



# ESA PDO Observing Network



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# PDO Telescope Network in 2019

## Legend

- Scientific Agreement
- ESA owned/funded
- 6ROADS Southern Hemisphere
- 6ROADS Asia
- LCO
- Flyeye #1



# PDO Telescope Network in 2020

## Legend

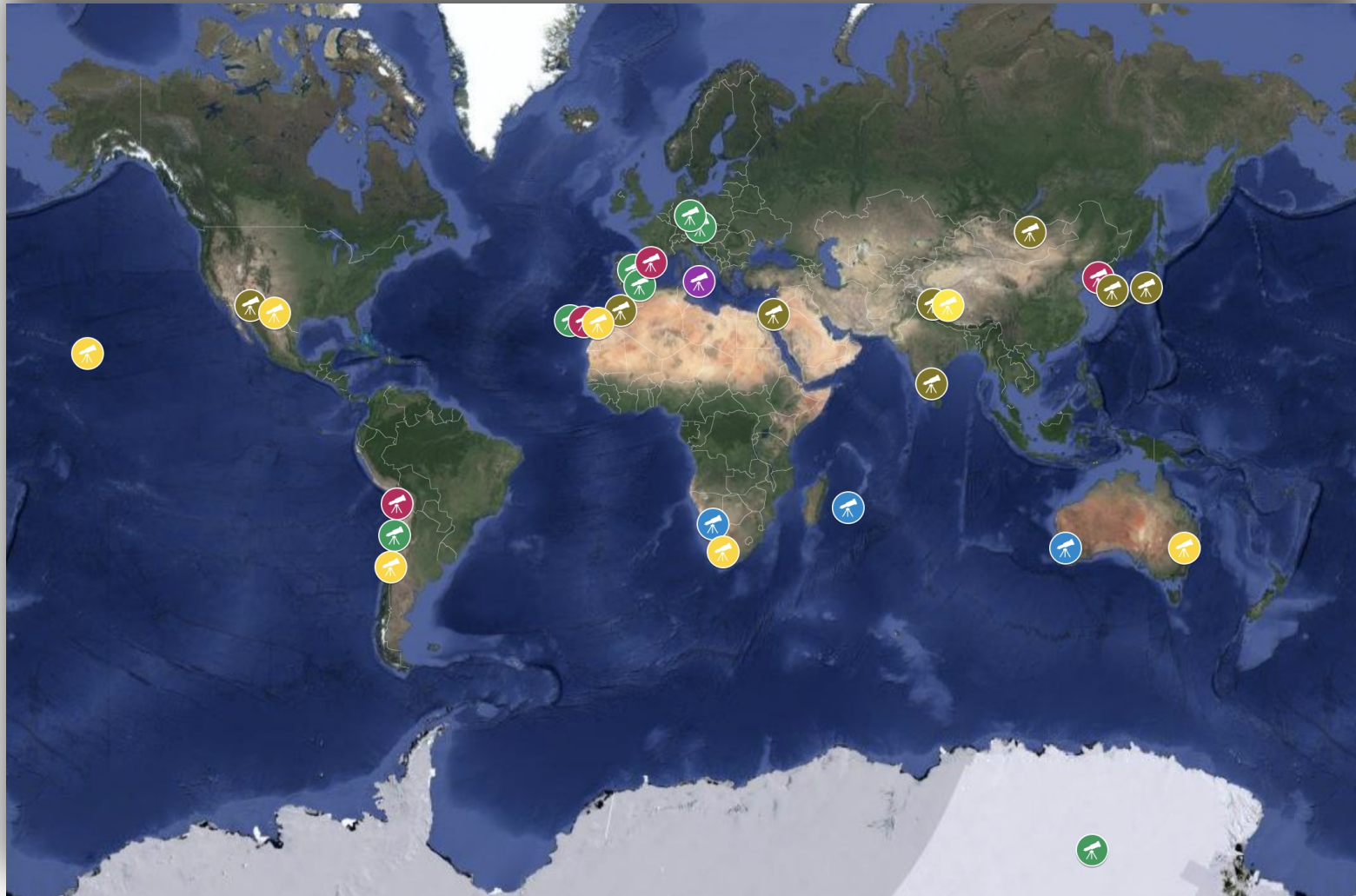
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# PDO Telescope Network in 2021

