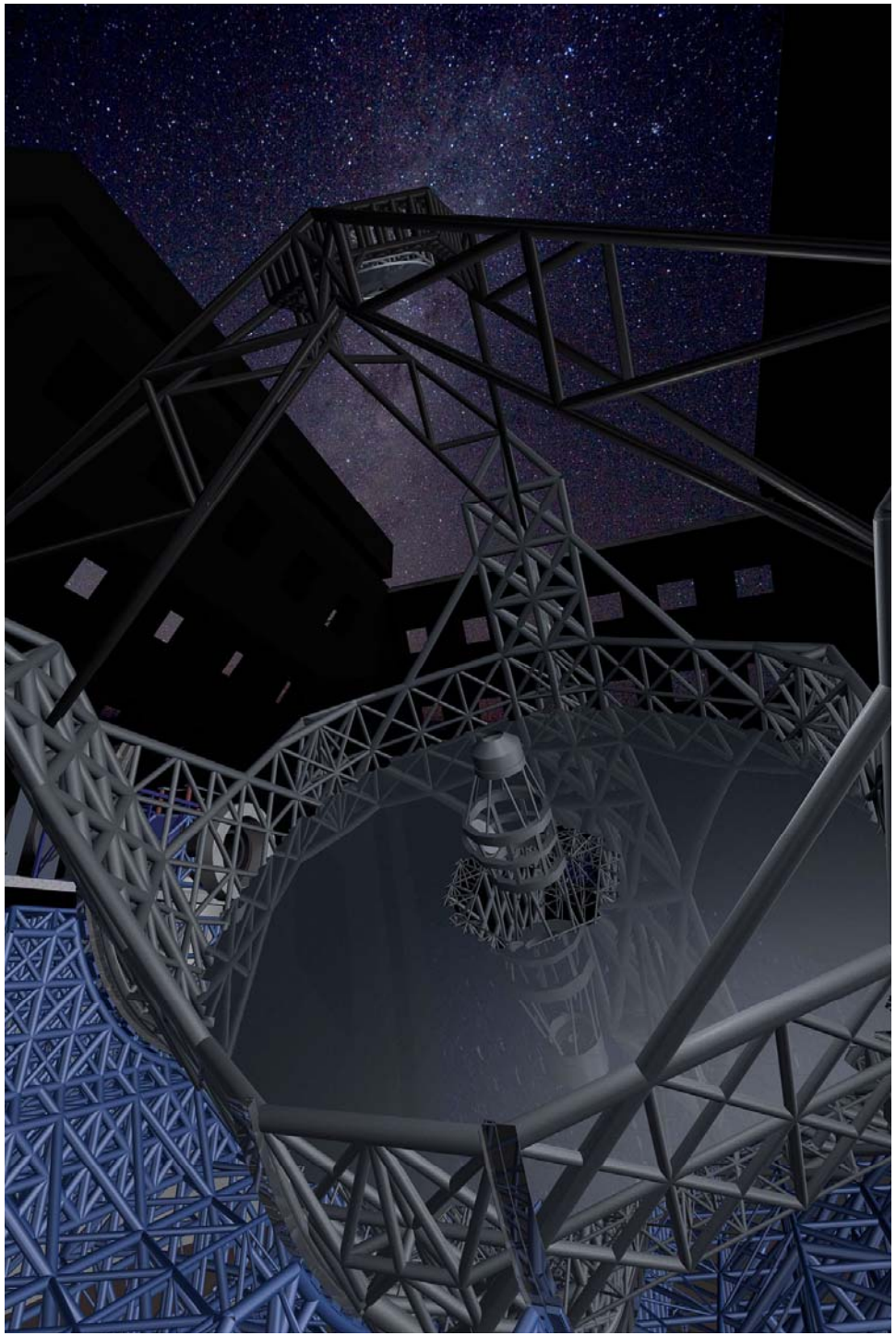
E-ELT Science Network

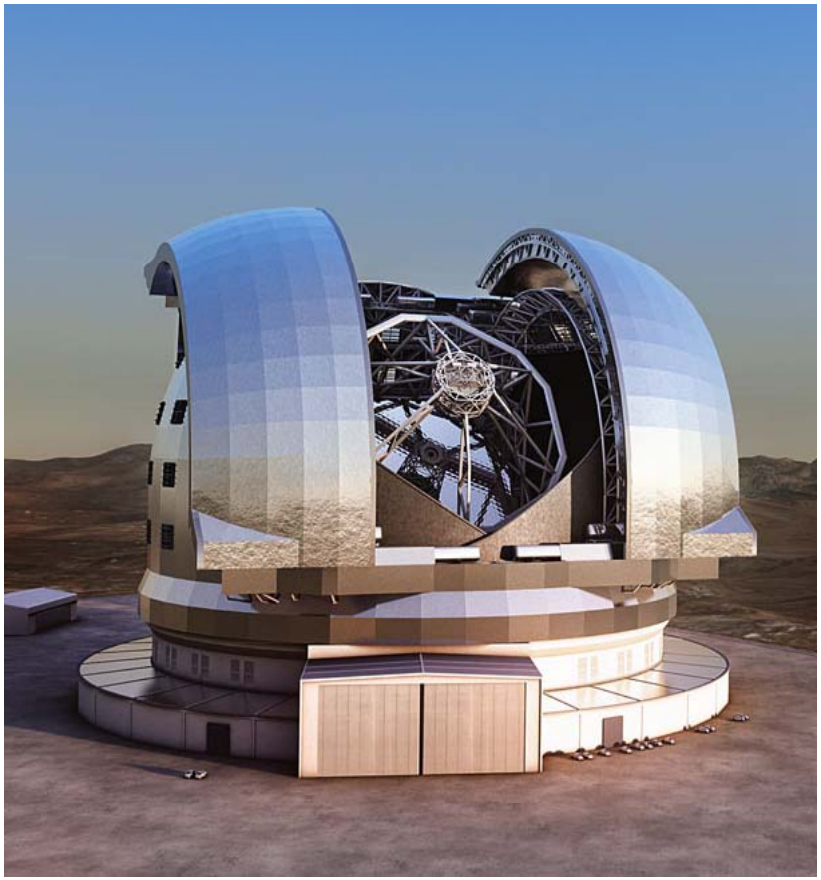
Isobel Hook

1) E-ELT Project update
2) Current contract progress
3) Plans for next contract



E-ELT Project Updates - I

- Dec 2011: Construction proposal submitted to ESO Council
- Jun 2012: ESO Council approved start of the ELT Programme subject to 4 “ad ref” votes
- Now awaiting confirmation of these votes + for Brazil to complete ratification procedure
- Full construction starts when 90% of the funding is in place
- Preparatory work going ahead
  - detailed design of M4 and access road



E-ELT Project Updates - II

- Project staff changes at ESO
  - Project Manager: Alistair McPherson
  - Project Engineer: Peter Gray
  - Project Scientist: Jason Spyromilio
- New ESO E-ELT Project Science Team formed
  - Replaces the SWG as expected at end of Phase B
  - Advises the Project (not an oversight committee)
- OPTICON is connected
  - IH a member of the PST. IH and AC continue to join weekly "EScO coffee" telecons

E-ELT Instrumentation Roadmap

- Two first light instruments
  - ELT-CAM
  - ELT-IFU
  - with associated AO system(s)
  - ESO+PST now defining specifications
- MID-IR instrument shortly after
  - Subject to readiness review
- Future decision points specified
  - New instruments every ~2 years
  - MOS and HIRES will be included
  - Planetary camera will be included
  - Open slot for new ideas
  - Choices will continue to be made
- Several community workshops happening now
- ESO workshop in Feb 2013

Year	ELT-IFU	ELT-CAM	ELT-MIR	ELT-4 (MOS or HIRES)	ELT-5 (MOS or HIRES	ELT-6	ELT-PCS
2012	Decide science requirements, AO architecture.		VISIR start on-sky	Develop science requirements for MOS/HIRES			Call for proposals for ETD
2013			TRL Review	Call for proposals for MOS/HIRES			
2014							
2015				Selection ELT-MOS/HIRES		Call for proposals	
2016							
2017							TRL check
2018							TRL check
2019						Selection	TRL check
2020							TRL check
2021							TRL check
2022 Tel technical first light							
	Pre-studies taking the form of phase A or delta-phase A work and/or ESO-funded Enabling Technology Development (ETD)						
	Decision point						
	Development of Technical Specifications, Statement of Work, Agreement, **Instrument Start.**						

