



# Progress on GTC Engineering Operations

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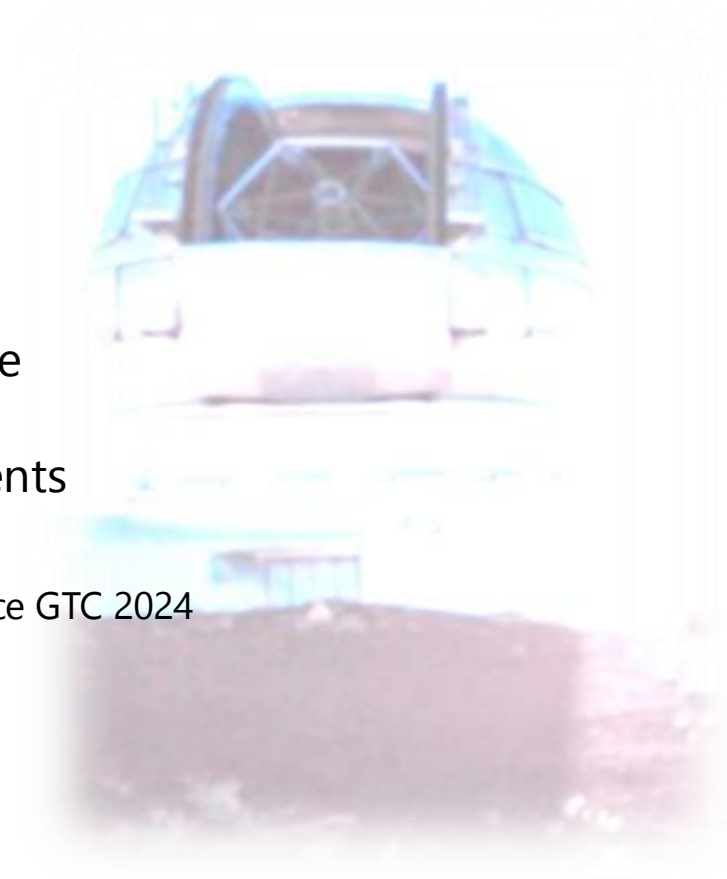
GTC Users Committee. September 2024



# Scope



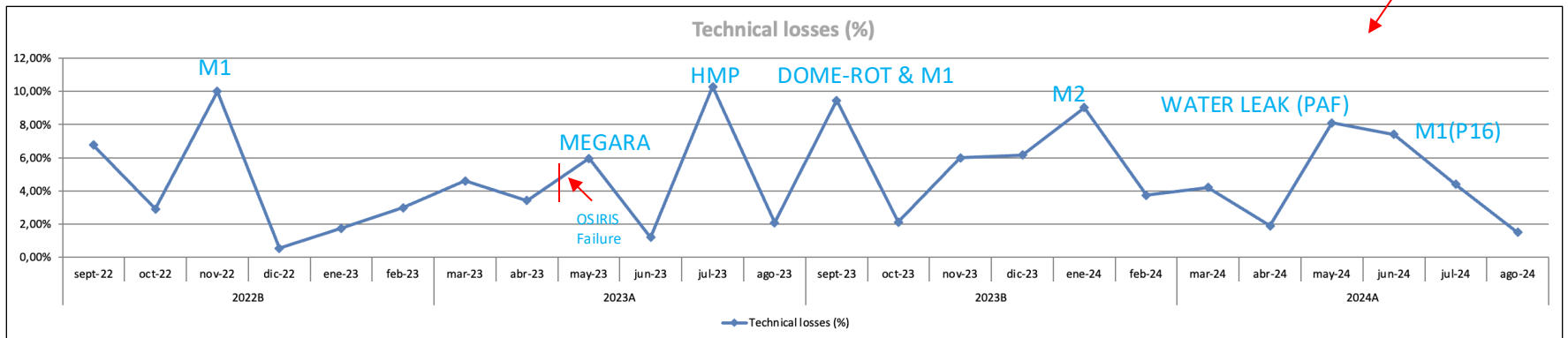
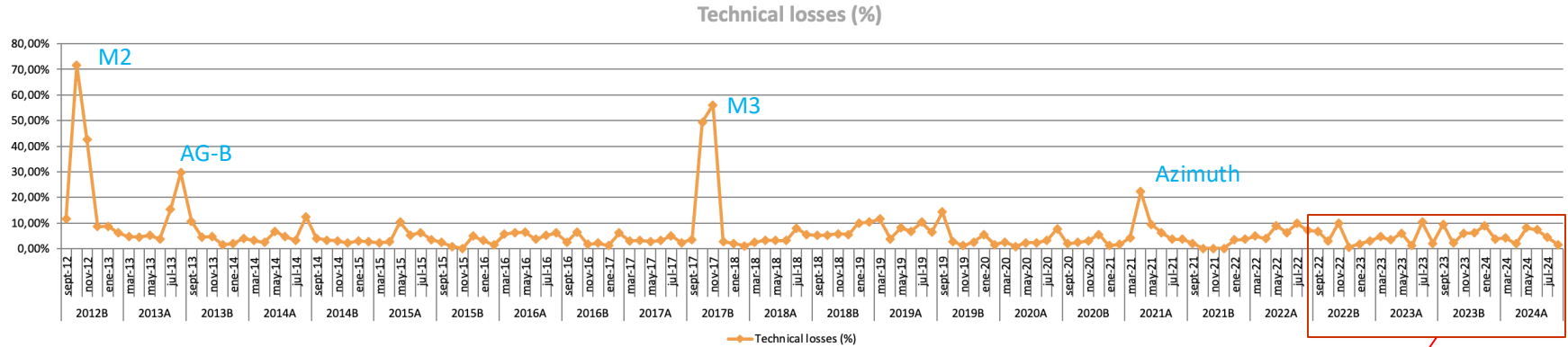
- Operations
  - Statistics
- Maintenance
  - Telescope Services
  - Instruments
- Projects & Activities
  - Performance GTC 2024
  - Projects



