OSURC Night Log 2021-10-30 UT

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Sunset: 17:37
Twilight Ends: 18:54
Moonrise: 00:44
Twilight Starts: 05:13
Sunrise: 06:31

Summary:

We had clear skies throughout the night. The seeing was generally excellent, often below 0.5” (probably typical was ~0.6” from the guider estimates). Telescope and instruments (PEPSI and LUCI) operated well.

	Program/Object	Goal [UT]	Notes
	PEPSI Observing		
☑	**OSU_AbundLowZ/2MJ2140p285**	01:00 - 01:20	Initial (dodgy) seeing estimate from guider ~1”
☑	**OSU_AbundLowZ/2MJ2315p1113**	01:20 - 01:40	Subarcsec seeing.
☑	**OSU_AbundLowZ/2MJ2319p1732**	01:40 - 01:50	
☑	**OSU_AbundLowZ/2MJ2357p1553**	01:50 - 02:10	
	LUCI Observing		
☐	~~**UVa_BCD_LUCI/J2229**~~ ~~UVa_BCD_LUCI/BDp364912~~		**Scripts problematic (see below).
☐	~~**UVa_BCD_LUCI/PHL293B**~~ ~~UVa_BCD_LUCI/HD255~~		
☑	**UVa_nirjets/CepE**	02:50 - 04:15	**Imaging Guider: ~0.6” seeing

☑	**UM_Flashlights/Flashlights** Fraternal_masks_121_122_sci Twinned_telluric fraternal_masks_123_124_sci	04:20 - 10:00	**Barry updated OBs to fix missing guide star. These are updated on OBS5 observer account mountain machines. - NOT fixed on OBS-N OSURC account (yet). fraternal mode: Mask121 on LUCI1 (zJ) & Mask 122 on LUCI2 (zJ) 34 sequences twinned observations of telluric standard HD 16286 4 sequences fraternal mode: Mask 123 on LUCI1 (zJ + HK) & Mask 124 on LUCI2 (HK) First 19 sequences in HK for both LUCIs, Second 19 sequences in zJ for LUCI1 and in HK for LUCI2
☑	**ND_j0240ir/j0240ir** ND_j0240ir/HIP15984	10:10 - 11:00	Started at 0.6” seeing; ended at 1.5” seeing. Telluric is at 0.7”.
☑	**UVa_nirjets/NGC2071**	11:30 - 12:30	Guider: 0.6” seeing. **Did not complete the last two or so images in the sequence.

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Closed Dome:

UT 22:40 (-1 day): bringing up LUCI GUIs
-running init all
-test darks
L1 0002-0003 -2.51sec dark
L2 0002-0003 -2.51sec dark

UT 23:30 (-1 day) - waking MODS and taking simSnaps
-ok

UT 23:32 - powering up LBCs
-taking test biases
-ok
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UT 00:40 - telescope dome open - LUCI in the beam

PEPSI

Program OSU_AbundLowZ

UT 00:41 - reconfiguring for PEPSI now…

UT 00:44 - opening PEPSI hatches
UT 00:47 - still bright waiting

UT 00:54 - pointing check
UT 01:00 - collimation

UT 01:03 - sending preset to OSU_AbundLowZ/**J2140+2850**
UT 01:06 - starting integration
-SX is dancing around the pinhole a bit..
-ok..took a cycle or three now, its in there
- Seeing estimate from guider ~1”.

UT 01:16 - sending preset to OSU_AbundLowZ/**J2315+1113**
UT 01:19 - starting exposure

UT 01:34 - sending preset to OSU_AbundLowZ/**J2319+1732**
UT 01:36 - starting exposure

UT 01:51 -sending preset to OSU_AbundLowZ/**J2357+1553**
UT 01:53 - starting exposure

- Guider still reporting ~0.6” seeing.

UT 02:08 - completed PEPSI program - reconfiguring for LUCI-Bino
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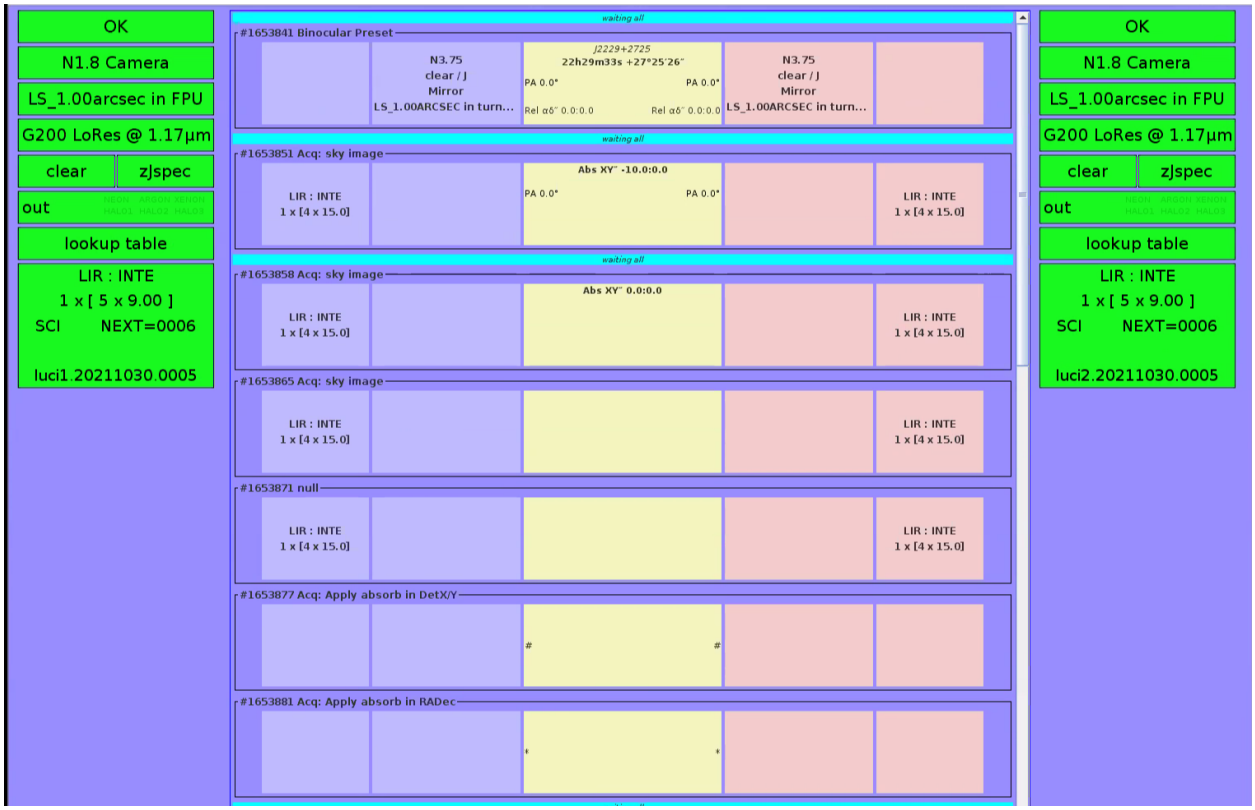
LUCI

UVa_BCD_LUCI/J2229

Going to telluric star first
BDp364912
UT 02:14 - putting 1” LS into LUCI-1 to save a little time during acquisition
UT 02:21 - collimation preset

UT 02:24 - sending preset to telluric star
Close companion next to telluric - see it as extended blob in 2MASS image
Script is a disaster.
Removed longslit in FPU and removed pauses in the script - goes straight from imaging to taking spectra without any acquisition steps
Longslit science target has the same issue - this is NOT how the templates look - screenshot shows most of the problem - missing below is lack of pause and it goes straight to starting spectroscopy with the grating.



