LBT Observing Log: 2025 Nov 14 UT

Observers: Jenny Power
Partner Observer: Peter Garnavich, Mark Whittle
Telescope Operator: Riccardo Ansaldi

Plan:

Titan too close to Saturn tonight

Start with PEPSI PFU
58 Aql twilight done with cirrus
V1405 Cas done with cirrus
OSU_MWAbundDisp/2MJ2315+1112 done
OSU_BHBinaries/2745372030800224512 done file issue
OSU_BHBinaries/2431981220830837376 done file issue
ND_0053 file issues, poor seeing second exposure

Switch to pol
OSU_WMBStokesV/HD16160 1.1hr skip due to problems with SX pol
OSU_Hyades/HD286363 0.5hr 2x1x1375s = 0.76hr done
OSU_Hyades/HD285625 1.5hr 2x3x1547s = 2.6hr done
OSU_Hyades/HD284552 0.71hr 2x2x1045 = 1.1hr done
OSU_Hyades/HD284785 0.44hr 2x1x1150s = 38min backup

Note that PI exposure estimates for PEPSI-pol fail to include the 2x exposures needed to get the VStokes parameter - that is, two positions of the ¼ plate are taken for each listed exposure. The estimated execution times are underestimated

Summary:

Seeing good at the start, but lots of cirrus. When the clouds cleared the seeing went to 1.5 to 2.0 arcsec. Switched to pol, but had issues with guider camera and PEPSI computer. PEPSI computer started working and seeing improved the second half of the night.

PEPSI LOG:
OSURC_PEPSI_Log20251114.txt
Note that there are several files with incorrect header info. The following table outlines corrections:
UT20251114 Bad Headers

- UM_V1405
  - 58Aql (1:18-1:45)
  - V1405 Cas (1:45-2:36, 2:58-3:24)
    - Technical Loss - PEPSI Software Crash (2:36-2:58)
- OSU_MWAbundDisp
  - 2MASS J23150951+1112141 (3:24-3:27, 3:35-3:40)
    - Technical Loss (3:27-3:35) - Odd readout
- OSU_BHBinaries
  - Gaia DR3 2745372030800224512 (3:40-3:45)
  - Gaia DR3 2431981220830837376 (3:45-3:58_
- ND_j0053
  - IRAS 00500+6713 (3:58-3:50, 5:46-6:21)
    - Technical Loss - Lost exposure, Header issue, PEPSI Software (4:50-5:46)
    - HEADER ISSUE RESOLVED
- OSU_WMBStokesV
  - HD16160 (not done)
    - Technical Downtime - PEPSI Fiber viewer, PEPSI Computer Crash, Recovery (6:40-8:03)
- OSU_Hyades
  - HD286363 (8:03-8:50)
  - HD285625 (8:50-11:31)
  - HD284552 (11:31-11:47)

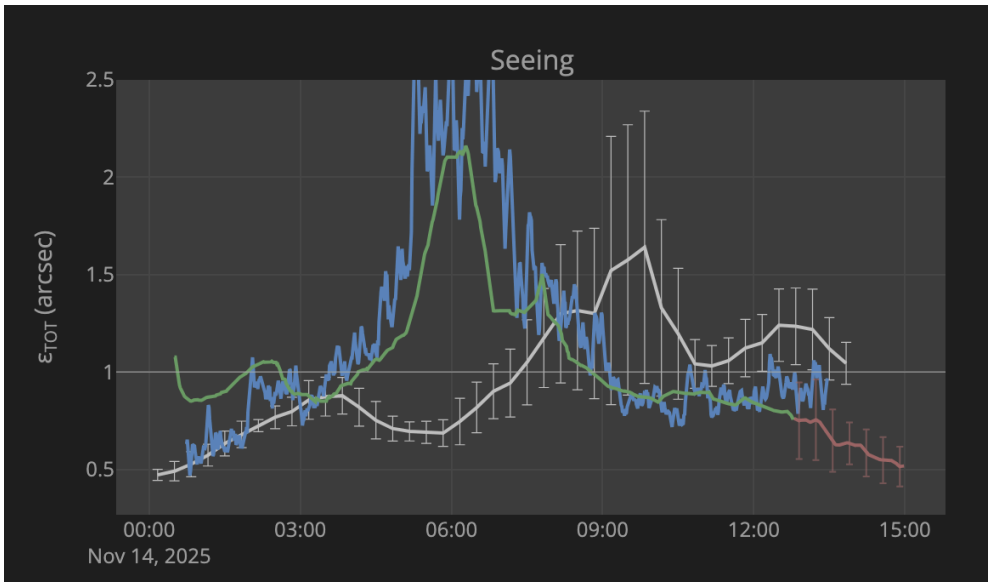
Issues:

