LBT Observing Log for 2024 11 23 UT

Observers: Justin Rupert
Partner Observer: Mark Whittle, Ilya Ilyin, Dom Rowan
Telescope Operator: Josh Williams

Plan:

~UT 1:00
OSU-PETS
    TOI 1518 [done] Extended exposure following PI suggestion from 3.3 hours to 4.0 hours.
~UT 5:00
UVa TIC (~0.3 hrs)
    2839 [done] but may revisit on future nights.
    3071 [done] but may revisit on future nights.
~UT 5:30
OSU Clusters: (~2.2 hours total)
    0322+4606 [done]
    0321+4835 [done]
    0344+5132 [done]
    0307+4905 [done] UT 06:00
    0308+4808 [done] UT 06:10
    0326+4902 [done] UT 06:32
    0344+4839 [done] UT 06:43
    0345+4724 [done] UT 06:55
    0317+5241 [done] UT 07:08
    0340+4804 [done] UT 07:19
~UT 7:30
UVa TIC (~0.3 hrs)
    4541 [done] UT 07:31
    3368 [done] UT 07:40
~UT 7:45
OSU BHBinaries: (~2.5 hours total)
    J0534-0020 [done]
    J0646+0109 [done]
    J0651-1329 [done]
    J0700-1226 [done]
    J0753+0408 [done]
    J0827+2157 [done]
    J1047+4815 (dropped for time)
~UT 10:00
Decided ND_RPED-7 & OSU_LiDwarf0844 were too close to the moon (22 & 30 deg)

Change to LUCI:
OSU_XMD [problem with scripts - fixed during the day after]
        SBS0926 (1.5hr)
~UT 12:00
        IZw18 (1.5hr)
~UT 13:30
Change plan:
UT ~ 10:30
UVa_nirjets
        AFGL5180 [done]
OSU_SCAT
        Ufx Elevation drive failed, aborted UT 12:17.
Back to PEPSI:
OSU_BHBinaries

12-deg Twilight UT 13:00

Fill remaining time with medium and low BHBinaries targets:
J0807+6945 [done]
J0737+2825 [done]
J06170689+2343487[done]
J07583938+2601243 stopped here
J07323632+2339511
J07374788+2034048
J07415562+3024101
J07565331+3719443
J07591854+5039026
J07464855+5422143

Summary:

- TIC 3071…(UT 05:17-05:29)
- OSU_Clusters
  - GDR3 24273…(UT 05:29-05:40)
  - GDR3 43561…(UT 05:40-05:49)
  - GDR3 25148…(UT 05:49-05:58)
  - GDR3 43625…(UT 05:58-06:09)
  - GDR3 43594…(UT 06:09-06:20)
  - GDR3 44145…(UT 06:20-06:32)
  - GDR3 24875…(UT 06:32-06:43)
  - GDR3 24832…(UT 06:43-06:55)
  - GDR3 44607…(UT 06:56-07:08)
  - GDR3 24862 (UT 07:08-07:19)
- UVa_Multistar
  - TIC 4541…(UT 07:19-07:31)
  - TIC 3368…(UT 07:31-07:40)
- OSU_BHBinaries
  - J0534-0020 (UT 07:41-08:04)
  - J0646+0109 (UT 08:04-08:41)
  - J0651-1329 (UT 08:41-09:13)
  - J0700-1226 (UT 09:13-09:29)
  - J0753+0408 (UT 09:29-09:50)
  - J0827+2157 (UT 09:51-09:59)
- OSU_XMD
  - SBS 0926+606 (UT 10:12-10:28) NOT OBSERVED
- UVa_nirjets
  - AFGL5180 (UT 10:28-12:00)
- OSU_SCAT
  - 2023ufx (UT 12:00-12:17) NOT OBSERVED - wind
- OSU_BHBinaries
  - J0807+6945 (UT 12:38-12:49)
  - J0737+2825 (UT 12:49-13:00)
  - J0617_2343 (UT 13:00-13:09)
  - J0758+2601 (UT 13:09-13:15)
  - J0732+2339 (UT 13:15-13:21)
  - J0737+2034 (UT 13:21-13:25)

Moon (0.5 illumination) in the second half, so limited to PEPSI or LUCI (decided ND-RPED targets too close to the moon). Also, time-critical OSU_PETS targets at the start of night.

