# OSURC Nightlog 20220619 UT

Observer\*: Olga Kuhn Lead Partner Observer\*: Mark Whittle (UVa) AO Operator\*: Juan Carlos Guerra Telescope Operator: Josh Williams \* = from home

## Plan:

The plan is the same as last night, which was lost to weather:

Start with PEPSI, to observe the VATT source in twilight, 3 OSU sources and then uSco plus the associated calibration star. Then, switch to the MODS, given the cloud cover, to get the bright OSU\_ASASSN targets and finally to LUCI for the AO program and ND program.

# Summary:

We could not open due to clouds and high humidity. I obtained LUCI imaging flats for the UVa\_nirjets SL program and attempted the flats for ND\_j0053K. I will do the N30 UVanirjets flats tomorrow.

### **Issues**:

There was a power bump at 07:40 and the observatory switched automatically to generator power. Several systems went down, nonetheless: air support for both M1s, both adSecs went into failure mode, the chiller tripped off, the AZ, EL drives needed to be reset. Hopefully the switch back to commercial power goes smoothly. No reason known for the power outage but there were heavy thunderstorms in the area.

When taking calibrations, we noticed that the ND\_j0053K program requests a central wavelength, 2.1 mic, which is out of the range to which the grating can be tilted. 2.1101 mic is the lower limit of this range.

We also noticed that the N3.75 imaging flats for the SL UVa\_nirjets program had very high counts at K - even the lamp off ones. I think this is due to the warm chamber temperature, 15 C.

And the LUCI1 J flats which followed these K-band flats had a feature like persistence that faded rapidly. We therefore took a few sets of J+H flats. The table notes which are good and which are affected by this persistence.

## Weather:

Clouds, rain, thunderstorms, RH rose above >95% around sunset and never went down.

## **Preparations:**

Both MODS are up and running and test images taken. Both LUCIs are up and test images taken - I realigned the pupil and FS. The pupil alignment has been fairly stable from month to month, but this time adjustments were needed and made. LBCs are up and running PEPSI - is up and running.

mods[1,2][b,r].20220619.NNNN.fits luci[1,2].20220619.NNNN.fits lbc[b,r].20220619.hhmmss.fits

# Overview (times are given in UT):

02:37 Josh wrote: Staying closed at sunset due to thick cloud cover and RH > 90%.

05:00 RH is 99.9% and there are clouds.

07:39 There was a small power bump. Josh is resetting the AZ and EL drives. Looks like a lot more went down - The primaries lost air pressure and paniced. LUCI1 and LUCI2 lost connection to the weblserver IO2 (192.168.0.22 and .32). Both adSecs went into a failure state. Elliott was up and it seems that now we can connect to these LUCI ports.

```
2022.06.19 07:40:44 s | user medium | luci.luc | Luci ONE | ONE_WebIOCalibr |
PortServerConnection.java#disconnect(241) | Disconnecting from
"192.168.0.32/192.168.0.32" port 80.
2022.06.19 07:40:44 s | user medium | luci.luc | Luci TWO | TWO_WebIOCalibr |
PortServerConnection.java#disconnect(241) | Disconnecting from
"192.168.0.22/192.168.0.22" port 80.
```

These came back on their own - initialized these since they came up reading that the cal unit was in the ARGOS lockout, not out as it was.

07:40 Starting to take LUCI flats. No... the power bump has delayed that. The observatory is on generator power.

ICS is running, but not receiving cooled glycol. The chiller is not working.

08:30 the chiller is running again.'

09:35 Taking LUCI flats for the SL UVa\_nirjets program. But the lamp-off J flat has some structure which has faded through the lamp off series - started at 30 counts above the background, approx.

45-49

50-54

10-14

15-19



09:49 LUCI1 FW2 error moving from J to K. Resolved by initializing.

10:18. There were some odd instabilities in LUCI1 - electronic or stray light? The pattern above and then also one where, with the blind filter, there was a discontinuity bein count leves for the first  $\sim$ <sup>1</sup>/<sub>4</sub> columns and those to the right. Persisted with a filter (zJ), but K looked ok. And after the good J+H set, I took a blind and it went away.