Many PEPSI computer and other problems

- Odd readout. One lost image. Image repeated
- Several crashes of PEPSI software which were a precursor to the inevatable computer crash. A full hard reboot required to resolve. Not a problem previously seen
- Headers for several PEPSI PFU images are scrambled
- SX fiber viewing camera was unresponsive. Required power cycling.

Weather:

Clouds to start with good seeing, ~0.6-0.8”. Seeing deteriorated as clouds dispersed towards the night center 1.5-3”. The worst of the seeing was while troubleshooting technical issues. Seeing improved again during the second half with mostly clear skies, back down to 0.6-0.9”.



Overview:

00:25 UT Sunset

00:46 UT Riccardo is doing a pointing check near 58 Aql. Conditions are partly cloudy.

UM_V1405

00:59 UT Presetting to 58 Aql, waiting to start science to 12 degree twilight. Seeing is 0.85-1”

01:11 UT iImm is reporting 0.83” and Cyclope is reporting 0.63”

01:17 UT PEPSI is reporting 0.5-0.6” seeing, DIMM 0.72, Cyclope 0.57”

58Aql (1:18-1:45)

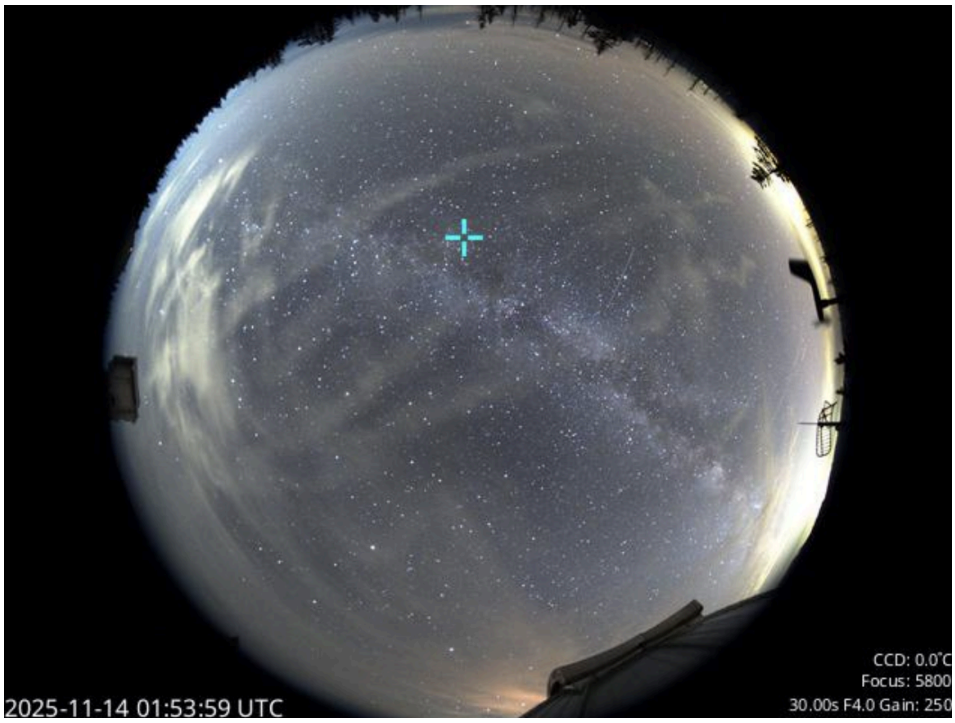
01:18 UT 12 degree twilight, Starting science. Partly cloudy skies, good seeing.

01:30 UT SX does not appear to have as much flux as DX

01:44 UT 18 degree twilight

V1405 Cas (1:45-2:36, 2:58-3:24)

01:45 UT Preset to V1405 Cas
01:48 UT Far slew so Riccardo is sending a pointing check before going to science target
01:53 UT Starting science on V1405 Cas. Partly cloudy.



