LBT Observing Log for 2024 12 24 UT

Observers: Justin Rupert Partner Observer: None (Queue Night) Telescope Operator: Steve Allanson

Plan:

Tonight is an OSU/RC night in queue observing mode. We will start with PEPSI targets for RRL, Clusters, BHBinaries, and NRPED. Around 8UT we will switch to LUCI2 for some XMD science.

Summary:

PEPSI Log: https://drive.google.com/file/d/1msy7yq595kIZDw3qzXOCToY85UF3rbK7/view?usp=sharing

LBT Observing Log for 2024 12 24 UT Plan: Summary: **Issues**: Weather: Overview (times are given in UT): OSU BHB - GDR3 2864987179231370368 (UT 01:01-01:13) BHB - GDR3 2758093311612997248 (UT 01:13-01:28) UVa Multistar - TIC 25818450 (UT 01:28-01:39) <u>O</u>SU BHB - GDR3 2745372030800224512 (UT 01:39-01:47) BHB - GDR3 2705338537553104256 (UT 01:47-02:02) BHB - GDR3 2431981220830837376 (UT 02:02-02:13) BHB - GDR3 2634887707960847360 (UT 02:13-02:44) BHB - GDR3 2847197557833077504 (UT 02:44-02:58) BHB - GDR3 362498302094814720 (UT 02:59-03:12) BHB - GDR3 300726119643476992 (UT 03:12-03:23) BHB - GDR3 5120850616092701696 (UT 03:23-03:42) Cluster - 2MJ0331+4655 (UT 03:42-04:01) Cluster - 2MJ0338+4836 (UT 04:01-04:16)

<u>Cluster - 2MJ0328+4911 (UT 04:16-04:24)</u> <u>Cluster - 2M0320+5015 (UT 04:24-04:40)</u> <u>BHB - GDR3 277866070311500032 (UT 04:40-04:47)</u> <u>BHB - GDR3 206292746724589824 (UT 04:47-04:55)</u> BHB - GDR3 209386703724361088 (UT 04:55-04:59)

<u>UVa</u>

Multistar - TIC283940788 (UT 05:01-05:11)

Multistar - TIC 367448265 (UT 05:11-05:17)

<u>OSU</u>

BHB - GDR3 3405045919037370496 (UT 05:18-05:32) BHB - GDR3 3179591300281505664 (UT 05:32-05:40) BHB - GDR3 2966694650501747328 (UT 05:40-05:45) BHB - GDR3 3425577610762832384 (UT 05:45-59)

<u>UVa</u>

Multistar - TIC 336882813 (UT 05:59-06:08)

BHB - GDR3 3331748140308820352 (UT 06:08-06:16) BHB - GDR3 3123854268434443648 (UT 06:16-06:24) BHB - GDR3 3027651197195343872 (UT 06:24-06:33) BHB - GDR3 3051500287294494976 (UT 06:33-06:46) BHB - GDR3 3107879743172451456 (UT 6:47-06:53)

<u>ND</u>

RPED7 - GDR3 147548743416 (UT 06:53-07:43)

<u>XMD - SBS0926 (UT 07:55-09:07)</u> <u>XMD - HIP32549 (UT 09:08-09:14)</u> <u>XMD - SBS0946 (UT 09:14-10:20)</u> <u>XMD - HIP32549 (UT 10:20-10:37)</u> <u>XMD - SBS0948 (UT 10:37-11:51)</u>

<u>UVa</u>

BCD_LUCI - J0833 (UT 11:51-12:10)

<u>ND</u>

<u>RPED11 - GDR3 3894554847978548608 (UT 12:27-13:01)</u> <u>OSU</u>

BHB - GDR3 3832686329410918272 (UT 13:02-13:10) BHB - GDR3 3838144030253265280 (UT 13:10-13:20)

Issues:

More occurrences of hotspot guiding moving the target off the pepsi pinhole. This seemed to have been resolved by adjusting the FWHM field of the DX guider window. However this needs to be adjusted after every preset and exposure due to the system reverting to the original value for FWHM after a preset/exposure.

LUCI_XMD scripts didn't have the slit in the FPU for acquisition images. Quick fix.

LUCI_BCD script wasn't updated with the longer acquisition images as previously thought. When run manually with longer acquisition images, the target still couldn't be seen in an unsubtracted image with \sim 0.5" seeing.

Weather:

Skies were clear all night. Seeing started out choppy: between 1.4" and 2". It was mostly sub-arcsecond for the final two-thirds of the night. Winds were calm.

Overview (times are given in UT):

23:30 Initializing LUCI2.

