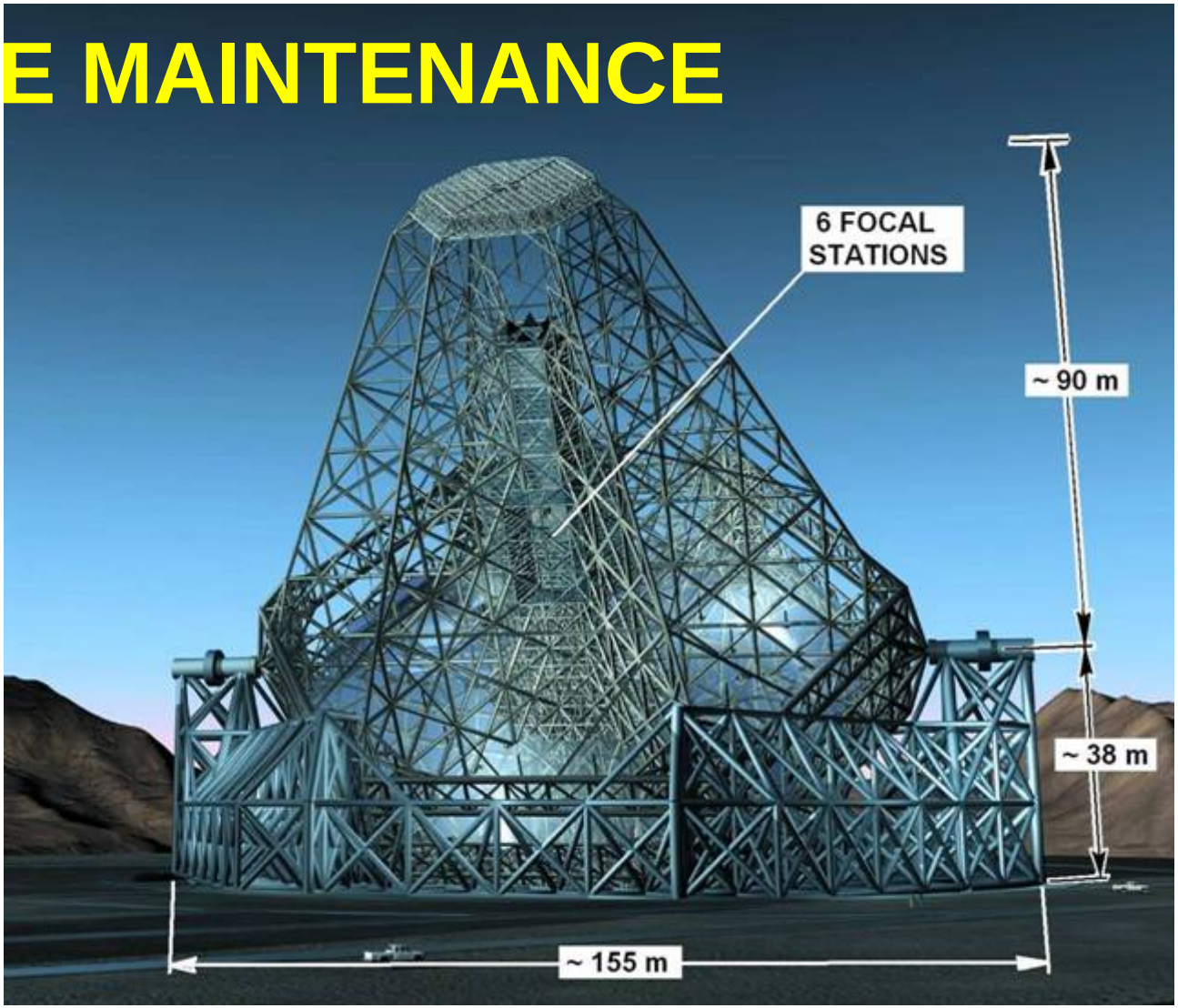
TELESCOPE MAINTENANCE

(Presented by E. Brunetto)

