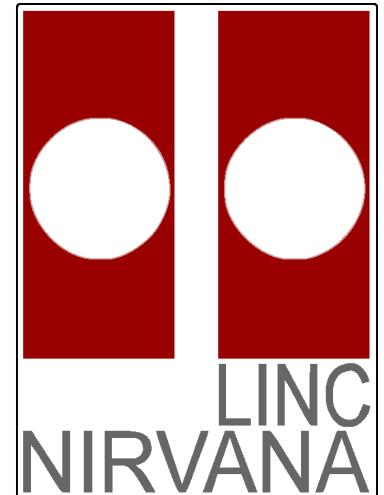


LINC-NIRVANA

The LBT **I**nterferometric **C**amera and
Near-**I**nfra**R**ed / **V**isible **A**daptive
interferometer for **A**stronomy

A collaborative project of the MPIA Heidelberg, INAF Italy,
Universität zu Köln, and MPIfR Bonn

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Commissioning-8 Plans

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Change Record

Issue	Date	Sect.	Reason/Initiation/Documents/Remarks
0.1	20.4.19	all	New doc based on Com-7 doc
0.2	13.5.19	all	Includes updated itineraries, etc.

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1 Overview

This document summarizes activities planned for Com-8, which was originally scheduled for February 2019. The failure of the Stirling cooler caused the eventual loss of that run. Com-8 is thus the originally scheduled May LN run.

2 Dates and Logistics

The run is scheduled for **4.0 nights: 23-26 May full nights.**

2.1 Team Membership

Participating from MPIA:

Florian Briegel	- on summit 22-27 May
Tom Herbst	- on summit 20-27 May
Micah Klettke	- on summit 22-27 May
Moritz Plenz	- on summit 20-27 May
Fabio Santos	- on summit 20-27 May

Participating from INAF:

Carmelo Arcidiacono	- on summit 20-27 May
Maria Bergomi	- on summit 22-27 May

Remote from Padova:

Kalyan Radhakrishnan

Remote from MPIA:

Richard Mathar (on call)

2.2 Day-by-Day Events

Sun 19 May

- Carmelo, Tom, Moritz, and Fabio arrive in TUS

Mon 20 May

- Carmelo, Tom, Moritz, and Fabio to summit
- Preparation work (Barilotto, etc.) on summit

Tue 21 May

- Florian, Maria, and Micah arrive in TUS
- DX calibration, NCPA work on summit

Wed 22 May

- Florian, Maria, and Micah arrive to summit
- DX calibration, NCPA work on summit

Thu 23 May – Sun 26 May

- Com-8 Observing

Mon 27 May

- Com-8 team leaves summit
- Carmelo flies back to Europe

Tue 28 May

- Tom, Moritz, and Fabio fly back to Europe

2.3 Vehicle Logistics

Vehicle 1 (MPG Pilot – Tom)

- to summit 20 May
- to Tucson 27 May

Vehicle 2 (Rental – Padova?)

- to summit 22 May
- to TUS 27 May

2.4 Current Logistical Uncertainties

- Carmelo must drive down early on 27 May, but with only two vehicles, at least 2 others should go with him.
 - We currently plan for only two vehicles. Will this work? Driving up on the 20th with four people plus luggage plus food means a very packed vehicle.
 - The current document does not include timing of flights back to Europe for Maria, Florian, and Micah
 - Please note that Monday, 27 May is a national holiday (Memorial Day) and thus our run is scheduled for a long weekend. This may have implications for logistics and mountain support.
- **As of 13 May, we are still uncertain whether the Stirling cooler will work!**

3 Pre-Run Activities

- Test cooler after repair
- Cool down LN
- Test fast-link / ICE interface

- Continue work on SE search and center

4 Daytime Activities

On 21 and 22 May, we plan to begin the process of calibrating the DX GWS reconstructor (we completed this in fall 2018, but there were issues with the AdSec configuration files). Carmelo is in charge of this activity.

During this time, we will also attempt to take data to calibrate Non-Common-Path Aberrations (NCPA) between the (SX) HWS and the science camera. Moritz Plenz is in charge of this activity

