LBT Observing Log: 2025 03 17 UT

Observers: Justin Rupert, Juan Carlos Guerra (AO)
Partner Observer: Micheal Tucker
Telescope Operator: Steve Allanson

Plan:

We'll start with PEPSI PFU. Around 6UT, if conditions allow, we will switch to SHARK-VIS. Otherwise we will stick with PEPSI.

Targets
~~ND_MultiHosts/HD34445~~
~~ND_OMGBinaries/HD62883~~
~~ND_MultiHosts/TOI561~~
~~ND_RPED/Gaia87397_J0755~~
~~MWAbund: J07345425+6651458 (0.2hr)~~
~~** time constrained** OSU_EBRV NSVS1015A @ UT04:58~~
~~ND_RPED/Gaia87397_J0755 (again, add 30-min exposure for clouds)~~
~~ND_MultiHosts/TOI1136 + OSU_PASTA/TOI-1136~~

~~ND_MultiHosts/55Cnc (zenith constrained until UT06:00) (0.11hrs)~~

UT 5 – 10 targets (4.7hr total, all OSU)
~~BHBinaries: J08301619-0204550 (0.3hr)~~
~~RRL: J08201891-0102249 (0.2hr)~~
~~MWAbund: J08534665+0407191 (0.18hr)~~
~~MWAbund: J11294002+5012055 (0.18hr)~~
~~MWAbund: J11332173+5044287 (0.18hr)~~
~~BHBinaries: J11263928+5057119 (0.66hr)~~
~~BHBinaries: J11460820-0113398 (0.63hr)~~
~~RRL: J11143650+3340269 (0.17hr)~~
~~MWAbund: J11494532+4432154 (0.18hr)~~
~~MWAbund: J11561121+5249492 (0.18hr)~~
~~MWAbund: J12083619+4257423 (0.18hr)~~
~~BHBinaries: J15042087+7004039 (0.82hr)~~
PASTA: HD 135694 (0.23hr) skipping to TCrB
PASTA: TOI-2070 (0.27hr)
PASTA: TOI-1165 (0.27hr)

MAT: end-of night targets
~~UM_PEPSITCrB/TCrB + HR5501 @ ~3am local (UT10:00, ~1hr)~~
~~ND_MultiHosts/HATP2 (0.18hr)~~

>= 4am local (UT11:00):
~~ND_MultiHosts/Kepler139 (0.27hr)~~

now avoiding the rising sun

~~ND_MultiHosts/HD110067 (0.18hr)~~
~~OSU_PASTA/TOI-1247~~ (0.22hr)
~~OSU_PASTA/TOI-1860 (0.19hr)~~
OSU_PASTA/TOI-1451 (0.30hr)
OSU_MWAbundDisp/2MJ1335+4421 (0.18hr)
OSU_MWAbundDisp/2MJ1407+4640 (0.18hr)
OSU_MWAbundDisp/2MJ1413+3813 (0.18hr)

Summary:

- ND
  - Mulithosts
    - HD 34445 (02:21-02:24)
  - OMGBin
    - HD 62883 (02:24-02:36)
  - Multihosts
    - TOI561 (02:36-02:42)
  - RPED
    - GDR3 873974240706387072 (02:42-04:31)
- OSU
  - MWAbund
    - J07345425+6651458 (04:31-04:48)
  - EBRV
    - NSVS1015A (GDR3 5980318347065159 68) (04:48-05:06)
- ND
  - RPED
    - GDR3 873974240706387072 (05:07-05:40)
  - Multihosts
    - TOI1136 (05:40-05:48)
- OSU
  - PASTA
    - TOI1136 (05:49-06:01)
- ND
  - Multihosts
    - 55 CnC (06:01-06:08)