Good night overall. PEPSI for most of the night. Switched to LUCI for OSU_XMDs but problems with acquisition scripts; completed UVa_nirjets target but elevation drive failed on OSU_SCATufx, so aborted and with ~1 hour remaining, we returned to PEPSI to finish the night.

Got ~4 hours on OSU_PETS TOI-1518; ~2.2 hours on OSU_Clusters (10 targets); ~0.5 hours on UVa_Multistar (4 targets); ~2.8 hours on OSU_BHBinaries (9 targets); ~1.3 hours on UVa_nirjets.

Issues:

Pepsi software hung early in the night. Had to be killed and restarted.
Script issues with LUCI spectroscopy targets. Missing the slit images in the acq portion.
EL drive experienced high torques near the end of the night. Possibly wind? Possibly telescope balance?

Weather:

Clear throughout the night. Some light cirrus at the start. Seeing around 1 arcsec with period UT 4-6 when it was about 1.5.

Overview (times are given in UT):

00:33 Pointing check.

00:37 Going to a brighter pointing star. Didn't see the first target. Got it.

00:39 Checking pointing with the first, dimmer star.

00:41 Checking pointing one one more, even dimmer, star.

00:43 Collimation check.

OSU_PETS

TOI 1518 (UT 00:45-05:03)

00:45 Preset.

00:47 Starting science. Seeing is 0.8" on the guider. Well, we thought. Seems the "Start" button isn't starting the exposures.

00:52 Ilya is killing the software with the killPEPSI command.

00:55 Starting science for real. Skies are clear.

01:10 12-degree twilight

01:40 18-degree twilight. Seeing is 1.2” on DIMM, 0.7” on guider.

02:28 Seeing is 1.2” on DIMM, 0.7” on guider.

02:40 SNR has dropped under spec. Seeing has degraded slightly (1” on DIMM, 0.9” on guider).

03:00 Seeing is 1.5” on DIMM, 1.1” on guider.

03:08 PI has confirmed that SNR is fine.

03:20 We realized we have been taking 200-second images, when they are supposed to be 250 seconds. SNR is still fine so we’ll add more exposures to reach the total exposure time the PI desires. We decided to go beyond the 3.3 hours of the OB but less than continuing to the 30-deg limit (so 4.0 hours instead of 3.3, but not 7 hours).

03:51 Seeing is 1.1” on DIMM, 0.9” on guider.

04:24 Seeing is 1.6” on DIMM, 0.9” on guider.

04:55 Seeing is 1.4” on DIMM, 1.2” on guider.

UVa_Multistar

TIC 2839…(UT 05:03-05:17)

05:03 Preset.

05:04 Starting science. Seeing is 1.4” on DIMM, 1.1” on guider.

05:07 SNR goal is 100, but we only got 50. Quadrupling exposure time to five minutes.

TIC 3071…(UT 05:17-05:29)

05:17 Preset.

05:18 Pointing check. Missed the target.

05:21 We’re learning the exposure time of this object may not be correct either. Presetting back to target.

05:22 Starting science. Seeing is 1” on guider.

05:29 SNRs were ~200.

OSU_Clusters

GDR3 24273…(UT 05:29-05:40)

05:29 Preset.

05:32 Starting science. Seeing is 1.5” on DIMM, 1,2” on guider.

GDR3 43561…(UT 05:40-05:49)

05:40 Preset.

05:41 Starting science. Seeing is 1.3” on guider.

GDR3 25148…(UT 05:49-05:58)

05:49 Preset.

05:50 Starting science. Seeing is 1.6” on DIMM, 1” on guider.

GDR3 43625…(UT 05:58-06:09)

05:58 Preset.

06:01 Starting science. Seeing is 1.6” on DIMM, 1” on guider.

GDR3 43594…(UT 06:09-06:20)

06:09 Preset.

06:11 Starting science. Seeing is 1.7” on DIMM, 0.9” on guider.

GDR3 44145…(UT 06:20-06:32)

06:20 Preset.

06:22 Starting science. Seeing is 1.3” on DIMM, 0.9” on guider.

GDR3 24875…(UT 06:32-06:43)

06:32 Preset.

06:34 Starting science. Seeing is 1” on guider.

GDR3 24832…(UT 06:43-06:55)

06:43 Preset.