10:22 Start in earnest to take flats (repeat K+K, J+H and then do NB). These will start with L1: 85 and L2 49. But, the K flats, even with the minimum DIT have 30k ADU (lamp off) and 35K (lamp on). These leave persistence — the netx J flat series was just like what is shown above.

I obtained the cal-unit flats for UVa\_nirjets, but the K+K have very high counts, even in the lamp-off exposures. These already use the minimum DIT and there is nothing to do to reduce the count level. It may just be too warm in the dome (15 C).

11:26 ND\_j0053K flats. These do not work - 2.1 mic is out of range for the grating tilt mechanism.



2.1102 works (zen, rotator parked).

# LUCI

#### LUCI closed-dome cals

I aligned the N30 FS and took a few closed-dome flats with the N30 camera and FS, using the UVa\_nirjets\_AO script to provide a look. (I will repeat on the night that the target is observed so as to match the field position, since it may change a bit). There are some donuts on the flats, but I do not see these with the N3.75 camera or in all 3 filters: H2, BrG and Ks. Are they on the N30 camera and filters?

20220617 UT luci1.20220617.NNNN.fits				
Ks (N30)	5-9 lamp off 10-14 lamp on			
BrG (N30)	15-19 lamp off 20-24 lamp on			
H2 (N30)	25-29 lamp off			

30-34 lamp on

20220619 UT luci[1,2].20220619.NNNN.fits							
Program	Filters	L1	L2	Comments			
UVa_nirjets	К+К	50-54 55-59	15-19 20-24	very high counts			
	J+H	60-64         25-29           65-69         30-34		L1 J-band lamp off flats amplitude ~30 counts			
	J+H	75-79 80-84	39-43 44-48	These look good. The L1 flats do not have this ghost-like persistence feature (shown above).			
	K+K	85-89 90-94	49-53 54-59	With no lamp, counts 30k, with Halo3, 35k. 15 C in dome -			
	J+H	95-99 100-104	60-64 65-69	Show the persistence.			
	J+H	105-109 110-114	70-74 75-79	good, but in teh bottom right of L1 lamp-on flats, something around the WFS stage is moving! (moth? see screenshot below)			
	BrG+H2	121-125 126-130	84-88 89-93				
	PaB+Fell	131-135 136-140	94-98 99-103				

	J+H	141-145 146-150	104-108 109-113	
ND_J0053K	G210 2.1mic 0.75" slit			



J-band lamp-off LUCI1 images taken immediately after K band, high count level (30-35k) flats. On the left luci1.20220619.0060 and on the right luci1.20220619.0064.fits



L1 J lamp-on flats 110-114 with the moving shadow at the bottom right - a moth?

#### LUCI darks

The nirjets\_AO dark script was missing the 30s x 2 darks, so I added these. I used savemode=cube, like the data. I will add a set of  $30x \times 2$  darks to those for the SL program for comparison. The save mode of the darks should not need to match the data.

program	L1	L2	DIT	NDIT	readmode	savemode
UVa_nirjets and UVa_nirjets_AO	5-9,10-14	56-60,61- 65	2.51	20	LIR	integrated
	15-19	66-70	30	2	LIR	integrated
	20-24	71-75	10	6	LIR	integrated

UVa_nirjets_AO	25-29		2.5	20	LIR	cube
	30-34		2	30	LIR	cube
ND_j0053K	35-43	76-84	60	1	MER	norm
	44-52	85-93	30	1	MER	norm
	53-67	94-108	5	3	LIR	norm
	68-72	109-113	5	3	LIR	integrated

## LBC

#### 20220318 UT:

Three sets of 25 biases taken at 03:19. These are mostly free of noise. In the second set, we had the following error and as a result only got about half as many LBCR as LBCB biases. But we repeated the series once more after that.

022/06/18 03:40:10.196644 W R ROTATORtimeout error on motion (maybe too largemechanical friction problem) [src/rotator/rotator.c:1777]2022/06/18 03:40:10.326779 N R ROTATOR2022/06/18 03:40:10.567384 W R ROTATORGOYA query:>CTRL\_D< answer:>E0X0\$2022/06/18 03:40:10.567427 W R ROTATORactual position is 66.261 deg2022/06/18 03:40:10.567427 W R ROTATORfailure [src/rotator/rotator.c:1123]

Reloading and replaying the OB resolved the problem.