- OSU
  - BHBin
    - J08301619-0204550 (06:08-06:23)
  - RRL
    - J08201891-0102249 (06:23-06:34)
  - MWAbund
    - J08534665+0407191 (06:35-06:43)
  - BHBin
    - ~~J11263928+5057119 (06:43-06:47)~~
  - MWAbund
    - J11294002+5012055 (06:50-07:01)
  - MWAbund
    - J11332173+5044287 (07:01-07:11)
  - BHBin
    - J11263928+5057119 (07:11-07:52)
  - BHBin
    - JJ11460820-0113398 (07:53-08:30)
  - RRL
    - J11143650+3340269 (08:31-08:39)
  - MWAbund
    - J11494532+4432154 (08:40-08:50)
    - J11561121+5249492 (08:51-08:59)
    - J12083619+4257423 (08:59-09:09)
  - BHBin
    - J15042087+7004039 (09:09-09:59)
- UM
  - TCrB
    - TCrB (09:59-11:08)
    - HR 5501 (11:08-11:29)
- ND
  - Multihosts
    - HAT-P-2 (11:29-11:40)
    - Kepler 139 (11:41-11:59)
    - HD 110067 (12:00-12:15)
- OSU
  - PASTA
    - TOI-1247 (12:15-12:26)
    - TOI-1860 (12:26-1:32)

AO log: Nightlog UT20250316_DX

PEPSI log:
https://drive.google.com/file/d/1eW9pSocVsuLEtaE3zfbb1zDYu7MDKrQg/view?usp=sharing

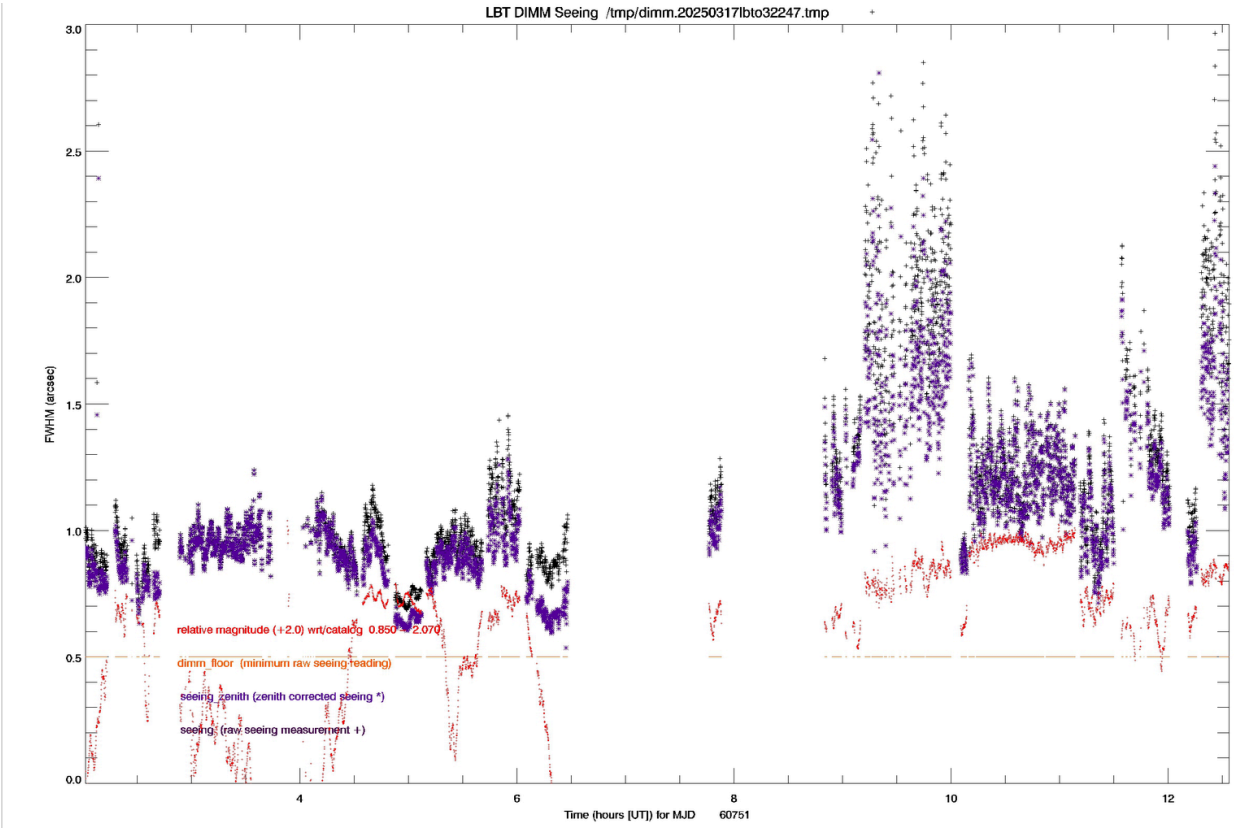
Issues:

Mirror panic on SX.

