C19 Observer:  Andrew Cardwell (From obs1, x2go session 51)
Partner Observer(s): Subhash Bose, Annika Peter
Telescope Operator: Steve Allanson

## Plan

Start with LUCI J0053, switch to PEPSI, cover high priority BHB targets in first half, then for 2nd half, medium/low priority targets along with 2MJ1208+3111 sequence (high priority) in between.

PEPSI LOG

## Observed and completed:

LUCI: HIP6002, J0053

PEPSI: Gaia4017, 2MJ02322, TIC238346482, Gaia3234, Gaia3328, HD37424 (important) Gaia3157, Gaia3381, Gaia3371, Gaia3383, 2MJ1208+3111 A (8:26 UT), Gaia3072, TIC296841367, 2MJ1208 B (10:20 UT), 2MJ1208 C (12:32 UT)

Med/Low priority BHB (1st half): 2M03314936+3929252, 2MASSJ03261821+4902056, 2M06452759+2539443, 2MASSJ06230751+2345261, 2MASSJ06163552+2319094

Med/Low (2nd half): 2M16420351+163537, 2M17472838+5106228, 2M18042583+2753293, 2M18115616+2114115, 2M18072928+1513131, 3M18491003+2935003
Summary: A very productive night!

## Issues:

LUCI2 MOS error.
Pointing issues, particularly after large elevation changes.

## Overview (times are given in UT):

22:00 Daily telescope planning meeting.

00:30 LUCI is up, field stops are adjusted.

00:54 Opening the enclosure.

01:03 Sunset.

01:32 Pointed and collimated. Preset to telluric for J0053, HIP6002. Guiders report 1”. Acquisition begins with luci[1|2].20230209.0007.

01:39 The provided telluric scripts are incorrect, they actually point towards the main science target.

01:45 I've fixed the Telluric observation in the OT file provided, and generated the script we actually need. Preset sent. OT setup for the main science target also fixed and a new script generated. (The HK and zJ spectroscopy were split and would have required 2 acquisitions as provided, or at the very least have required an attentive observer to load the new script and skip over the preset and acquisition portion.)

01:52 Starting science. Luci[1|2].0014-0020.

01:53 12 degree twilight.

02:01 Preset to main science target, J0053.

02:09 Starting science.  Luci[1|2].0025-0040. DIMM reports 1".

Detector configuration did not commit properly to LUCI1. I sent it again and it took.
2023.02.09 02:10:28 s | error high | luci.luc | System | Scheduler | AbstractCommitter.java#call(120) | Error during commit
2023.02.09 02:10:28 s | error medium | luci.luc | System | Scheduler | ReadoutManagerClient.java#commitSetup(73) | Error committing setup to readout manager at "rmi://luci.luci.lbto.org:60001/ONE_ReadoutManager"!
2023.02.09 02:10:28 s | error medium | luci.luc | Luci ONE | ONE_ReadoutMana | GEIRSClient.java#setROEMode(188) | Could not commit value "MER, 10" by "setROEMode" to GEIRS from "rmi://localhost:60001/ONE_GEIRSServer"!
2023.02.09 02:10:28 s | error high | luci.luc | Luci ONE | ONE_GEIRSServer | RMIGEIRSServiceImpl.java#checkOkAnswer(1016) | GEIRS received response with error: ERROR 19 Command 'ctype mer 10' returned errorcode = 19: (E_invcamera=19) invalid ROE response
.
2023.02.09 02:10:28 s | instrument med | luci.luc | Luci ONE | ONE_GEIRSServer | RMIGEIRSServiceImpl.java#sendCommand(890) | ctype mer 10

02:21 18 degree twilight.

## PEPSI

02:50 Reconfiguring to PEPSI. LUCIs have been safed.

03:07 Steve is dealing with some mirror balancing issues.

03:17 Preset to Gaia DR3 4017688029916313 60.

03:22 Starting science.

S/N of 98 in blue and 170 in red.

03:39 Preset to 2MASS J02322799+3402451.

03:42 Starting science.

S/N of 64 in blue and 86 in red.

03:58 Preset to TIC 238346482. Long slew as AZ is unwrapping.

04:05 Starting science.

S/N of 215 in blue and 395 in red.

04:07 Preset to Gaia DR3 3234582511052921088. DIMM reports 0.8”.

04:13 Starting science.

S/N of 90 in blue and 167 in red.

04:31 Preset to Gaia DR3 3328584192518301184.

04:33 SX Guider picked up the wrong target. Steve is correcting it. DIMM reports 1”.

04:34 Starting science.

S/N of 91 in blue and 166 in red.

