

E-ELT Update

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Council Progress

11 June 2012

Votes in favour: AT, CH, CZ, DE, NL, SE

Votes in favour ad referendum: BE, FI, IT, UK

Abstentions: DK, ES, FR, PT

Since then

BE lifted ad ref in October

Many MS have paid part of 'lump sum' contribution in advance, which is very helpful for ESO (nearly 20 MEUR)

Much activity in remaining MS to move forward as well,

Frequent interactions with and support by Executive

4 December 2012

FI and IT lifted ad ref; FR changed to 'yes'



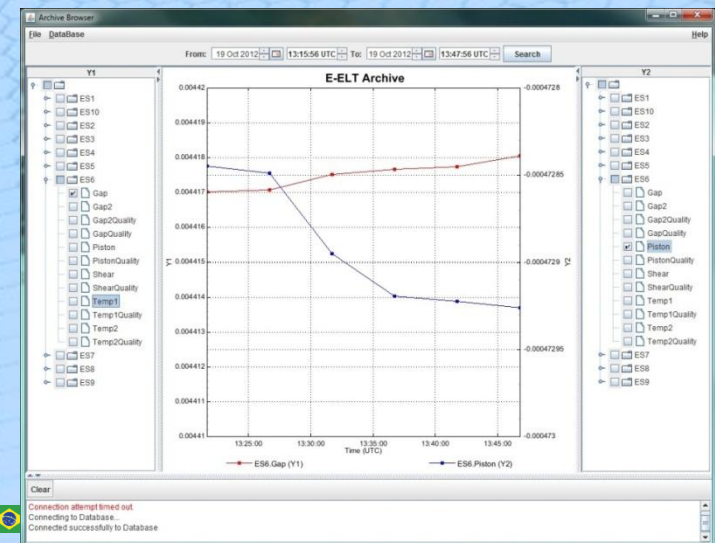
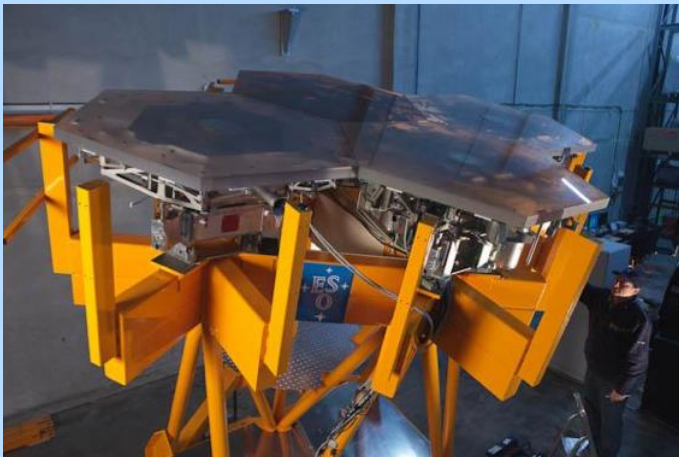
Recent Work

- Prototype Testing
- Dome & Main Structure Procurement
- M1 Segment Support Development
- M1 Edge Sensor Development
- Preparations for Platform & Road Contract
- Topographic Amplification Factor
- M4 Preliminary Design Contract
- System Engineering