OWL

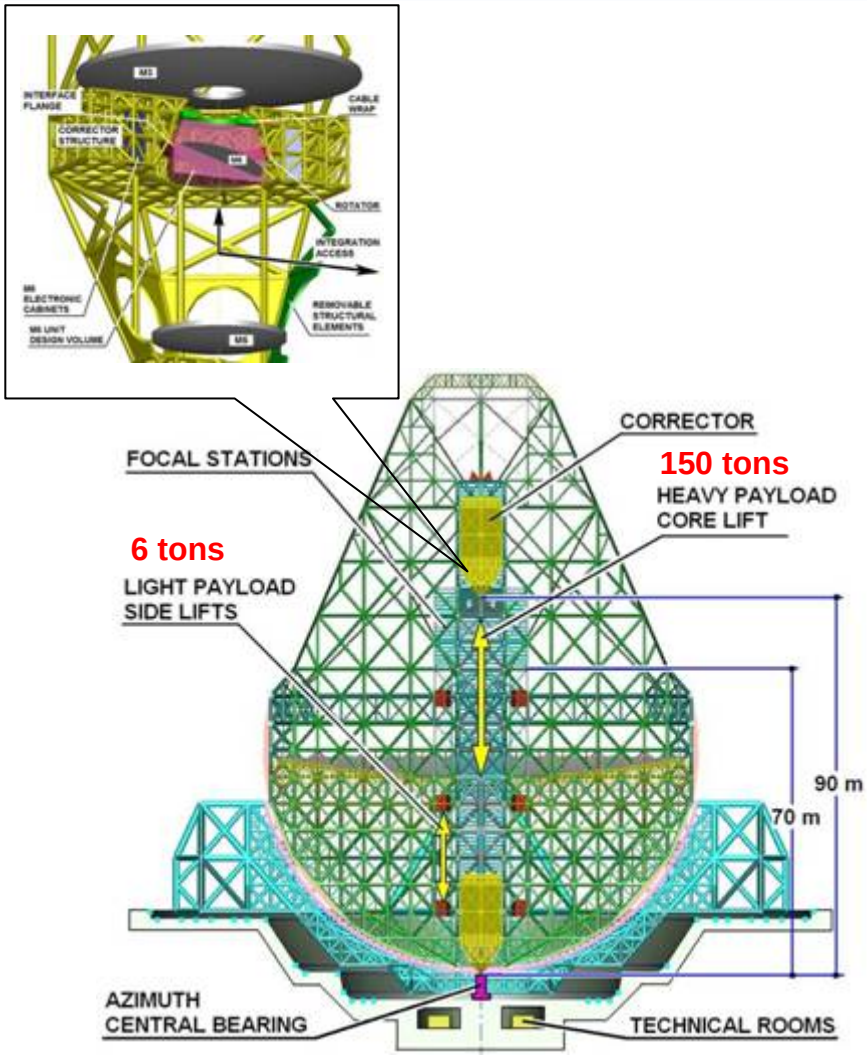
TELESCOPE MAINTENANCE

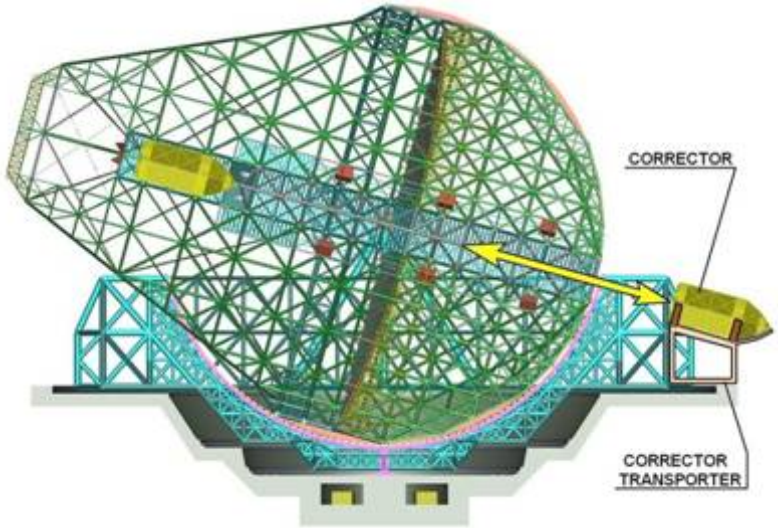
- Design Provisions
- Primary Mirror
- Secondary Mirror
- Temperature Control
- Daily schedule
- Safety



