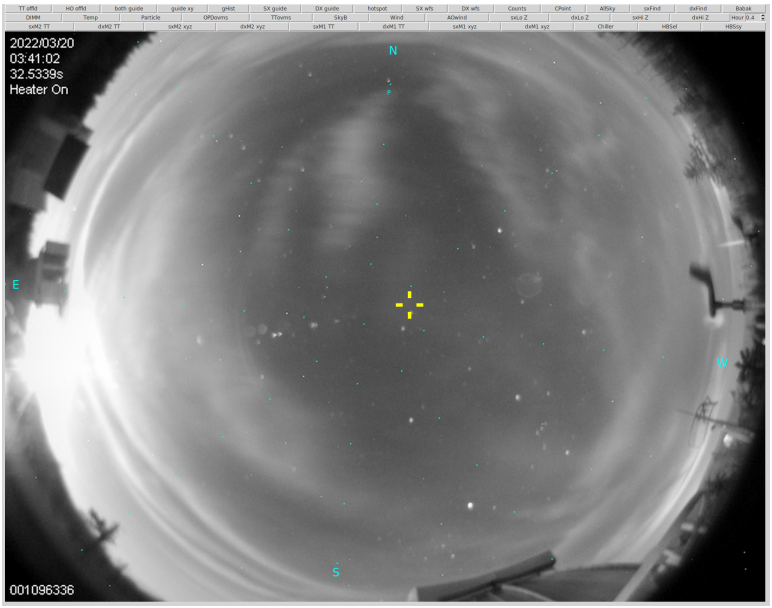



| G200 zJ spec 1.17 micron | G200 HK spec 1.93 micron |
|---|---|
| **L1** | **L2** |
| 14-41 | 15-40 |

03:43. FWHM on the guiders is ~0.75", but cirrus is coming. Taking L1 27, L2 26; SX 0.72, DX 0.78

04:14 SX 1.03, DX 0.7, losing guide star on the Left

04:20 About 2.5 magnitudes of extinction, losing guide star on the left,, SX 0.74, DX 0.70




04:22 We have about 2.5-3 mags of extinction.

04:30 The guide signal has recovered.

04:40 Clouds are coming once again. We'll pause and move on to the telluric.

Regenerated the telluric script, blinds in
4:45 Slewing to Telluric
4:46 Warning: Problem with tip-tilt request for psf right side

Right synchronous offset command for lucifer,
04:58 Writing manually, giving preset w/o offset, we don't know why the normal preset with offset does not work. The PSF DX pointing offsets order -70 +30" when the mirror hit the limits.

5:04 Preset sent from IRAF didn't work either.

I regenerated the script, this time removing the initial offset. Slewed without a problem.
5:09 Sending Synchronous offset through the telsvc gui, this completed without issue; wind warning we have to move away from the position

The wind is from the SSW - we'll need to avoid pointing into it.

## OSU_BALQ/J0839

05:22 Slewing
L1: 44 & 45, 46 → -0.2191, -1.4772" to put star at X,Y = 1033.06,1033.68 → 47

L2: 43 & 44, 45 → -0.4106, -1.6850" to put star at X,Y = 1045.81, 1022.00 → 46

Both L2 46 and L1 47 look good.

05:38 Starting science. We obtained 3 spectra before we had to close for winds.
L1: 48-50
L2: 47-49

05:55 Closing due to high winds

# Closed Dome Calibrations

## LUCI

06:38 Starting LUCI calibrations.

UM_Flashlights flats and arcs

| | L1 | L2 | Comments |
|---|---|---|---|
| UM_Flashlights/ fraternal_masks.cal | 51-55 halo2 off<br>56-6018 halo2 on<br>61-70 arcs on&off | 50-54<br>55-59<br>60-69 | Checked that there was no field shift between sci & cals and checked wavelength ranges. Some Xe arc lines were very bright in LUCI1 |

