OSURC Nightlog 20221014UT

Observer*: Olga Kuhn
Lead Partner Observer*: Rick Pogge, Subhash Bose, Michael Tucker
Telescope Operator: David Gonzalez Huerta
AO Support*:
*** = from home**

Night Info (AZ Time):

- Sunset: 17:52
- Nautical Twilight Ends: 18:42
- Astro Twilight Ends: 19:11
- Moonrise: 20:15
- Astro Twilight Starts: 05:01
- Nautical Twilight Starts: 05:30
- Sunrise: 06:19
- Moon Illumination: 80.1%

Plan:

PEPSI CD2/CD4 configuration: J2148 and J2354
MODS: ND_J0053, then OSU_ASASSN ELLJ023227 and ELLJ001532, plus standard star
LUCI: OSU_XMDs long-slit spectra, if possible the high priority UVa_nirjets target aborted last night by clouds

Summary:

A pretty productive night. We started with PEPSI and observed two targets using CDs 2 & 4. The log of PEPSI observations & calibrations is osurc_20221014UT.txt At 21:20 we switched to MODS and obtained a nice series of spectra on j0053 as well as the two bright ELLJ* stars that were accessible. At 09:30, we switched to LUCI and observed G191-B2B and GD71 for OSU_XMDs_LUCI as well as Mrk71 and its telluric, finishing just around 12-deg twilight. Cirrus started to come through about ⅔ of the way through the Mrk71 observation. The seeing started out subarcsecond, then started to worsen, puffing up to 2" near the middle of the night, but it stabilized again towards the end and was back down to 0.6" near the end.

Issues:

The scripts for GD71 and G191-B2B need some revisions: use z for the slit image and probably just a single image through z or BrG will suffice for the field image.

The seeing was <0.8" when we observed Mrk71 and with no clouds, HeI may be saturated (saturation not necessarily at 65k for LUCI - the lines appear quasi-flat-topped), but when clouds came, this pushed the counts down.

Weather:

Clear conditions for most of the night, although around 12 UT clouds started to come in. The seeing was mostly subarcsecond, although it went up to 2" at times during the middle of the night.

Night/Closed Dome Log (times are given in UT)

00:59 David opened the enclosure: Clear skies, temp 7.8, humidity 58, winds 5.8

01:14 Checking pointing and collimation near the first target.
01:15 Slewing to the first target - early still, 30 min before 12-deg.
01:26 — waiting for the sky to get darker.
01:40 — starting profile tracking to ensure it stays - looks good, background low.

2MASS J21481548+0836136

01:41 Starting the exposures
01:43 tiny jump visible on DX WFS image
01:44 Noting that the WFS images on SX are not arriving so I resent the preset on SX only. David is restarting GCS on SX. During this time, the guide star has FWHM 0.5"
01:50 Sent SX preset only again. This caused DX WFS to hang/pause, but it eventually restarted.
01:56 Seeing 0.68/0.62" on SX/DX. Guide flux is steady

After we sent the presets, even though SX only, there was about 1 minute, at 01:48 and at 01:51, when there was no light in the photon counter (which is near the entrance to the spectrograph).

SNR ~120 in CD4 and 40 in CD2.

BinaryJ2354

02:17 Slewing
02:19 Starting the exposures. The seeing is 0.76/0.81" on SX/DX.

03:02 in the first 40-minute spectrum, SNR ~ 19 CD2 and 91 in CD4.

03:06 Seeing continues to be 0.82/0.86" on average.
03:18 Seeing is now 0.68"
03:42 On 2nd set of spectra: SNR ~ 21 CD2 and 102 CD4
04:21 3rd set of spectra finished: SNR ~21 CD2 and 103 CD4

21:21 Reconfiguring to MODS

21:32 Checking pointing and collimating near the first target.

ND_j0053 (dual grating, 0.8" slit, bin 1x2)

21:53 acqBinoMODS j0053_pa40.acq

Seeing 0.95/1" during acquisition.

m1r: 3 & 4 →offsetxy -0.595 10.271 → 5 → dx = +0.123 → 6 , dx = -0.12" → 7
m2r: 3 & 4 → offsetxy 3.477 7.476 → 5 →dx = -0.185" → 6 , dx = -0.12" → 7

~05:08 execBinoMODS j0053.obs

UT	m1b	m1r	m2b	m2r	airmass	seeing SX/DX
05:10	3-42	8-49	3-45	8-51	1.26	0.9"/1"

06:10 Seeing 0.8/0.95" on DX/SX guider.

06:32 The seeing is puffing up a bit — it went to 1.7" for a few seconds.
06:53 - Seeing puffed up to 2"

07:39 - Seeing seems to have settled down again, to about 1". We are taking a few extra exposures with MODS2 to wait for MODS1 to finish (MODS1 blue is the slowest channel.)