# Operations – Statistics #1



Technical losses: Accumulated average **2023B 6,2%** | **2024A 4,5%**



# Operations – Statistics #2

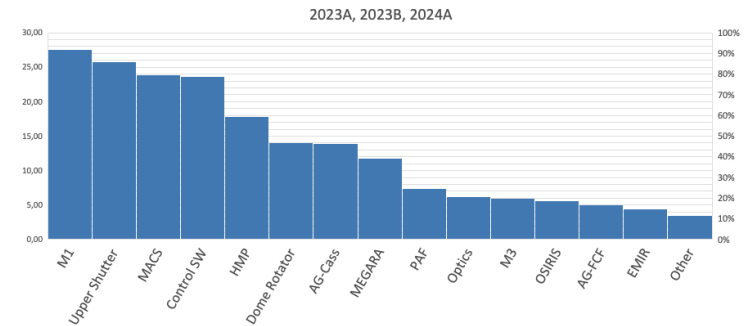
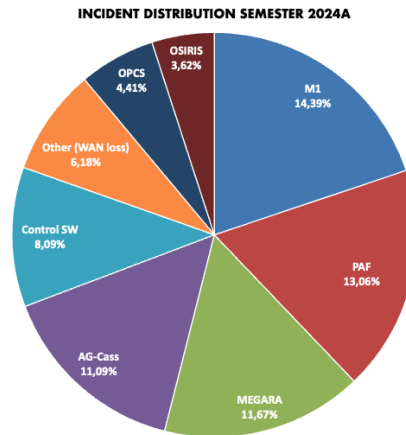
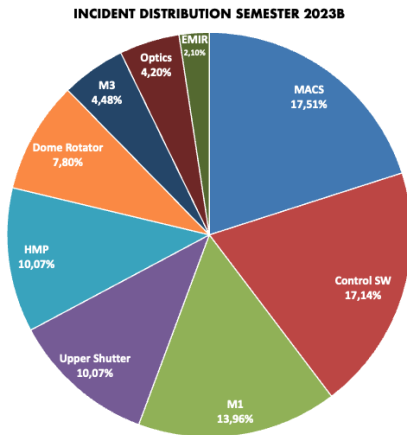


