

C19 Observer: Andrew Cardwell (From obs1, x2go session 50)

Partner Observer(s): Rick Pogge (OSU, Remote), Annalisa Citro (UM, Remote)

Telescope Operator: David Gonzalez-Huerta

### Plan:

- Start with LBC, sky flats then 18-deg twilight until ~0500UT, OSU\_monitor
- Switch to PEPSI at 0500UT, observe CD3/CD5 targets until ~0630UT
- Switch to MODS at 0630UT, G191B2B flux star to start, science programs, and HST primary calibrator flux stars (GD153 and Hz44) interspersed.
- End at 18-deg dawn, run MODS calibrations to close-out night after the last flux star.

### Summary:

Start with clear skies but poor seeing and thermal conditions on the telescope since they've been mostly closed for a couple of days, so thermal stabilization is slow.

Started with LBC. Seeing was 1.5 at start and stayed >1.5-arcsec for a long while with the telescope not thermally stable. This meant it took longer to collimate with LBC (TMS sometimes doesn't help much in these cases), so we stayed longer in this configuration.

Reconfigured for PEPSI at 0640UT (but setup was slow, took a while to get the telescope pointing going after reconfiguration). Finished 4 targets of 5, but had to abort preset of the 5th due to a problem with the PEPSI left side. Seeing more like 1.0-1.1 arcsec now

Reconfigured for MODS at 0935, will finish the night with programs tolerant of >1" seeing and standard star (GD153 and Hz44). Seeing got so bad at the end before twilight we could not lock onto even R=13 guide stars, did MODS calibrations until early handover for critical engineering work in the enclosure.

### Issues:

AGW2 focus check is pending.

The /lbt/data/old\_homes/osurc folder was write protected as seen by the lbto use, making it impossible for the LBTO observers to see our OBs without a rude work-around to get them the files by other means.

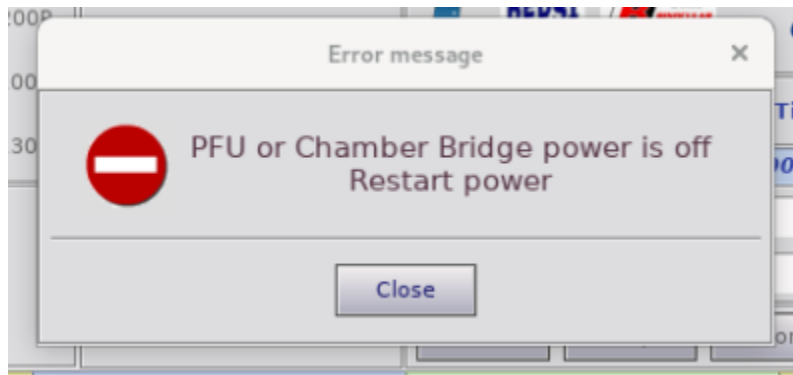
### Weather:

Clear all night, no clouds, light wind and light/variable humidity. Seeing was poor (>1 arcsec) all night.

### Overview (times are given in UT):

22:00 Daily telescope planning meeting.

22:11 Odd error message from PEPSI. I've asked Jared to reset the power.



23:13 All is good with PEPSI, it has Ilya's seal of approval. CD3/5 setup in place. Waking MODS.

23:25 Running simSnap.

23:46 Looks good.

00:17 Powering up LBCs.

## LBC

00:42 **Configured for LBCs**, running the 2 bias checkout.

00:45 Running a full bias sequence.

00:50 Sunset.

00:53 Biases are junk, we opened the ventdoors to thermalise the enclosure.

00:54 Enclosure open.

01:02 Preset to blank sky field. Trying for LBC flats in R and Uspec at PA=0. R is used on LBCR for all flats, so we won't worry too much about getting 5 good ones on that side for any one pass.

01:06 Still too bright.

01:12 Test counts look good, starting flats.

01:21 5 good in USpec at PA=0, moving on to PA=180.

01:41 12 degree twilight. Too dark to continue with flats. TMS lasers are on.

01:44 Preset to collimation field for NGC628, OOSU\_monitoring program.

01:48 Running dohybrid.

01:58 Finished, copointing.

02:04 Copointed. Red collimation is a little soft, running dofpa.

02:10 18 degree twilight.

02:16 Still much softer on red than blue. Trying once more, this time with the /X2 flag.

02:27 That's much better, although seeing is around 1.5", the DIMM confirms this. TMS reference taken, preset to science target.

02:35 DIMM reporting almost 2". Satellite trails in first exposures, lbcr.20230126.022825, lbcb.20230126.022829. IQ of 1.9" measured on exposures.

02:47 IQ of 1.5" on blue and 1.8" on red. Looks like LBCR collimation is slipping. We still have about 1.5C of temperature difference to work off the primaries.

02:57 IQ of 1.5" on blue on 1.6" on red.

03:03 Preset to collimation and copointing field for NGC672.

03:05 Starting collimation.

03:12 Collimated, but with no Z11 or Z22 corrections. DIMM reports 1.7". Moving on to copointing. Temperatures are continuing to drop faster than we can thermalise.

03:17 Collimated and copointed, tms reference taken. IQ is unchanged, 1.5" in blue and 1.6" in red. Sending the science preset.