04:48 Preset to HD37424.

04:50 Steve is nudging in the DX GS.

04:43 Starting science. This is a 9th mag target and has been set up for a 20min exposure. After discussion with the observers I have changed it to 2x10mins.

05:09 The first 10min exp has very high counts, up to 60k in the red and 53k in the blue. I have split the remaining exposure into 2x5mins.

05:13 5mins looks much better, but we will also take a 1min exposure to ensure that the peaks in the red are good. S/N for all exposures taken are in the PEPSI log.

05:17 Preset to Gaia DR3 3157581134781556480.

05:19 Wrong GS picked up on DX, Steve is nudging in the correct one.

05:21 Starting science.

S/N of 109 in blue and 176 in red.

05:37 Preset to 2MASS J03314936+3929252.

05:39 No GS found on DX, Steve is performing a pointing correction.

05:41 Resending preset. All good on this side.

05:44 Starting science. DIMM reports 1.2”.

S/N of 57 in blue and 111 in red.

06:04 Preset to 2MASS J03261821+4902056. DIMM reports 0.8”.

06:06 Starting science.

S/N of 121 in blue and 155 in red.

06:14 Preset to Gaia DR3 3381217539262727936

06:16 No GS found on DX. Steve is performing a pointing check.

06:20 Preset to target again, no problems this time.

S/N of 106 in blue and 208 in red.

06:41 Preset to Gaia DR3 3371410617096216448

06:43 Starting science.

S/N of 143 in blue and 188 in red.

06:54 Preset to Gaia DR3 3383631280821336448.

06:56 Starting science.

S/N of 106 in blue and 165 in red.

07:14 Preset to 2MASS J06452759+2539443.

07:16 Starting science. DIMM reports 1.3”.

S/N of 58 in blue and 104 in red.

07:38 Preset to 2MASS J06230751+2345261.

07:40 Starting science.

S/N of 59 in blue and 92 in red.

08:01 Preset to 2MASS J06163552+2319094.

08:02 Wrong GS acquired on DX, Steve is correcting it.

08:04 Starting science.

08:21 Preset to 2MASS J12080263+311103. 1st pass of 3.

S/N of 148 in blue and 232 in red.

08:38 Preset to Gaia DR3 3072979835351666304. Long slew.

08:41 Starting science.

09:01 Preset to TIC296841367.

09:03 DX guider locked onto a glint. Steve is correcting.

09:04 Starting science.

09:07 Reconfiguring to LUCI.

## LUCI

09:20 Preset to bdp30d2047, telluric for J1004. LUCI LS.

09:21 MODS error on LUCI2.

09:27 The grabber appears to be in its negative limit. The only open mask slot is for the 0.75” slit.

09:29 Calling Dave T.

09:55. Resolved, but we are out of time if we want to get on our priority PEPSI target.

09:57 LUCI is in a safe state. Reconfiguring to PEPSI.

## PEPSI

10:15 Preset to 2MASS J12080263+311103, 2nd pass of 3.

10:19 Starting science!

S/N of 126 in blue and 208 in red.

10:31 Preset to 2MASS J16420351+1635379. Slewing from 88 degrees in elevation to 31 degrees, we expect to have to make a pointing correction.

10:35 As expected we need to correct the pointing.

10:37 Resending preset to science target.

10:41 Starting science. Exposure time increased from 27mins to 30 mins as we have time to fill and this is a fainter source.

S/N of 45 in blue and 81 in red.

11:13 Preset to 2MASS J17472838+5106228.

11:16 Starting science.

S/N of 62 in blue and 125 in red.

11:33 Preset to 2MASS J18042583+2753293

11:38 Starting science.

S/N of 64 in blue and 125 in red.

11:51 Preset to 2MASS J18115616+2114115.

11:54 Starting science.

S/N of 48 in blue and 91 in red.

12:06 Preset to 2MASS J18072928+1513131.

12:08 Starting science.

S/N of 44 in blue and 89 in red.

12:24 Preset to 2MASS J12080263+311103, 2rd pass of 3.

12:27 GS not found on DX. Steve is making a pointing check.

12:30 Back to science target.

12:32 Starting science.

S/N of 114 in blue and 224 in red.

12:44 Preset to 2MASS J18491003+2935003.

12:46 18 degree twilight.

12:47 No GS found on DX, Steve is correcting the pointing.

12:50 Sending the science preset.

12:52 Starting science.

13:02 The DIMM reports 0.9”.

S/N of 54 in blue and 127 in red.

13:10 End of science, closing the enclosure.

13:14 12 degree twilight.

13:17 Taking PEPSI cals.

14:04 Sunrise