C19 Observer: Andrew Cardwell (From obs1, x2go session 50). Partner Observer(s): Mark Whittle, Noah Rogers. Telescope Operator: Steve Allanson

Plan: LBC-monitor all night; with R & I during first half, and I in second. 10 objects. However, LBCs wouldn't collimate (mirror temp differential too large) so decided to switch to LUCI at 2UT). New plan: do 1 UVa-nirjets + OSU_XMD_SHOC113 until mirrors cool; then switch back to LBCs and do almost all the monitor objects.

Summary: Mostly clouded out, completed a few LUCI Imaging/LS and LBC observations. UVa_nirjets: FC_IRAS23385 OSU_XMDs_LUCI: SHOC113 OSU_monitor: NGC2403, NGC628 (partial saturation in later exposures)

Issues:

Weather: Clouds at twilight, partially cleared for LUCI Imaging and LS observations but returned to stay after switching back to LBC.

Overview (times are given in UT):

00:99 Bringing up LUCI and LBCs for the night ahead.

00:22 Sunset.

00:26 Opening the enclosure, it has already been ventilating for a while.

00:30 Open, sending preset for skyflats with LBC. We start with SDT_Uspec and R at PA=0.

00:34 Still too bright.

00:40 Bad read on lbcb.20221027.190536.fits. Too few downloaded pixels error, IT 2631 updated. It looks like the time and date are bad on the lbcb computer. Steve is going to reset it. IT8753

00:59 At least 5 good flats in STD_Uspec and R_Bess at PA=0, moving on to PA=180.

01:07 Clouds have come in, we can not continue with flats.

01:09 Preset to copointing field for NGC6946.

01:12 12 degree twilight. Running dohybrid, /X2 to collimate.

01:23 We are not making progress on lbcr. Stopping, clearing optics, and trying again.

01:36 Red is still running away. Clearing optics and trying again.

01:38 Cleared, trying again with dofpia.

01:41 18 degree twilight.

01:46 We are struggling to collimate, both sides are running away. The clouds and temperature difference are fouling up the process. We have cleared the optics again, on both sides this time, and injected some z11 and z22.

01:58 We still are not making progress. We will give this one more go and switch to LUCI if it does not improve things.

02:06 Giving up, reconfiguring to LUCI. The primaries need to cool by about 3C to be in thermal equilibrium. Turning off the TMS lasers.

02:28 OSA is making an initial pointing correction and collimation.

02:35 Preset to UVa_nirjets, IRAS 23385+6053. LUCI bino imaging. Science exposures are luci1.20221116.0010-0062, luci2.20221116.0005-0057.

02:38 Initial seeing estimate from the guiders is 0.8". We have at least one mag of extinction, probably more like 2.

02:44 0.65" IQ on initial exposures.

02:50 0.6" IQ on LUCI1, 0.75" on LUCI2. There is a larger temperature difference on dx than sx.

03:18 Guiders report 0.8".

03:29 0.7" from SX guider, 0.8" from DX guider.

03:47 Guiders report 0.65".

04:03 Preset to telluric for SHOC113, HIP13917. LUCI LS. Acquisition will begin with luci1.0062, luci2.0057.

04:09 No GS found on SX. CHecking the OT the GS is very close to the edge of the patrol field. I've chosen a new GS. Steve has also performed a pointing check, the pointing star was not far off.

04:10 Sending the preset again.

04:17 Acquisition confirmed, starting science. luci1.20221116.0065-0068, luci2.20221116.0060-0063.

04:20 Spectrra are a little weak, we have quite some cloud. Repeating the science steps.

04:21 Preset to main science target, SHOC113. Acquisition will begin with luci1.0069, luci2.0064.

04:36 Target was difficult to confirm in the through slit exposure as it is still cloudy, but it is there. Starting science. luci1.20221116.0074-0079, luci2.20221116.0069-0075. Guide star shows clear during science exposure.

04:59 Pair subtraction of the first two exposures reveals a continuum trace and some strong emission lines.

05:41 Reconfiguring to LBCs.

06:02 Preset to copointing field for NGC672. The primaries are now within 1C of ambient on both sides,

06:05 Starting collimation, dofpia, /X2.

06:07 "warning: problem with pfs request right side"

06:08 Trying again.

06:14 We don't have enough range on DX in Z4. It seems the LBCs are in fall rather than winter position.

06:16 Changing target to see if that helps, preset to copointing field for NGC2403.

06:20 Clearing optics, trying again. Dofpia, /X2.

06:35 We got it! Moving on to copointing. TMS reference has been set.

06:39 Preset sent to science field, I band imaging. Copointing exposures has IQ of 0.9".

06:46 The first science exposures have an IQ of 0.9" on both sides.

06:52 We are getting a lot of cloud coming in very quickly, it appears to be forming locally. Steve is checking outside. Preset to NGC628.

07:00 I was hoping TMS would hold us well enough to skip collimation. It didn't hold on red, but was reasonable on blue. Turning off TMS and running dofpia.

07:21 The allsky camera looks a bit better, trying again.

07:29 LBCB collimated well, the solution for lbcr started to oscillate. Stopping, clearing the optics, and trying again.

07:23 Starting again in interactive mode.

07:55 We finally got it. Starting science.

08:04 0.75" in V_Bess lbcb, 0.5" in I_Bess lbcr.

08:31 Scrambled exposure on lbcb, lbcb_20221116_082459. Lbcr exposures are saturating. Giving up on LBCs and switching to LUCI.

08:43 The cloud has thickened up again, we are closing and waiting it out.

09:07 Running LBC bias sequence.

09:15 The humidity is rising, it is now 84%.

10:01 97.5% humidity, fully clouded out.

11:02 100% humidity, the all sky camera is iced over.

12:09 100% humidity, -4.4C. There is a thick layer of ice over the allsky camera. We are giving up and calling the night. LBCs are powered down, LUCIs are safed.

12:25 18 degree twilight.

12:55 12 degree twilight.

13:45 Sunrise.