M1 Unit prototype test stand

- Overall status 2012

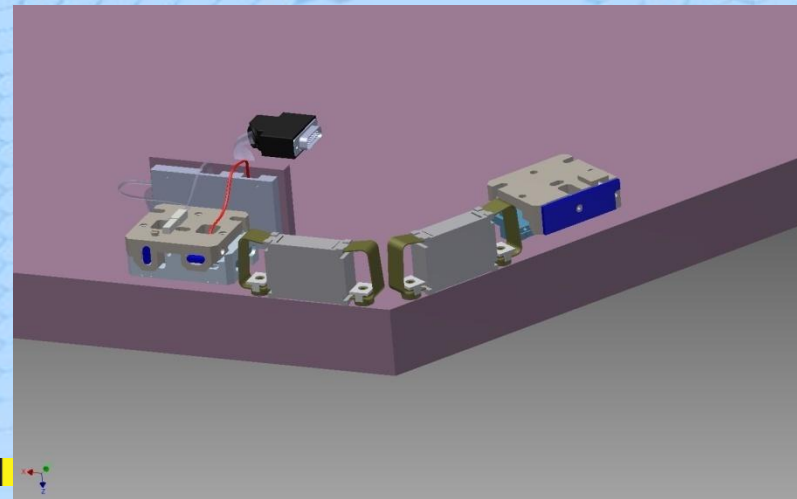
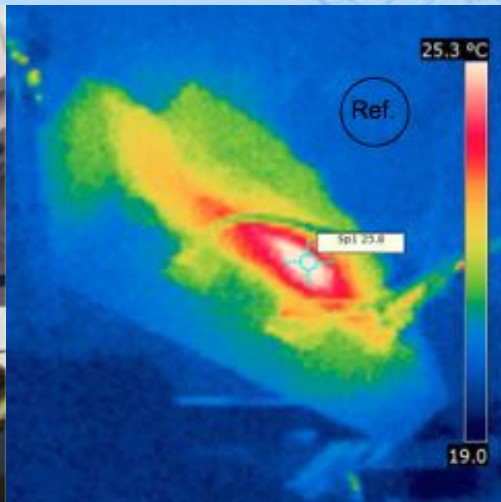
- Prototype segments integrated with fully functional supports, position actuators, and edge sensors
- Common control and data acquisition infrastructure available with MATLAB interface and historical data archive
 - Automated tests, cross-correlation, long-term trending, etc.
- Lessons learnt reports available to provide inputs from the prototype tests to the construction contracts
- Prototype phasing gun built using modulated multi-wavelength interferometer system



Edge sensor prototypes

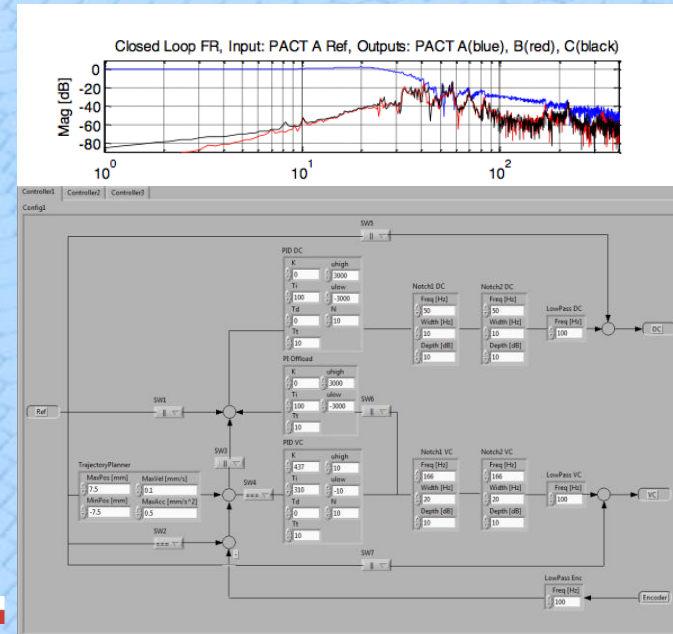
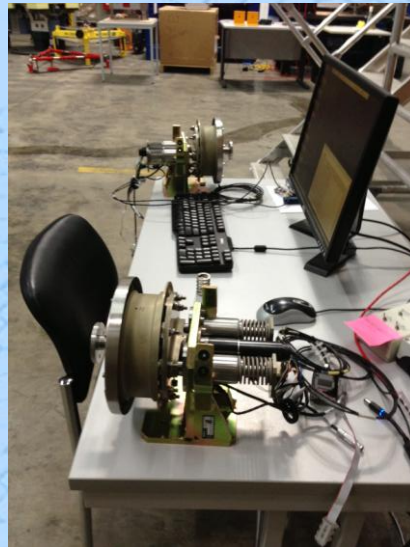
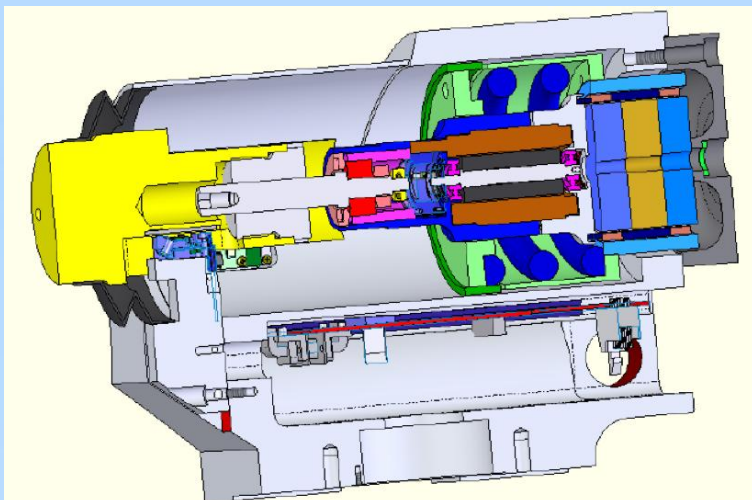
- Overall status 2012