The roadmap (above) is part of the construction proposal

Implications for OPTICON

- Crucial period now in the lead-up to final approval
  - OPTICON workshops help maintain community awareness and input
- Instrumentation choices continue over next 10-20+ years
- These choices depend on (among other factors):
  - Scientific input from the community
  - Technology development
  - Capabilities of intermediate-size telescopes
- OPTICON has a crucial role in these areas

FP7 OPTICON WP10.1 : ELT Science Case

- WP10.1 supports the European Extremely Large Telescope science case development
  - support development of the science case
  - maintain European community involvement and awareness of the E-ELT project
  - promote the E-ELT throughout Europe and prepare the community for its use
- Work is generally going to plan

Highlights from FP7 so far

- Staff
  - IH 50%
  - Postdoc (Annalisa Calamida) for 3 yrs
- Major workshops
  - Astronomy with Megastructures, Crete 10-14 May 2010. Joint with RADIONET (proceedings published)
  - Feeding the Giants, Ischia 29 Aug –2 Sep 2011 (report in The Messenger)
- Coordination with ESO
  - Via E-ELT SWG, PST, EScO telecons
- Talks, public outreach, documents…
  - Public talk + viewing event in Ischia
  - Annual European research nights

Highlights from FP7 (cont)

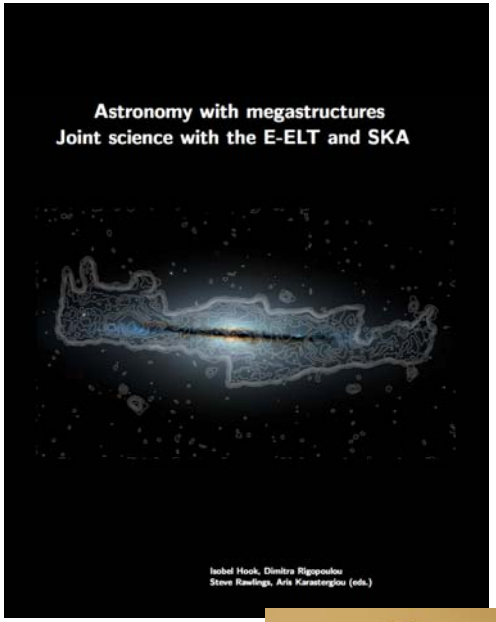
- Special session on E-ELT at EWASS
- 5 July 2012, Rome
- 70 people ‘registered’
  - Around 40 at any time
- Presentations on science, operations and instruments
- Lots of discussion
  - Science policy for campaigns
  - Instrumentation plans (esp AO and Mid-IR, MOS)
- Summary in EAS Newsletter (Dec 2012)

Issues

- Main goals of the WP have been met. However:
- Cash flow problems over the past year have been (and continue to be) difficult to manage at times
  - Periods when INAF Obs. Roma have been unable to reimburse travel
  - Problems buying computer equipment
  - Inconvenient and reduces efficiency
- IH maternity leave
  - 5 months leave from Oct 2010 – March 2011
  - No formal cover. A. Calamida took over organisation of Ischia meeting

Goals and Deliverables

- Goals
  - support development of the science case ✔
  - maintain European community involvement and awareness of the E-ELT project ✔
  - promote the E-ELT throughout Europe and prepare the community for its use ✔
- Deliverable ✔
  - 10.1.1 Community E-ELT science meeting report
  - originally due month 13. Delivered to printers July 2011. Distributed Nov 2011



Photos by Joseph Caruana

The Future

(next contract)

Background: E-ELT Science in the construction phase

- ESO will be responsible for
  - Managing operations and construction of the telescope
  - Critical path items, tradeoff decisions
  - Note: ESO science office has limited resources
- Working with ESO, the community is responsible for …
  - Constructing the instruments
  - Preparation for the analysis of E-ELT data
- OPTICON goal: Enhance the E-ELT programme
  - In areas that don't need daily interaction with the project
  - No duplication
  - Plans developed together with ESO E-ELT Science office

Next contract goals

To strengthen the connection between the astronomical community and the E-ELT project in general. To connect the developers of technology for future E-ELT instruments with the scientific community of future users. To develop tools needed by the community to analyse E-ELT data.