UT 02:33 - abandoning this program moving to another program with imaging

-checked the OT file, the targets scripts were altered, steps were removed or hand edited, same issue seen for science targets and telluric - showed observers a comparison with template scripts and science scripts executed previously on-sky

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UVa_nirjets

CepE

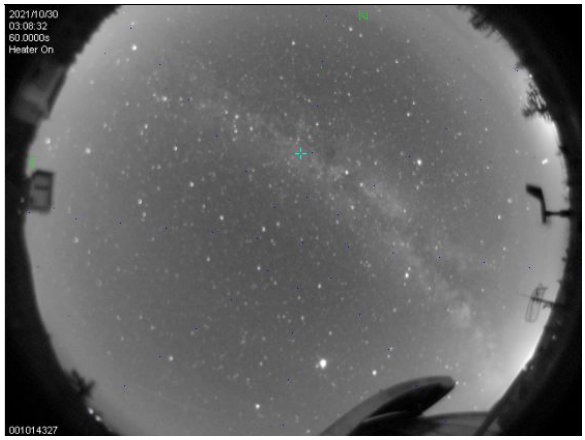
UT 02:35(ish) - preset sent

-noticed the fieldstop for LUCI-2 is shifted a bit - will fix

UT 02:51 - seeing on guiders 0.5”-0.7” - skies look clear - nice details in jets

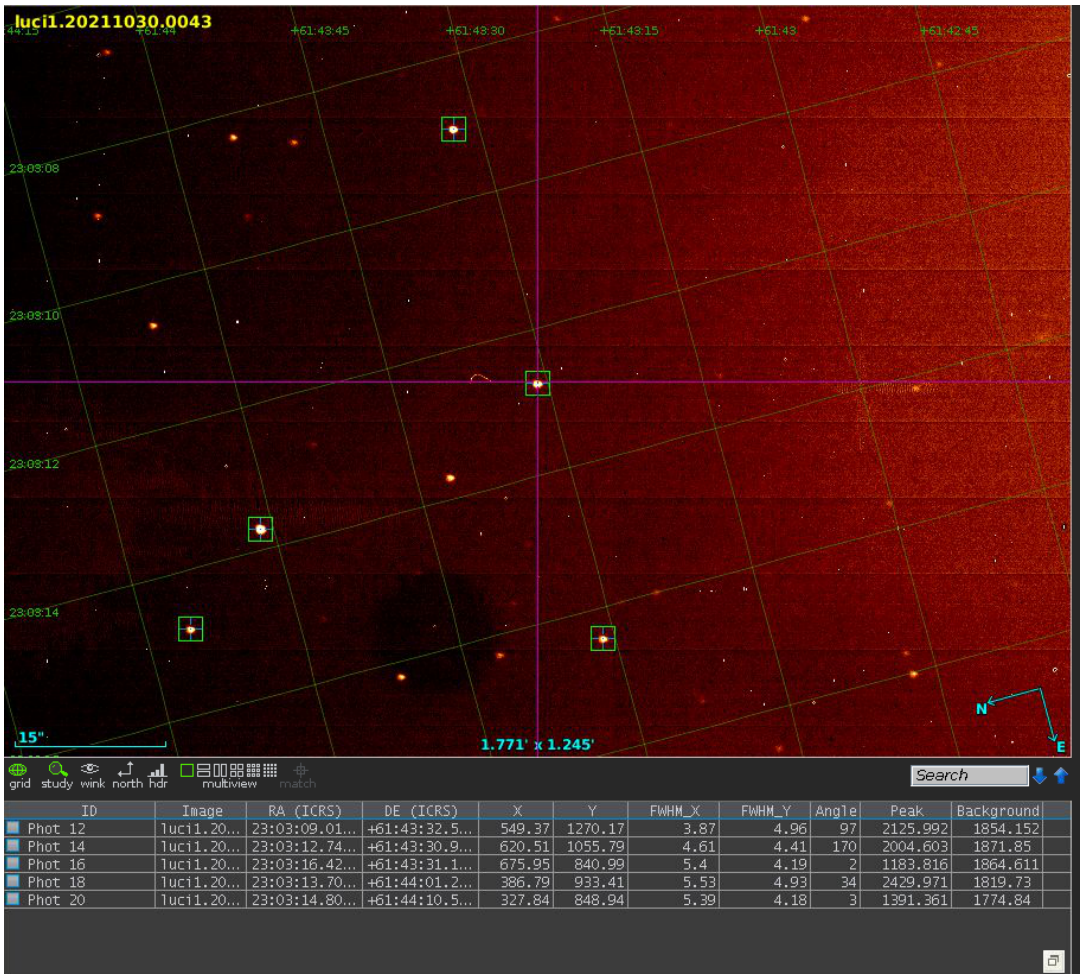
UT 03:16 - guider shows 0.4” on SX!!