23:42 Running OSU_XMD darks.

00:24 Cut these darks off after 4. 2 more need to be done. Opening.

00:33 Pointing check.

00:42 Collimation check.

00:46 Preset to first target. We'll wait for the sky to get darker there.

00:49 Too bright to even see. We'll go back to the collimation star to relieve the mirrors from trying to work on a target it can't see well.

00:52 Heading back to the target. SX seems to be grabbing something DX isn't. Perhaps it's sunset falling on the DX side. Steve is shutting the vent door on that side. That seemed to do the trick.

00:58 Resending preset to range balance.

OSU

BHB - GDR3 2864987179231370368 (UT 01:01-01:13)

01:01 Starting science. It's likely too bright to hit SNR goal, but it can't hurt to try. Seeing is 1.3" on SX guider, 1.6" on DX guider. Skies are mostly clear with a couple fast-moving cirrus clouds zipping by in the SW.

01:05 The target was hanging off the edge of the pinhole on both sides. Manually moved them into place.

01:12 CD3 SNR: 86, CD5 SNR: 105. Great!

BHB - GDR3 2758093311612997248 (UT 01:13-01:28)

01:13 Preset. Missed it on SX.

01:16 Resending preset. 12-degree twilight.

01:18 Starting science. Seeing is 1" on guiders.

01:27 CD3 SNR: 100, CD5 SNR: 128

UVa

Multistar - TIC 25818450 (UT 01:28-01:39)

01:28 Preset.

01:31 Starting science. Seeing is 1" on SX guider, 1.1" on DX guider, 1.5" on DIMM.

01:38 CD3 SNR: 147, CD6 SNR: 172

OSU

BHB - GDR3 2745372030800224512 (UT 01:39-01:47)

10:39 Preset

01:42 Starting science. Seeing is 1" on SX guider, 1.1" on DX guider.

01:46 18-degree twilight. CD3 SNR: 104, CD5 SNR: 125

BHB - GDR3 2705338537553104256 (UT 01:47-02:02)

01:47 Preset. SX missed it. Steve is nudging.

01:48 Resending preset.

01:51 Starting science. Seeing is 1.2" on SX guider, 1.3" on DX guider, 1.4" on DIMM.

02:01 CD3 SNR: 86, CD5 SNR: 120

BHB - GDR3 2431981220830837376 (UT 02:02-02:13)

02:02 Preset

02:05 Starting science. Seeing is 1.5" on guiders, 1.2" on DIMM.

02:12 CD3 SNR: 89, CD5 SNR: 130

BHB - GDR3 2634887707960847360 (UT 02:13-02:44)

02:13 Preset

02:17 SX is struggling with WFSing. This is a mag=14 target and we're at airmass 1.6. Steve is tweaking the config file.

02:19 Starting science. Seeing is 1.6" on SX guider, 1.7" on DX guider.

02:25 Here's an image from the roof. The lights in the top left quadrant are from the Fort Grant prison to the south. Shockingly bright for how far away it is!



02:43 CD3 SNR: 77, CD5 SNR: 95

BHB - GDR3 2847197557833077504 (UT 02:44-02:58) 02:44 Preset

02:49 Starting science. Seeing is 1.4" on guiders and DIMM.

02:57 CD3 SNR: 98, CD5 SNR: 123

BHB - GDR3 362498302094814720 (UT 02:59-03:12)

02:59 Preset

03:01 Starting science. Seeing is 1" on SX guider, 1.1" on DX guider, 1.7" on DIMM.

03:12 CD3 SNR: 83, CD5 SNR: 107

BHB - GDR3 300726119643476992 (UT 03:12-03:23)

03:12 Preset

03:16 Starting science. Seeing is 1.2" on guiders, 1.7" on DIMM.

03:21 Lost the target on DX as the exposure ended.

03:22 CD3 SNR: 87, CD5 SNR: 108

BHB - GDR3 5120850616092701696 (UT 03:23-03:42)

03:23 Preset

03:29 Starting science. Seeing is 1.8" on SX guider, 1.7" on DX guider, 0.9" on DIMM.

03:41 CD3 SNR: 91, CD5 SNR: 118

Cluster - 2MJ0331+4655 (UT 03:42-04:01)

03:42 Preset

03:48 Starting science. Seeing is 1.4" on SX guider, 1.1" on DX guider, 1.2" on DIMM.

04:00 CD3 SNR: 66, CD5 SNR: 110

Cluster - 2MJ0338+4836 (UT 04:01-04:16)

04:01 Preset

04:03 Starting science. Seeing is 0.8" on guiders.