**M1:** A major problem with an actuator (P16) on a segment of M1 affected a large part of one night. **Solved.**

**PAF:** Following a cold water hose replacement maintenance (PAF) on the Azimuth rotator, a pipe joint burst in the trunk of the water mains system near the booster pumps. The system is fully recovered the following day. **Solved.**

**MEGARA:** A problem appeared in the Megara VPH Wheel, together with a problem in the Branches (SW.) affecting one night with 5 hours lost. **Solved.**

**AG-CASS:** Several tracking and guidance issues occurred at the Cassegrain Focal Station over several months during the six-month period. The origin has been determined to be an oscillation of the AG-Cass arm. Currently under study, once the origin of the problem has been identified. **In progress.**



# Operations – Statistics #3



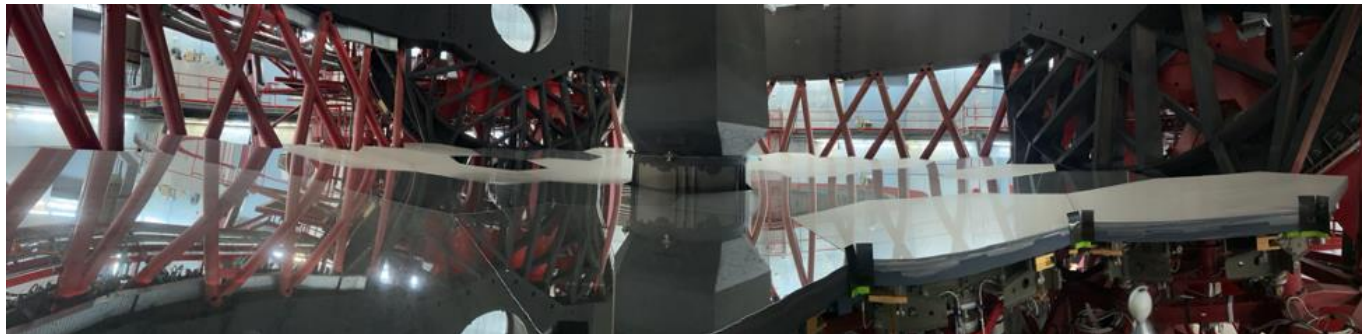
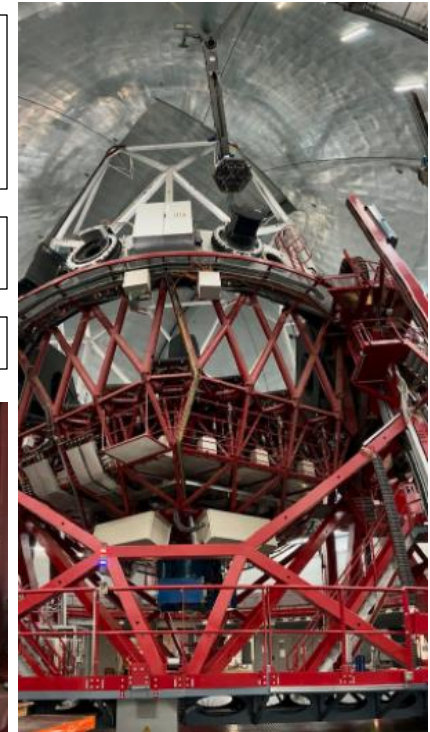
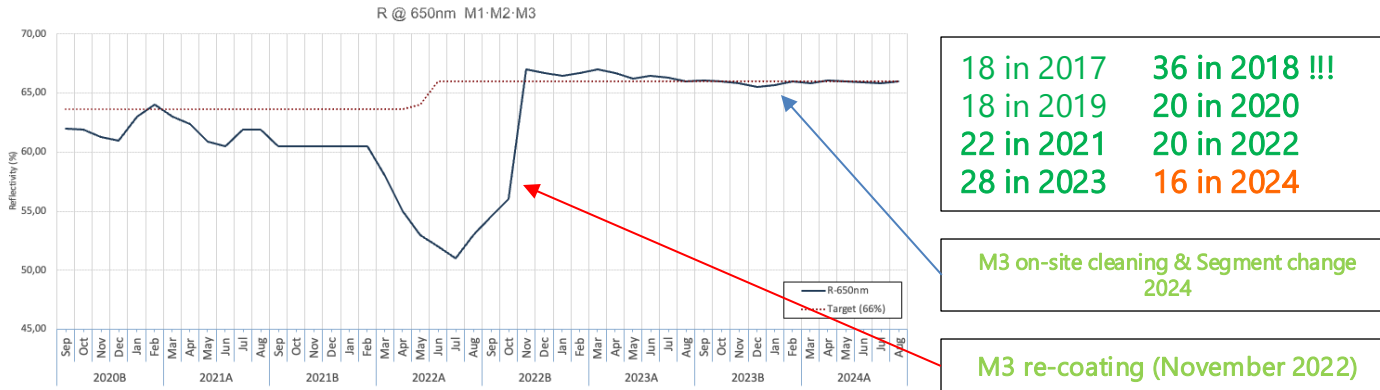
Optical Quality of the Telescope:

Global Reflectivity (650nm – M1·M2·M3)

~ 66,0 %  
12 units

Replacing Primary Mirror Segments:

(Segments Changed since March 2024)



# Maintenance



## TELESCOPE & SERVICES:

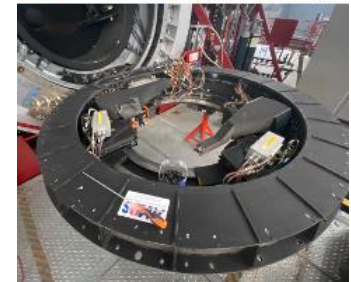
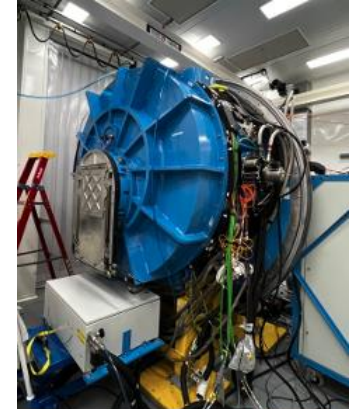
- ON-SITE Cleaning of M3
- Equalisation of "Smart City" dust sensors (lab-quality)
- Domestic water purifier
- Generator set update
- Large renovation of Azimuth rotator water hoses
- Degraded Service Control System (improvement)
- Correction of AG-Nasmyth guidance/calibration detectors
- Modification of Shutters Chain Retainers Mechanism
- AG-Nasmyth arm removal test without instrument removal
- Procedures and improvements to prevent dust (telescope)
- Others: SICM/M3 to Linux, IT, electrical system, etc.
- Renovation of GTC Control Room (tender)
- Main water chiller upgrade

\* Installation completed, legalising the cistern of a supplier of water for human consumption.

## INSTRUMENTS:

- MEGARA: Study of VPH wheel problems and adjustments
- EMIR: Upgrades CSU EMIR cards (obsolescence)
- OSIRIS: Tests with OSIRIS adaptor parts for MAAT

Completed  
Completed  
Completed \*  
Completed (new)  
Completed (new)  
In study (new)  
In study (new)  
In progress (new)  
In progress (new)  
In progress  
In progress  
In progress  
In progress



# Projects and GOI Activities



## Performance GTC 2024

(Fine-tuning performance to strengthen Nominal Status and introduce improvements)

### PROJECTS:

- |  |             |
|--|-------------|
| ▪ FC-G Rotator Integr. to HiPERCAM             | In progress |
| ▪ M1-Migration to RT-Linux OS                  | Completed   |
| ▪ CCCS Modif. in Main Data Centre              | Completed   |
| ▪ Upgrading Remote Control Units (Scada)       | In study    |
| ▪ Data Analytics & intelligent data mod.       | In study    |
| ▪ Risk and job analysis '2024'                 | In study    |
| ▪ Supporting the integration of the LGS        | In study    |
| ▪ CCCS update (edge)                           | In study    |
| ▪ Cybersecurity Basing and Platforming         | In progress |
| ▪ Adaptation of the Main Data Centre           | In progress |
| ▪ GRANTECAN new Website:                       | In progress |
| ▪ Second (& third <del>new</del> ) solar plant | In progress |
| ▪ Robustness of cold water control             | In progress |
| ▪ GARA robot and visiting experience           | In progress |