06:45 Starting science. Seeing is 1.1” on DIMM, 0.8” on guider.

GDR3 44607…(UT 06:56-07:08)

06:56 Preset

06:58 Starting science. Seeing is 0.9” on guider.

GDR3 24862 (UT 07:08-07:19)

07:08 Preset.

07:09 Starting science. Seeing is 0.8” on guider.

UVa_Multistar

TIC 4541…(UT 07:19-07:31)

07:19 Preset.

07:23 Starting science. Seeing is 0.8” on guider. S/N 200 (blue) 240 (red)

07:24 Going to stop these 10-minute exposures at 5 minutes.

TIC 3368…(UT 07:31-07:40)

07:31 Preset.

07:33 Starting science. Seeing is 0.8” on guider. S/N 90 (blue) 112 (red)

OSU_BHBinaries

J0534-0020 (UT 07:41-08:04)

07:41 Preset.

07:43 Starting science. Seeing is 0.8” on guider.

J0646+0109 (UT 08:04-08:41)

08:04 Preset.

08:07 Starting science. Seeing is 0.8” on guider. S/N 104 (blue) 236 (red)

J0651-1329 (UT 08:41-09:13)

08:41 Preset.

08:43 Starting science. Seeing is 0.7” on DIMM, 0.8” on guider. S/N 123 (blue) 210 (red)

J0700-1226 (UT 09:13-09:29)

09:13 Preset.

09:14 Starting science. Seeing is 0.7” on DIMM, 0.8” on guider. S/N 115 (blue) 190 (red)

J0753+0408 (UT 09:29-09:50)

09:29 Preset.

09:31 Starting science. Seeing is 0.9” on DIMM, 0.8” on guider. S/N 112 (blue) 139 (red)

J0827+2157 (UT 09:51-09:59)

09:51 Preset.

09:53 Starting science. Seeing is 0.8” on guider. S/N 109 (blue) 243 (red)

09:59 **Reconfiguring to LUCI1.**

10:00 Initializing LUCI1.

10:05 Pointing check.

10:09 Collimation check.

OSU_XMD

~~SBS 0926+606 (UT 10:12-10:28)~~ NOT OBSERVED

10:12 Preset.
10:20 There is an issue with the script. The acquisition has no slit images in it.
10:27 Changing targets.

UVa_nirjets

AFGL5180 (UT 10:28-12:00)

10:28 Preset.
10:33 Pointing check. We hit a target, but there’s a similar looking one nearby.
10:36 Starting science. Seeing is 0.7” on guider.
10:30 IQ: 0.5” in K image.
10:57 IQ: 0.8” in H2 image.
11:21 IQ: 0.6” in H image.
11:41 IQ: 0.4” in FeII image.

OSU_SCAT

~~2023ufx (UT 12:00-12:17)~~ NOT OBSERVED - wind

12:00 Preset.
12:04 Preset canceled during first exposure. High torques on EL drive. We're at EL 76 and the winds are ~10m/s. Resending preset.

12:05 EL drive is struggling to complete the preset. Josh is going to recover it.

12:08 Re-resending preset.

12:09 Starting science. Seeing is 0.7" on guider. Josh says he's still seeing high torques on the EL drive.

12:12 IQ: 0.6" in K image.

12:17 Lost preset again. We are going to move on.

12:22 **Reconfiguring to PEPSI PFU.**

12:30 18-degree twilight

12:31 Pointing check.

12:36 Collimation check.

OSU_BHBinaries

J0807+6945 (UT 12:38-12:49)

12:38 Preset.

12:40 Starting science. Seeing is 0.9" on guider. S/N 131 (blue) 168 (red)

J0737+2825 (UT 12:49-13:00)

12:49 Preset. AZ unwrap.

12:54 Starting science. Seeing is 0.7" on guider. S/N 71 (blue) 112 (red)

J0617_2343 (UT 13:00-13:09)

13:00 12-degree twilight. Preset.

13:02 Starting science. Seeing is 0.8" on DIMM, 0.6" on guider. S/N 71 (blue) 120 (red)

J0758+2601 (UT 13:09-13:15)

13:09 Preset.

13:12 Starting science. Seeing is 0.8” on DIMM and guider. Sky brightness is 17. S/N 294 (blue) 364 (red)

J0732+2339 (UT 13:15-13:21)

13:15 Preset.

