OSURC Nightlog 20220126 UT

Observer*: Olga Kuhn, Ilya Ilyin (AIP - PEPSI)
Lead Partner Observer*: Mark Whittle (OSU)
Other Partner Observers*:   Charlotte Wood (ND)
Special Assistants*: none
Telescope Operator: Steve Allanson (LBT)
* = from home

Plan:

The plan was to start with PEPSI to observe the UM_V1405 Cas program and then switch to MODS.

Summary:

We started with PEPSI, observed V1405 Cas and the standard, and then switched to binocular MODS, with which we observed UVa_WISE_AGN/J0612, G191B2B and four OSU_ASASSN targets: ASASSN14ae, SN2021adlw, ASASSN14li (6 of 8 exposures) and J140925.

Winds and humidity threatened, but we were for the most part pretty lucky - HR718 could be observed but during the ASASSN14li observation, we lost the preset as the telescope tracked into the wind. This occurred between the 6th and 7th of 8 exposures (for all channels except MODS1B where the prset was lost with just a few seconds left on the exposure which was allowed to continue).
At the end of the night, humidity rose to 93% but then it went back down.

The PEPSI observation log is: 20220126_pepsi_obs.log

Issues:

The Blue CD mechanism in PEPSI failed twice. Maybe this was a coincidence, but both times if failed on the move from CD2 to CD1. A note was added to IT 8554.

The mountain lost internet for 6 minutes - it came back just as the integration was finishing, so no time was lost to this.

Weather:

Skies were clear but seeing was variable and not so good, ~1.5-2". At the end of the night the seeing got better.
The temperature dropped quite a lot since yesterday and over the course of the night it continued to drop, ending up at -8.8 C just before sunrise.

Preparations:

I've run up MODS and taken test images, also the LBCs are up. PEPSI is up and running.

luci[1|2].20220126.0NNN.fits
mods[1|2][b|r].20220126.NNNN.fits
lbc[b|r].20220126.HHMMSS.fits

Overview (times are given in UT):

00:18 Starting PEPSI calibrations. It was taking a very long time to switch from CD2 to CD1 in the Blue Arm . I aborted the motion. Ignore files pepsib.20220126.002.fits.
Software core-dumped. Ilya has come online and is restarting the PEPSI UI.

00:41 Steve is opening the chamber.

01:17 Pointing and collimation have both been done on a nearby star, but we're waiting for it to get dark.

01:17 Slewing to V1405 Cas to identify field and wait.

UM_V1405Cas

01:32 Starting the exposures. The sky brightness monitor shows 18th mag.

Clear skies and the FWHM on the SX/DX guider images is 1.35/1.20".

On the first 6.5-min CD5 exposure, the peak pixel is 4300 ADU - no problem with saturating on Halpha.

On the first 15-min CD3 spectrum, Hbeta has a peak of 1600 ADU and [OIII] 1300 ADU.

CD4: brightest line has peak ~2000 ADU

02:33 FWHM on the SX/DX guider images ~1" and the skies are clear.

02:36 There was a problem switching from Blue CD 2 and 1. Ilya intervened to abort the motion and set the Blue CD to 1. Now CDs 1 and 6 are in place, but there are some problems starting the integrations. Ilya is restarting the software and sending a new preset.

CD4: SNR ~ 200 and peak in emission line ~2000 ADU
CD2: SNR ~ 100 - no bright emission lines obvious in this wavelength range (4265-4800 ang)

02:46 Starting the exposures: CDs 1 & 6

03:09 FWHM on SX/DX guider images has degraded - it's now 1.33/1.15".

CD6: SNR ~ 215 - there are no bright emission lines in this wavelength range (7419-9067).
CD1: SNR ~ 40 and peak ~1100 ADU.

HR718

03:18 Slewing to target. We are pointing into the wind. The star was not found on the SX side - resent the preset after putting in the ND2.

03:25 Starting exposures

The FWHM on the guider SX/DX is 1.36/1.64".