03:18 TMS loop started, starting science.

03:24 Satellite trail in lbcb.20230126.031826, lbcb.20230126.031823. 1.5" on lbcb and 1.7" on lbcr.

03:36 IQ is now 2" on both sides...

03:50 IQ is 1.8" on lbcb and 1.6" on lbcr.

03:54 Preset to collimation and copointing field for NGC925.

03:57 Starting dofpa, /X2.

04:11 Collimated and copointed. TMS reference taken. IQ of 1.8" on both sides, DIMM reports 1.9". Sending science preset and starting TMS.

04:22 IQ of 1.5" on both sides.

04:36 IQ was stable at 1.5" throughout. Preset to M81 collimation and copointing field.

04:38 Running dofpa, /X2.

*CV: The real time IQ plot is working but the plot is not copied to the usual place (<http://people.lbto.org/~cveillet/Chris/>) likely for a dns issue. Instead you can look at it on robs. It is at /home/telescope/cveillet/soft/lbciQ\_DIMM\_20230126z.png*

04:43 Collimated, moving on to copointing.

04:49 iraf was being glitchy and had to be restarted.

04:50 Copointed. TMS reference taken. Sending the science preset. 1.4" measured on the copointing exposures. Starting TMS on target.

05:04 1.5" throughout. Preset to M82 collimation and copointing field.

05:05 Starting collimation, dofpa, /X2.

05:20 Collimated and copointed. 1.4" on copointing exposures. TMS reference taken. Preset to science field.

05:21 TMS started, starting science.

05:28 IQ of 1.6" on lbcb and 1.4" on lbcr. We still have a 2C difference between the primaries and external temps.

05:33 Preset to NGC3344 collimation and copointing field. Large slew.

05:35 Starting collimation.

05:40 Collimated, starting copointing, taking TMS reference. 1.5" measured on lbcb, 1.4" measured on lbcr.

05:44 Sending science preset, starting TMS.

05:54 IQ 1.4" on lbcb and 1.2" on lbcr.

06:16 Target completed.

06:18 Preset to collimation and copointing field for NGC4236.

06:19 Starting collimation.

06:25 Collimated, moving on to copointing.

06:28 1.8" on lbcb, 1.6" on lbcr. Science preset.

06:37 IQ is 1.5" on lbcb and 1.4" on lbcr.

**06:41 Finished here, reconfiguring to PEPSI.**

## PEPSI CD3/5 configuration

07:11 Reconfigured. OSA is taking care of initial pointing corrections and collimation.

07:41 Preset to 2MASS J09330083+3417090.

07:44 Starting science.

08:06 Preset to 2MASS J06355255+1842337.

08:12 Starting science. The OSA had to bring in the GS on DX.

08:26 Preset to 2MASS J08241542+0925137

08:29 Starting science.

08:50 Preset to LAMOST J104605.95+100258

08:53 Starting science.

09:14 Preset to 2MASS J14092552+5126539.

09:17 David is dealing with a PSF issue, failure to preset on the left side - apparently an issue sometimes at low elevation (we are at El=45).

09:32 Giving up here and reconfiguring to MODS.

## MODS

10:02 Preset to specphot, GD153.

10:10 Starting science.. DIMM reports 1.3", guiders 1.1".

10:20 Guiders reporting up to 2".

10:35 I am unable to access the OURC files. No access permissions to /lbt/data/old\_homes/osurc or /lbt/data/old\_homes/OSURC, nor can I log into the osurc account from obs1.

10:40 Preset to NGC5273. Initial guider readings are 1.7".

10:51 Small correction of 0.19" in x needed for mods1.

10:52 Starting science. Mods[1|2]b.20230126.0004-0009, mods[1|2]r.20230126.0012-0017. DIMM reports 1.3".

11:19 DIMM reports 2.15".

11:21 Preset to SDSSJ1430.

11:26 We are struggling. The seeing is so poor the guider is not acquiring the GS.

11:28 Sending the preset for the third time...

11:29 2.4" on the DIMM, preset failed again due to guiding. GS is 14th mag. Going to a bright source to collimate and then trying again.

11:37 Sending the science preset again. Guiding failed on SX. Trying again.

11:44 Giving up for the moment and going to a specphot, Hz43.

11:53 Oops: Hz43 is a double and unsuitable for the current seeing conditions. Preset to Hz44.

11:58 Seeing is still around 2" or worse.

12:00 Starting science...

12:13 There has been no improvement in seeing. We are giving up and closing.

## MODS Calibrations

12:22 MODS DG arcs. Mods[1|2]b.20230126.0013-0015, mods[1|2]r.20230126.0025-0027

0.8" slit flats. Mods[1|2]b.20230126.0016-0021, mods[1|2]r.20230126.0028-0033.

1.0" slit flats. Mods[1|2]b.20230126.0022-0027, mods[1|2]r.20230126.0034-0039.

1.2" slit flats. Mods[1|2]b.20230126.0028-002?, mods[1|2]r.20230126.0040-004?.

12:53 18 degree twilight.

13:22 12 degree twilight.

13:42 Stopping cals as there is urgent engineering work to be done in the enclosure. Putting mods to sleep.

14:13 Sunrise.