- Completed characterization of the μE edge sensor
 - Drifts associated to the bonding to the segment back surface.
 - Lessons learnt report available from Q3-2012.
- FEM analysis performed to qualify the segment/edge sensor mechanical interface for the 2nd generation prototypes
- Design of the mechanical holder and integration tools for the Focale prototype edge sensors
 - Ongoing contract with Focale aiming to deliver sensors for integration and tests in Q4-2012.



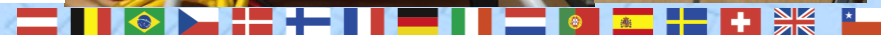
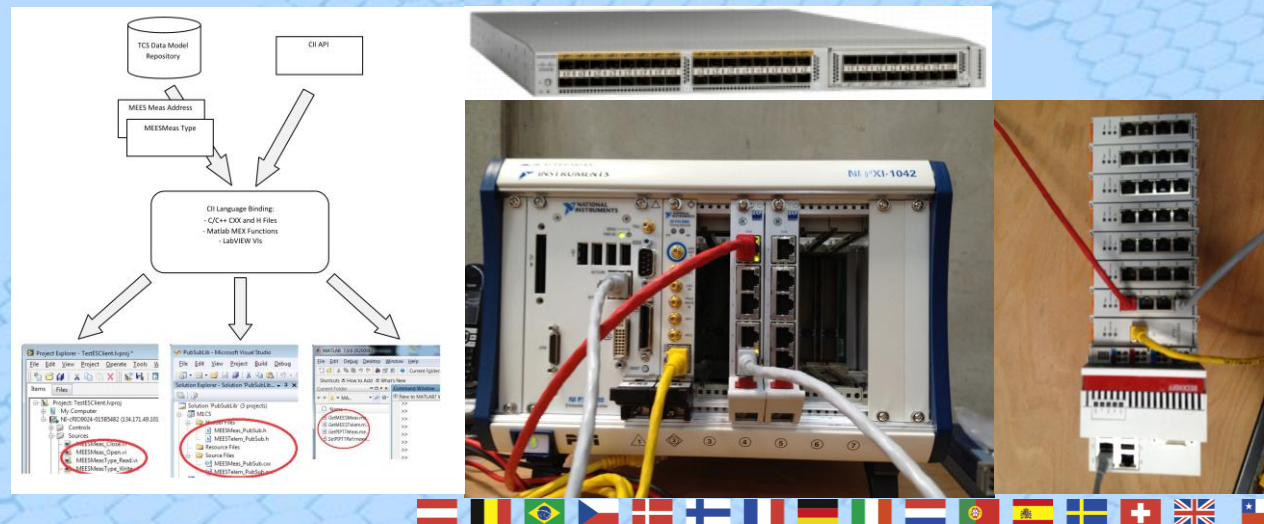
Position actuator prototypes

- Overall status Oct. 2012
 - PI PACT integrated and operational since Apr. 2012
 - Unexpected effort related to operating the CESA PACT
 - Decision to re-design the control system down from hardware interfaces
 - Tuning of the actuators on the segment currently ongoing
 - Contract with PI to deliver a two-stage voice-coil actuator prototype
 - Delivery for functional and performance tests in Q4-2012



M1 Unit prototype LCS

- Purpose
 - Verify architectural concepts and test middleware technologies at fairly large scale
 - Verify development tools, hardware and software standards
 - Establish software product assurance principles for non text-based programming languages
 - Configuration control, unit testing, automated static and dynamic inspection, design patterns and application templates, etc.