CD 2 & 4: 2 x 5-min and 4 x 1-min
CD2 SNR ~ 1000 and peak counts 10,000 ADU
CD4 SNR ~ 700 and peak counts 5000 ADU

CD 3 & 5: 2 x 5-min and 5 x 1-min
CD3 SNR ~ 1500 and peak counts 18000 ADU
CD5 SNR ~ 750

CD 1 & 6: 2 x 5-min and 6 x 1-min
CD1 SNR ~ 613 and peak counts 6000
CD6 SNR ~ 586 and peak counts 4500

04:00 Finished. Elevation 47 deg seeing 0.91/0.97"

Reconfiguring: PEPSI-PFUs → MODS

04:04 Steve is reconfiguring to MODS

04:15 Pointing check ongoing - The wind is high on the adSec and may be a problem for the first target which is in the S, into the wind. The wind is just under limits, but the seeing is not very good.

UVa_WISE_AGW/J0612-06

04:25 acqBinoMODS J0612-06.acq

The acquisition images on SX & DX look pretty different. Steve is checking pointing on 2 stars. On the first star it looked good. I reinitialized the guide stages. The second star comes up also. Pointing looks good.

04:33 acqBinoMODS J0612-06.acq
On the first pair of GCS acq images, we noticed two stars of ~equal mag on the DX image and only one on the SX. GCS grabbed the wrong star on DX. Steve made a pointing correcting on DX which resolved the problem.

FWHM on the SX/DX guiders is 1.3/1.8" during the acquisition.

MODS2 - the IMCS failed but the script went on. Control C and run MODS2 acq separately:
acqMODS –mods2 –bino -i J0612-06.acq and then
acqMODS –mods2 –bino -a J0612-06.acq to take the acq images.

modsAlign - there was a problem for MODS2 since the field image did not have MASKPOS= STOW (but instead IN). Copied the field to my working directory and used "edhead" to edit the header. This was mods1r.20220126.0004.fits.

m1r: 3 & 4 → offsetxy -0.820 10.170 rel
m2r: 4 & 5 → offsetxy 3.617 7.812 rel

Guider star FWHM 1.2/1.4"
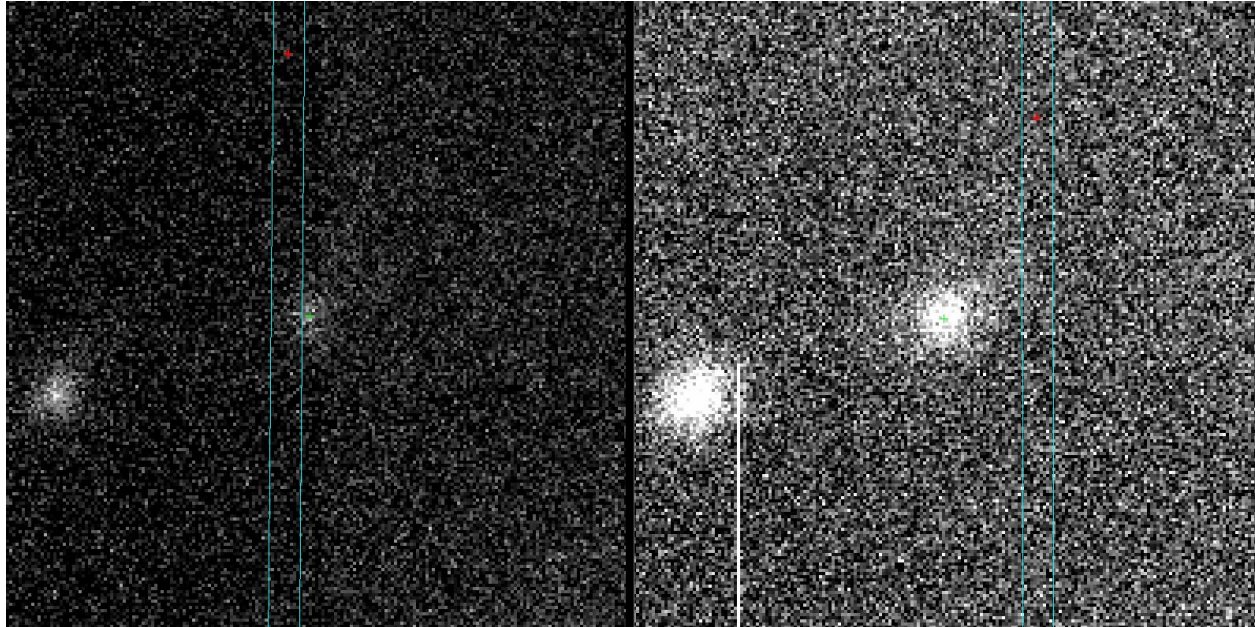
acquisition images: MODS1 on the left and MODS2 on the right. The green "+" marks the coordinate chosen as the center of the target and the red "+" marks the position on the slit to which it will be moved.