UT 03:17 - AllSky image



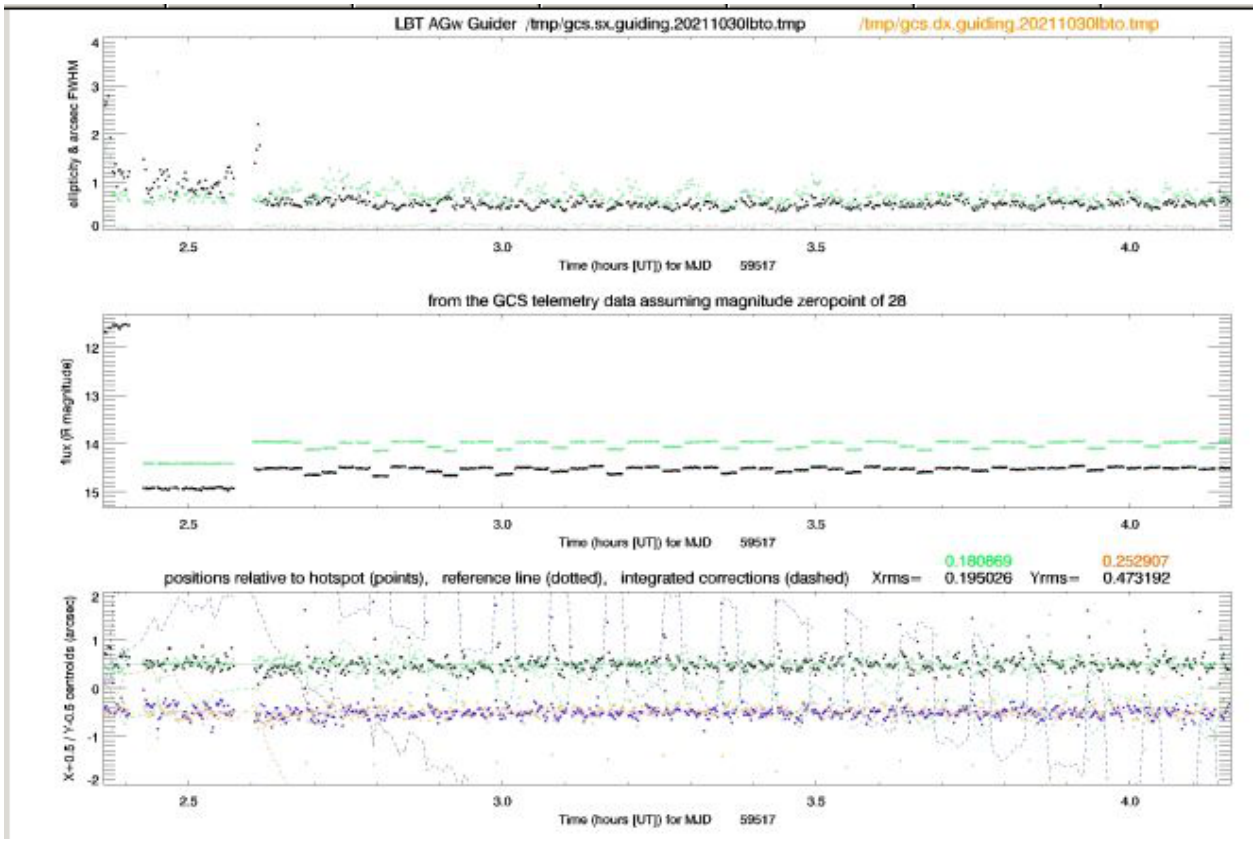
UT 03:32 - checking image quality, some elongation in both LUCI-1 and LUCI-2 images,moreso LUCI-1. Collimation and WFS'ing is OK in the guiders. Could be natural seeing is so good we are seeing optical issues of the LUCIs.

Example of image quality LUCI-1 in the target field:



Guider/WFS both sides continuing to show 0.5"-0.7" - clear skies

L1 0006-0057
L2 0006,0009-0059
[L2 0007-0008 -fixed fieldstop shift - 5sec K-band exposures]
Guidecams during integrations (last 2hrs shown):



LUCI UM Flashlight Program

Science Field

UT 04:12 - sending preset to masks 121 & 122 - using fraternal_masks_121_122_sc_UPDATED.xml
UT 04:15 - no guidestar found - GS is R=15.58, brighter one R=14.6 in patrol field
UT 04:20 - unwinding rotator
UT 04:24 - SX a bit slow to collimate, DX is 0.6”-0.7” RMS~295

Observer’s Note: Finder Charts: suggestion is to rotate to PA of script, can take screenshot of LMS with DSS (or image used to make mask) and rotate that image to match what the observer sees.

Initial fit Mask #1 is 7.36” 3.6” error

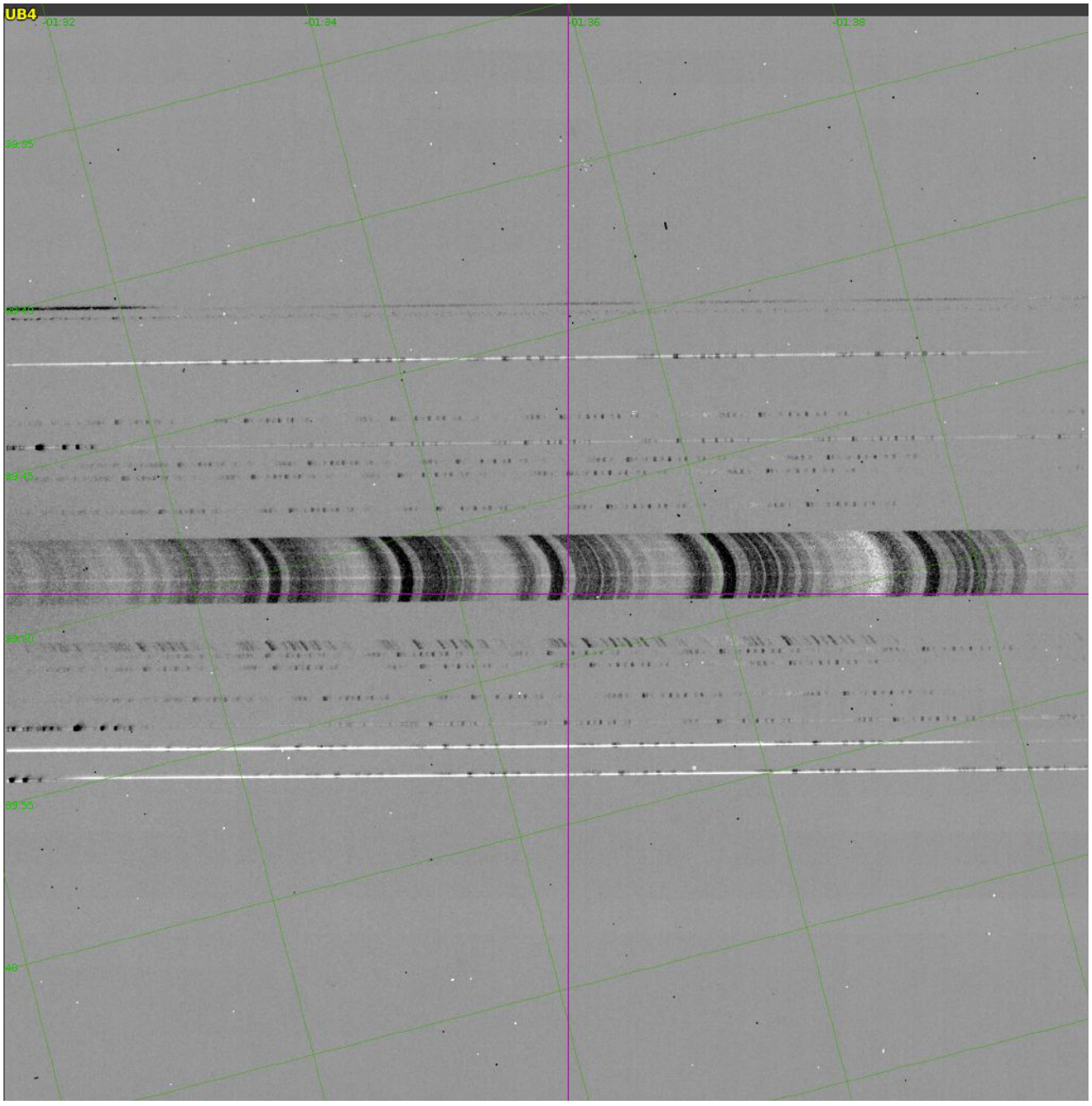
L1 Eliminate #32 improved to 0.043”, 0.09” -checking with LMS file - no bright star corresponds to #32
L1 -2.134”, 0.370:, theta = 0.535