02:29 UT Seeing is 0.65” on PEPSI, 0.85” on cyclope, 0.98” on DIMM. Thin clouds continue to pass through.

02:52 UT During the last exposure, the pepsi software froze completely up. Shutdown and restart.

Technical Loss - PEPSI Software Crash (2:36-2:58)

02:58 UT Retaking CD1 &6. That exposure was lost in the software crash. 22 min lost, including lost exp.

OSU_MWAbundDisp

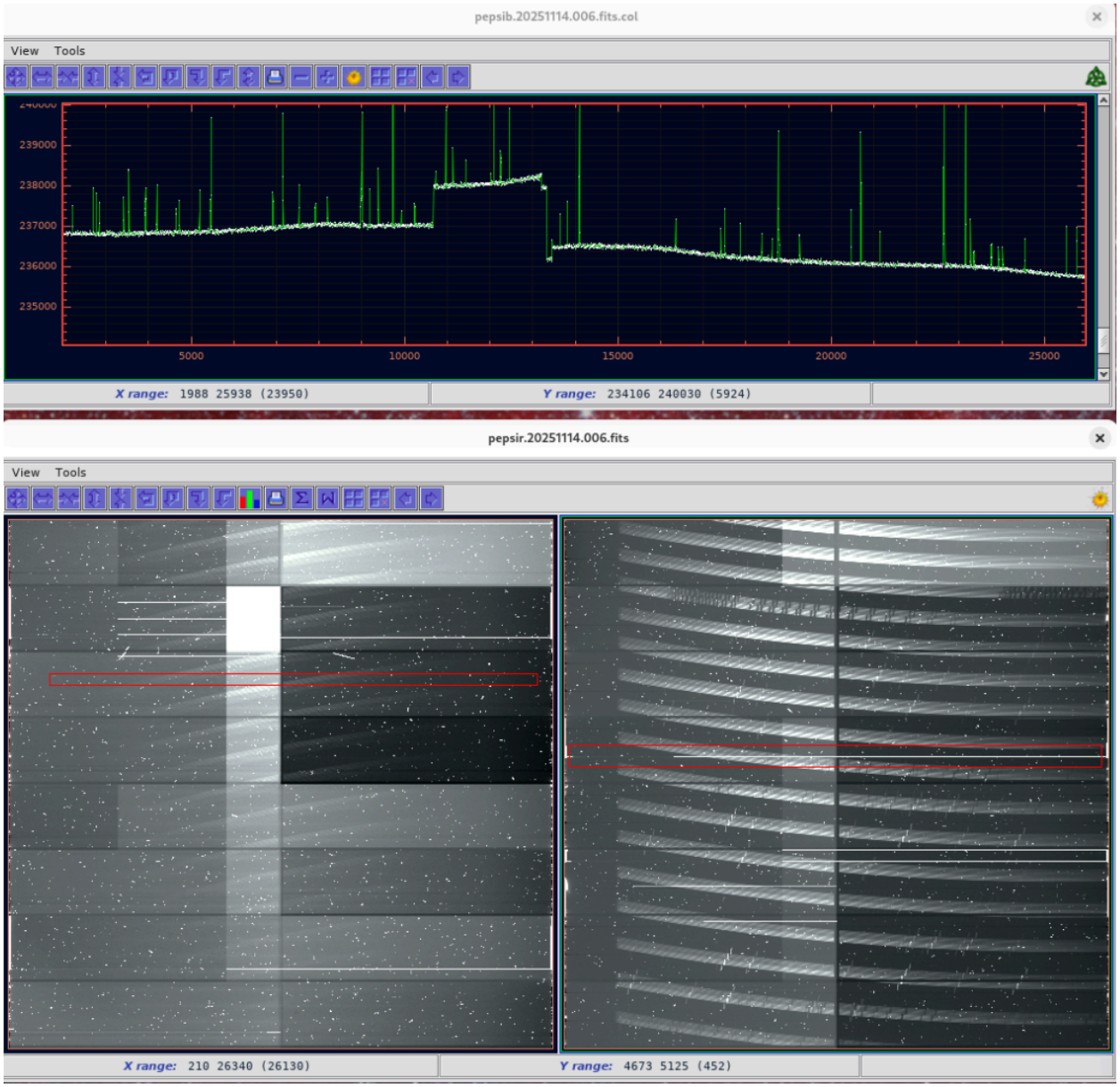
2MASS J23150951+1112141 (3:24-3:27, 3:35-3:40)