04:59 execBinoMODS J0612-06.obs

UT	m1b	m1r	m2b	m2r	AM	FWHM SX/DX
05:00	3	6	3	7	1.288	1.24/1.51

05:00 MODS1 red imcslock timed out - retry worked.

05:42 FWHM on guiders is 1.33/1.39"

06:06 Reading out

G191B2B

06:08 acqBinoMODS g191b2b.acq
m1r: 09→ offsetxy -0.917 11.096 rel, 10 well-centered
m2r: offsetxy 4.352 8.892 rel → 11, offsetxy -0.735 -0.099 rel → 12, pretty well-centered now.

06:20 execBinoMODS g191b2b_dualGrating.obs

UT	m1b	m1r	m2b	m2r	AM	FWHM SX/DX
06:20	6-8	11-13	6-8	13-14	1.173	1.24/1.14

06:22 comm glitch on MODS2 in "partner calibration" command.

OSU_ASASSN/ASASSN14ae

Edited the script to set the POSANGLE from 105 to 95 deg. The same guide star works fine.

06:35 acqBinoMODS ASASSN14ae_edit.acq
m1r: 14 & 15 → offsetxy -0.506 7.918 rel → 16 , dx = -0.18" → 17
m2r: 16 & 17 → offsetxy 3.739 5.719 rel → 18, looks well-centered.

The seeing during the acquisition is puffing up and average FWHM on guiders ~ 1.5-1.6". The RH has also risen and is 84% (06:49).

06:55 execBinoMODS ASASSN14ae.obs

UT	m1b	m1r	m2b	m2r	AM	FWHM SX/DX
06:56	9-14	18	9	19	1.294	1.53/1.6

08:43 mods2 blue fitsflush to bring over image 0011.
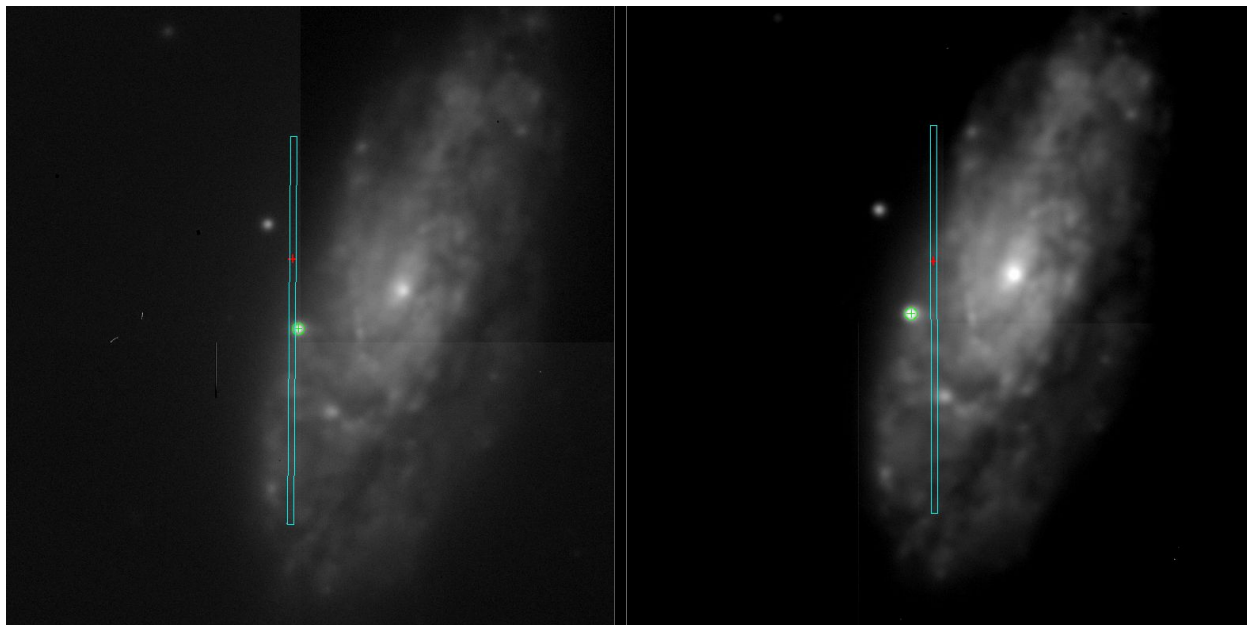
08:54 Average FWHM on guiders 1.5"