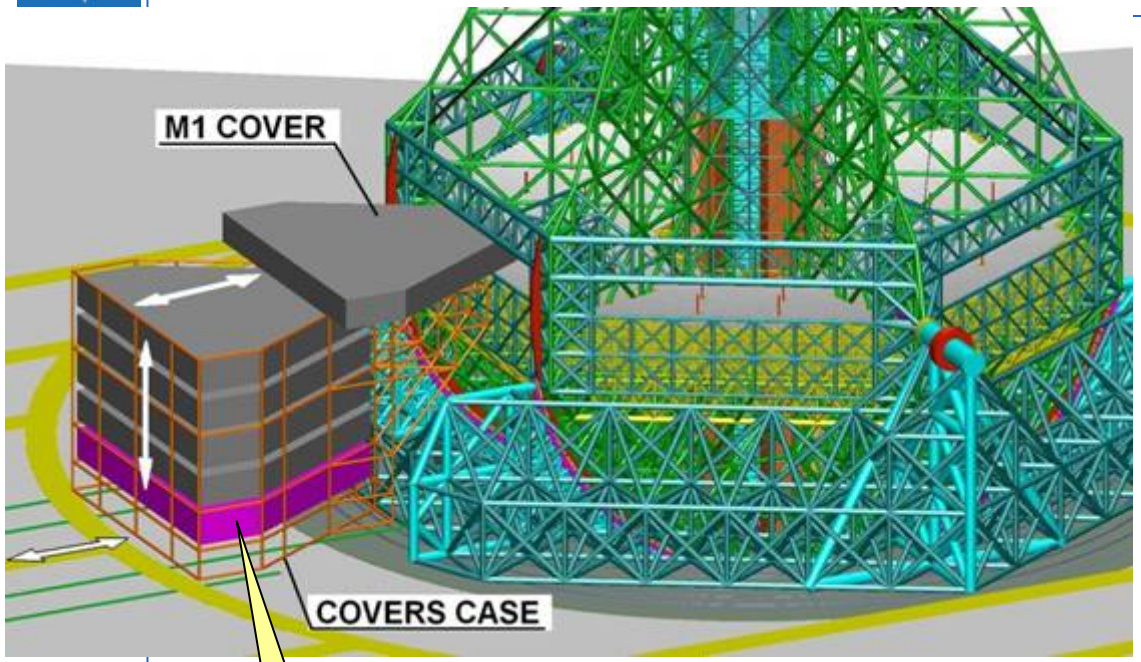
Design Maintenance Provisions.

- Easy, fast and safe human access to all subsystems.
  - M1 segments assemblies.
  - Instruments.
  - Corrector.
  - M2 segments assemblies.
  - Periodic cleaning of the structure.
  - Drive and bearings.
- Provision for the maintenance of lifts, stairs, catwalks, platforms etc. (~ 500 tons).
- Handling of major subsystems.
- Disassembly and reassembly of major sub-systems.

