LBT Observing Log for 2023 Oct 22/23

C19 Observer: Alex Becker
Partner Observer(s): Mark Whittle (UVa, remote), Marshall Johnson, Peter Garnavich, Sydney Petz, Teddy Oakey
Telescope Operator: Steve Allanson
Special guest: Ilya Ilyin
Special heroes of the night: Dan Cox, Pat Hartley,

Plan:

We will start with a PEPSI Exoplanet (PETS) observation for the first ~5h of the night, MODS afterwards aiming for ND programs snr and bluegals (we did OSU_2023ufx last night).

Observed and completed:

OSU_PETS (5.5 hours)
ND_snr (slit 1 and slit 2 – each ~1 hr)
ND_bluegals J0745 (monocular, with 4x600s & 3x600s).

Summary:

Issues:

Critical IT #8992:
PEPSI has lost its chamber environment control today. The issue and its implications were discussed by Ilya and the PI and the decision was made to observe the transit. PEPSI currently does not have pressure stabilization, so the pressure will follow ambient pressure. As a result wavelength calibration is not stable. This is not a critical concern for the program and using FPE helps mitigate the issue.

We are still without DIMM, but this should be fine for tonight as we will most likely stick to PEPSI and MODS where we can use the guider.

Critical IT #
The DX primary mirror cell lost power at about 9:45 UT. It came back on its own for about 15 minutes.

General:

The unresponsiveness and instability of the TO and OBS machines is getting ridiculous. The machine spontaneously crashed during the night. Software from time to time crashes on OBS, usually RB_Science or modsDisp. The machines are getting unresponsive several times a night. Only solution is to keep closing windows until it gets better. Usually the same software will continue to make issues during the course of the night in shorter and shorter intervals. If you decide you can live without this software, you can be sure another will cause trouble at some point

Overview (times are given in UT):

23:52 mods awake, LBCs turned on

23:53 modsSimSnap bino
mods1: red fitsflush
everything looks good

23:58 MODS 8k bias

00:01 LBC 10 bias bino checkout
Horizontal banding on first lbcr exposure

00:07 LBC: taking 10 more biases
00:10 MODS: 1” slit flats dual grating

More calibs in the morning

00:43 We are open!

PEPSI

PETS

TOI1431

01:05 Sending preset

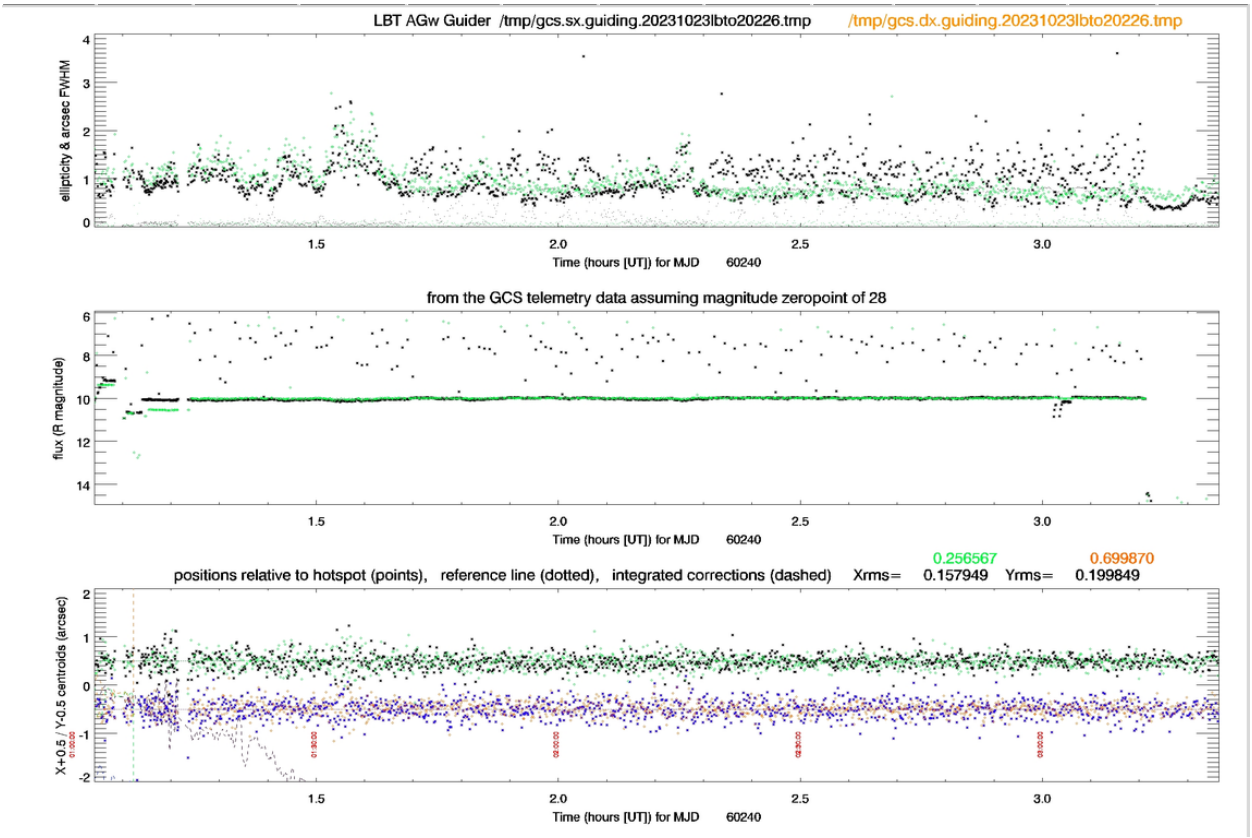
We are on the target for the next 5 hours.