04:07 Hot spot jump on DX. Steve and I have a hypothesis that it's related to good seeing and the target's light being contained within the pinhole according to the camera.

04:09 CD3 SNR: 65, CD5 SNR: 89. We'll try this one more time.

04:15 CD3 SNR: 68, CD5 SNR: 103. Better.

Cluster - 2MJ0328+4911 (UT 04:16-04:24)

04:16 Preset

04:18 SX grabbed the wrong object. Steve is adjusting.

04:19 Starting science. Seeing is 0.7" on guiders, 1.2" on DIMM.

04:23 CD3 SNR: 72, CD5 SNR: 94

Cluster - 2M0320+5015 (UT 04:24-04:40)

04:24 Preset

04:26 TMS data stale alarm went off.

04:27 Starting science. Seeing is 0.8" on guiders, 1.1" on DIMM.

04:36 Jenny has come on to help with the hotspot jump issue. She suggested lowering the FWHM on the DX guiderwindow. This reduces the region of the CrossProfile factored into guiding.

04:39 CD3 SNR: 58, CD5 SNR: 108

BHB - GDR3 277866070311500032 (UT 04:40-04:47)

04:40 Preset

04:43 Starting science. Seeing is 0.7" on guider, 0.9" on DIMM. Looks like the FWHM value automatically adjusts after a preset. Looks like it did it after starting an exposure as well.

04:46 CD3 SNR: 69, CD5 SNR: 95

BHB - GDR3 206292746724589824 (UT 04:47-04:55)

04:47 Preset

04:48 SX caught the wrong object. Steve is adjusting. 04:54 CD3 SNR: 76, CD5 SNR: 157. VERY strong H-alpha emission. Threw off the scale of the entire image:



BHB - GDR3 209386703724361088 (UT 04:55-04:59) 04:55 Preset

04:57 Starting science. Seeing is 0.8" on guiders, 1.1" on DIMM.

04:58 CD3 SNR: 140, CD5 SNR: 192

UVa

Multistar - TIC283940788 (UT 05:01-05:11) 05:01 Preset

05:04 Starting science. Seeing is 0.9" on SX guider, 0.8" on DX guider, 1" on DIMM.

05:10 CD3 SNR: 132, CD6 SNR: 136

Multistar - TIC 367448265 (UT 05:11-05:17)

05:11 Preset

05:14 Starting science. Seeing is 1" on guiders, 1.4" on DIMM.

05:16 CD3 SNR: 345, CD6 SNR: 306

OSU

BHB - GDR3 3405045919037370496 (UT 05:18-05:32) 05:18 Preset

05:20 Starting science.

05:31 CD3 SNR: 61, CD5 SNR: 108

BHB - GDR3 3179591300281505664 (UT 05:32-05:40)

05:32 Preset

05:34 DX caught the wrong target. Steve is adjusting.

05:37 Starting science. Seeing is 1" on SX guider, 1.2" on DX guider, 1.3" on DIMM.

05:39 CD3 SNR: 110, CD5 SNR: 137

BHB - GDR3 2966694650501747328 (UT 05:40-05:45) 05:40 Preset

05:42 Starting science. Seeing is 1.1" on SX guider, 1" on DX guider and DIMM.

05:44 CD3 SNR: 96, CD5 SNR: 105

BHB - GDR3 3425577610762832384 (UT 05:45-59)

05:45 Preset.

05:47 Missed it on DX. Pointing check.

05:51 Resending preset.

05:55 Starting science. Seeing is 1" on guiders and DIMM.

05:58 CD3 SNR: 70, CD5 SNR: 110

UVa

Multistar - TIC 336882813 (UT 05:59-06:08)

05:59 Preset

06:01 Starting science. Seeing is 0.9" on SX guider, 0.8" on DX guider.

06:09 CD3 SNR: 134, CD6 SNR: 161

OSU

BHB - GDR3 3331748140308820352 (UT 06:08-06:16) 06:08 Preset

06:10 Starting science. Seeing is 0.9" on guiders.

06:15 CD3 SNR: 64, CD5 SNR: 100

BHB - GDR3 3123854268434443648 (UT 06:16-06:24)

06:16 Preset

06:18 Starting science. Seeing is 1.1" on guideres, 1.5" on DIMM.

06:23 CD3 SNR: 62, CD5 SNR: 100

BHB - GDR3 3027651197195343872 (UT 06:24-06:33)

06:24 Preset

06:29 Starting science. Seeing is 1.4" on SX guider, 1.5" on DX guider, 1.3" on DIMM.