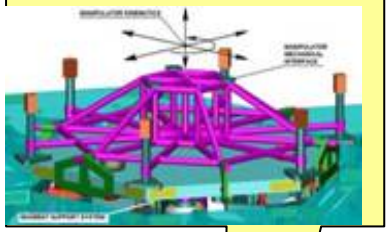


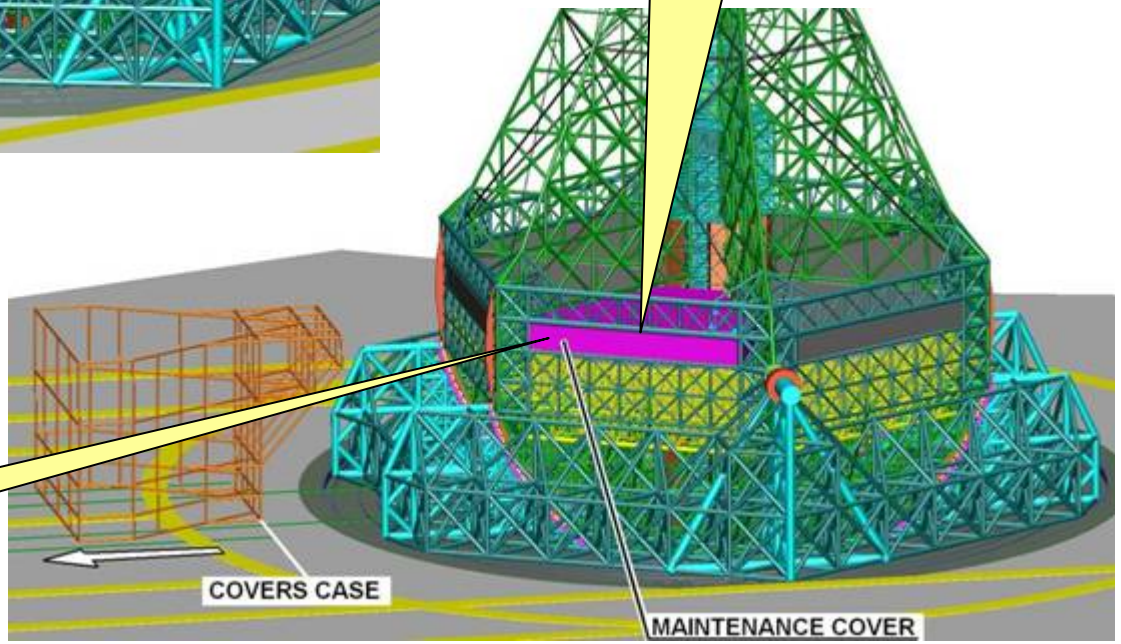


Segmented Primary Mirror.