09:09 Finished

OSU_ASASSN/SN2021adlw

09:09 acqBinoMODS SN2021adlw.acq
m1r: 24 & 25 → offsetxy -0.817 10.752 rel → 26, looks well-centered
m2r: 25 & 26 → offsetxy 3.517 8.056 rel → 27, dx = 0.18" → 28, looks well-centered.

09:28 execBinoMODS SN2021adlw.obs

UT	m1b	m1r	m2b	m2r	AM	FWHM SX/DX
09:28	15-17	27-29	15	29	1.035	1.13/1.48

10:07 - Average FWHM on the SX/DX guiders ~ 1.51/1.75"

10:12 lost the network (mountain internet went down) for a brief moment

10:16 mountain internet back.

10:17 finished

OSU_ASASSN/ASASSN14li

10:18 acqBinoMODS ASASSN14li.acq
m1r: 30 & 31 → offsetxy -1.891 10.778 rel → 32, dx = -0.18" → 33, looks well-centered
m2r: 32 & 33 → offsetxy 2.284 8.726 rel → 34, looks pretty well-centered.

Seeing during acquisition is ~1.6/1.7".

10:36 execBinoMODS ASASSN14li.obs

UT	m1b	m1r	m2b	m2r	AM	FWHM SX/DX
10:36	18-23	34-39	18-23	35-40	1.08	1.4/1.5

11:26 The seeing is improving - now average FWHM on SX/DX guiders is 1.08"/1.26".

11:52 average FWHM on SX/DX guiders is 0.9/1.1"

11:19 Lost the preset - 6th image finished on m1r, m2b & m2r. Just a few seconds from finished on m1b (23).

OSU_ASASSN/J140925

12:23 acqBinoMODS J140925_edit.acq
12:25 No star on the DX side. Steve is doing a pointing check.
Repeated the acqBinoMODS command.

m1r: 40 & 41 → offsetxy -0.913 10.855 rel → 42, dx = -0.17" → 43, looks well-centered
m2r: 41 & 42 → offsetxy 3.193 9.161 rel → 43, looks centered.

12:38 execBinoMODS J140925.obs

UT	m1b	m1r	m2b	m2r	AM	FWHM SX/DX
12:40	24-26	44-46	24-26	44-46	1.059	0.9/0.89

12:53 18-deg twilight

12:59 Repeated the series since it is not that bright yet and there is not another observation that can be done in this time.
I repeated the by entering "go" on the command line window of each GUI (vs rerunning the script which would move the collimators).

13:07 RH = 92%.