ELLJ001532

07:51 acqBinoMODS ELLJ001532_UT1100_edit.acq
where I edited the PA to be 95 deg to match the PARANGLE at the predicted midpoint better.

m1r: 49 & 50 → offsetxy -0.252 10.939 rel → 51 → dx -0.18 → 52 → -0.123 → 53, ok
m2r: 52 & 53 → offsetxy 3.697 8.153 rel → 54 → dx 0.246 → 55 → -0.123 → 56 → +0.123" → 57 → -0.06 → 58

With the short exposures - we're chasing seeing. The guide star on GCS is also bouncing sometimes out of the 1" circle, though most of the time it looks like about ~0.2".

08:06 execBinOMODS ELLJ001532.obs

UT	m1b	m1r	m2b	m2r	airmass	seeing SX/DX
01:06	43-45	54-56	46-48	59-61	1.111 - 1.144	1"

ELLJ023227

08:30 acqBinoMODS ELLJ023227_UT0830.acq
Quite close to zenith - 87 deg, but setting.

m1r: 57 & 58 →offsetxy 0.517 9.301 rel → 59 dx=-0.15 → 60 dx=-0.15 → 61
m2r: 62 & 63 → offsetxy 4.926 6.413 rel → 64 dx = -0.15" → 65 dx = -0.15→ 66

08:43 execBinoMODS ELLJ023227.obs

UT	m1b	m1r	m2b	m2r	airmass	seeing
08:43	46-48	62-64	49-51	67-69	1.004	1.3"

G191-B2B

09:06 acqBinoMODS g191b2b.acq

m1r: 65 → offsetxy 0.106 10.262 rel → 66

m2r: 70 → offsetxy 4.184 7.214 rel → 71

09:16 execBinoMODS g191b2b_dualgrat.obs

UT	m1b	m1r	m2b	m2r	airmass	seeing
09:16	49	67	52	72	1.118	0.9"/1"

09:32 Reconfiguring to LUCI

09:44 Slewing to a star for pointing correction & collimation. Putting the 1" slits in the FPU to save time later.Avg seeing was about 0.7/1 on SX/DX.

OSU_XMDs_LUCI/G191-B2B

02:57 Slewing to the target

L1: 1,2,3
L2: 789

Slit image used cross-filters and we could not see the slit. I used the instrument manager GUI to remove the OH filter, leaving only z, and used the telsvc GUI to make the offset of -10 to move the star off the slit. Then I took a new slit image:
L1 4
L2 10 (but there is a star is on slit image for L2… so this is confusing)

Nevertheless, aligned using the first field image at offset -10, 0 and the new slit image.
L1: 1 and 4 → 10.1968 -0.2839 → 5, good
L2: 7 and 10 →tweaking the star to center up… fighting seeing but 14 looks ok
The resulting confirmatory through-slit images show two stars on the slit (as expected for G191-B2B at PA=0).

10:23 Starting the exposures.
L1: 6-11
L2: 15-20

OSU_XMDs_LUCI/GD71

I edited the script to take a single source image at -10,0, the slit image at z and to take the through-slit confirmatory image at z (the GD71_edit.xml script is not perfect - it crosses & then uncrosses filters before taking the through-slit confirmatory image.. The template should be the telluric acq script, although not crossing the filters and a source/background might help with identification. As it was, I saw just 2 or 3 stars in the single image and surmised that the closest to the field center was the target).
L1: 12 & 13 → 10.4147 -0.2191 → 14, dx = -0.15" → 15
L2: 21 & 22 → 6.8592 0.1452 → 23 , centered

Curious why the calculated offset is smaller for L2 - same for G191-B2B - guess the pointing or slit position differ for L1 and L2.
For this target, no need for OH+z cross-filters - 9000 counts in 2.5s x 2 at z in through-slit images.
L1 acq image is much fainter looking than L2's. Haven't noticed for the other targets, but this one is very close to the moon and the background could be elevated - did not check this but only compared to try to verify that we had the same target on both sides.

10:51 Starting the exposures
L1: 16-21
L2: 24-29
10:57 Seeing is 0.8" on average.