13:16 Starting science. Seeing is 0.5” on guider. Sky mag is 16.5. S/N 81 (blue) 118 (red)

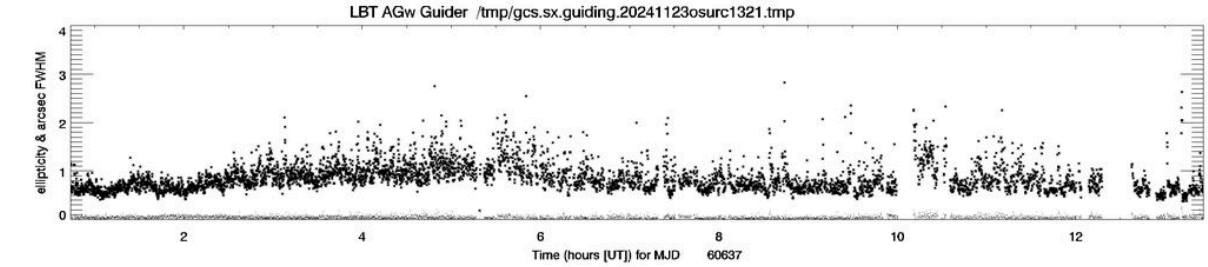
J0737+2034 (UT 13:21-13:25)

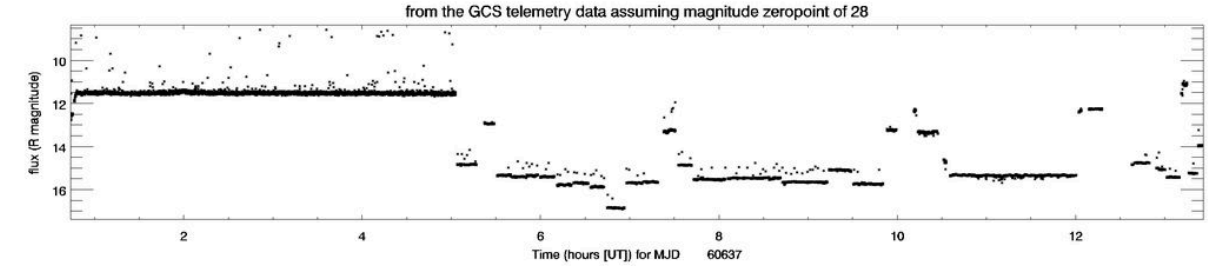
13:21 Preset.

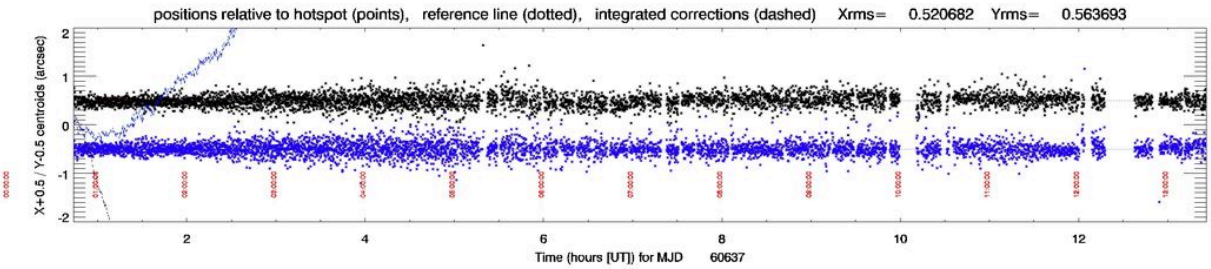
13:22 Starting science. Seeing is 0.6” on guider. S/N 113 (blue) 141 (red)