Had some difficulty with collimation due to the high temperature differences after spending three days in a row closed.

Weather:

Clouds were a factor all night to varying degrees, though never so much as to halt observations.



Temperature at ground *

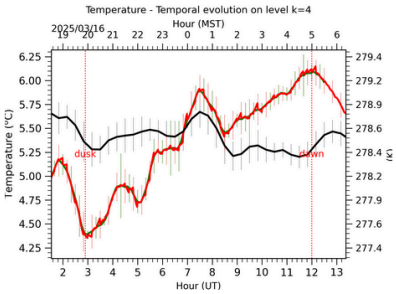


Fig. 4: Absolute temperature temporal evolution between the sunset and the sunrise at [38-62]m.

Wind Speed at ground *

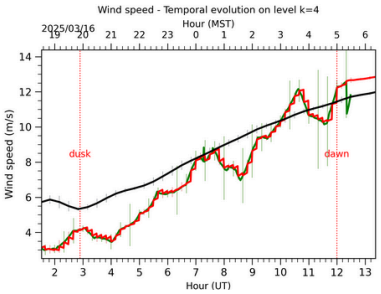


Fig. 5: Wind speed temporal evolution between the sunset and the sunrise at [38-62]m.

Wind Direction at ground *

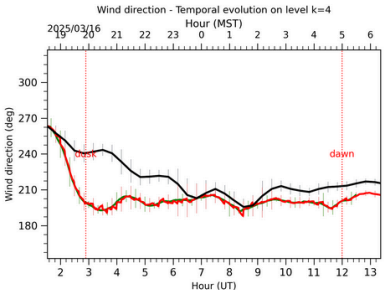
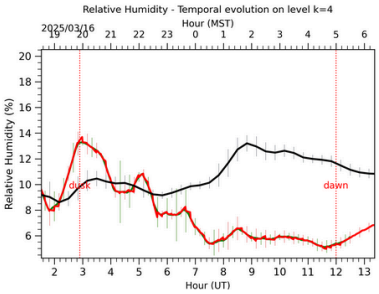
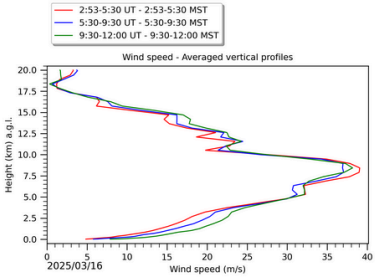


Fig. 6: Wind direction temporal evolution between the sunset and the sunrise at [38-62]m.