This implies:

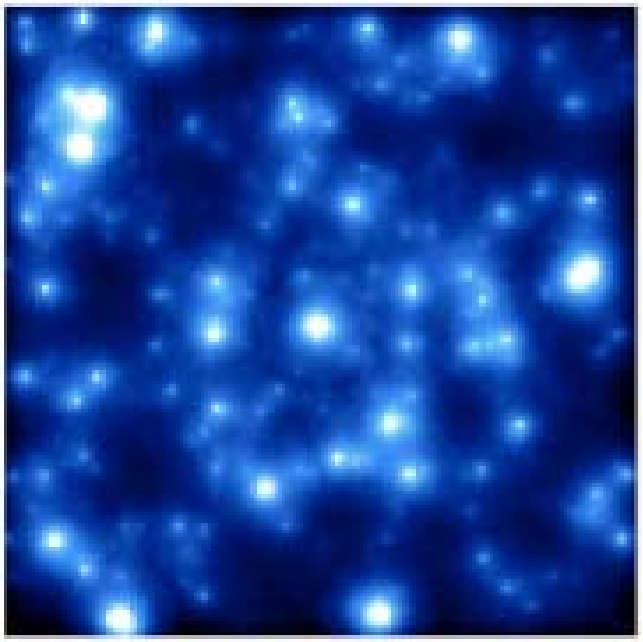
- Continue program of ELT science workshops and talks
- Improve links with other OPTICON WPs
  - HTRA now merged with ELT WP
  - JRAs, training networks

WP 10 Proposal: E-ELT Science

- WP 10.1 Network coordination
  - Coordination, recruitment, reporting
  - HTRA network activities
- WP 10.2 Workshops and Talks
  - 2013: meeting on long-range instrumentation plan,
    - highlight HTRA and other OPTICON JRAs
  - 2015: ELT science meeting and summer School
- WP10.3 New Tools for Users
  - Data analysis tools for
    - AO photometry (varying PSF in space & time)
    - massive HTRA data sets

Tools for users

- Needed for current facilities and E-ELT
- Focus on two related problems:
  - AO PSF photometry
  - Massive HTRA datasets
- Propose work on tools for users
  - Organise mini workshops
  - Develop algorithms and code
  - Test on 4-8m observations and simulated E-ELT data (from DRM)
- Not the responsibility of ESO or the E-ELT instrument teams.
- Requires new postdoc effort



Simulations by Giuseppina Battaglia of a crowded field in Cen A observed with E-ELT

Budget

- Proposed WP10 budget of 500kE covered
  - Infrastructure for workshops and network meetings
  - IH 50%
  - Postdoc: 3 years Rome, 1 year Galway
- Overall OPTICON budget reduced by 15%
  - Feedback: “maintain school and conference budgets”.
- WP 10 Budget after April 2012: 270kE (~ 50% cut)
  - Implies choice between workshops and staff effort.
  - Workshops and HTRA networking considered most important
- Result: cut postdoc effort from 4 years to 8 months.