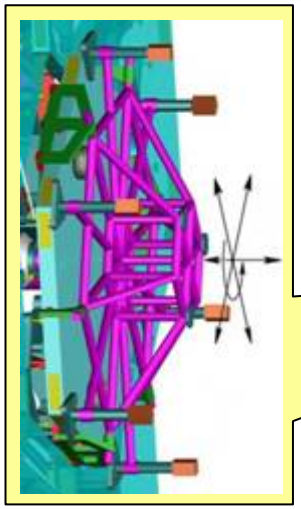
5 AXES MANIPULATOR

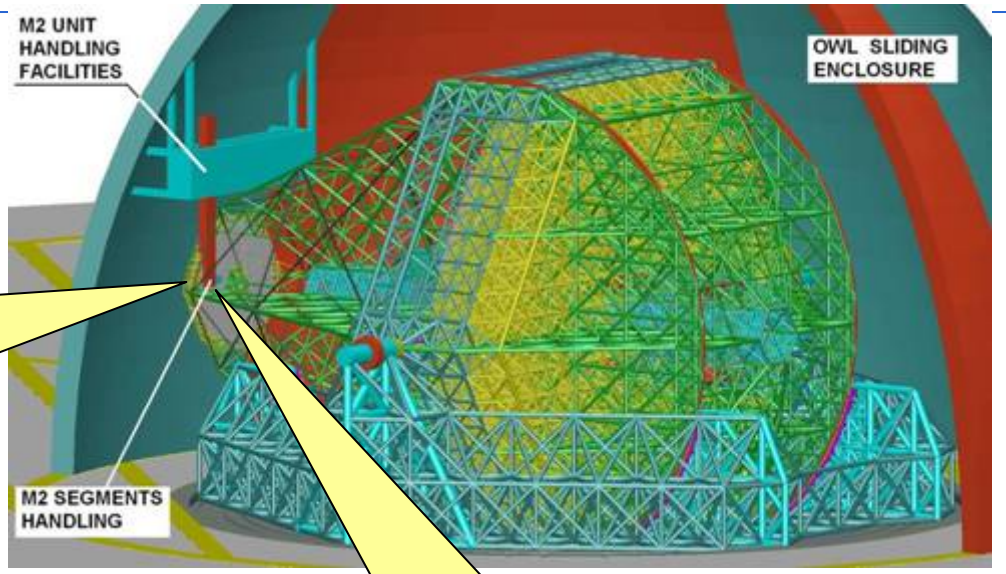


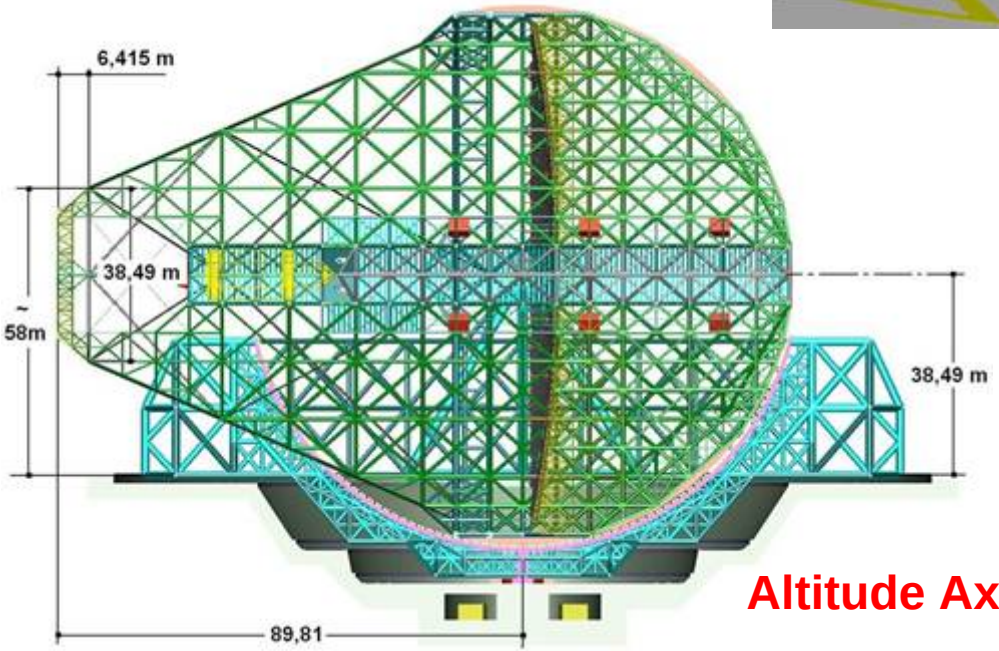


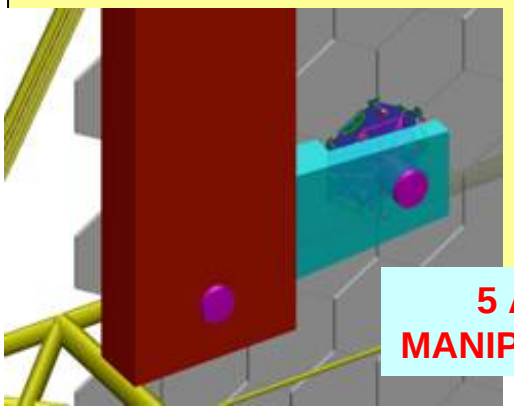
SEGMENTS STORAGE

Segmented Secondary Mirror.









