# Night Log for UT 20230710

Partner observers: Donald Terndrup, OSU Service Observer: Jenny Power Telescope Operator: Steve Allanson

### Plan:

Start with LUCI1, possible LUCI2AO, end with MODS.

# Summary:

<u>Calibrations</u> <u>UM\_CNe - TCrb</u> <u>UVa\_nirjets\_AO\_IRAS18134-1942</u> <u>Weather Loss</u> <u>OSU\_XMDs\_MODS - WD1911</u> <u>OSU\_XMDs\_MODS - WD2117</u> <u>Standard - Feige110</u> Calibrations

### Issues:

Telescope nudges continue to be an issue: [lbto@obs1 ObserverSupport]\$ ./nudgepredict.py -d 20230710 -e 12 -b 9 ./nudgepredict.py script version of 31-May-2023 5195750399.0 end MJD sec for the end of this UT day 60135 end MJD day 5195707200.0 end MJD sec corrected for endhour 12.0 5195674800.0 start MJD sec using backhour 9.0 20230710 is the day to be plotted. 3.0 start hour using backhour 9.0 end hour 12.0 These UT start times will have a nudge if the telescope is tracking. 03:13:30 03:47:38 04:21:46 04:55:54 05:30:02 06:04:10 06:38:18 07:12:26 07:46:34 08:20:42 08:54:50 09:28:58

10:03:06 10:37:14 11:11:22 11:45:30

### Overview:

0:50 Wake MODS and running simSnap

# Calibrations

1:26 Moving the blind mask in place on LUCI1 to take some LUCI1 darks. Steve is executinghis test preset and then we will take some darks.

5x[2x5.0] LIR INT luci1.20230710.0006-0010 5x[1x120.0] MER NORM luci1.20230710.0011-0015 5x[1x90.0] MER NORM luci1.20230710.0016-0020 5x[2x10.0] LIR INT luci1.20230710.0021-0025 5x[6x3.0] LIR INT luci1.20230710.0026-0030 5x[5x6.0] LIR INT luci1.20230710.0031-0035 5x[5x5.0] LIR INT luci1.20230710.0036-0040 5x[8x2.51] LIR INT luci1.20230710.0041-0045 5x[3x2.51] LIR INT luci1.20230710.0041-0045 5x[2x43.0] LIR INT luci1.20230710.0051-0055 5x[2x43.0] LIR INT luci1.20230710.0056-0060 5x[1x5.0] LIR NORM luci1.20230710.0066-0070 5x[1x20.0] LIR NORM luci1.20230710.0071-0075

5x[20x2.51] LIR CUBE luci2.20230710.0006-0010 5x[1x2.51] LIR NORM luci2.20230710.0011-0015 5x[2x30.0] LIR CUBE luci2.20230710.0016-0020 5x[1x30.0] LIR NORM luci2.20230710.0021-0025

1:35 Powering up the DX WFS

2:33 Moving the 0.5" longslit mask into the FPU on LUCI1 and N30 into the FPU on LUCI2.

2:35 Sunset

2:41 Steve is opening the chamber.

3:02 Steve is pointing and collimating. Seeing is  $\sim$ 0.75" on the WFS. Mostly clear overhead with some clouds to the south.

# UM\_CNe - TCrb

3:05 Slewing to TCrb for acquisition.

reset LS	calculate		send				
Angle:	0.0000	deg					
Y-shift:	-0.1567	as	-1.3300	рх			
X-shift:	-9.3922	as	-79.7300	рх			
Long Slit Result							

Additional 0.046" in X to really center up. Waiting for 12 degree twilight to start observations.

3:29 DIMM is reporting 1", guider and WFS are reporting 0.65". Mostly clear with some clouds to the south.

3:32 12 degree evening twilight. Starting science on TCrb G210 @0.96 z luci1.20230710.0085-104

3:45 Starting G210@1.25 J on TCrb. Seeing 0.8" on the WFS
G210 @1.25 J luci1.20230710.0105-124
3:48 Seeing deteriorated to 0.9-1.2" on the guider.

3:57 Starting G210@2.2 K on TCrb. Seeing 1" on the Guider G210 @2.2 K luci1.20230710.0125-144

4:01 Offset failed. Sextractor timeout on Guider. Retrying line item failed. Steve is investigating what happened. External centroiding program timeout, problem with receiving timeout. Sample buffer full. Sent a (0,0) offset through the telescope gui. Success. Resending line item success. Steve will add a note to the appropriate issue tracks.