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## Scheduled and/or operated by PDO

- OGS:
  - 3/4 nights per Moon cycle (50 nights per year)
  - Follow-up + (small) survey: TOTAS
- CAHA:
  - Fully dedicated to PDO activities
  - Used 150 nights in 2020 for: follow-up, comets, light curves & ArtSat
  - Setting up dedicated survey (CAHAS)
- VLT: 26 hours per year for PDO activities

## Observations on request by PDO:

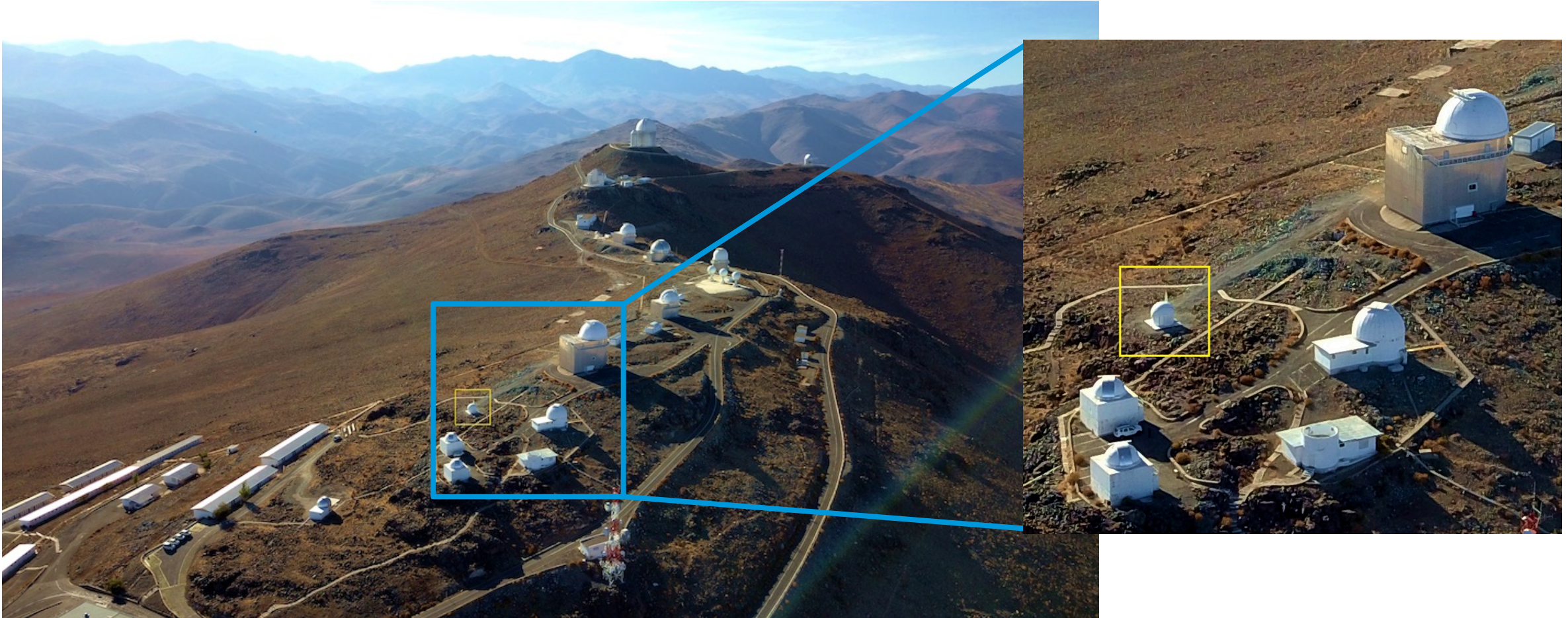
- 6ROADS: coordination of observatories in the Southern Hemisphere
- ISON (former collaboration): participated in 1999 KW4 IWAN (2019) and BepiColombo (2020) campaigns, as well as urgent targets

