



*Università degli Studi di Firenze*

# **The E-ELT project: the STC view**

*Alessandro Marconi*

*(chair of ESO Scientific and Technical Committee)*

*ESO's ruling body is its Council, which delegates day to day responsibility to the Executive under ESO's Director General. Other governing bodies of ESO are: the Finance Committee (FC), the Scientific Technical Committee (STC), the Observing Programmes Committee (OPC) and the Users Committee (UC).*

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**ESO's Governing Bodies**

ESO's ruling body is its Council, which delegates day to day responsibility to the Executive under ESO's Director General. Other governing bodies of ESO are: the Finance Committee (FC), the Scientific Technical Committee (STC), the Observing Programmes Committee (OPC) and the Users Committee (UC).

Information about the meeting dates of the various committees is available via the meetings calendar below. Please note that in most cases committees documents have restricted access and are password protected.

- Rules of Procedure for the ESO Council
- Rules of Procedure for the ESO Finance Committee
- Rules of Procedure for the ESO Users Committee

**Council and Committee Meetings in 2013**

<b>Council</b>	Cou 127: 5-6 Jun	Cou 128: 4-5 Dec	
Committee of Council	CC 82: 11-12 Mar	CC 83: 9-10 Oct	
<b>Finance Committee</b>			
<b>Scientific Technical Committee</b>			
<b>European Science Advisory Committee</b>			
<b>E-ELT Science and Engineering Committee</b>			
<b>La Silla Paranal Committee</b>			
<b>Observing Programmes Committee</b>	OPC 92: 21-24 May	OPC 93: 18-21 Nov	
<b>Users Committee</b>	UC 37: 25-26 Apr		

**Council and Committee Meetings in 2012**

<b>Council</b>	Cou 125: 11-12 Jun	Cou 126: 4-5 Dec	
Committee of Council	CC 80: 6-7 Mar	CC 81: 10-11 Oct	
<b>Finance Committee</b>	FC 133: 8-9 May	FC 134: 6-7 Nov	
<b>Scientific Technical Committee</b>	STC 78: 17 -18 Apr	STC 79: 23-24 Oct	
<b>European Science Advisory Committee</b>	ESAC: 16 April		ESAC: 22 October
<b>E-ELT Science and Engineering Committee</b>	ESE: 28-29 June		
<b>La Silla Paranal Committee</b>	LSP: 16 April		LSP(E): 22 October
<b>Observing Programmes Committee</b>	OPC 90: 21 - 25 May	OPC 91: 19-22 Nov	
<b>Users Committee</b>	UC 36: 23-24 Apr		

# Scientific and Technical Committee (STC)

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- ★ Advisory committee under the responsibility of the ESO council
  - **Advise** Council and the Director General on policy matters of scientific and technical importance related to the planning and operation of ESO.
  - **Advise** Council and Director General on scientific priorities for projects and programmes, on the equipment, maintenance and upgrade of ESO facilities (upon request of Council and DG)
  - **Assist** ESO in informing the astronomical communities in Member States about the status, background, and motivation for ESO's scientific and technical planning.
- ★ 1 member per Member State, 1 member for Chile, up to 6 members-at-large (also from non-member states)
- ★ STC has **Subcommittees of experts which report to the STC**
  - **La Silla-Paranal Subcommittee**
  - **European Science Advisory Committee (ALMA)**
  - ***E-ELT Subcommittee (after start of ELT construction?)***

# Current STC composition

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R. L. Akeson (US, *at large*)

A. Alonso Herrero (ES)

L. Bronfman (CH)

M. de Vos (NL, chair of LSP)

S. Feltzing (SE, *vice-chair*)

J. Fynbo (DK)

A. Finoguenov (FI)

J. Hron (AT)

R. Ivison (UK, chair of ESAC)

A.-M. Lagrange (FR)

A. Marconi (IT, *chair*)

A. Moitinho (PT)

J. D. Monnier (US, *at large*)

M. Perez Diaz (BR, *observer*)

S. Vennes (CZ)

D. Queloz (CH)

E. Sadler (AU, *at large*)

M. Steinmetz (DE)

H. van Winckel (BE)

G. Wright (UK, *at large*)

# STC Subcommittees composition

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## LSP members:

*Alberto Franceschini (IT)*

Johan Fynbo (DK - **STC**)

Anne-Marie Lagrange (FR - **STC**)

A. Moitinho (PT - **STC**)

John Monnier (US - **STC**)

D. Queloz (CH - **STC**)

*Roberto Ragazzoni (IT)*

**Marco de Vos (NL, chair - STC)**

H. van Winckel (BE - **STC**)

## ESAC members:

R. L. Akeson (US - **STC**)

Roberto Neri (FR)