01:30 Temp: 9.1°, Humidity 40%, Wind ~8m/s@240°, clear
Temperature is predicted to be dropping throughout the night.

Seeing is quite variable and horrible. Somewhere between 1” and 2” on the PEPSI guiders.

02:10 Seeing has improved quite a bit. Most of the time sub-arcsecond with some short excursions up to 1.5”

03:12 Star is too bright for the guider. Using ND2 filter now.
This was probably also related to the high seeing values we had from time to time.



06:13 Seeing is mostly stable. Humidity increased to ~50% (as expected from ALTA predictions), Temperature dropped to 7.5° (also as expected from ALTA prediction), wind ~8m/s @220°

06:50 Reconfig MODS

07:05 Pointing check

MODS

Std

G191b2b

07:10 Preset, Seeing is ~1.5” on the guider
07:18 Starting science script

ND_SNR

slit1

07:30 moon sets.
07:31 Preset, Seeing 0.7 arcsec.
07:44 Starting science script
08:23 seeing 0.6”, clear, dark.

slit2

08:31 Preset
Timeout on set partner. retry
We had some confusion during the acquisition. After tweaking the alignment the star appeared way outside the slit as if an offset had been sent that is 20 times larger than requested. Until I remembered that the observation has a blind offset. The offset was applied in the acquisition script directly after the confirmation image, without a pause. The offset was applied directly after the through-slit image was taken.

We restarted the entire acquisition phase before we figured out what happened, otherwise I could have recovered it quicker. Unfortunately, the second acquisition was interrupted for a bit when modsDisp crashed and closed all of my ds9 windows.

08:58 Starting science exposure
Seeing varying: 1.2 - 0.9.

09:45 There is an issue with the right primary mirror and we lost the target + guide star. Luckily, the exposures were already done and we were only waiting for the left side (1 minute left)

Technical Downtime (~1h)

09:48 Steve is bringing us up to Zenith to recover from it. And I will try to recover obs2 from its unresponsiveness.

Obs2 issue was caused by some UI. Not the same as yesterday. I don't know which one. I was hitting the x-button on a bunch of windows and waited for a couple of minutes until obs2 responded and closed them

In the meantime, Steve is going up to the telescope to reset the primary mirror control manually

09:58 The issue with the primary mirror is a bit more serious. The primary mirror cell has no power. Steve is calling Dan Cox

10:15 Steve has woken up Pat to assist with the electrical stuff.

10:40 We are not able to recover the DX primary cell. We have to go monocular.
Steve is working on making this happen and putting the right side into simulation mode.

monocular MODS1

ND_bluegals

J0745

10:54 preset
11:09 Starting science script
Fighting with an unresponsive obs2 machine again…. I am only using it monocular now.
It was the OT.