Observatory / Network	Number of NEO Observations
OGS	1289
CAHA	396
VLT	60
6ROADS	94
ISON	40
Tautenburg	8034
Klet	4416

Autonomous observations with financial support from ESA: Klet & Tautenburg

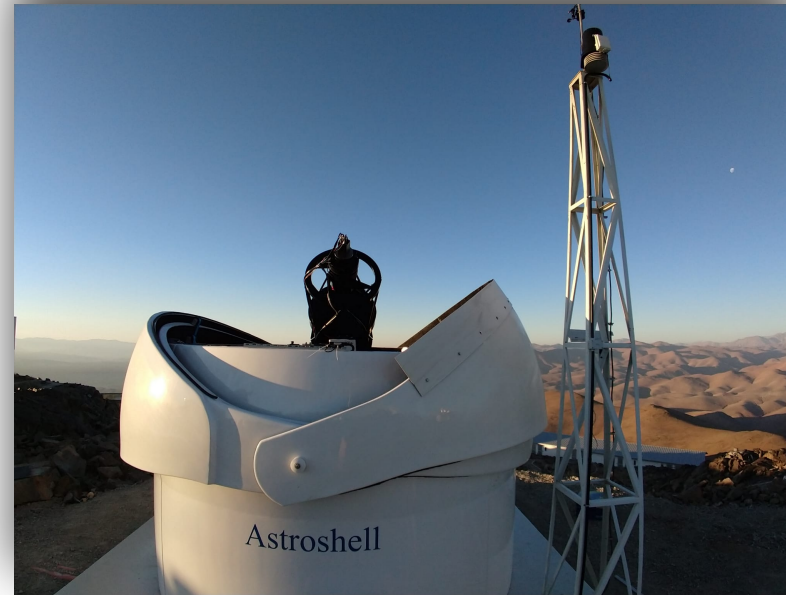
# Test-Bed-Telescope 2 - Location

La Silla, Chile



# Test-Bed-Telescope 2 - Deployment

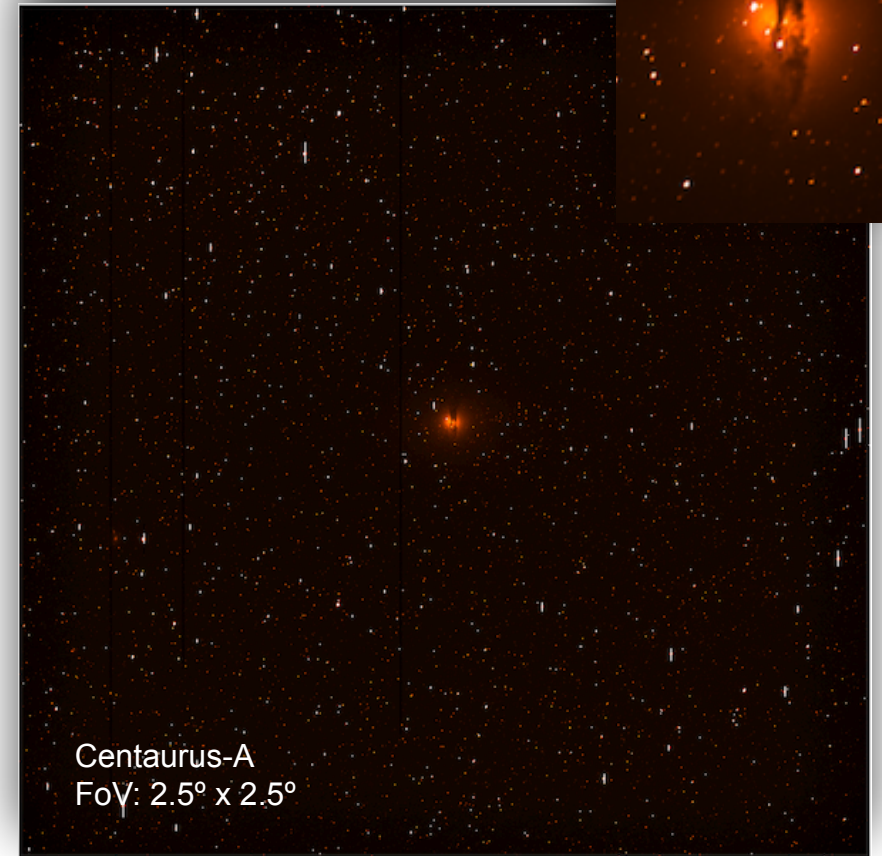