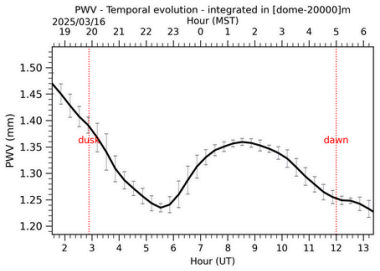
Relative Humidity at ground *

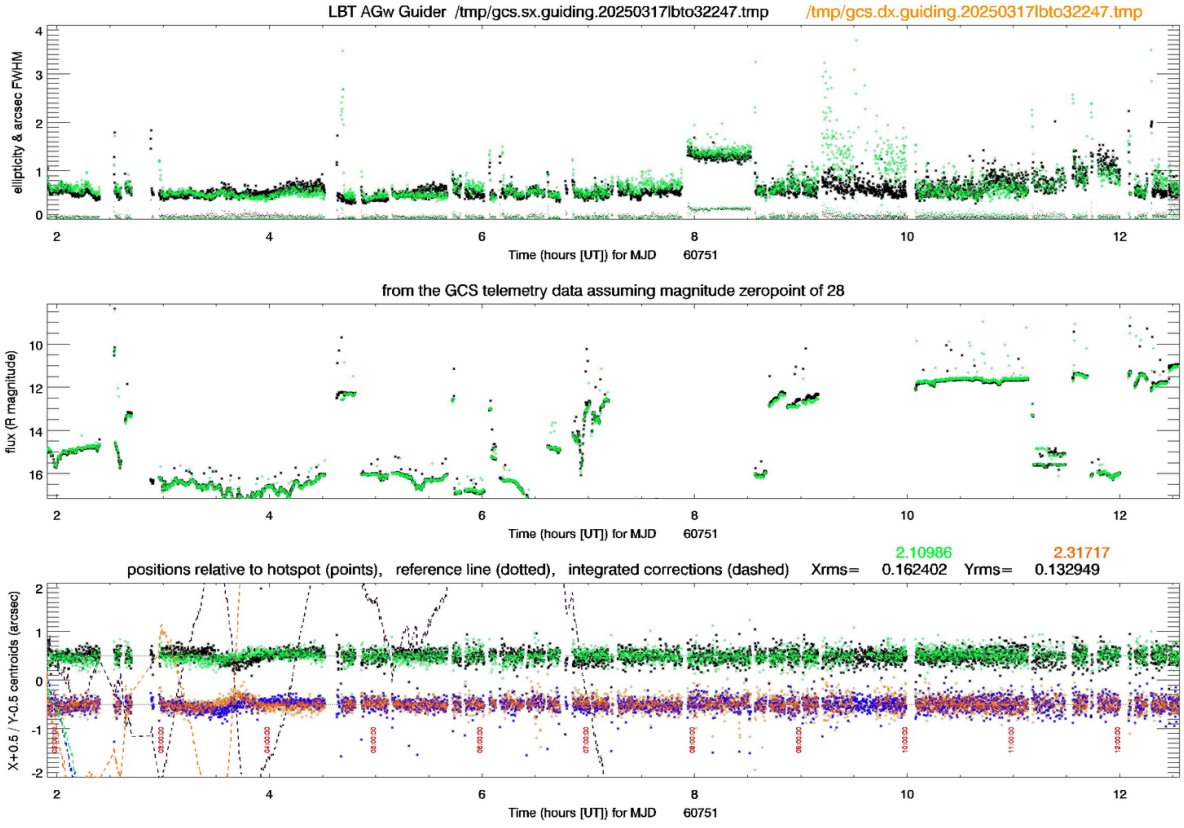


Wind Speed vertical profiles



Precipitable Water Vapor





Overview (times are given in UT):

01:23 Opening.

01:44 Pointing check.

01:53 Collimation check.

01:57 Preset to first target.

ND

Mulithosts

HD 34445 (02:21-02:24)

02:21 12-degree twilight. Starting science. Seeing is 0.6” on guiders, 0.8” on DIMM. Thin clouds.

02:24 SNR: CD3 138, CD6 187

OMGBin

HD 62883 (02:24-02:36)

02:24 Preset.

02:26 Missed it on both sides. Pointing check.

02:29 ND2 filters are in. Switched to ND0. The next target is Vmag=7.46.

02:31 Resending preset.

02:33 Starting science. Seeing is 0.5”on SX guider, 0.6” on DX guider. Thin clouds.

02:36 SNR: CD2 182, CD4 307

Multihosts

TOI561 (02:36-02:42)

02:36 Preset.

02:39 Starting science. Seeing is 0.6” on guiders, 0.8” on DIMM. Thin clouds.

02:42 SNR: CD3 87, CD6 120

RPED

GDR3 873974240706387072 (02:42-04:31)

02:43 Preset. Panic on SX. Outer loop stalled. Going to zenith to recover (it's not far).

02:46 Raising mirrors.

02:50 18-degree twilight.

02:51 Resending preset. Steve thinks the panic was a result of runaway spherical corrections.
02:53 Missed it on DX. Pointing check.

02:56 Resending preset.

02:59 Starting science. Seeing is 0.5" on SX guider, 0.7" on DX guider, 1" on DIMM. Thin clouds.