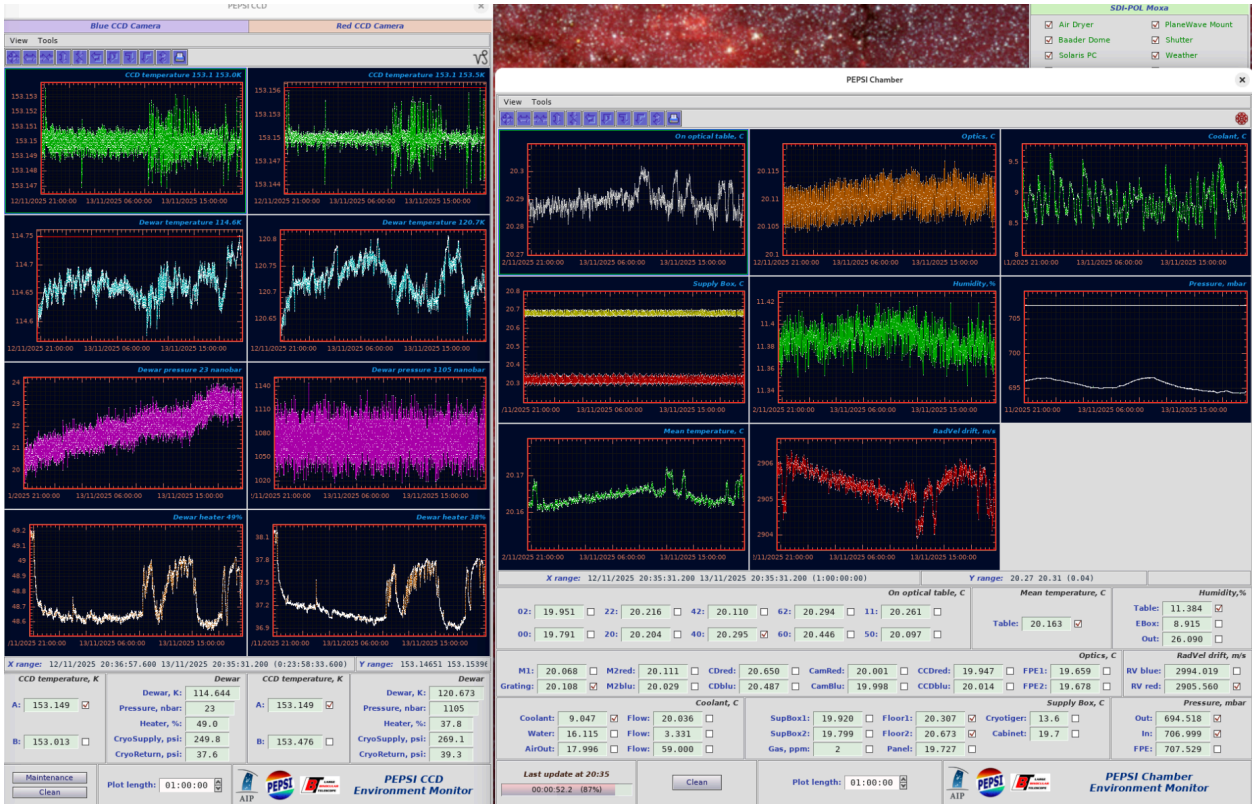
03:24 UT Slewing to 2MASS J23150951+1112141

Technical Loss (3:27-3:35) - Odd readout

03:27 UT Starting science. Seeing, 1” on the DIMM, 0.56” on PEPSI, 0.8” on Cyclope. Thin cirrus.

03:33 UT Odd detector feature. Verified temperatures, pressures, and everything else are stable in the spectrograph





03:35 UT restart, retaking the images. The retake looks normal.

FROM HERE THERE WERE PROBLEMS WITH IMAGE HEADERS

The image was not lost but is mislabelled.