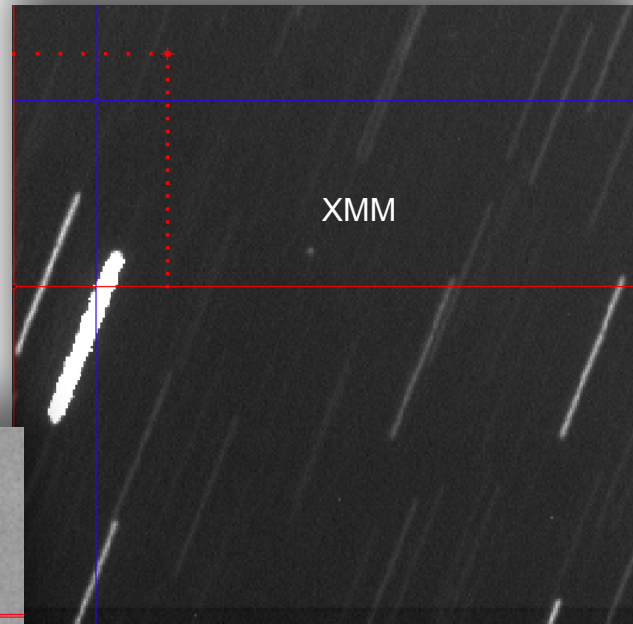
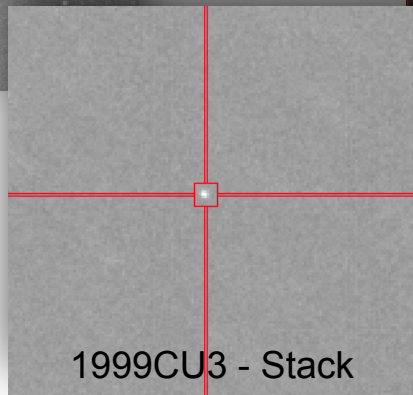
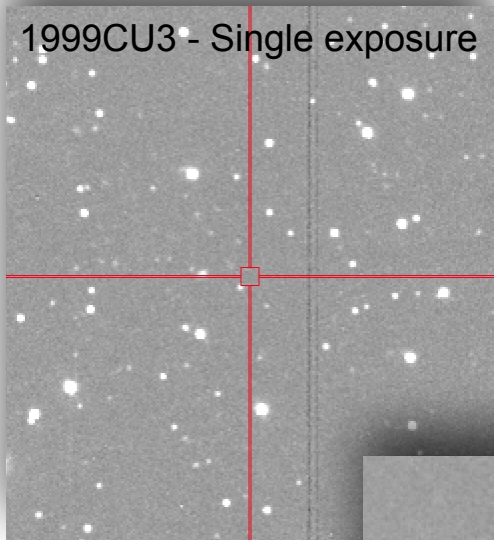
- Activities finally resumed after 14 months (Dec. 2019)
- Telescope unpacked after 4 years of storage.
- Most of the integration and preliminary testing was completed.
- Commissioning to be resumed during next mission.
- 'Limited' Remote operations possible.