06:34 CD3 SNR: 102, CD5 SNR: 157

BHB - GDR3 3051500287294494976 (UT 06:33-06:46)

06:33 Preset.

06:35 DX grabbed the wrong object. Steve is adjusting.

06:38 Starting science. Seeing is 1.2" on guiders, 1.3" on DIMM.

06:45 CD3 SNR: 55, CD5 SNR: 84

BHB - GDR3 3107879743172451456 (UT 6:47-06:53)

06:47 Preset

06:50 Starting science. Seeing is 1" on guiders and DIMM.

06:53 CD3 SNR: 70, CD5 SNR: 78

ND

RPED7 - GDR3 147548743416 (UT 06:53-07:43)

06:53 Preset

06:56 Starting science. Seeing is 1.2" on SX guider, 1.1" on DX guider and DIMM. Skies are still clear.

07:14 CD1 SNR: 60, CD4 SNR: 166. Seeing is 0.8" on guiders, 1" on DIMM.

07:28 CD1 SNR: 61, CD5 SNR: 186. Seeing is 0.8" on SX guider, 0.9" on DX guider, 1.2" on DIMM.

07:43 CD1 SNR: 62, CD6 SNR: 167

07:44 Reconfiguring to LUCI2.

07:49 Pointing check. Just noticed none of these XMD_LUCI2 scripts have the slit in the FPU for acquisition. Adjusting and saving as v2.

07:53 Collimation check.

OSU

XMD - SBS0926 (UT 07:55-09:07)

07:55 Preset

08:04 Starting science. Seeing is 1" on DX guider, 1.1" on DIMM.

08:36 Seeing is 0.9" on DX guider, 1.1" on DIMM.

XMD - HIP32549 (UT 09:08-09:14)

09:08 Preset

09:13 Starting science.

XMD - SBS0946 (UT 09:14-10:20)

09:14 Preset

09:25 Starting science.

09:31 Seeing is 0.8" on DX guider, 1.1" on DIMM.

10:05 Seeing is 0.7" on DX guider, 0.9" on DIMM.

XMD - HIP32549 (UT 10:20-10:37)

10:20 Preset

10:35 Starting science. Seeing is 0.7" on DX guider, 0.8" on DIMM.

XMD - SBS0948 (UT 10:37-11:51)

10:37 Preset

10:47 SStarting science. Seeing is 0.6" on DX guider, 0.9" on DIMM.

11:30 Seeing is 0.5" on DX guider.

UVa

BCD_LUCI - J0833 (UT 11:51-12:10)

11:51 Preset.

11:59 Was told the scripts were updated for longer acquisitions, but it doesn't look like they were. Manually running these acq exposures (DIT15, NDIT10).

12:10 For some reason the manual images didn't offset for subtraction. It's worth noting given excellent seeing (~0.5") that I still couldn't see the target in an unsubtracted image. I'm going to move on from this as I fear I'm out of time to start this. **Reconfiguring to PEPSI.**

12:20 Pointing check.

12:24 Collimation check.

ND

RPED11 - GDR3 3894554847978548608 (UT 12:27-13:01)

12:27 Preset

12:29 Starting science. Seeing is 0.5" on SX guider, 0.6" on DX guider, 0.9" on DIMM.

12:41 CD1 SNR: 66, CD4 SNR: 158

12:52 CD1 SNR: 67, CD5 SNR: 186. Seeing is 0.6" on guiders.

13:00 CD1 SNR: 64, CD6 SNR: 160

12:50 18-degree twilight

OSU

BHB - GDR3 3832686329410918272 (UT 13:02-13:10)

13:02 Preset

13:04 Missed on both sides. Steve is adjusting.

13:06 Resending preset.

13:08 Starting science. Seeing is 0.7" on guiders, 1" on DIMM.

13:09 CD3 SNR: 105 CD5 SNR: 133

BHB - GDR3 3838144030253265280 (UT 13:10-13:20)

13:10 Preset

13:12 Starting science. Seeing is 0.7" on SX guider, 0.8" on DX guiderand DIMM.

13:20 12-degree twilight. CD3 SNR: 106 CD5 SNR: 144

13:22 Running PEPSI cals

13:25 Slewing to Blank11+51 for OSU_SCAT_LUCI twilight flats.

13:52 Running OSU_SCAT_LUCI J/H twilight flats.

13:58 Closing



Cals LUCI: UVa_BCD darks OSU_SCAT darks OSU_XMD darks (Need 2 more) OSU_SCAT_twilight flats (J, H, K)