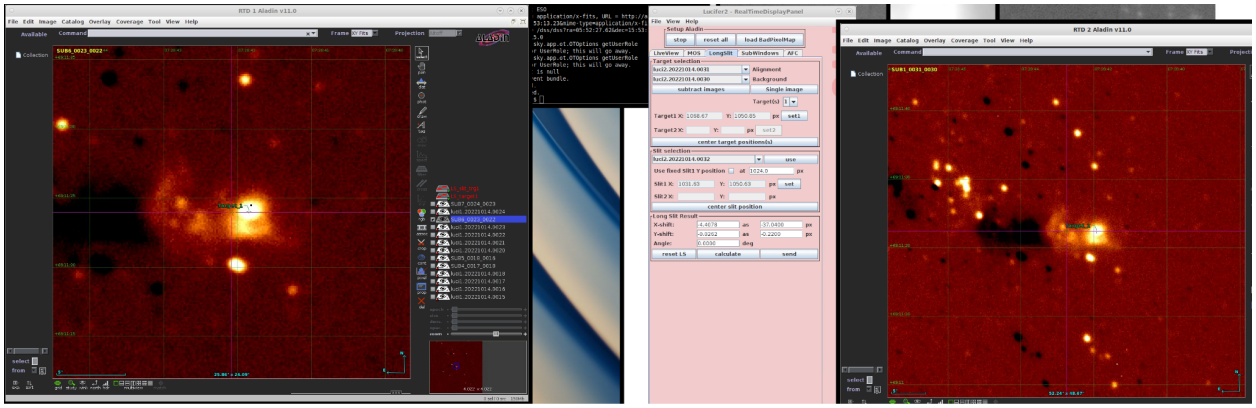
OSU/XMDs_LUCI/Mrk71

Mrk71

11:11 Slewing to the target

L1: 22 & 23, 24 → -1.2039,-0.0895 to move target at (1052.63,1058.39) to slit at (1042.21, 1057.63)
L2: 30 & 31, 32 → -4.4078, -0.0262 to move target at (1068.67, 1050.85) to slit at (1031.63, 1050.63)

L1: 25 well-centered
L2: 33, dx=0.12" → 34

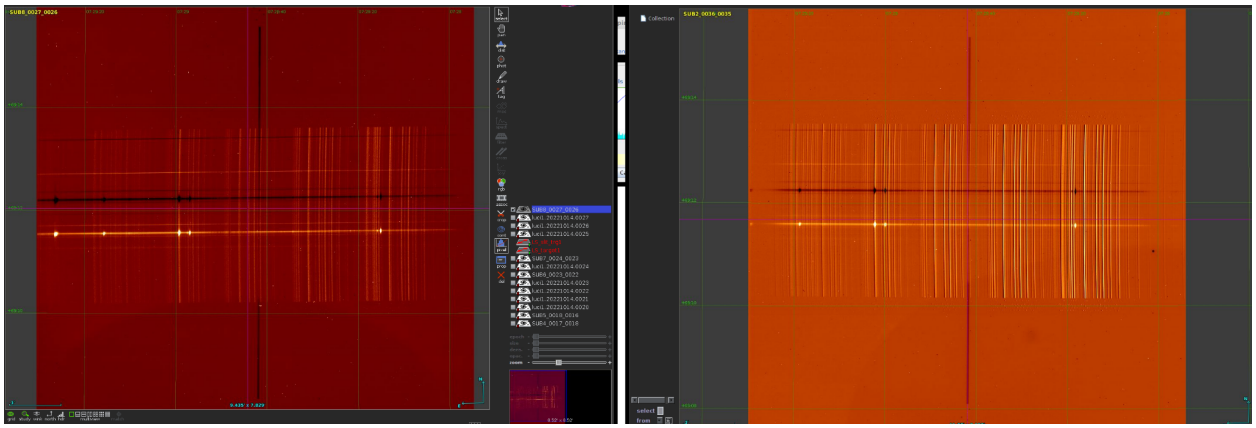


11:28 Starting the exposures. Seeing is 0.8"
L1: 26-31
L2: 35-40

11:37 The seeing has gone down to 0.65/0.7"

The first spectra read out. I'm concerned that HeI may be very close to if not saturated. The peak counts are 45000 in L1 and 50400 in L2 (I think that with LUCI saturation can occur at <65k because the image is a difference of the reads at the beginning and end of the exposure.)

The first pair subtractions:



12:04 On the 4th set of spectra. The allsky shows clouds passing over now and they are just showing up in the guide star flux plot, dropping the signal by ~0.5 mag.
12:10-12:20 - guide signal dipped by about 3-4 mags and came back
12:33 finished

HIP32549

12:33 Slewing to the telluric
L1: 32 & 33 → -9.9506, -0.3393 → 34, ok
L2: 41 & 42 → -13.1602 -0.0928 → 43, ok

12:40 Taking data

L1: 35-36
L2: 43-44
Peak counts around 10,000

12:56 David is closing. Abandoned near-IR skyflats because there is now cirrus covering the sky and passing over.

Calibrations:

23:54 PEPSI calibrations for 200 mic fiber & CDs 2 & 4 and another round at 12:58 while closing the enclosure.

UVa_nirjets skyflats J+H, PaB+FeII, K+K, BrG+H2 - not done since there were passing clouds and the field Blank1 was close to the moon.

MODS: 1x2 pixflats, 0.8" slitflats, bias 1x2, comps (if time)
(unbinned - pixflats, 1" slitflats, comps, bias, 5" slit flats - to be done Fri afternoon)

	m1b	m1r	m2b	m2r
pixflats bin12	52-56 57-61	70-74	55-59 60-64	75-79
bin12 0.8" slit flats	62-64 65-67	75-77 78-80	65-67 68-70	80-82 83-85
bias bin12	68-72	81-85	71-75	86-91