# Test-Bed-Telescope 2 - Imaging Tests

Images taken during the alignment/calibration activities

Able to reach limiting magnitude of 20.2 in 120s; 21.0 stacking





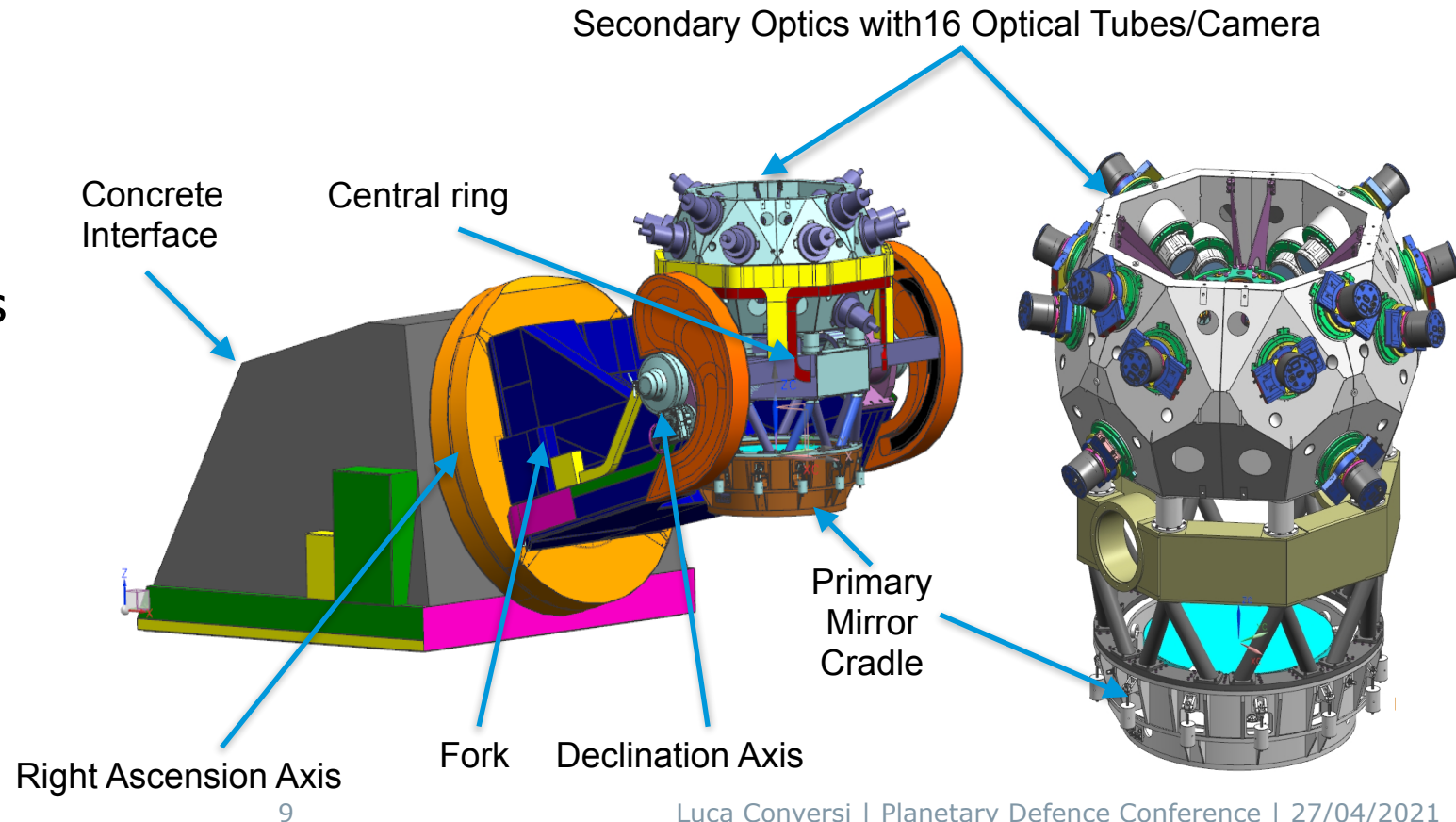
# Flyeye 1 - Overview

1-m class telescope with  $6.7^\circ \times 6.7^\circ$  FoV split into 16 different cameras (fly-eye design)  