WP10 revised plan

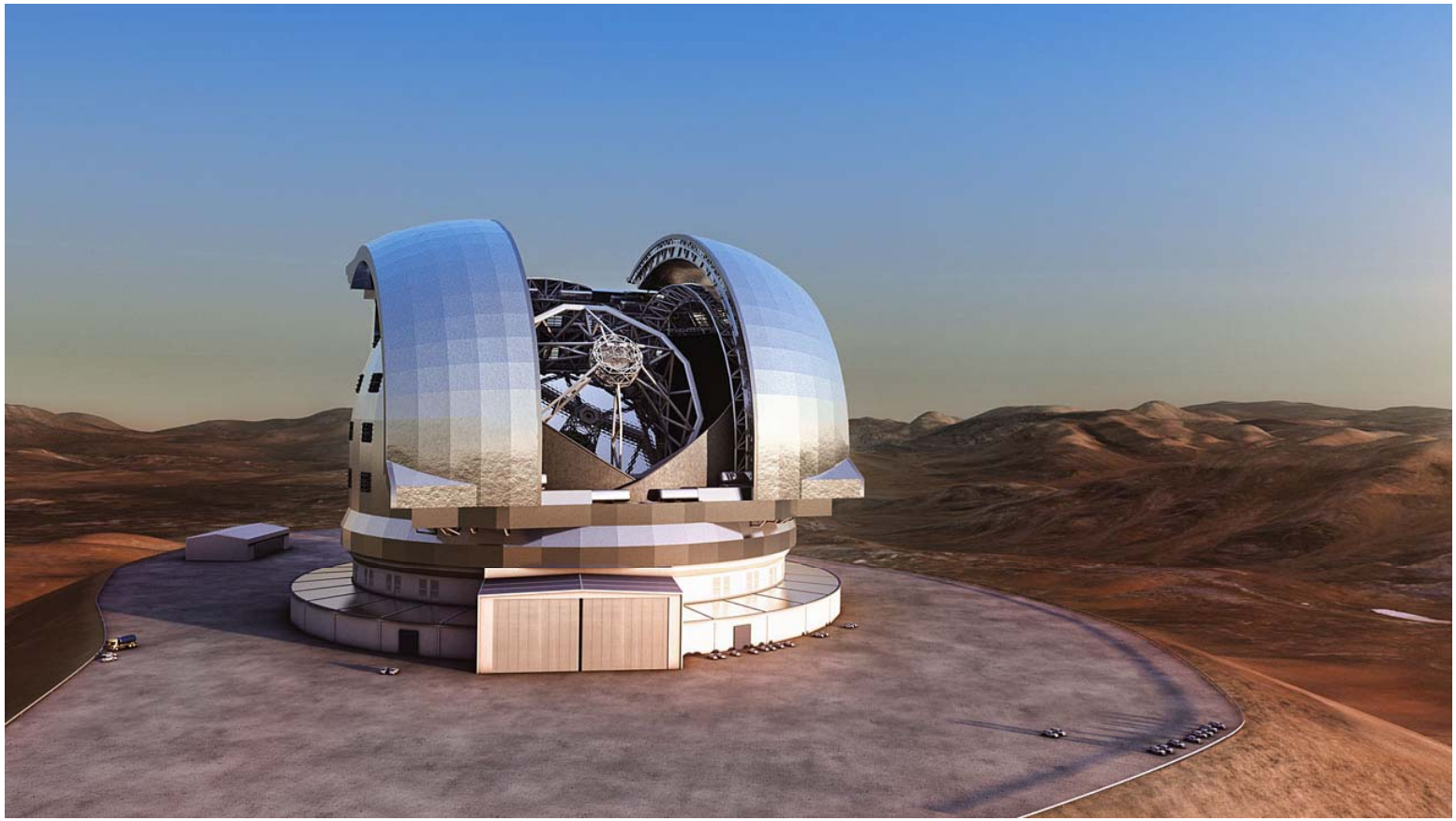
- WP 10.1 Network coordination
  - Coordination, recruitment, reporting
  - HTRA network activities
- WP 10.2 Workshops and Talks
  - 2013: meeting on long-range instrumentation plan,
    - highlight HTRA and other OPTICON JRAs
  - 2015 ELT science meeting + summer school
- WP10.3 New Tools for Users
  - Deliverable report maintained
  - Less code development. Focused small workshop to assess current status and recommend future work

WP10 Agreed deliverables

- Agreed deliverables
  - D10.1 Report on ELT Instrumentation Conference [m 12]
  - D10.2 E-ELT Science Conference and Summer School [m 48]
  - D10.3 Report on Data Analysis Methodologies plus Tools for E-ELT and HTRA [m 48]
- We are at the minimum budget to maintain these deliverables.
- If further effort were available it would boost work on data analysis tools.

Conclusions

E-ELT is moving ahead. OPTICON has an important role engaging and preparing the community. Looking forward to the new contract!



The End

Image credit : Swinburne Astronomy Productions/ESO

Conference web sites