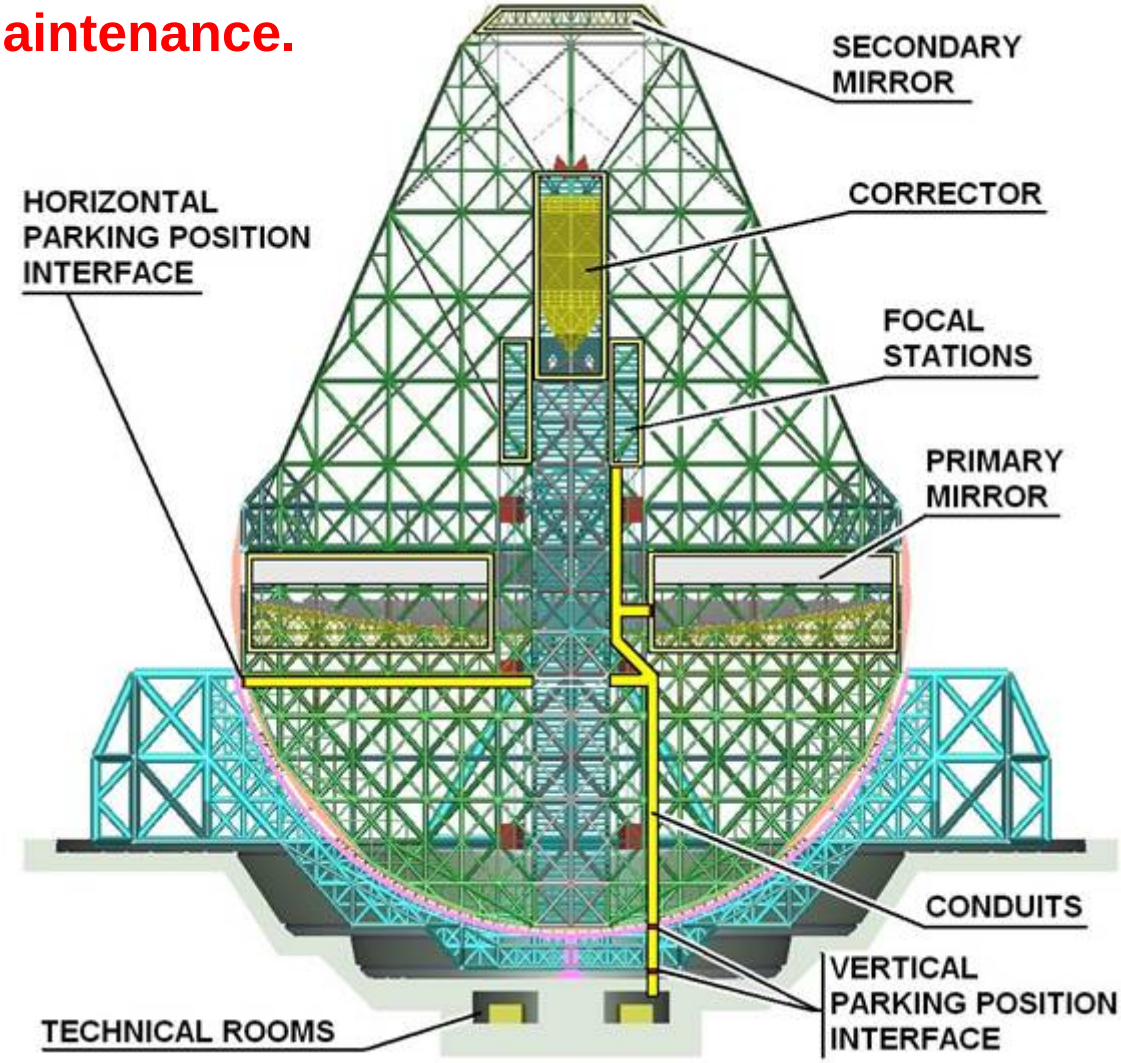
5 AXES MANIPULATOR.

Altitude Axis rotation range ± 90 °.

Temperature Control.