Equatorial mount, telescope structure, primary mirror and beam splitter ready.

Production of cameras ongoing:

- 7 already qualified,  
4 mounted on telescope.
- Finalisation of all 16 cameras expected by June 2021.

Autofocus software functionality under development.

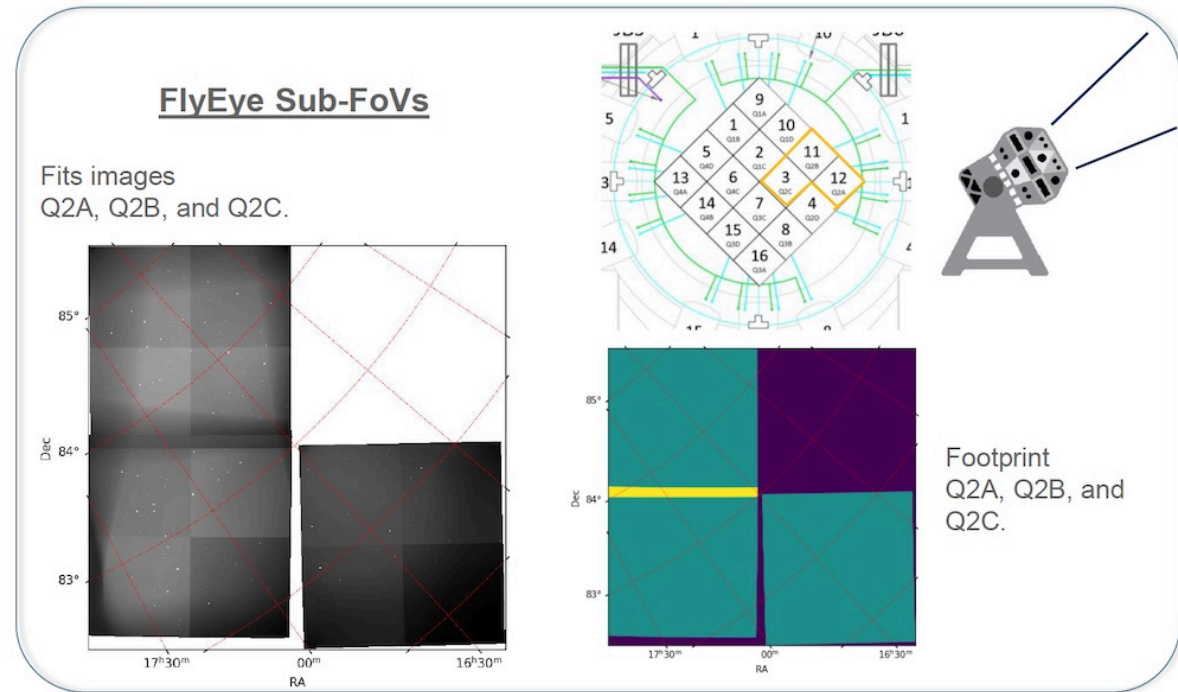
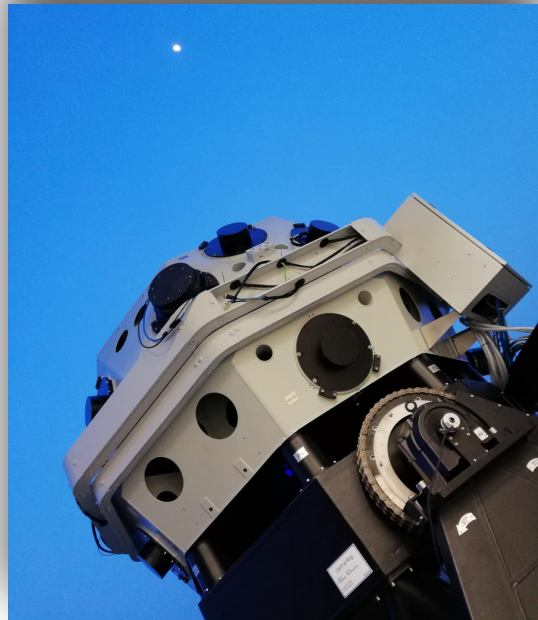