13:21 Repeated a third time by entering "go"
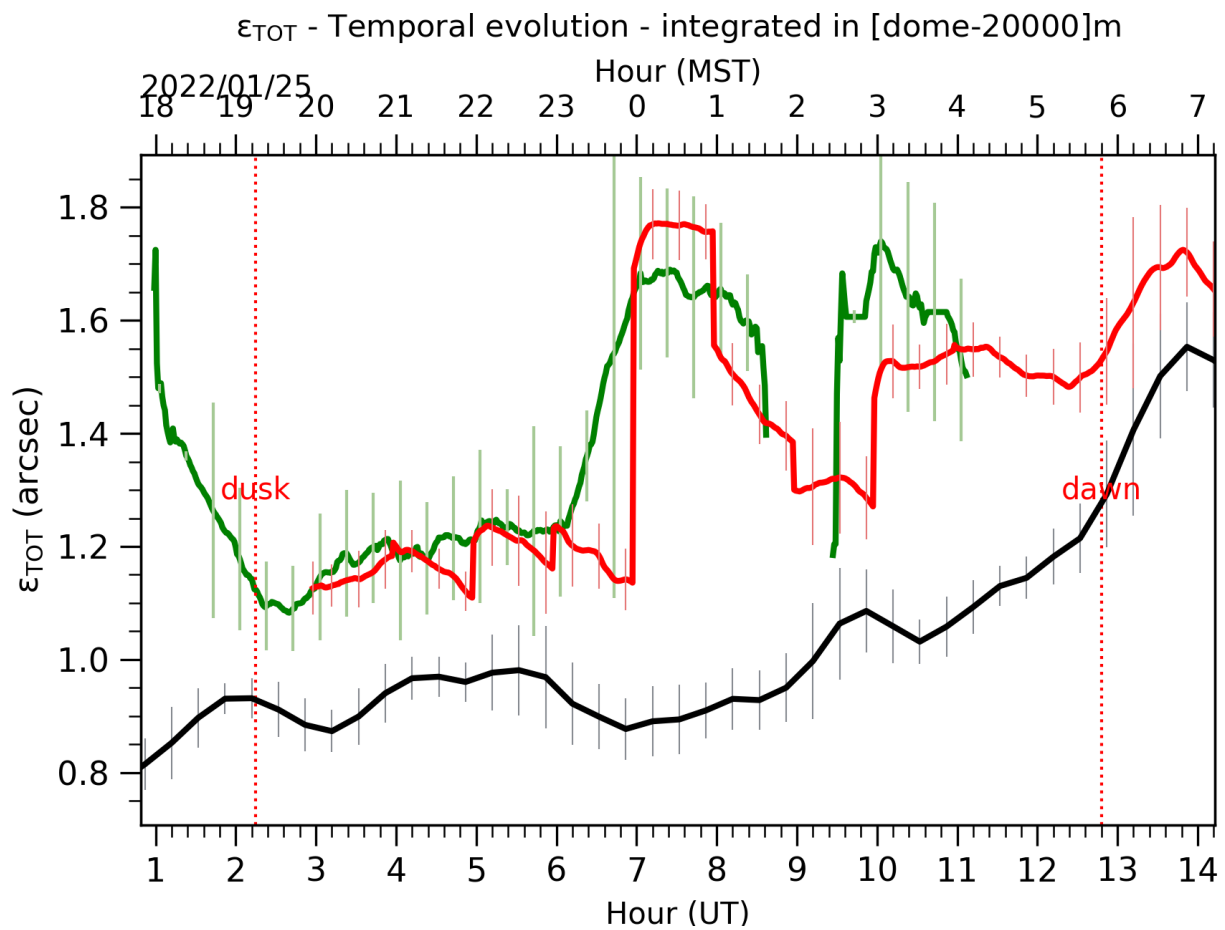
13:22 12-deg twilight