## MODS

| | m1b | m1r | m2b | m2r |
|---|---|---|---|---|
| pixflats dual | 1-4<br>5-9 | 1-4 | 1-5<br>6-10 | 1-5 |
| comp lamps dual | 10-12 | 5-7 | 11-13 | 6-8 |
| 1” slit flats | 13-18 | 8-13 | 14-19 | 9-14 |

| | | | | |
|---|---|---|---|---|
| 8K biases | 19-23 | 14-18 | 20-25 | 15-20 |
| 1K biases | 24-28 | 19-23 | 26-30 | 21-25 |
| 3K biases | 29-33 | 24-28 | 31-35 | 26-30 |
| 8K Biases bin 1x2 | 34-38 | 29-33 | 36-39 | 31-34 |
| 0.8 arcsec Slit Flats bin 1x2 | 39-44 | 34-39 | 40-45 | 35-41 |
| Pixel Flats bin 1x2 | 45-54 | 40-44 | 46-55 | 42-45 |
| 1.2” Slit Flats | 55-60 | 45-51 | 56-61 | 46-51 |
| 5” Slit Flats | 61-3<br>64-66 | 52-54 | 62-67 | 52-54 |

## LBC

11:49 Taking 25 biases on LBCR and LBCB.

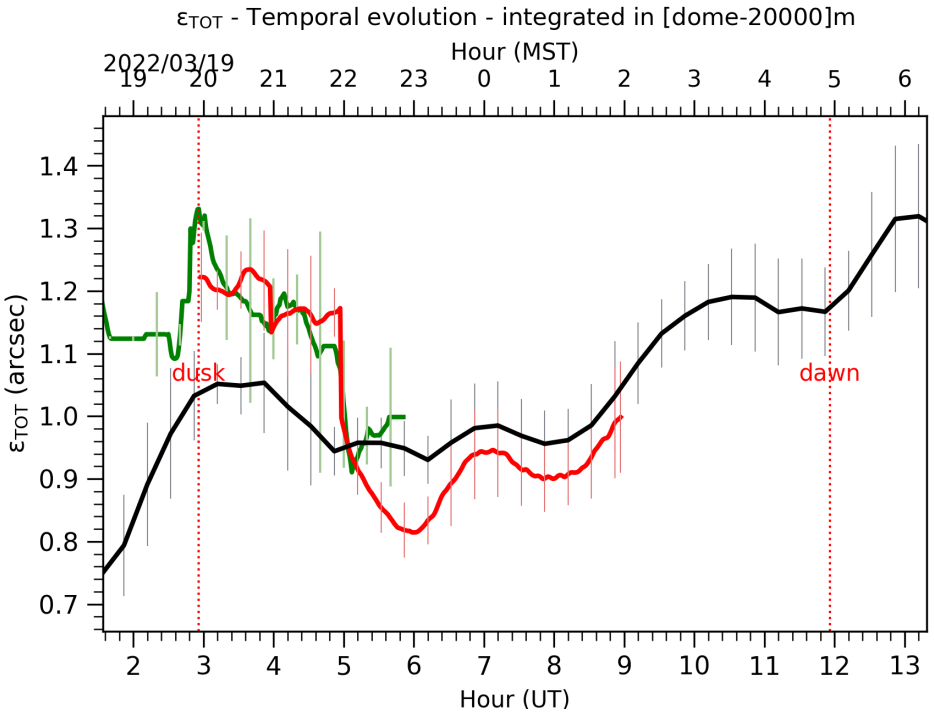
12:01 18-deg twilight

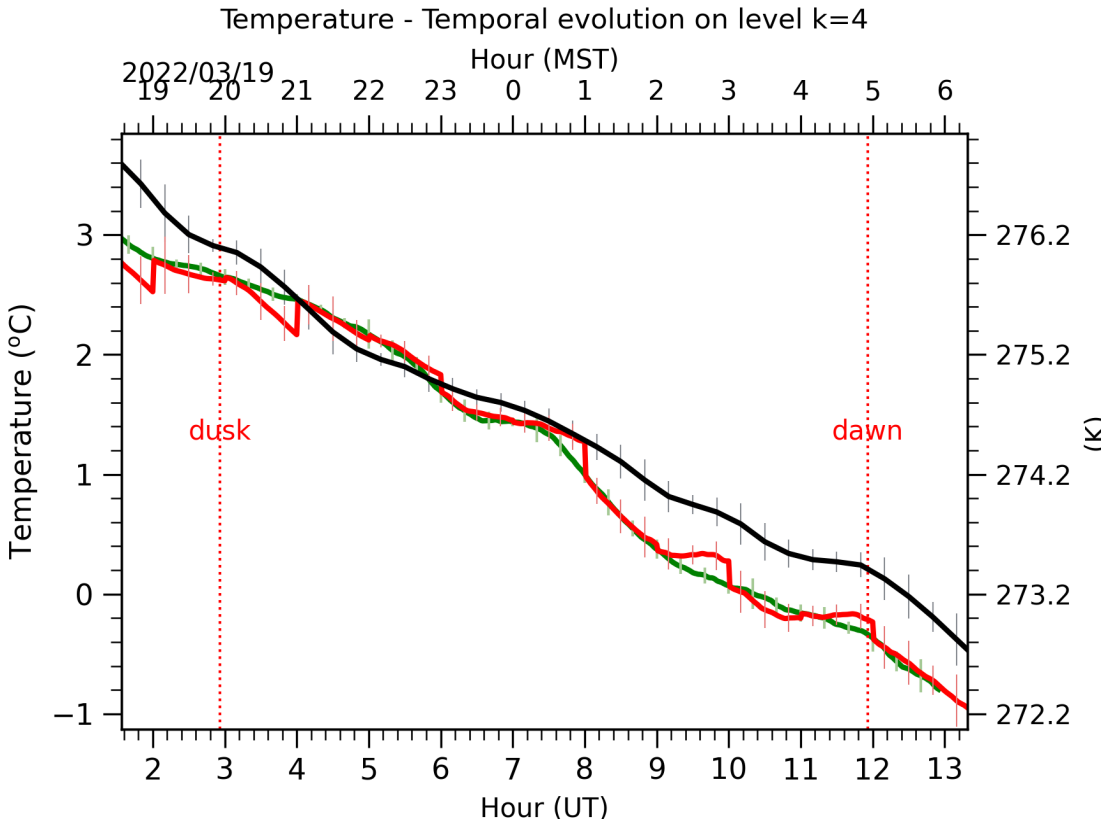
12:10 Still too windy to take any observations