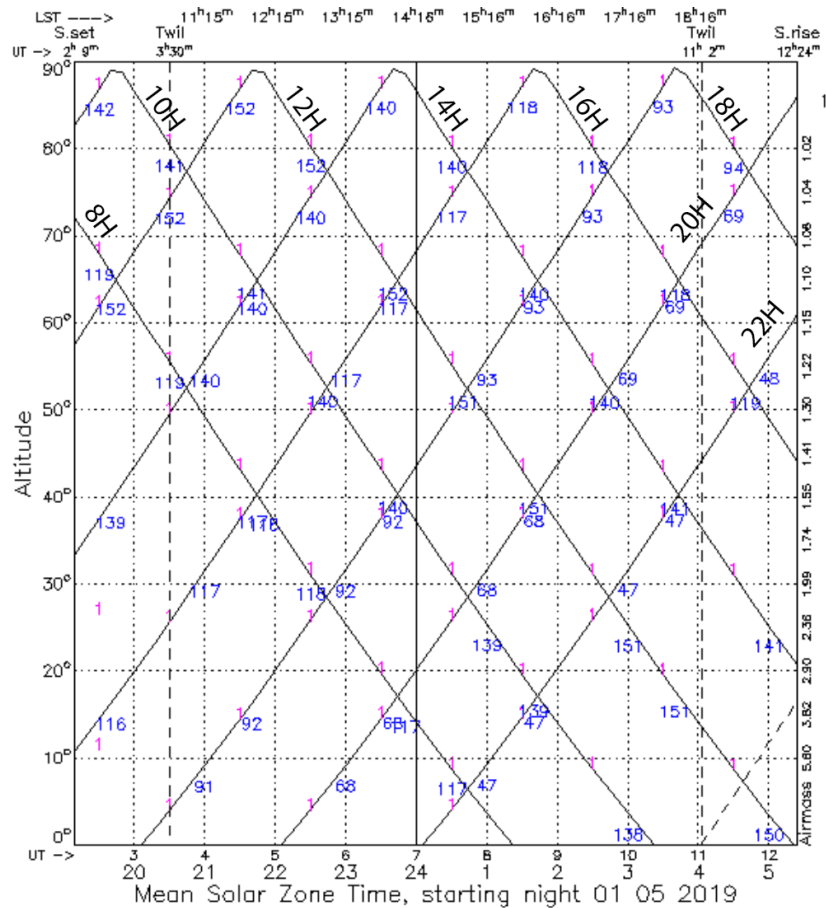
Since we have full nights, we plan no daytime activities for 23-26 May, although the short nights should allow some work.

5 Nighttime Activities

We will continue commissioning activities, with a focus on improved acquisition efficiency, fainter guide stars, and acquiring a suitable “first-light” image. We will also perform a test of the fast readout mode for Felix Bosco (details TBD). We may also work with GWS-DX, if circumstances allow.

5.1 Right Ascension Availability

The figure below (built from the output of <http://catserver.ing.iac.es/staralt/>) displays target availability during Com-8. Practically, this means objects with RA between 8h and 22h.



Object visibility for the December Com-7 run.

5.2 Telescope Access Hours

Sunset at 19:18

Sunrise at 05:15

Observing hours *ca.* 8.5 (45 min after/before sunset/sunrise)

Daytime Access 6:15 – 17:18 or **11 hours**

Nighttime handover at 00:11

Based on <https://www.esrl.noaa.gov/gmd/grad/solcalc/> and standard LBT practice. The handover time includes half of the 10-minute overhead.

6 Requirements on LBTO

6.1 Daytime Activities

Item	Support Needed	Date(s)
Reconfigure Barilotto	Access to retroreflector	20 May evening
Calibrate HWS-DX	Quiet telescope on oil. Dim dome.	21-22 May
Coordinate with LBTO on a safer	Telescope locked at zenith for <i>ca.</i> 20 min.	anytime

way to store the RR fiber	Discussion with mountain personnel	
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6.2 Nighttime Activities

Our nighttime activities have no particular demands on LBTO personnel.

8 To Do List

This section contains an LN-team internal To Do list of tasks to be completed before Com-7.

8.1 Logistics

- verify room reservations (each traveler should check)
- verify Pilot availability (Tom) - DONE
- rent 4x4 vehicles (as needed)

8.2 Miscellaneous

- screen and select commissioning target fields – (Tom)
- screen and select PR target fields – (Tom)

9 Important Info

This section contains a mish-mash of important information, gathered in one place. Some of it comes from Carmelo's PC-1 notes (PC1_Notes_Carmelo.pdf).

LN Account on obs3

User lneng Pwd 1amLN\$eng

IP Addresses of LN Machines

ln-x1.linc (192.168.156.231)

ln-x2.linc (192.168.156.232)

ln-x3.linc (192.168.156.233)

laos.linc (192.168.156.42)

Patrol Camera Hot Pixels (from Carmelo's PC-1 notes)

- Reference pixel on axis Patrol Camera SX: 485,421.
- Reference pixel on axis Patrol Camera DX: 488,414. (NOW 487, 415)

LN Web Cam Addresses

9.1 LN Angle Definitions and Info

Note: Much of this is extracted from the document LN_Angles.

GWS Bearing Angle Directions

When looking at the face of the GWS (from the annular mirror), the bearings rotate as follows (Rosalie's notes from PC-2).:

SX rotates counterclockwise with increasing bearing angle
DX rotates clockwise with increasing bearing angle

DX GWS Bearing "Zero Offset Angle"

Based on the measurements during E2 (see comment section of cat2mm_E2.py), the DX GWS bearing "Zero Offset Angle" zAng is **2.38°**. This was measured by doing "pure" E-W-N-S offsets in Parallax mode to SE 1,4,7,10. At the time, we called zAng the "magic angle," but we now use the more precise term "zero offset angle." We need to repeat this measurement using AdSec El/Az offsets during Com-2.

Transformation between Slit and Input Coordinates

For SX, flip the vector up-down and then rotate clockwise by 71.5°

For DX, flip the vector up-down and then rotate counter-clockwise by 71.5°