L2 eliminate #32, err 0.024”, 0.049”
L2 0.638”, -3.185”, theta=-0.036

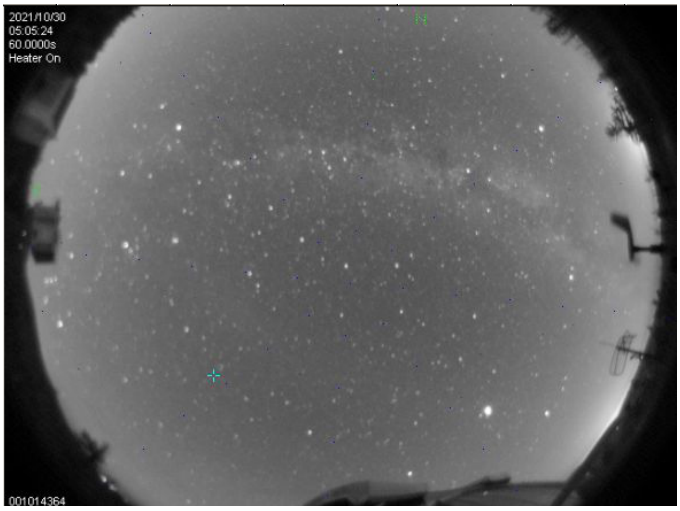
L1 +3 pixels to center in boxes +0.36”

L2 -0.12”,+0.24” DET XY
L2 with offset was bang-on
L1 did see some “schmutz” in another smaller slit indicating we are aligned

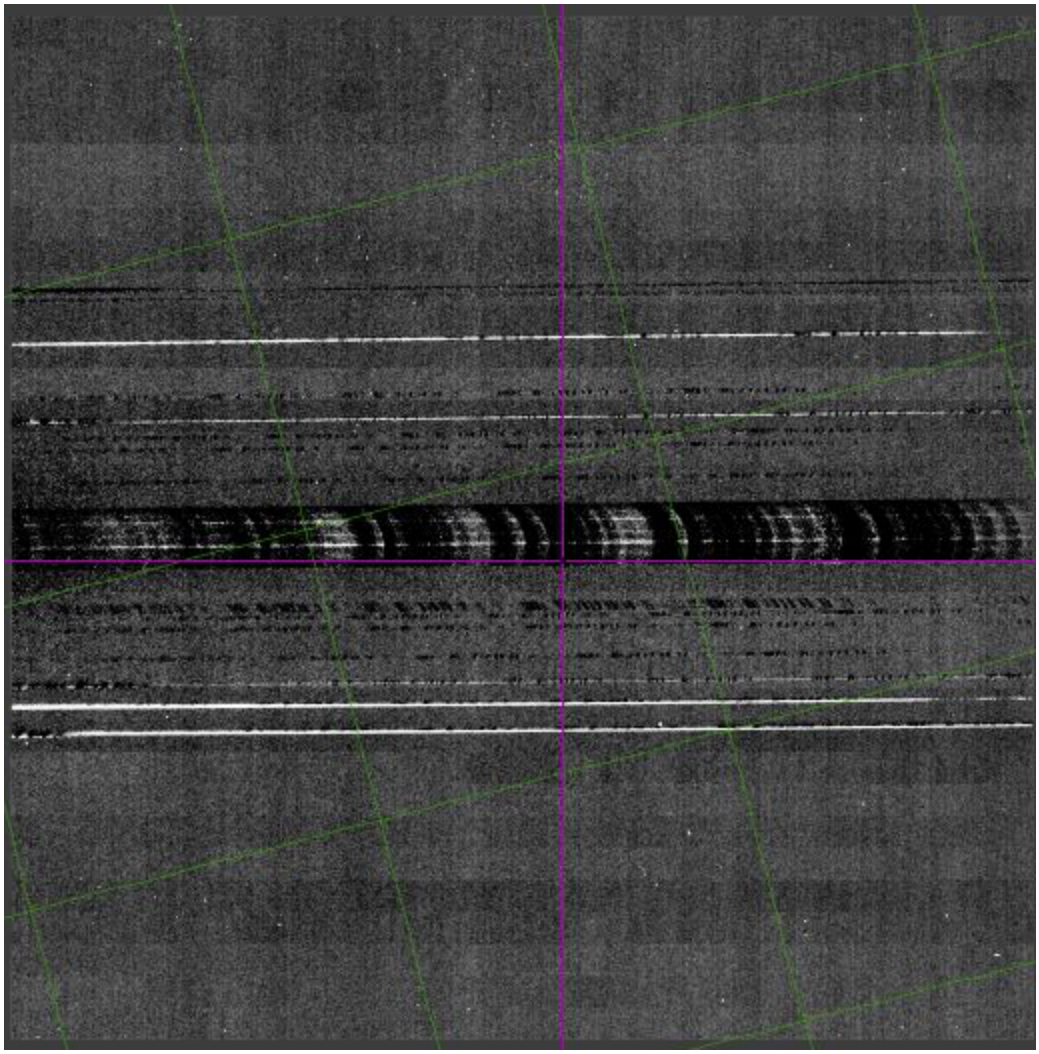
UT 04:48 starting spectroscopy
Guiders/WFS show 0.65”-0.70”
Pair-subtracted example L1 (arc)