OSU_BHBinaries

Gaia DR3 2745372030800224512 (3:40-3:45)

03:40 UT Slewing to Gaia DR3 2745372030800224512 (2MASSJ23591989+0607195)
03:42 UT Starting science. Seeing 0.6” on PEPSI, thin cirrus.
pepsir.20251114.009, pepsib.20251114.009

Gaia DR3 2431981220830837376 (3:45-3:58_

03:45 UT Slewing to Gaia DR3 2431981220830837376 (2MASSJ23391679-1404375)
03:50 UT Took a long time to collimate, but finally starting science. Seeing 0.85” on PEPSI.
Pepsir.20251114.010, pepsib.20251114.010

ND_j0053

IRAS 00500+6713 (3:58-3:50, 5:46-6:21)

03:58 UT Slewing to IRAS 00500.

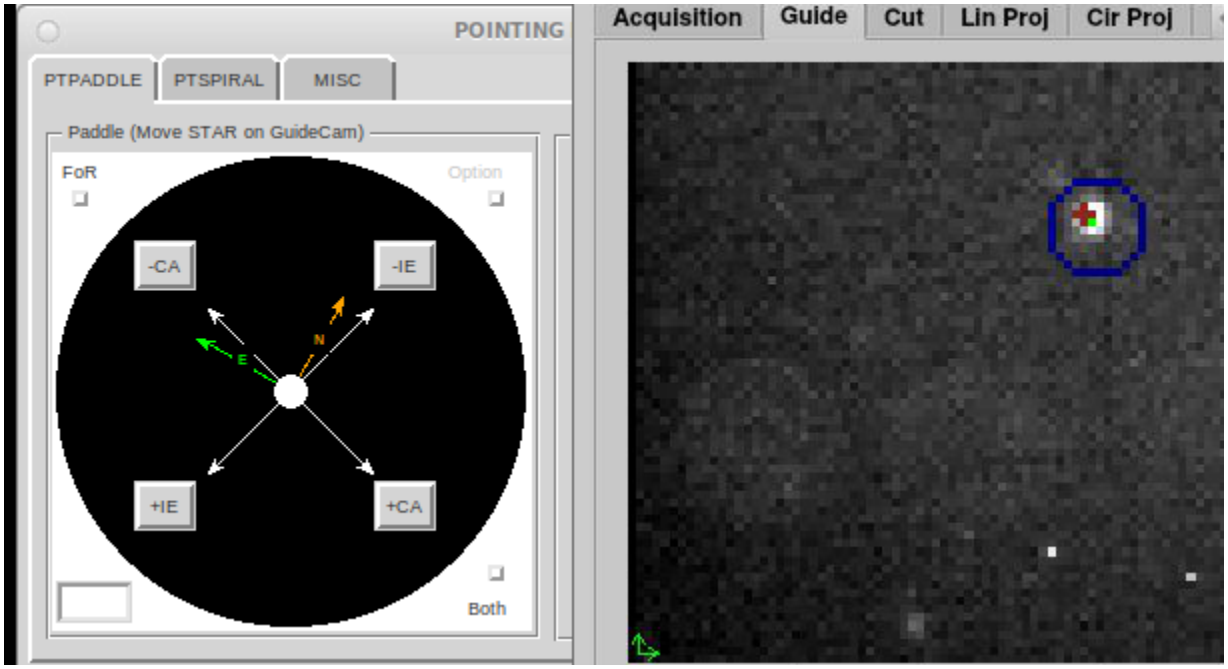
04:00 UT pointing check to be certain

04:04 UT going to source. Using beam splitter 4. This is a faint source with nearby stars. There was another star reflecting close to the pinhole. Sticking with BS2.

04:15 UT Starting science

04:40 UT Clouds have thinned. Seeing 0.8” on DIMM and PEPSI

Technical Loss - Lost exposure, Header issue, PEPSI Software (4:50-5:46)



05:20 UT Seeing is a bit more variable, 1.1” on PEPSI, 1.4” on the DIMM, clouds have moved out.

05:28 UT PEPSI images are not aligning with what is being taken. Investigating.
UT20251114 Bad Headers

HEADER ISSUE RESOLVED

05:40 UT We had slewed to zenith for PEPSI POL but after investigations and a full restart of PEPSI software, we did not get the last image in CD1 & CD5 for j0056. Slewing back, pointing check

05:46 UT Starting science. We are taking another CD1 & CD4 pair. The SNR on that pair was very low. Seeing is 2.6” on the DIMM, mostly clear now.