Opto-Mechanics

- M1
 - Sagem Contract Closed
 - Optic-Glyndwr Control still running
 - M1 Segment Supports development
- M2
 - Sagem/MTM Contract Closed
- M4
 - *Adoptica* Preliminary Design Contract running
- M5
 - Development of Silicon Carbide Solution

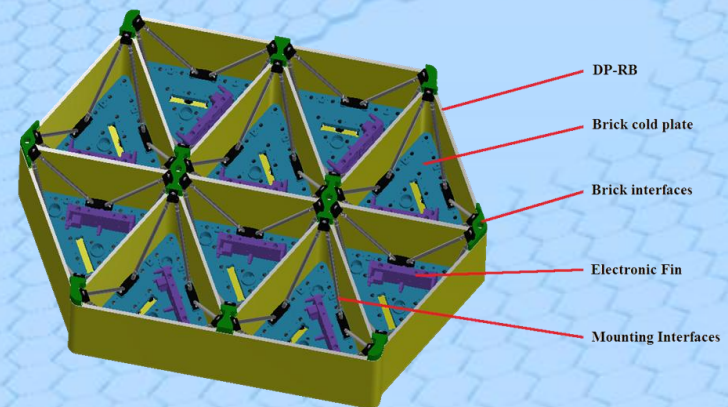
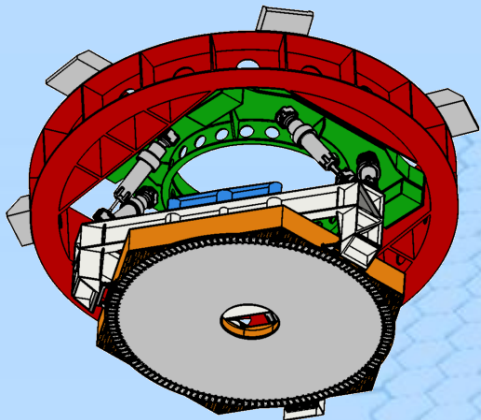
M4 Unit Preliminary Design Contract

Mirror technology optimization:

- Development of new concepts for more reliable co-located sensors (more reliable electrical interface, easier installation) applicable to both glass and SiC M4 Unit solutions
- New design of Brick interfaces to fulfill SiC manufacturing uncertainties

Demonstration prototype design started.

Next step: mid term review in February 2013

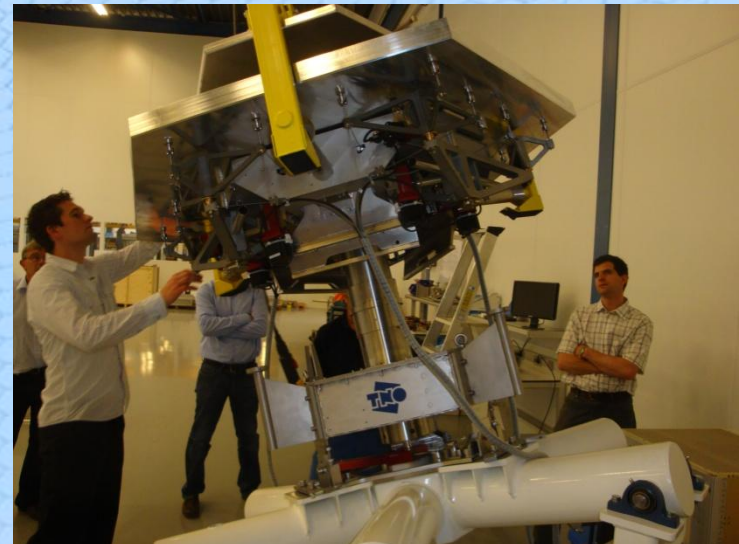
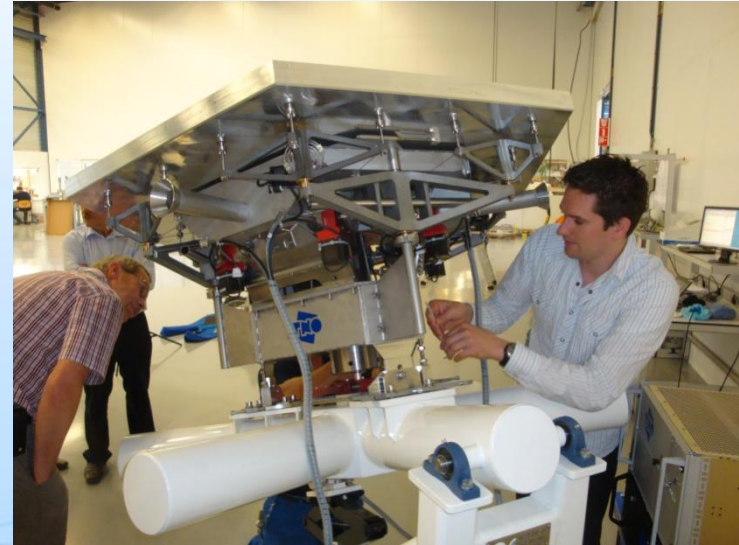