4:07 Seeing is 0.8-1.22. Mostly clear overhead with some clouds to the south.

4:10 18 degree evening twilight

4:14 Slewing to telluric HD145647

Long Slit Result						
X-shift:	-9.4605	as	-80.3100	рх		
Y-shift:	-0.7044	as	-5.9800	рх		
Angle:	0.0000	deg				
reset LS	calculate		send			

Additional: 0.43 in X to center target in slit.

4:26 Starting science. Seeing 0.73" on the guider. Clouds to the south west, and maybe thin cirrus moving in.

G210 @0.96 z luci1.20230710.0151-158

4:33 Starting G210@1.25. I noticed the telluric was set for J@1.21 but the science was at 1.25 so adjusted the telluric to match the science. I missed this in script checks earlier in the week. Seeing 0.67" on the guider.

G210 @1.25 J luci1.20230710.0158-165

G210 @2.2 K luci1.20230710.0166-174

4:45 Seeing is 0.56" on guider. Clouds to the south but mostly clear overhead.

Steve noted some lightning off to the west. 4:50 Reauthorizing as LUCI2 only

4:56 Steve is pointing and collimating near our first target

# UVa\_nirjets\_AO IRAS18134-1942

5:05 Preset to IRAS18134-1942. Doug is closing the loop.

- All light was appearing in two pupils suggesting either vibrations or problem with ADC
- May have been a wonky background

5:14 Resending preset. I had a typo in my remade script

5:17 Resending as preset as a 15.8 mag (to match as seen on OCAM) after Doug rehomed the ADCs and filterwheels

- OCAM reporting 15.2 mag
- Closing bin3 403 Hz, NCPA on

5:22 Taking our first science image in Ks

Luci2.20230710.0026 (fieldstop misaligned)

5:28 Field stop became misaligned when setting up. Realigned and retaking first science image Ks Luci2.20230710.0031

5:29 Paused for Nudge: 05:30:02

5:30 resuming science Ks Luci2.20230710.0032-35

5:35 Star lost to clouds. DIMM reporting 0.75.

5:43 Star is back with 0.4 mags of extinction.

• Closing with no NCPA or GOpt. With these conditions the benefits are negligible Ks Luci2.20230710.0036

5:46 And more clouds. Target lost during image Luci2.20230710.0037

5:50 Another sucker hole. We are reclosed with 0.2 mags of extinction. Retaking dither position of 0037. The satellite looks like conditions will just deteriorate so we are just taking a few images to try and obtain something for this program Luci2.20230710.0038

5:52 We have about 1.5 mags of extinction now

#### 5:53 Complete overcast.

5:56 closed with 1.3 mags of extinction. Ks Luci2.20230710.0040



6:03 We completed one pass through the Ks on IRAS18134-1942. Steve is closing for threatening clouds.

# Weather Loss

#### 6:03 Closed for Clouds.

7:06 Nearby rain on the radar. No precipitation yet on the summit. Heavy, variable clouds continue to waft through.

8:05 It's now sprinkling on the summit.

8:57 Starting to look better. With recent precipitation and still some thick clouds looming around we will wait to see. But it looks like it's breaking up.

9:08 Looks better, we are going to give it another shot. Still some stuff to the east and north. We will open with caution since there was precipitation in those clouds.

# OSU\_XMDs\_MODS - WD1911

9:18 Opened back up. Steve is executing a pointing and collimation check near WD1911. Steve just saw the lights flicker suggesting a possible power bump, but no obvious issues.

9:24 DIMM is reporting 1.6", guiders match. Temp dropped 2.5 degree and humidity is up so not too surprising we have bad seeing after what just moved through. Conditions now mostly clear overhead with some light cloud along the horizon.