# Flyeye 1 - Real Sky Tests

First on-sky alignment exercise with 3 cameras @Turate/Milan - poor seeing.

Focus on completing factory acceptance functional tests, and move to Matera (ASI site) before end of 2021.

Integration and 'on-sky' performance tests to resume @Matera, under better site conditions.

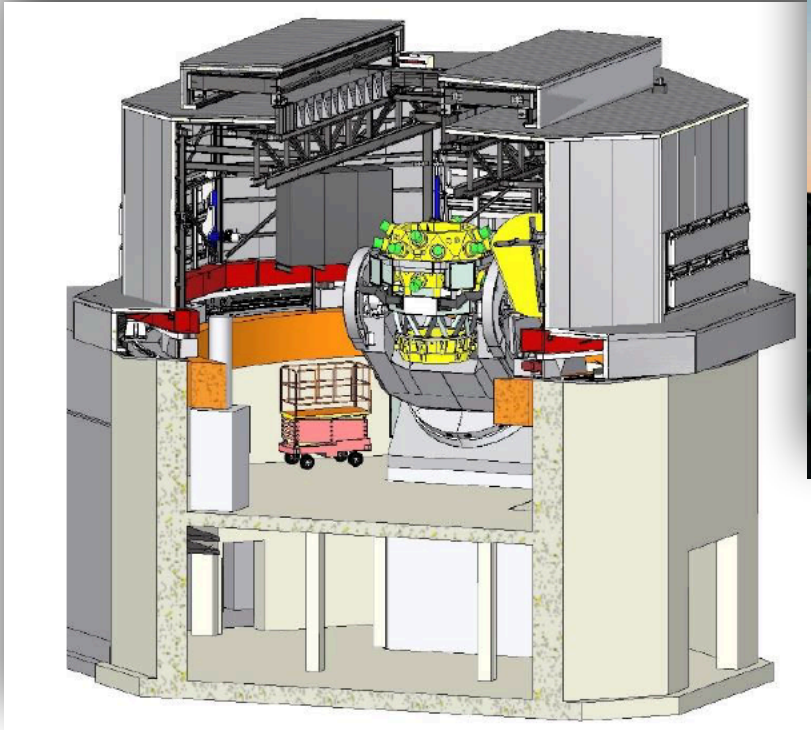


# Flyeye 1 - Observatory

Design phase completed - Construction phase under negotiation.

Site readiness and begin of telescope installation expected by end of 2022/beg. 2023.

Synergies between Flyeye and the Wide Mufara Telescope (WMT) under exploration.



Presentations by ESA's Planetary Defence team:

- Micheli et al. - *Recent observational highlights from ESA's NEO Coordnation Centre*
- Rudawska et al. - *FITS image archive at ESA's NEO Coordination Centre*

Presentations by collaborators:

- Perozzi et al. - *An efficient deployment strategy for the first ESA Flyeye NEO survey telescope*
- Zolnowski et al. - *6ROADS: Highly precise optical observations of NEO, fast-moving satellites and Space Debris from a worldwide telescope network*

ESA-ESO TBT La Silla first light press release