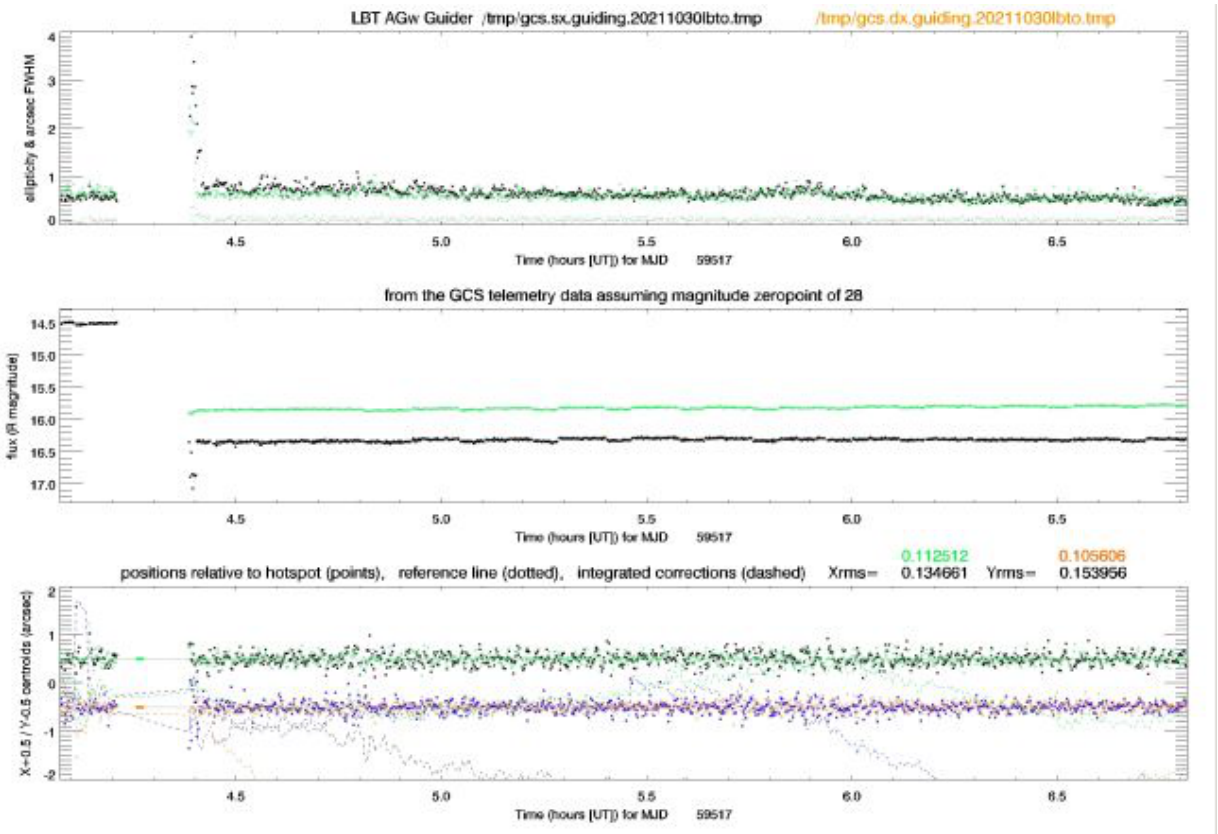
UT 05:12 - guiders/wfs 0.55”-0.7”
UT 05:12 - Allsky



UT 05:35 - seeing on guider/wfs ~0.65”
UT 06:10 - guider/wfs showing down to 0.43”, 0.47” (SX). DX is 0.5”-0.6”
UT 06:17 - DX guider/wfs showing 0.41”-0.6”
UT 06:43 - guiders/wfs consistently show <0.6” seeing
UT 06:47



Guiders last 2.75 hrs



L1 0063-0096
L2 0064-0098

Telluric

UT 06:50 - sending preset
GS showed either a reflection or wildly out of focus images
UT 06:51 - doing pointing check
UT 06:55 - sending preset again

- Issue was coordinates were not of a legit guidestar, there was a super bright star below, we were seeing the reflection in the guidecam of the bright star below the coordinates
- Selected new guidestar via OT - should work in all positions

UT 07:00 - new preset, we have a guidestar!

Going to rightmost slit first
L1 -6.889”, -2.9556”
L2 -5.7905”, -7.7707”
UT 07:08 - starting spectra

L2 108 - seems like it missed the slit but its fine in L1,, this is the -130.72”, +144.53” offset

-did a pair subtract L2 108- L2 107 and i see a trace.

L1 0100-0109
L2 0102-0111

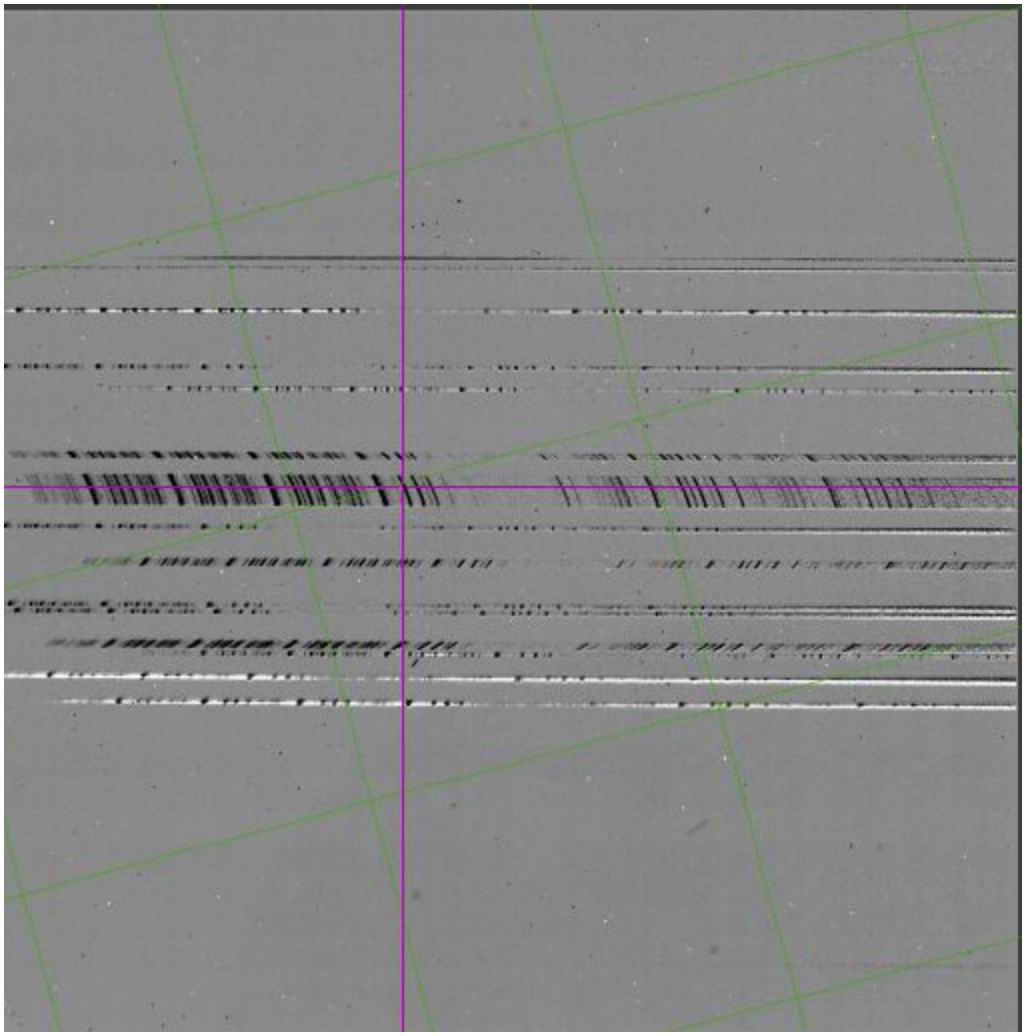
Science Field

UT 07:26 - sending preset to A123, A124
-same alignment boxes/stars as last two masks, #32 will need to be removed