9:26 Preset to WD1911 for acquisition. Seeing variable 1.1-1.8" on the guiders, typically around 1.5-1.7. DIMM reporting 1.6-1.7"
MODS1:
Computed Slit Alignment Offset: dX = -1.083 arcsec dY = 11.967 arcsec
MODS1 Offset Command: offsetxy -1.083 11.967 rel
Additional:
MODS1 Offset Command: offsetxy 0.584 0.092 rel

MODS2: Computed Slit Alignment Offset: dX = 3.308 arcsec dY = 8.539 arcsec

MODS2 Offset Command: offsetxy 3.308 8.539 rel Additional: MODS2 Offset Command: offsetxy 0.330 -0.289 rel

9:33 Starting science, Seeing 1.55' on the guiders, 1.85" on the DIMM:



RedGrating: mods[½]r.20230710.0006-8

Mods1red readout delay

9:49 Starting blue grating on WD1911. Seeing improving. Reporting 1" on the dimm now. Temp suddenly rose back up 3 degrees since we opened and humidity dropped back down so whatever change of air that was moving through has passed and we have returned to conditions comparable to the first half of the night.

BlueGrating mods[½]b.20230710.0003-5 9:59 mods2 blue readout delay. Seeing 0.8" on the guiders now., 0.88" on the DIMM

# OSU\_XMDs\_MODS - WD2117

10:06 Preset to WD2117 for acquisition. Seeing 0.62-0.72" on the guiders. MODS1: Computed Slit Alignment Offset:

dX = -0.963 arcsec dY = 13.044 arcsec

MODS1 Offset Command: offsetxy -0.963 13.044 rel

MODS2: Computed Slit Alignment Offset: dX = 3.433 arcsec dY = 9.056 arcsec MODS2 Offset Command: offsetxy 3.433 9.056 rel

10:12 Starting science. Seeing 0.7-0.8" on the guider. Some clouds passing through. RedGrating: Mods[½]r.20230710.0011-13

10:21 Some clouds moving through during the red grating images, particularly the first. The clouds appear to be moving out.

10:24 Starting blue grating on WD2117 mods[½]b.20230710.0006-8 Seeing 0.75-0.85" on the guiders.

# Standard - Feige110

10:38 Preset to feige 110. Time out on setting partner. Was not requesting a retry

10:41 18 degree morning twilight. Aborted and resent preset to Feige110. Far slew. MODS1: Computed Slit Alignment Offset: dX = -0.855 arcsec dY = 12.176 arcsec MODS1 Offset Command: offsetxy -0.855 12.176 rel Additional: MODS1 Offset Command: offsetxy -0.241 -0.120 rel MODS2: Computed Slit Alignment Offset: dX = 2.808 arcsec

MODS2 Offset Command: offsetxy 2.808 8.297 rel Additional: MODS2 Offset Command: offsetxy 0.384 -0.401 rel

dY = 8.297 arcsec

10:50 Starting science on Feige 110, red grating. Seeing 0.7" on the guiders.



Mods[<sup>1</sup>/<sub>2</sub>]r.20230710.0017-19 A singular cloud appeared directly where we are pointed, impacted the red grating images.

11:01 Starting blue grating, seeing 0.85" on the guiders. That poof of cloud disappeared.  $mods[\frac{1}{2}]b.20230710.0009-11$ 

11:13 All done. Closing up. Putting mods to bed. I will run some LUCI calibrations after we close up.

11:18 12 degree twilight

12:15 sunrise

## Calibrations

LUCI2 N30 Imaging flats

- H2 luci2.20230710.0044-51 lamp off, luci2.20230710.0052-56 Halo1
- BrG luci2.20230710.0057-61 lamp off, luci2.20230710.0062-66 Halo1

• Ks uci2.20230710.0067-71 lamp off, luci2.20230710.0072-76 Halo1



Dust donut on Ks Imaging flats:

This was likely there during science and only illuminated by the flatfield. lamp

LUCI1 G210 with 0.5" longslit Flats and Arcs

- G210 @0.96 z luci1.20230710.0175-179 lamp off, luci1.20230710.0180-184 halo2 \*\* Counts were far too low. Wrong lamp? Halo1 produced reasonable counts. Reviewing library, Halo1 should be used for z & J, and Holo2 for K. Corrected and running: G210 @0.96 z Luci1.20230710.0185-189 Halo1
- G210 @1.25 J luci1.20230710.0190-194 lamp off, luci1.20230710.0195-199 halo1
- G210 @2.2 K luci1.20230710.0200-204 lamp off, luci1.20230710.0205-209 halo2
- G210 @2.2 K lamp off luci1.20230710.0211-12, luci1.20230710.0213-13 Ne
- G210 @1.25 J lamp off luci1.20230710.0214-15, luci1.20230710.0216-17 Ne
- G210 @2.2 K lamp off luci1.20230710.0218-19, luci1.20230710.0220-21 Ar