*Isabella Prandoni (IT)*

Huib Jan van Langevelde (NL)

**Rob Ivison (UK, chair - STC)**

Jes Jorgensen (DK)

Jesus Martin-Pintado (ES)

Raphael Moreno (FR)

Elaine Sadler (AU - **STC**)

Eva Schinnerer (DE)

# STC recommendations on Project (2009-2012)

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- ★ Long-term ESO budget plan gives high priority to E-ELT project:  
STC believes the expected science capabilities warrant such high priority
- ★ Science input will remain essential during all construction phases of E-ELT and even beyond
- ★ STC reaffirms that maintaining Paranal as a world-leading facility even with the ELT operating at Armazones is essential
  - world class facilities to the bulk of ESO community
  - maximum flexibility for developing and exploiting new capabilities
  - ensure the health of instrumentation groups in the members states
  - ensure the integration of E-ELT into a state-of-the-art observatory (Armazones is ~20 km away from Paranal → same observatory)
  - maximize the synergy between E-ELT and the VLT/MTI/VISTA, ALMA, SKA, JWST, GAIA, EUCLID, etc.
- ★ Upgrade of existing facilities and development of new capabilities essential part of core programme achievable at relatively modest cost.

# STC recommendations on Project (2009-2012)

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- ★ STC received proposal for project cost reduction after “spending review”
  - diameter reduction to 39 m, *a smaller E-ELT is better than no E-ELT*
- ★ Amongst the most affected key science goals is the direct imaging of earth-like exoplanets
  - significant decrease of potential targets, but E-ELT will be the only facility worldwide to be able to reach this science goal
- ★ **STC strongly recommends against any further reduction compared to the 39m baseline**
  - Any further reduction of the diameter will definitively result in the loss of the remaining targets for the earth-like exoplanets case
- ★ **Updated science case** of the E-ELT put together by the project science team (SWG): STC is of the opinion that this **represents an amazing and unprecedented potential for new discoveries.**
- ★ The STC strongly recommended to **start the E-ELT program ASAP**
  - delays carry the high risk of compromising ESO leadership in ground based astronomical observations in the next decade.
  - delays lead to increased costs and risks

# STC recommendations on Project (2009-2012)

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- ★ STC has always been satisfied by the preparatory work which has been (is being) carried on by ESO waiting for program approval and start of construction
- ★ Instrumentation is fundamental part for E-ELT success
- ★ Relation between ESO and STC to ensure a high quality instrument programme while at the same time involving the community in the important choices being made
- ★ Selection process should identify full set of first generation instruments; first light instruments selected from this set
  - Coherent set of capabilities
  - Maximum involvement of community
  - Selection process should be transparent and satisfy community; STC involved from the very beginning
  - first light instruments should be able to deliver the unprecedented level of science expected from the E-ELT as soon as possible after first light



# The current Instrument Roadmap

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- ★ Thoughtful and credible plan for delivery of 7 instruments in 2022-2030
- ★ Essential capabilities to reach key science goals and scientific success
- ★ First light: ELT-IFU, ELT-CAM
  - necessary capabilities to ensure a high scientific return early on
  - start required activities to bring them to the telescope in a timely fashion
- ★ STC supports the selection on an *equal scientific footing* of ELT-HIRES, ELT-MIR, and ELT-MOS as the next set of capabilities
  - Arrival at telescope determined by rate of progress achieved by the three projects
  - In ESO's analysis, MIR will probably be the first to be considered ready to start
  - HIRES and MOS: opportunity for community to further define requirements
- ★ ELT-6: unspecified instrument
  - opportunity for new breakthrough concepts
  - potential to have two similar instruments but with different science goals (eg MOS)
  - possibility of further input from community in the first generation instrumentation
- ★ ELT-PCS is critical to enable the imaging of earth-like planets
  - flagship science case for the E-ELT
  - R&D start immediately
  - ELT-PCS will start as soon as ready

# The current Instrument Roadmap

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- ★ STC believes that competitive, open calls lead to the best possible instrumentation, offering the whole community the chance to participate in the success of the E-ELT.
- However, in some cases, like the procurement of first light instruments, a fair and open competition might be difficult to achieve.
- STC trust that ESO will find an appropriate way forward, taking into account the relatively healthy timeline of E-ELT's instrumentation programme and the well-being of technical institutes across Europe.
- ★ STC will continue being involved in the process, and will continue to monitor the E-ELT program and instrument plan.
- ★ Contact me for clarification ([alessandro.marconi@unifi.it](mailto:alessandro.marconi@unifi.it))
  - *Assist ESO in informing the astronomical communities in Member States about the status, background, and motivation for ESO's scientific and technical planning.*