03:31 SNR: CD1 60, CD5 190. Goal is 75/250. Cloud coverage has been thin and variable so far.

03:55 Moon has risen.

04:02 SNR: CD1 57, CD5 150. Clouds were a little thicker during that exposure.

04:31 SNR: CD1 63, CD5 181. We'll come back to this for an additional exposure.

OSU

MWAbund

J07345425+6651458 (04:31-04:48)

04:31 Preset. DX preset failed. There was a huge z22 correction.

04:35 SX is stuck initializing guide thread. Steve is investigating.

04:37 Resending preset. DX missed it. SX got it. Steve is nudging DX.

04:39 Re-resending preset.

04:41 Not WFSing on DX.

04:42 Now it is. Starting science. Seeing is 0.5" on guiders, 0.9" on DIMM. Thin clouds.

04:48 SNR CD2 185, CD4 406

EBRV

NSVS1015A (GDR3 598031834706515968) (04:48-05:06)

04:48 Preset.

04:52 Starting science. Seeing is 0.4” on SX guider, 0.5” on DX guider, 0.7” on DIMM. Thin clouds.

05:07 SNRCD3 117, CD5 154

ND

RPED

GDR3 873974240706387072 (05:07-05:40)

05:07 Preset.

05:09 Starting science. Seeing is 0.5” on guiders. Thin clouds.

05:40 SNR1 69, CD5 214

Multihosts

TOI1136 (05:40-05:48)

05:40 Preset.

05:44 Starting science. Seeing is 0.7” on SX guider, 0.6” on DX guider, 1” on DIMM. Thin clouds. Switched to ND2 filter.

05:48 SNR CD3 127, CD6 165

OSU

PASTA

TOI1136 (05:49-06:01)

05:49 Preset.

05:50 Starting science. Seeing is 0.6” on SX guider, 0.7” on DX guider. Thin clouds.

06:01 SNR: CD1 140, CD2 143, CD3 158, CD4 226, CD5 189, CD6 521

ND

Multihosts

55 CnC (06:01-06:08)

06:01 Preset.

06:05 Starting science. Seeing is 0.5” on SX guider, 0.7” on DX guider and DIMM. Thin clouds.
06:08 SNR: CD3 153, CD6 239

OSU

BHBin

J08301619-0204550 (06:08-06:23)

06:08 Preset.

06:10 DX grabbed a reflection. Steve is tweaking. Resending preset.

06:12 Starting science. Seeing is 0.5” on SX guider, 0.6” on DX guider, 0.7” on DIMM. Thin clouds.

06:23 SNR: CD3 81, CD5 112

RRL

J08201891-0102249 (06:23-06:34)

06:23 Preset.

06:27 Starting science. Seeing is 0.5” on SX guider, 0.6” on DX guider, 0.8” on DIMM. Clouds are a little thicker.

06:34 SNR CD3 54, CD5 58. Goal is 100.

MWAbund

J08534665+0407191 (06:35-06:43)

06:35 Preset. Steve is reporting ~2 mag of extinction.

06:37 Seeing is 0.6” on guders.

06:43 SNR: CD2 87, CD4 137. We may come back to this.

BHBin

~~J11263928+5057119 (06:43-06:47)~~

06:43 Preset.

06:47 Missed it on DX. Pointing check. We're going to move on to brighter targets when Steve is done.

MWAbund

J11294002+5012055 (06:50-07:01)

06:50 Preset. We'll up the exp time from 5 to 8 minutes to account for the clouds.

06:52 Starting science. Seeing is 0.6" on guiders. Thicker clouds.

07:01 SNR: CD2 169, CD4 275

MWAbund

J11332173+5044287 (07:01-07:11)

07:01 Preset.

07:02 Starting science. Seeing is 0.5" on guiders. Thin clouds.

07:11 SNR: CD2 215, CD4 375

BHBin

J11263928+5057119 (07:11-07:52)

07:11 Preset.

07:13 We'll do a pointing check. There are two objects of similar magnitudes in the field.

07:15 Resending preset.

07:18 Starting science. Seeing is 0.6" on SX guider, 0.7" on DX guider. Clouds have thinned a bit.

