



Introduction to ESO

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Who are we?

- European Organisation for Astronomical Research in the Southern Hemisphere
("European Southern Observatory" or ESO)
- The foremost intergovernmental astronomy organisation in Europe
- The world's most productive astronomical observatory

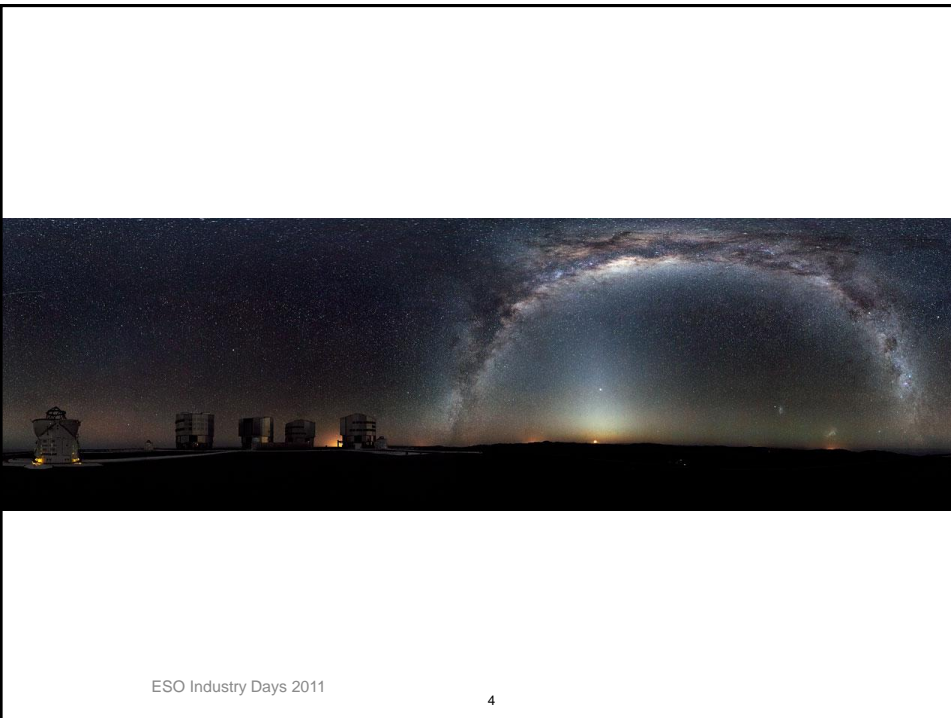
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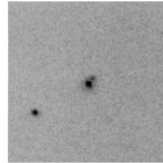
Purpose

- Mission – set for ESO in the founding charter:
 - Develop and operate world-class observing facilities for astronomical research
 - Organise collaborations in astronomy

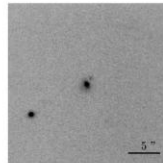


Nobel Prize Physics 2011

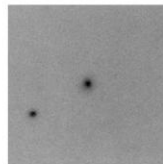
SN 1995 K



3.April 1995
NTT/EMMI



24.April 1995
NTT/SUSI



28.MAY 1995
NTT/SUSI

Discovery of the accelerating universe using distant supernovae



What do we do?

- Design, construct and operate a suite of the world's most powerful ground-based astronomical telescopes
- Design, construct and operate instruments
- Develop technology to support the programme
- Train scientists and engineers
- Leading to:
 - high technology contract opportunities
 - numerous possibilities for technology spin-off and transfer
 - skilled personnel



Facilities

- 4 operating units, spread over 5 sites in Germany and Chile
- HQ in Garching, Germany and Vitacura Office in Santiago, Chile
- Observatories (Chile)
 - Optical/infrared: La Silla and Paranal
 - Submm: APEX and ALMA partnerships on Chajnantor

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ESO in Chile



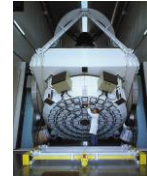
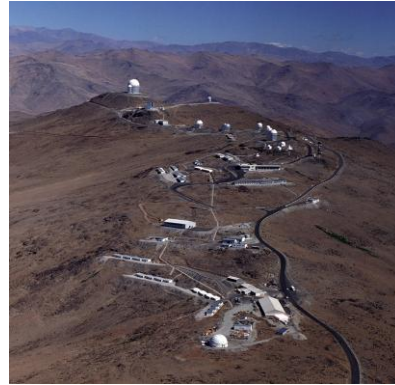
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La Silla

- The original site of the first ESO telescopes
- Part of La Silla-Paranal Observatory
- Medium-size telescopes
 - 3.6m: focused on exo-planet searches
 - 3.5m NTT: room for visitor instruments
 - 2.2m in partnership with MPG and Brazil



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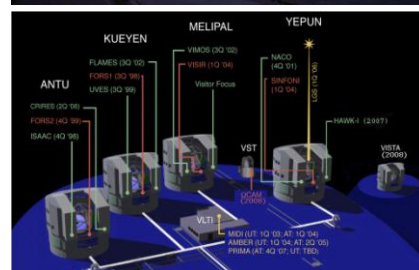


Paranal

- The VLT: 4 x 8.2m diameter optical/infrared telescopes
- The ATs: 4 x 1.8m diameter auxiliary telescopes

The VLT and the ATs, working together, make up the VLT Interferometer (VLTI)