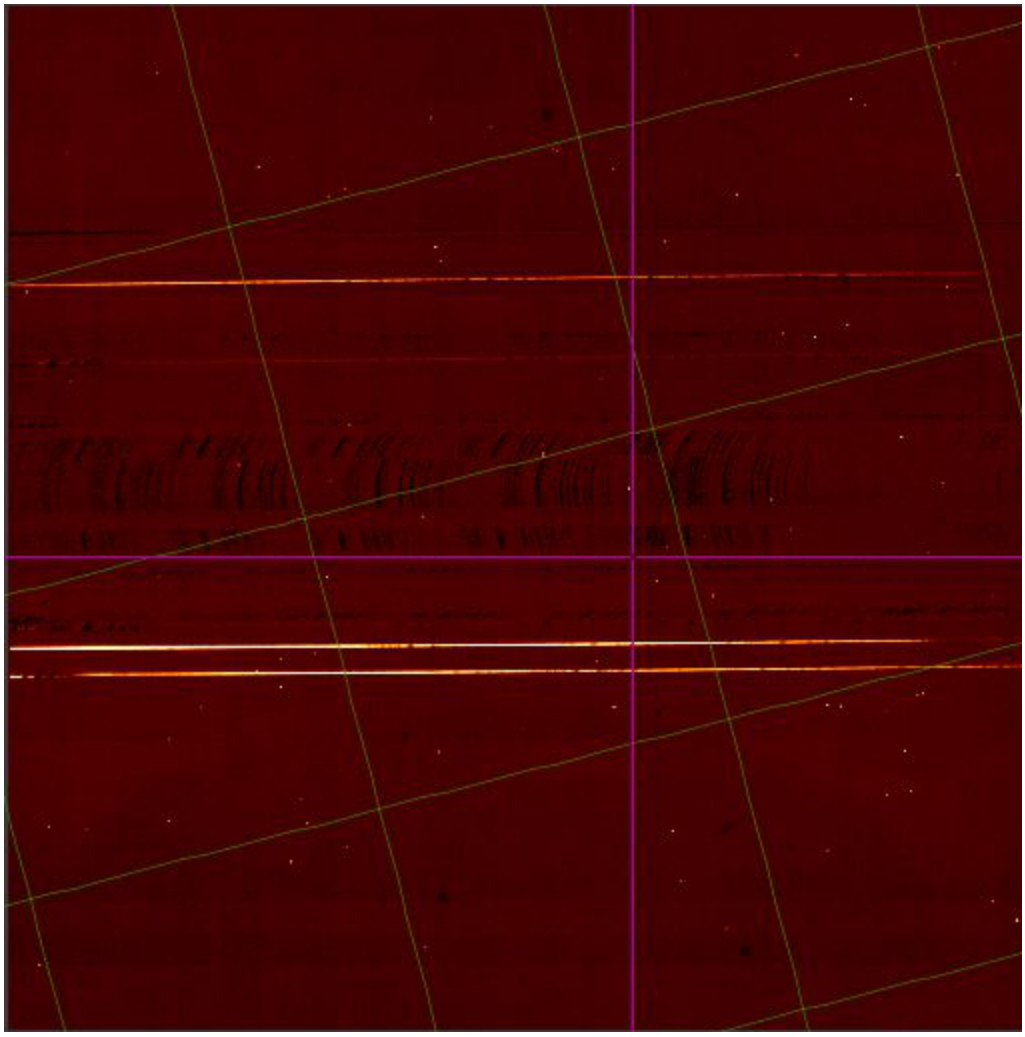
UT 07:29 - guiders showing 0.44”, wfs 0.5”
L1 removing #32, -1.9261”, 0.597”, theta=0.523, err 0.056, 0.103
L2 removing #32 -0.6211”, -3.100”, theta=0.013” err 0.026, 0.065”

L1 tweak +0.36”, 0
L2 tweak +0.12”, +0.24”

L1 ok
L2 ok
UT 07:46 - starting spectroscopy
L1 camera error,initialize ok, but moving to N375 and back to be sure
UT 07:48 - NOW we are going….
UT 08:00 - first pair subtraction - not sure see anything in the curved slits, but do see spectra in the other small (non-alignment) slits on both sides
L2:

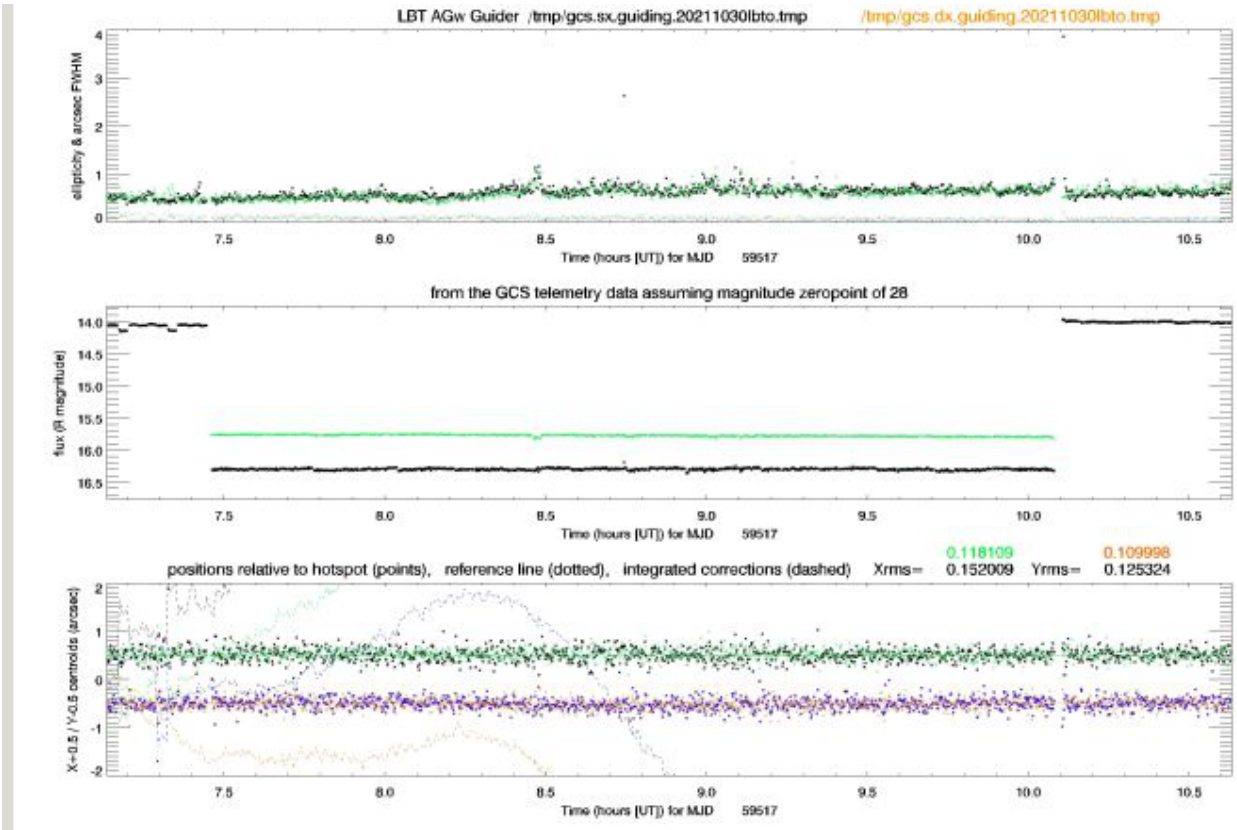


L1:



UT 08:01 - guiders/wf show 0.5”-0.6”
UT 08:34 - seeing 0.5”-0.6”
UT 09:53 - seeing has ticked upwards a tad, now 0.7”-0.8”

Guider Plot for last block



L1 0115-
L2 0117-

LUCI ND J0240IR

Observer's Note: There is an "acq' script in the directory. Diff'ing it with the J-band script shows it to be identical. Unlike MODS, there aren't separate ACQ and OBS scripts, it's all generated as a single script. One can also make a single script that cycles through multiple settings (gratings, filters, CWLs, etc) use the sequencer.

Putting a pause before last line, since J,H,K are all same acquisition steps, will load the H, load K and continue from the step where the grating is configured

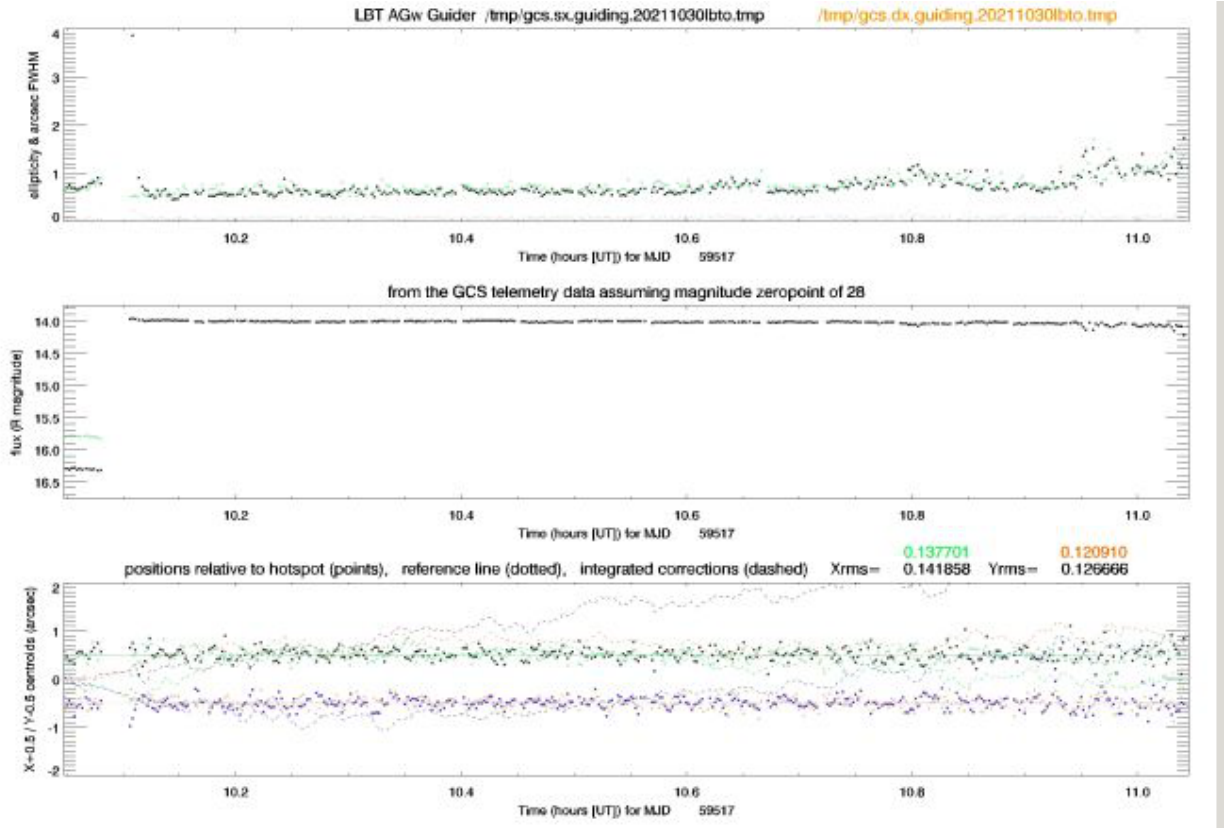
UT 10:09(ish) - preset sent

L1 -0.773", -10.7045"
L2 0.3034", -0.3153"
L2 looks good
L1 -0.12" DetX

UT 10:18 - starting spectra (J-band)
L1 0158-0165
L2 0159-0166

UT 10:32- paused, loading H-band, continuing from Grating Config
L1 0166-0173
L2 0167-0174

UT 10:45 - paused, loading K-band continuing from Grating Config
UT 10:57 - slight seeing bubble - few excursions above 1” even to 1.5” on guiders
UT 11:02 - another spike up to 1.5” seeing, now 1.7”!
Guide plot:



L1 0174-0185
L2 0175-0186

Telluric

UT 11:05 - sending preset
Script has 60seconds for A-star telluric - script has 60sec MER

Diff of acq vs Jspec shows the acq has the science exposure times in it, the Jspec one has the normal times.
Continuing with the acquisition - will then pause, and load the other (J,H,K) for the telluric as I did with the science script.

L1 -12.1252", -0.0825"
L2 -9.2772", -1.5577"

Alignment looks good - subbing other scripts now
UT 11:15 - starting spectra
L1 0189-0192
L2 0190-0193

UT 11:19 - subbed in H-band
L1 0193-0196
L2 0194-0197

UT 11:23 - subbed in K-band
L1 0197-0200
L2 0198-0201

LUCI UVA_nirjets NGC 2071

Observer's Nots: skyflats are evening twilight, no skyflats for morning twilight

UT 11:27 - sending preset

UT 11:40 - LUCI-2 imaging - fieldstop offset
-will fix

L2 0209-0211 shift fieldstop 5sec exposure

L1 0201-0252
L2 0202-0208;0212-0256

Made it to the end of the script! Last frames should be fine, narrow band filters kept the background low.