06:21 UT done with PFU. Going to zenith for POL reconfig

06:35 Pointing and collimating

~~OSU_WMBStokesV~~

~~HD16160 (not done)~~

Technical Downtime - PEPSI Fiber viewer, PEPSI Computer Crash, Recovery (6:40-8:03)

06:40 UT Slewing to HD16160. Seeing bad
06:41 UT First preset failed with GS0, the coordinates were bad for that star. GS1 worked fine. Nothing on the SX fiber viewing camera… Sent on axis preset and target was right on, then moved the guide probe and nothing. Not even noise.

07:05 UT alpha.pepsi.lbto.org is pingable, but not ssh-able and I can not interact with the software any more
Finally managed to ssh in , top:

killPEPSI
and there are thousands of messages in the terminal
POL ImageDisplay:
POL ImageDisplay:
POL ImageDisplay:
POL ImageDisplay:
POL ImageDisplay:
POL ImageDisplay:
POL ImageDisplay:
POL ImageDisplay:

14/11/2025 00:18:51 POL: failed to acquire image SXTE
14/11/2025 00:18:56 POL: failed to acquire image SXTE
14/11/2025 00:19:01 POL: failed to acquire image SXTE
14/11/2025 00:19:06 POL: failed to acquire image SXTE

Cycled the power for the SX E-Camera and O-Camera

14/11/2025 00:22:56 POL: failed to acquire image SXTE

14/11/2025 00:23:02
vendor name = FLIR
model name = Blackfly S BFS-PGE-16S7M
device id = 24303395
GevCurrentIPConfigurationPersistentIP = 1
GevCurrentIPConf = 0 (must be 1)
MAC = ff:ff:a3:72:d7:23
IP = 192.168.164.40
Gateway = 192.168.164.1
SubnetMask = 255.255.255.0
Exposure range = 14 3e+07
Gain range = 0 47.9943
Binning range = 1 4
Increment = 4 2
Image size = 1600 1100 reg=652 416 272 266 bin=1
Temperature = 36.875

14/11/2025 00:25:12 POL: failed to acquire image SXSO

14/11/2025 00:25:18
vendor name = FLIR
model name = Blackfly S BFS-PGE-16S7M
device id = 24185840
GevCurrentIPConfigurationPersistentIP = 1
GevCurrentIPConf = 0 (must be 1)
MAC = ff:ff:a3:71:0b:f0
IP = 192.168.164.41
Gateway = 192.168.164.1
SubnetMask = 255.255.255.0
Exposure range = 14 3e+07
Gain range = 0 47.9943
Binning range = 1 4
Increment = 4 2
Image size = 1600 1100 reg=652 416 272 266 bin=1
Temperature = 33

OSU_Hyades

07:21 UT Sent monocular, but managed to fix the SX camera while slewing
07:28 UT Sending binocular preset. Pointing check needed
07:33 UT Slewing back to target

07:46 UT PEPSI has frozen again and now all VNC connections are dead.
I can't run top any more, all VNC connections have closed.

07:50 UT Ilya to the rescue!! He is executing a full reboot of the machine. He is finding the network extremely slow.

HD286363 (8:03-8:50)

08:03 UT restarting exposure for HD286363

08:21 UT Seeing is steadily improving. Now at 0.8" on PEPSI, 1" on the DIMM, mostly

HD285625 (8:50-11:31)

08:50 UT Slewing to target.

08:52 UT Starting science. We started the wrong one after an issue/miscommunication by Jenny but this is a Band 1 target so we will continue in the good conditions to get this.

09:05 UT Seeing is 0.65" on PEPSI and 1.06" on the DIMM.
PI's appear to be underestimating the time by half, not accounting for 2 Stokes angles in Stokes V for circular polarization? Each exposure consists of 2 exposures in Stokes V, 4 in QU, 6 in QUV. This should be considered in overheads.

10:25 UT Seeing is 0.56" on PEPSI, 0.78 on the DIMM and mostly clear.

HD284552 (11:31-11:47)

11:31 UT Sending Preset
11:34 UT Starting science. Seeing is 0.7" on PEPSI, 0.9" on the DIMM, mostly clear.

12:20 UT Seeing is slowly deteriorating, up to 1" on the PEPSI guiders, 0.9" on the DIMM

12:24 UT 18 degree morning twilight

12:47 UT Done! Closing

12:53 UT 12 degree morning twilight

12:49 UT Starting PEPSI calibrations.

13:44 UT Sunrise