12:30 12-deg twilight

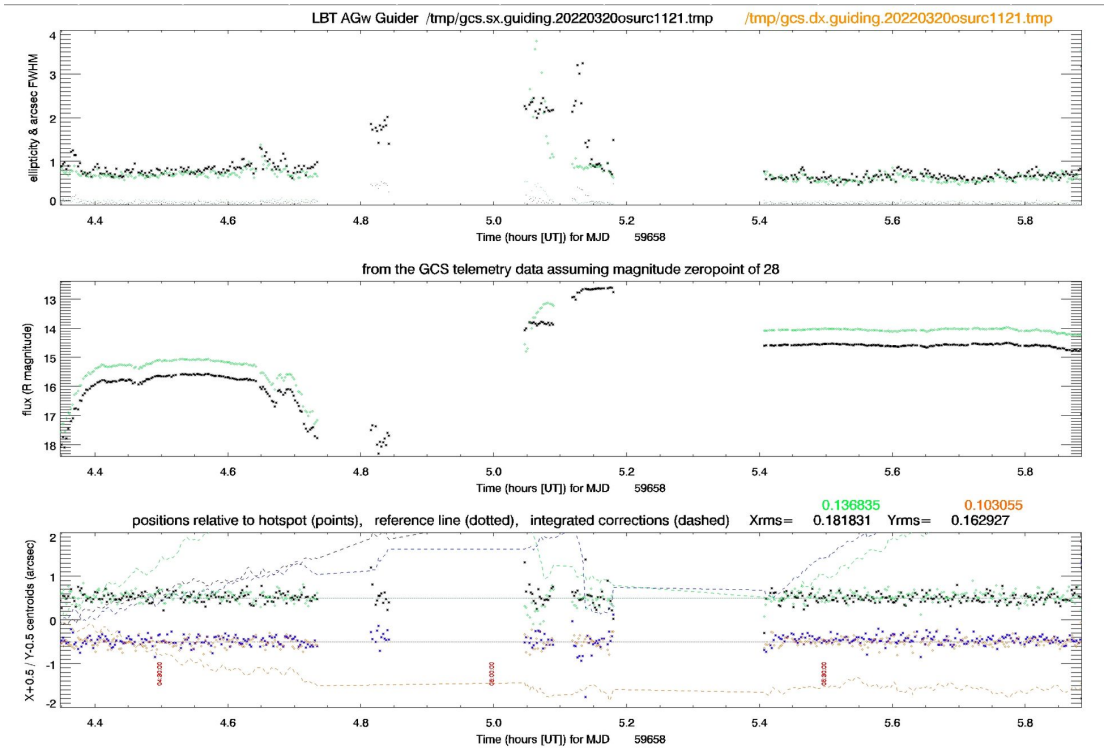
13:20 sunrise

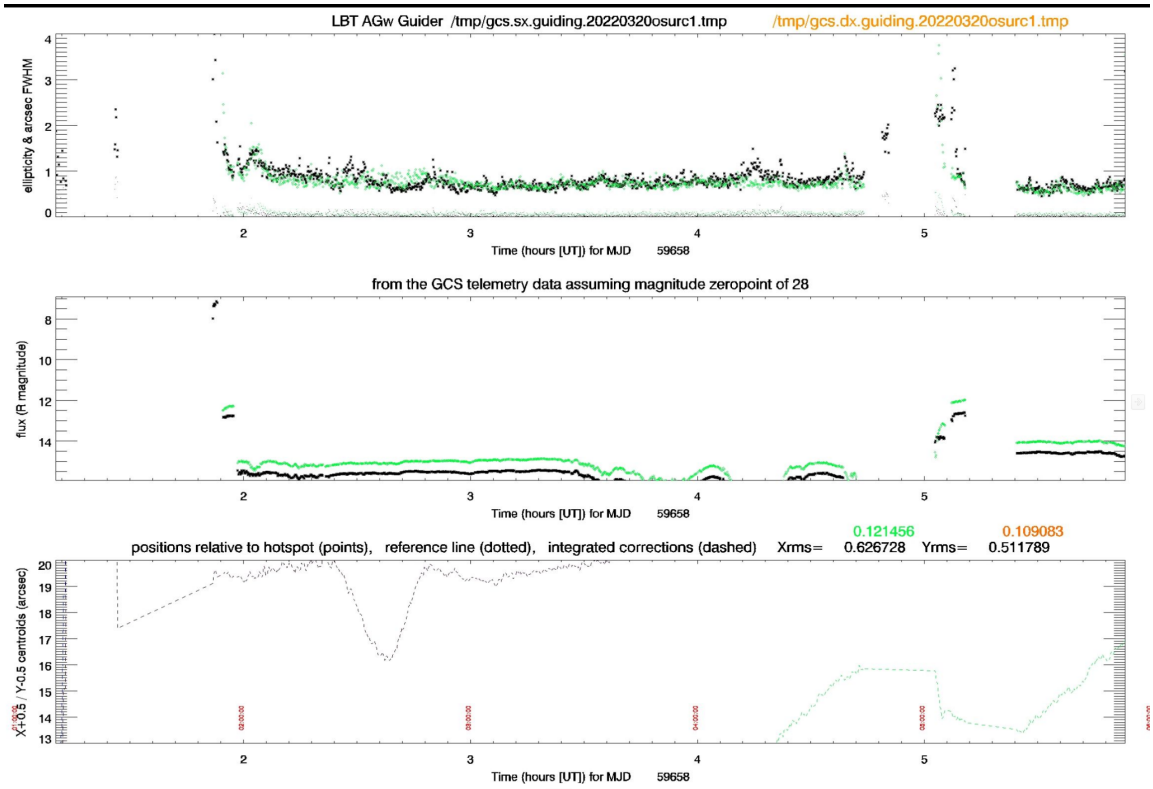
# ALTA predictions



# LBTplot


LBT AGw Guider /tmp/gcs.sx.guiding.20220320osurc1121.tmp /tmp/gcs.dx.guiding.20220320osurc1121.tmp
ellipticity & arcsec FWHM
Time (hours [UT]) for MJD 59658
from the GCS telemetry data assuming magnitude zeropoint of 28
flux (R magnitude)
Time (hours [UT]) for MJD 59658
positions relative to hotspot (points), reference line (dotted), integrated corrections (dashed)
0.136835
0.103055
Xrms= 0.181831 Yrms= 0.162927
X+0.5 / Y-0.5 centroids (arcsec)
Time (hours [UT]) for MJD 59658


LBT AGw Guider /tmp/gcs.sx.guiding.20220320osurc1.tmp /tmp/gcs.dx.guiding.20220320osurc1.tmp
ellipticity & arcsec FWHM
Time (hours [UT]) for MJD 59658
from the GCS telemetry data assuming magnitude zeropoint of 28
flux (R magnitude)
Time (hours [UT]) for MJD 59658
positions relative to hotspot (points), reference line (dotted), integrated corrections (dashed)
0.121456
0.109083
Xrms= 0.626728 Yrms= 0.511789
X+0.5 / Y-0.5 centroids (arcsec)
Time (hours [UT]) for MJD 59658