UT 12:27 - powering off LBCs - no need for remainder of night
UT 12:28 - putting MODS to sleep - finished cals yesterday for all programs already executed

UT 13:07 - closing dome, will proceed to LUCI-cals

LUCI Calibrations

UVA_nirjects Imaging Flats

Observer's Note: some flat integration times are off in scripts.
PaBeta LUCI-1 is wrong, J-band LUCI-1 is wrong, H-band LUCI-2 is wrong - times are either too short or too long (risk low SN or blasting detectors)
Exported imaging flats from Template Library for bad ones and will run those. Located on OBS-5 in Service_Observing/OSURC/OBs/UVa_nirjets/New_Internal_Flats

LUCI-1	*LUCI-2*	
BrG	*H2*	*OK*
J	*H*	*Template*
K	*K*	*OK*
PaBeta	*FeII*	*Template*

L1 0253-0262 K-band Flats
L2 0257-0266 K-band Flats

L1 0263-0272 BrGamma Flats
L2 0267-0276 H2 Flats

L1 0273-0282 J-band Flats
L2 0277-0286 H-band Flats

L1 0283-0292 PaBeta Flats
L2 0287-0296 FeII Flats

ND_j0240ir

Observer's Note: LS flats are not good matches to what we know works from Template Library
Will export new ones using the Template Library in Fraternal Mode (so can run LUCI-1 and LUCI-2 simultaneously
Setup needed: 0.75" LS J, H, and K G210 CWLs 1.25, 1.65, 2.2
Located on OBS-5 in Service_Observing/OSURC/OBs/ND_j0240ir/new_cals

J-band G210 1.25microns 0.75"slit
L1 0293-0302 Flat , 0303-0310 - Arcs
L2 0297-0306 Flat 0307-0314 - Arcs

H-band G210 1.65microns 0.75"

L1 0311-0320 Flat, 0321-0328 - Arcs
L2 0315-0324 Flat, 0325-0332 - Arcs

K-band G210 2.2microns 0.75”
L1 0329-0338 Flat, 0339-0346 - Arcs
L2 0333-0342 Flat, 0342-0349 - Arcs

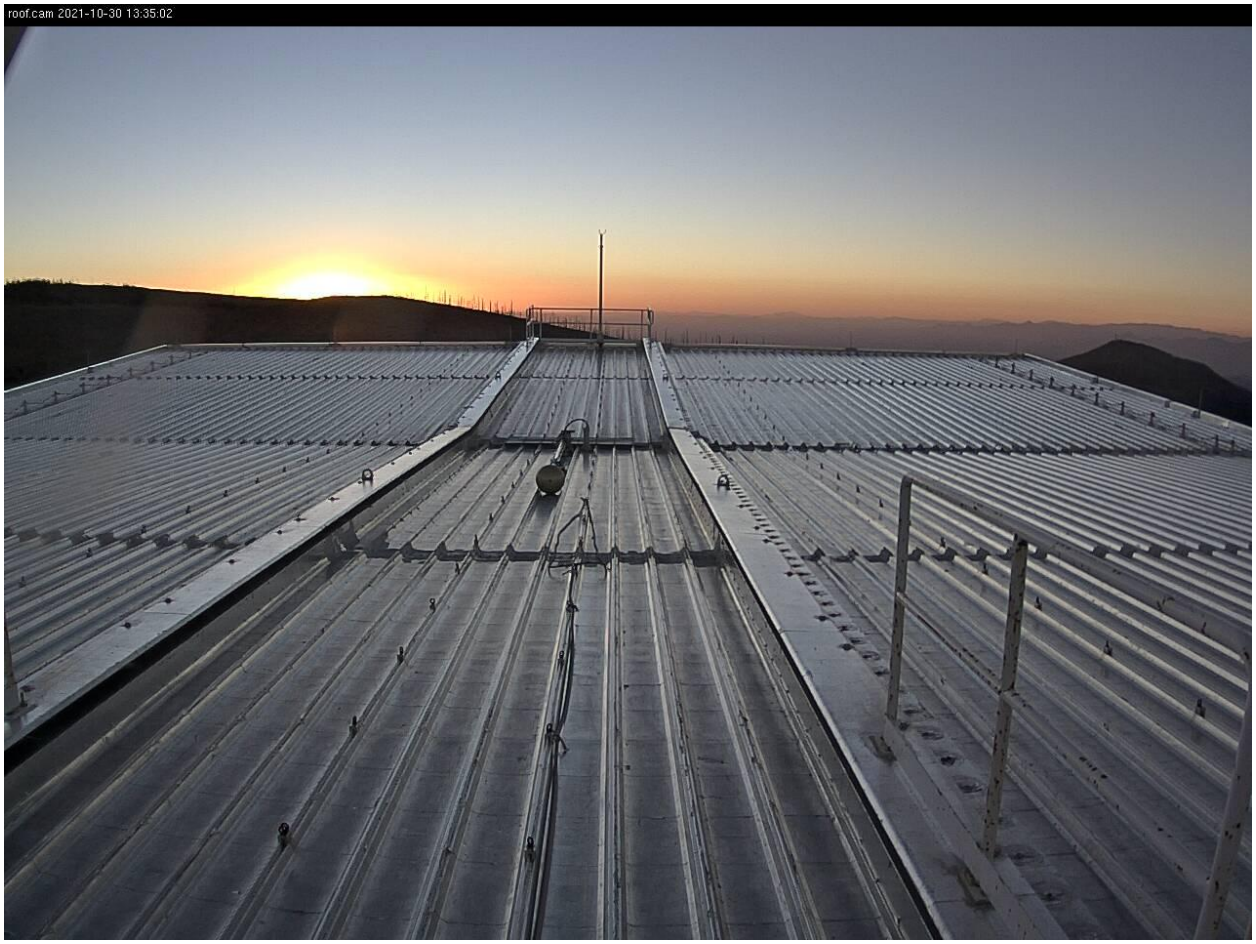
UT 14:41 - putting LUCI-2 into safe mode
UT 14:46 - putting LUCI-1 into safe mode

UM Flashlights - **NEEDS TO BE DONE**

File location: Obs5:
Service_Observing/OSURC/OBs/UM_Flashlights/UPDATED_OCT_29_2021/Oct2021_OSURC_fraternal_calibs/

DARKS STILL NEED TO BE DONE FOR THESE THREE PROGRAMS

Sunrise Calibrations...


roof.cam 2021-10-30 13:35:02