Dome & Main Structure Procurement

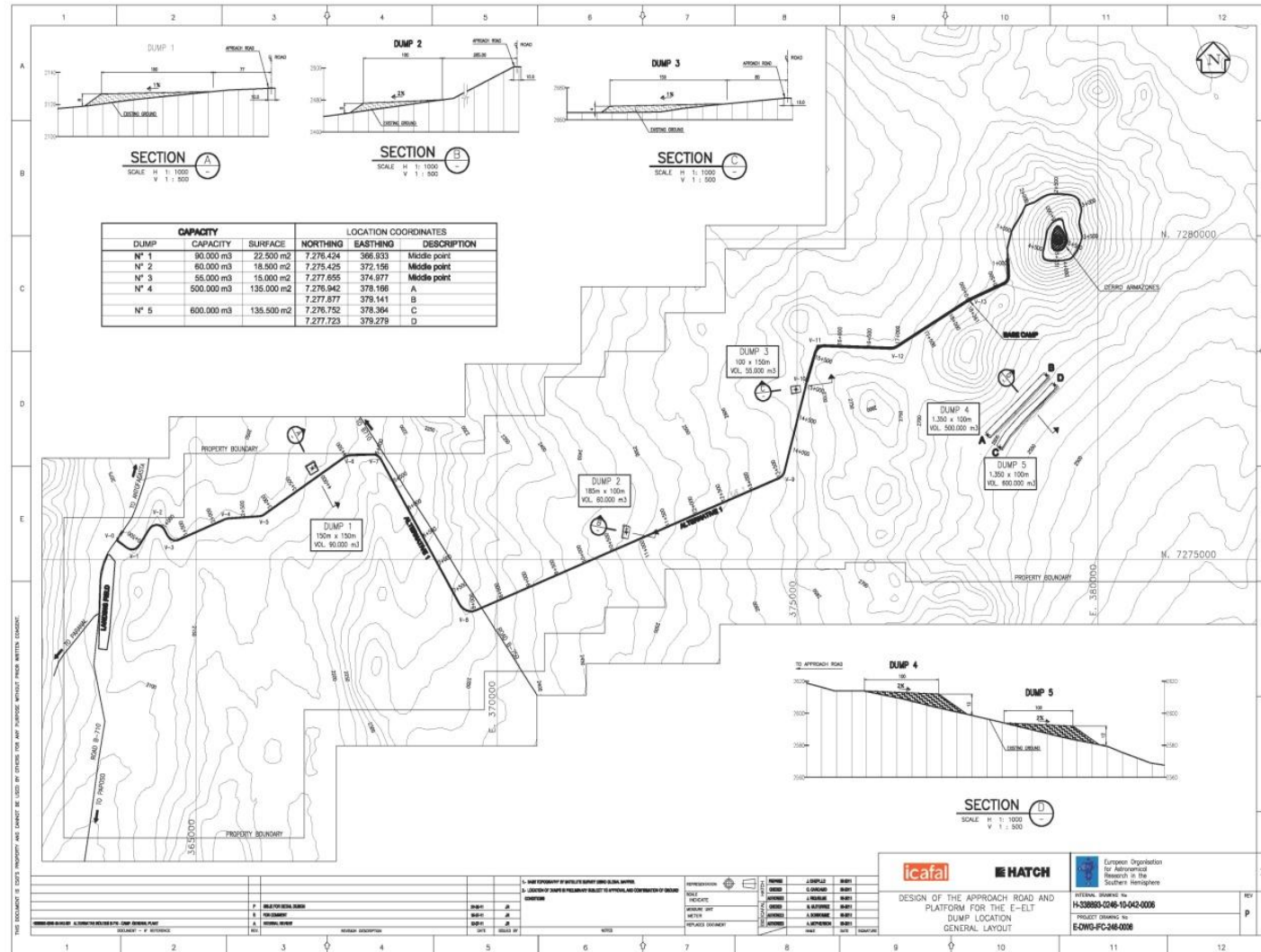
- Request For Information – June 2012
- Industry Days – 16 & 17 October 2012
- Issue FEED Designs – October 2012
- Issue Preliminary Inquiry – December 2012
- Prepare Main Structure Specification
- Prepare Dome Specification
- Prepare Supporting Documentation
- Prepare for Review