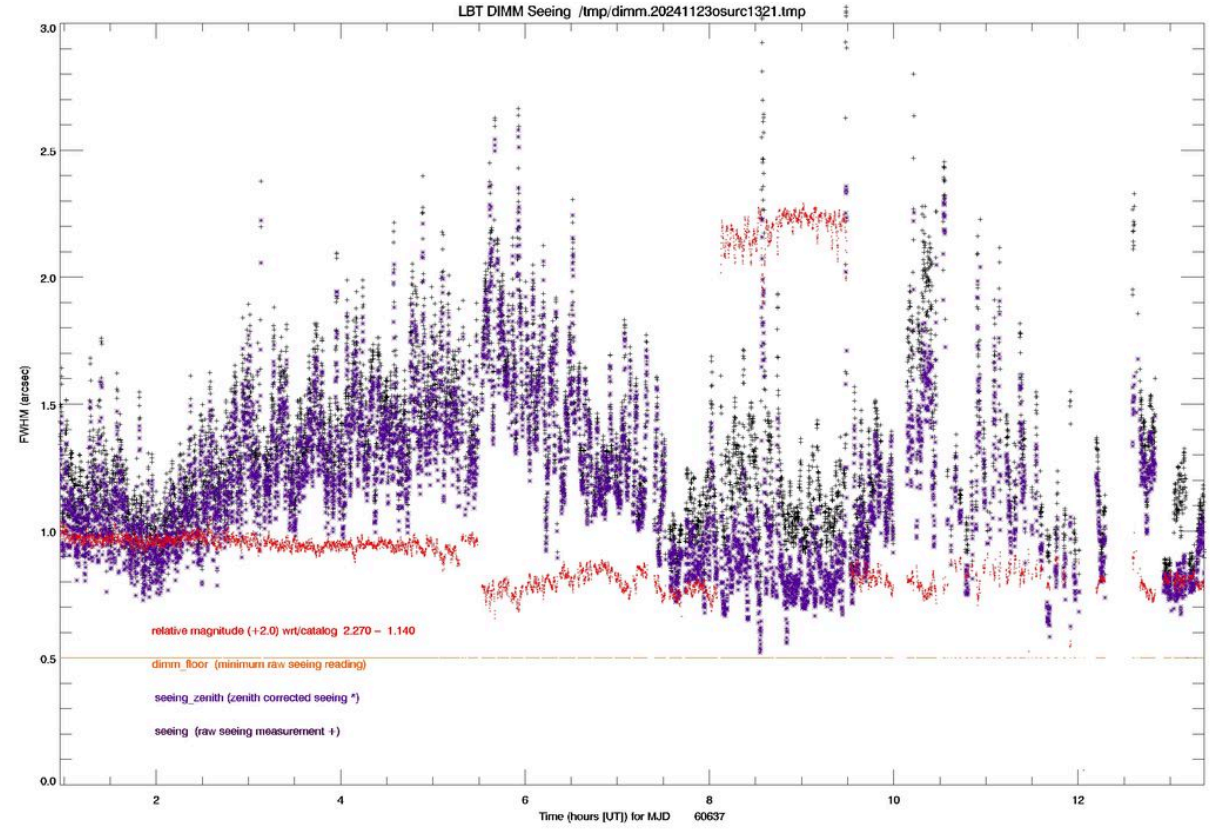
13:25 Closing. Will run Pepsi cals.

PEPSI Log:
https://drive.google.com/file/d/131glTv_DMQzBXrNWscefqgGBXH6VGYuy/view?usp=drive_link


LBT AGw Guider /tmp/gcs.sx.guiding.20241123osurc1321.tmp
ellipticity & arcsec FWHM
Time (hours [UT]) for MJD 60637


from the GCS telemetry data assuming magnitude zeropoint of 28
flux (R magnitude)
Time (hours [UT]) for MJD 60637


positions relative to hotspot (points), reference line (dotted), integrated corrections (dashed) Xrms= 0.520682 Yrms= 0.563693
X+0.5 / Y-0.5 centroids (arcsec)
Time (hours [UT]) for MJD 60637


LBT DIMM Seeing /tmp/dimm.20241123osurc1321.tmp
FWHM (arcsec)
relative magnitude (+2.0) wrt/catalog 2.270 – 1.140
dimm_floor (minimum raw seeing reading)
seeing_zenith (zenith corrected seeing *)
seeing (raw seeing measurement +)
Time (hours [UT]) for MJD 60637

Calibrations to complete this run:

- UVa_nirjets
    - Darks
    - Twilight flats
    - Imaging flats
- ~~OSU_BHB~~
    - ~~Pepsi cals~~
- ~~OSU_PETS~~
    - ~~Pepsi cals~~
- ~~UVa_Multistar~~
    - ~~Pepsi cals~~
- ~~OSU_Clusters~~
    - ~~Pepsi cals~~