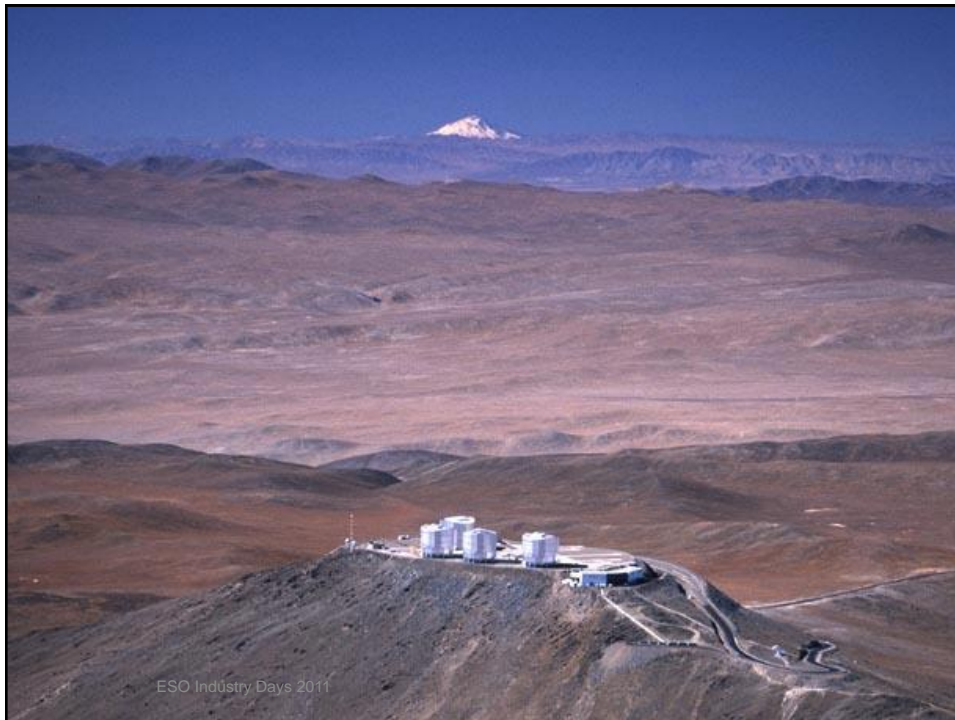
- 2.6m diameter VLT Survey Telescope (VST; optical)
- 4m diameter VISTA Survey Telescope (infrared)



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Paranal: View from Space

Image © 2008 DigitalGlobe

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Living at Paranal (1)



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Living at Paranal (2)



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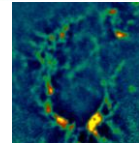
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Chajnantor

■ APEX

- 12m sub-millimeter antenna, operated by ESO @ Sequitor
- MPG (50%), Sweden (23%) and ESO (27%)



■ ALMA

- Transformational science
- 66 antennas at 5050m (AOS)
- Operations support at 2950m (OSF)
- Global partnership with North America & East Asia



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ALMA site (AOS)



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ALMA site (OSF and road)



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Personnel

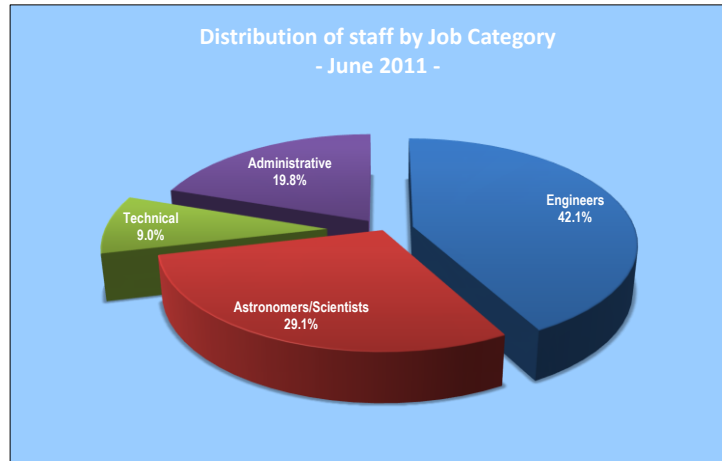
- ~750 staff, split:
 - Garching HQ: ~ 450
 - Chile: 250+, spread over:
 - Vitacura
 - La Silla Paranal Observatory
 - La Silla
 - Paranal
 - Sequitor (near San Pedro de Atacama)
 - ALMA
- Staff comprise astronomers, engineers, technicians, administrators

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Staff Members by Job Category



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The Organisation

- Intergovernmental treaty-level organisation (membership normally has to be ratified by Parliament)
- Founded in 1962 by five countries (50th anniversary in 2012)
- Currently 15 member states (Brazil in the process of ratification)

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ESO Governance

■ Council

- Two delegates per member state, plus President
- At least one of the two an astronomer
- Approves income and budget, and overall programme
- Appoints DG to lead ESO, and deliver programme

■ Advisory to Council

- Finance Committee (one delegate per member state)
- Science and Technical Committee (+ sub-committees)
- Scientific Strategy Working Group
- ELT Standing Review Committee

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Annual Income

- Annual contributions to the Organisation's budget based on the countries' net national income (NNI)

■ 2010 Scale of Contributions: 131 million EUR

- Germany 22%
- France 17%
- United Kingdom 16%
- Italy 13%
- Spain 9%
- other Member States between 1% and 5% each

- In steady state, Brazil will be approximately 13% on current estimates

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Current ESO programme

- Exploit La Silla-Paranal Observatory to obtain best science:
 - Second generation instruments (VLT/VLTI)
 - Key surveys with VST and VISTA
 - Long-term programmes for unique science on La Silla
 - Prepare for ALMA science with APEX
- Complete construction of ALMA and start operations
- Design world-leading ELT, and secure funding for construction and operations