07:52 SNR: CD3 67, CD5 111

BHBin

JJ11460820-0113398 (07:53-08:30)

07:53 Preset.

07:59 Starting science. Seeing is 1.3” on SX guider, 1.4” on DX guider. Thin clouds.

08:30 SNR: CD3 67, CD5 108

RRL

J11143650+3340269 (08:31-08:39)

08:31 Preset.

08:35 Starting science. Seeing is 0.9” on guiders. Thicker clouds.

08:39 SNR: CD3 77, CD5 83

MWAbund

J11494532+4432154 (08:40-08:50)

08:40 Preset.

08:42 Starting science. Seeing is 0/6” on SX guider, 0.5” on DX guider. Thin clouds.Upped exp time from 5 to 7 minutes.

08:50 SNR: CD2 260, CD4 457

J11561121+5249492 (08:51-08:59)

08:51 Preset.

08:53 Starting science. Seeing is 0.6” on SX guider, 0.7” on DX guider. Thin clouds.

08:59 SNR: CD2 192, CD4 335

J12083619+4257423 (08:59-09:09)

08:59 Preset.

09:04 Starting science. Seeing is 0.7” on guiders. Thin clouds.

09:09 SNR:

BHBin

J15042087+7004039 (09:09-09:59)

09:09 Preset.

09:15 Starting science. Seeing is 1” on SX guider. Steve will collimate by eye as this target is faint. Thin clouds.

09:32 We lost the target on DX. Guider is reporting it’s at 19th mag, so it could’ve caught noise and drifted off. We’ll continue with SX still on target. It’s reporting seeing of 0.7”, 1.4” on DIMM.
09:40 Sending a DX async preset. Got it.

09:46 Lost it again. Resending. Got it.

UM

TCrB

TCrB (09:59-11:08)

09:59 Preset. AZ unwrap.

10:05 Starting science. Seeing is 0.6” on SX guider, 0.7” on DX guider, 0.9” on DIMM. Thin clouds.

10:12 We’re adding an extra 10 minutes per exposure to account for clouds.

10:36 SNR: CD2 216, CD4 479. Seeing is 0.7” on guiders, 1” on DIMM. Thin clouds.

HR 5501 (11:08-11:29)

11:08 Preset.

11:12 Starting science. Seeing is 0.7” on SX guider, 0.8” on DX guider, 0.9” on DIMM. Thin cirrus.

ND

Multihosts

HAT-P-2 (11:29-11:40)

11:29 Preset.

11:34 Starting science. Seeing is 0.9” on SX guider, 1” on DX guider, 1.9” on DIMM. Thin cirrus.

11:40 SNR: CD3 101, CD6 129

Kepler 139 (11:41-11:59)

11:41 Preset.

11:43 Pointing check. Multiple objects in the field.

11:46 Resending preset.

11:48 Starting science. Seeing is 1.1” on SX guider, 1.2” on DX guider, 1.4” on DIMM. Thin cirrus.

11:50 SNR: CD3 57, CD6 62. Goal is 100/100.

HD 110067 (12:00-12:15)

12:00 Preset. Failed.

12:02 Resending preset.

12:03 18-degree twilight.

12:05 Pointing check. Multiple objects in the field.

12:07 Resending preset.

12:08 Starting science. Seeing is 0.8” on SX guider, 0.9” on DX guider. Thin cirrus.

12:15 SNR: CD3 118, CD6 178

OSU

PASTA

TOI-1247 (12:15-12:26)

12:15 Preset.

12:19 Starting science. Seeing is 0.7” on guiders, 1.7” on DIMM. Thin cirrus.

12:26 SNR: CD1 141, CD2 159, CD3 160, CD4 252, CD5 192, CD6 410

TOI-1860 (12:26-1:32)

12:26 Preset.

12:28 Starting science. Seeing is 0.6” on SX guider, 0.8” on DX guider, 1.6” on DIMM. Thin cirrus.

12:32 12-degree twilight. SNR: CD1 104, CD2 151, CD3 160, CD4 250, CD5 194, CD6 297. Starting cals.