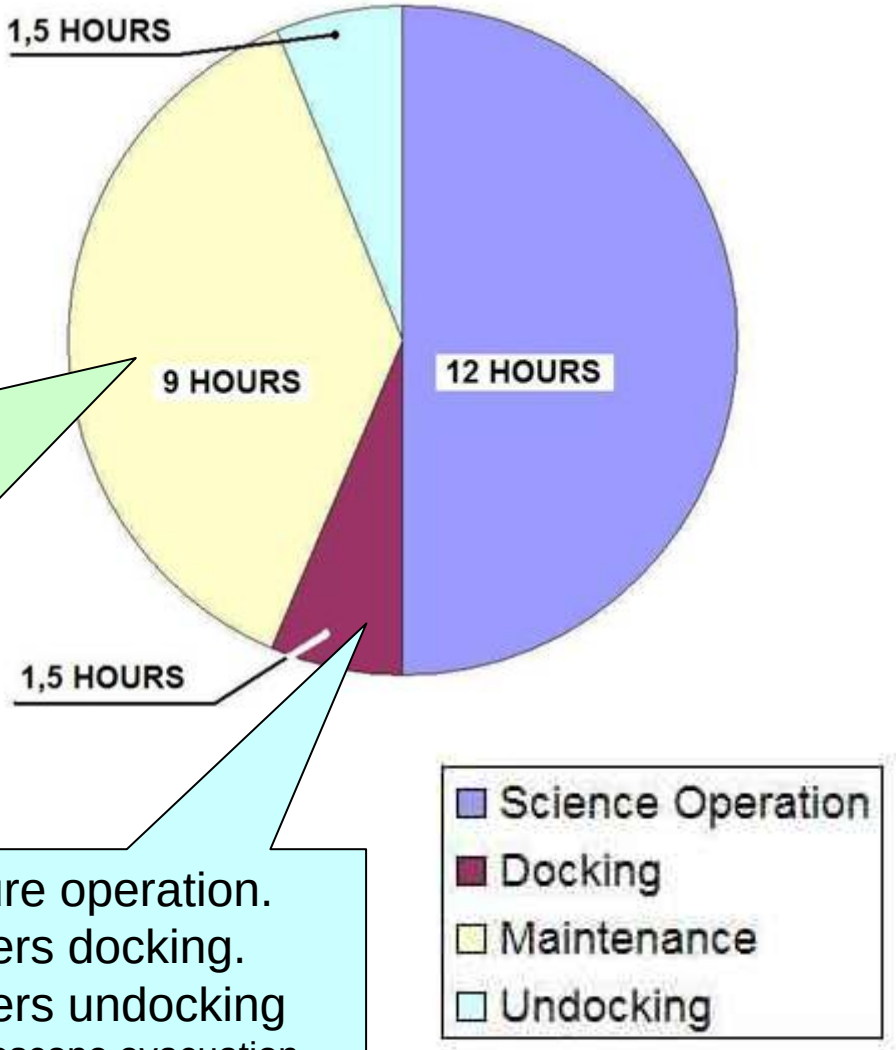
Air Conditioning during maintenance.

- Vertical Parking Position.
- Horizontal Parking Position.



DAILY SCHEDULE

- **PARALLEL MAINTENANCE TASKS (vertical parking position).**
  - Segments exchange (5 Segments).
  - Instrument integration & maintenance.
  - Corrector.
  - Drives and Bearings.
  - Retrofitting.
  - Inspections.
  - Consumables.
  - Cleaning.
  - Repainting.



- Enclosure operation.
- M1 covers docking.
- M1 covers undocking
  - Telescope evacuation.
  - Personnel and tools.

Safety.

- Traceability of modifications, retrofitting and up-grades of the telescope.
- Continuous training and smooth transition of know-how from different generations of telescope operators and maintenance crews.
- Rigorous traceability of maintenance tools and parts which are transported to and from the telescope under the responsibility of the maintenance warehouse inventory.
- Hardware Configuration Control Tool.

- Human access restrictions.

	During Azimuth rotation	During Altitude rotation	Vertical parking configuration.	Horizontal parking configuration.	During observation
Technical rooms	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Basement.	**No**	**No**	**Yes**	**Yes**	**No**
Azimuth structure.	**Yes**	**No**	**Yes**	**Yes**	**Yes**
Altitude Structure.	**No**	**No**	**Yes**	**Yes**	**No**
M1 Unit.	**No**	**No**	**Yes**	**No**	**No**
Focal stations.	**No**	**No**	**Yes**	**Yes**	**No**
Corrector.	**No**	**No**	**Yes**	**Yes**	**No**
M2 Unit.	**No**	**No**	**No**	**Yes**	**No**
Paved area around the telescope; radius 90m	**No**	**No**	**Yes**	**Yes**	**No**

Conclusion

Maintenance provisions are implemented into OWL conceptual design.