M1 Segment Supports

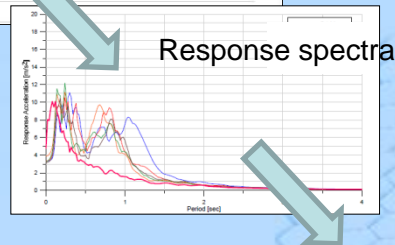
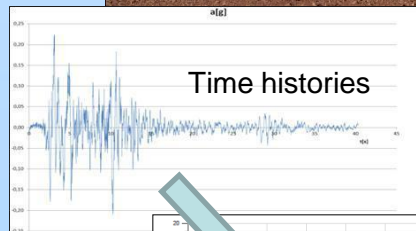
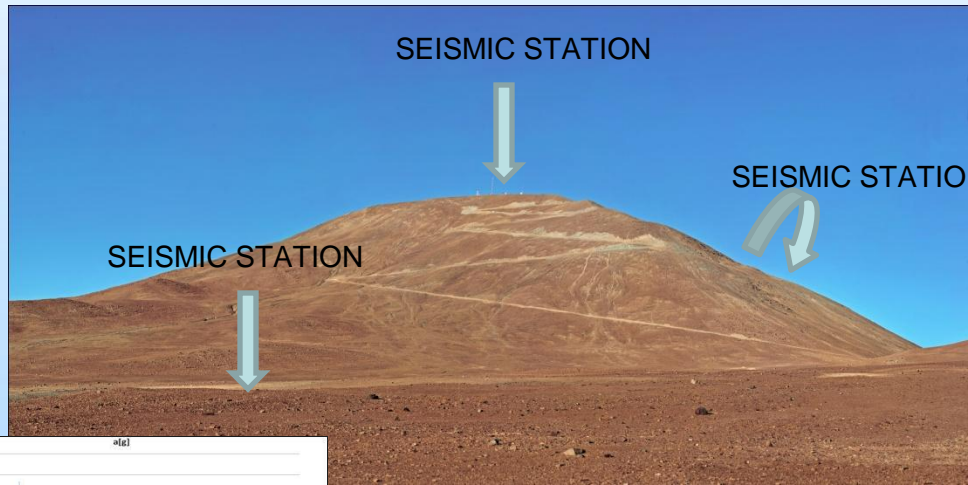
- Tested in Test Stand
- Reviewed
- Lessons Learnt Document
- Review Specification & Update
- Prepare procurement



Road Contract



Earthquake field measurement using 3 seismic stations (2 positioned at Armazones footprint and 1 at the top)