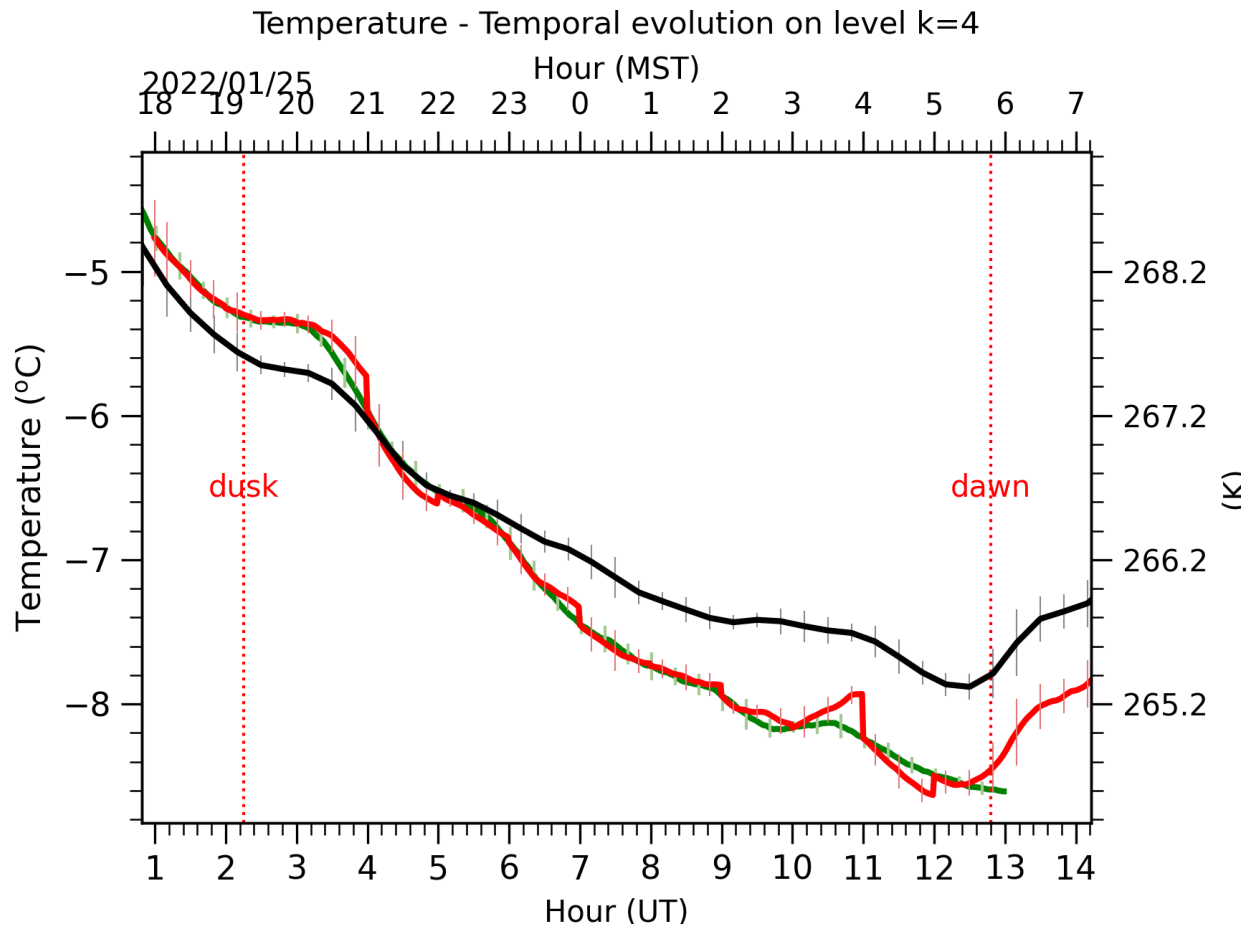13:30 Starting to see the solar spectrum (skyB = 17.5-18)

13:41 finished - sky B ~15.75

13:42 RH = 62%

13:43 Closing up

ALTA predictions

ε_{TOT} - Temporal evolution - integrated in [dome-20000]m

Temperature - Temporal evolution on level k=4

LBTplot

The SX (black) and DX (green) guide star FWHM and flux are plotted below.

LBT AGw Guider /tmp/gcs.sx.guiding.20220126osurc8314.tmp   /tmp/gcs.dx.guiding.20220126osurc8314.tmp

from the GCS telemetry data assuming magnitude zeropoint of 28

positions relative to hotspot (points),   reference line (dotted),   integrated corrections (dashed)   Xrms=   0.190623   Yrms=   0.201010
0.164188   0.162897