11:20 The primary mirror just powered itself on again. We don't know how and we don't know if it stays this way. It would take at least 10 minutes to switch to binocular mods and another 15 minutes for preset and acquisition. And there is still the risk it trips again. We are not trading 1h monocular for 30 min binocular in twilight under those conditions.

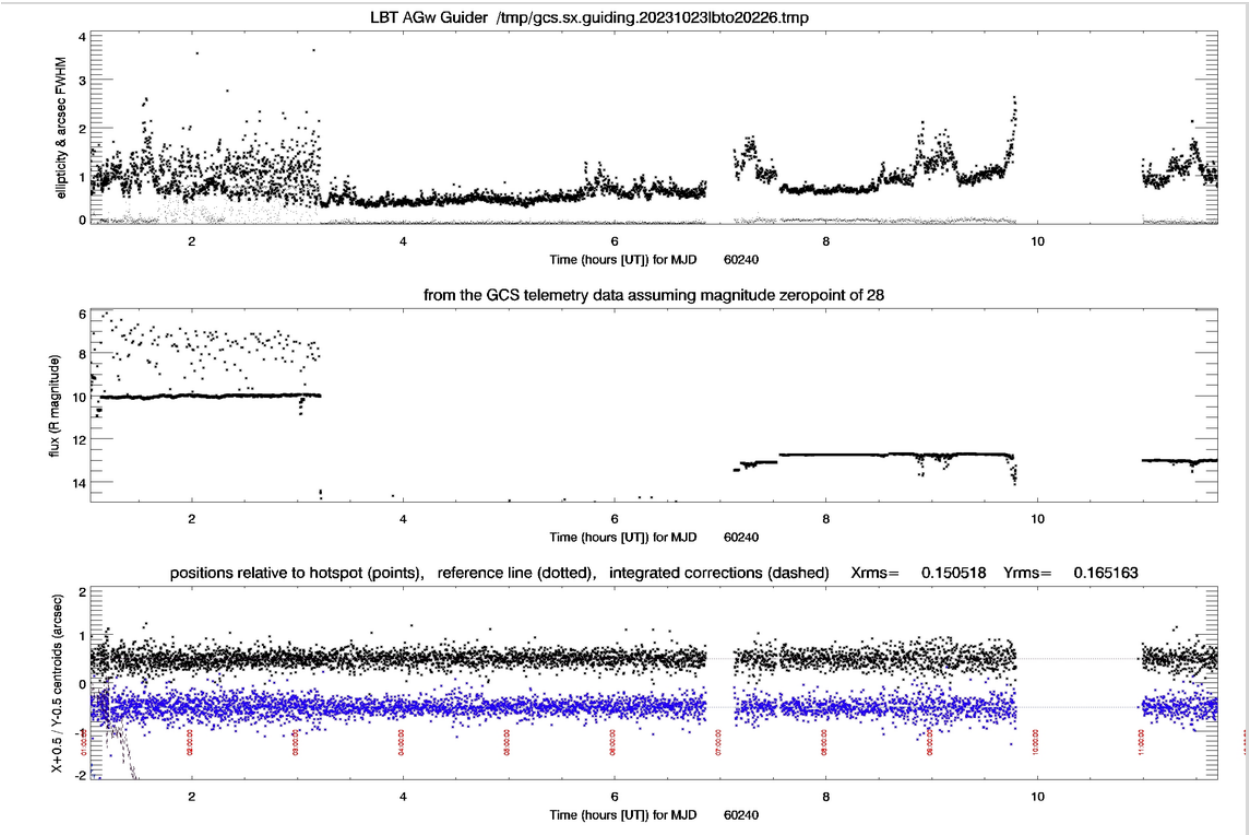
It was a good decision

11:35 Restarting modsDisp as it got unresponsive again. This is ridiculous! If this continues we can't use any UIs at all.
Seeing 1.0 arcsec.

11:37 Lost power again to DX primary cell

11:56 We take another set of exposures, hopefully 4 * 600s, of this target. 12deg twilight in ~40 minutes.
Narrow emission lines are clearly visible, but may need more S/N to characterize the stellar continuum, so aim to provide the requested exposure by doubling the monocular exposure.

Only did three – sun avoidance protocol requires us to move the telescope at 12 degrees.



12:52
MODS arc lamps
MODS grpixflats

13:27 Done!
LBCs turned off, MODS is sleeping, PEPSI left alone