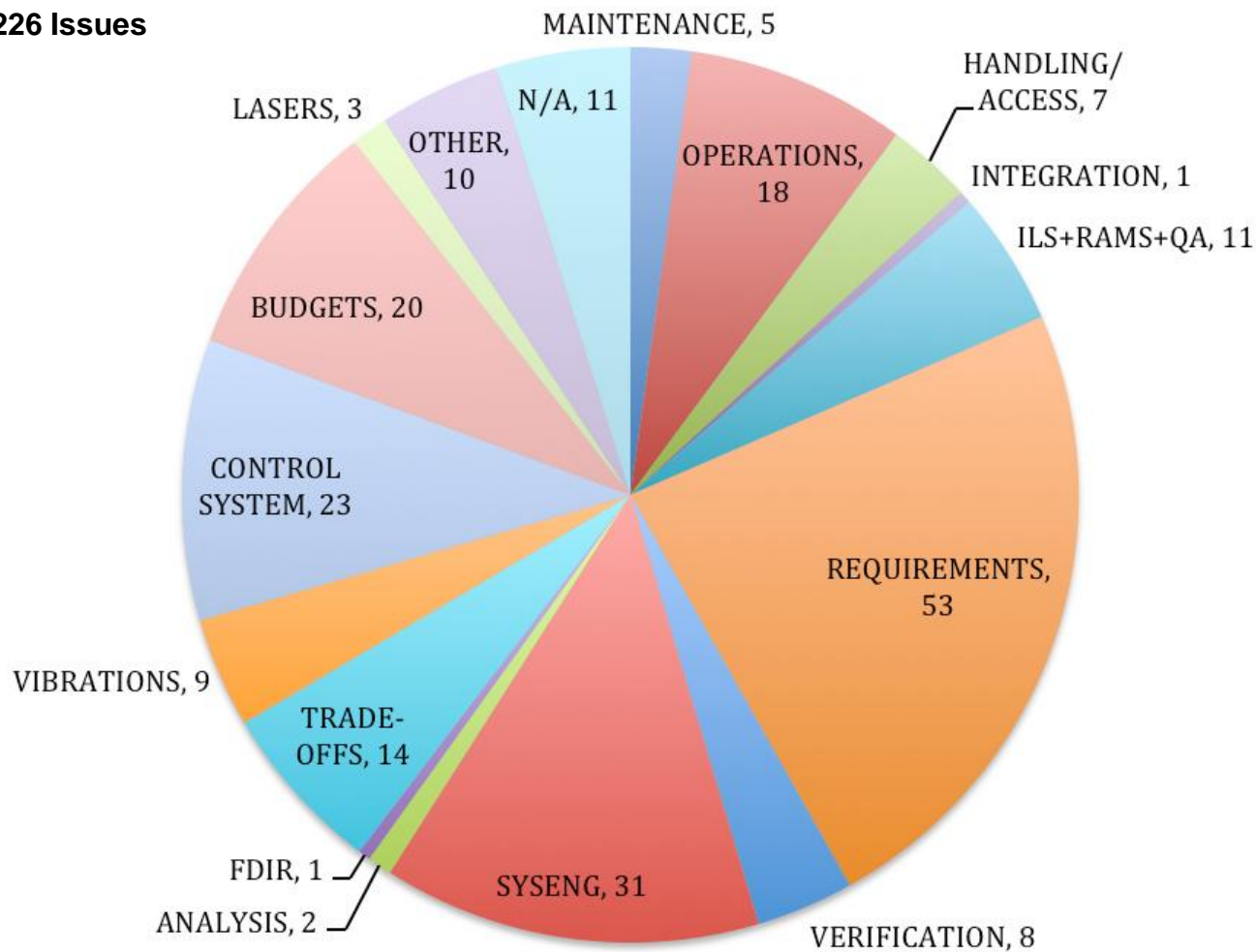


TOPOGRAPHIC AMPLIFICATION FACTOR

Systems Engineering

- Systems Status Review
- Review of Interfaces
- Review of Budgets
- Level 1 Requirements
- Support to Specifications
- Pre-Focal Station
- Support to GTC work

226 Issues



Management

- Project Engineer selected and in post
- Interim Dome and Main Structure Manager employed
- Project Science Team in place
- Revised schedule produced
- Review of tasks including Instrumentation
- Balancing procurement and funding



ESO
European Organisation
for Astronomical
Research in the
Southern Hemisphere

Questions

