The Canarian Observatories: a strategic node to explore the Universe

Ramón J. García López

Departamento de Astrofísica ULL

Instituto de Astrofísica de Canarias

EXCELENCIA SEVERO OCHOA

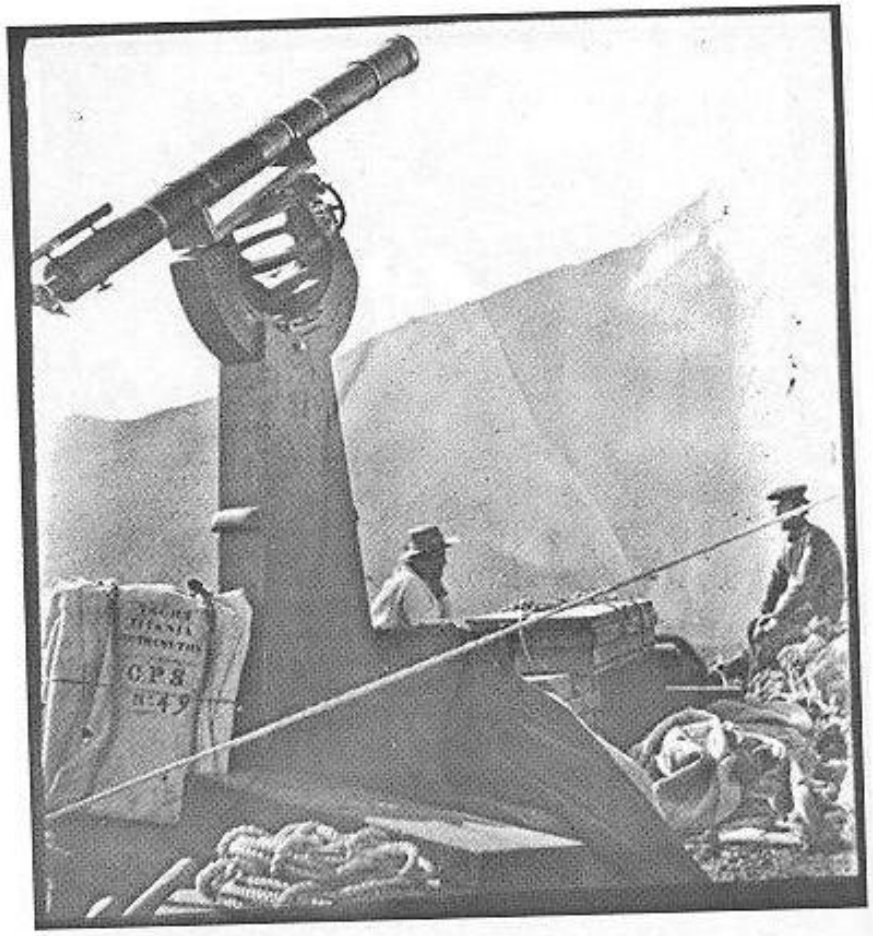
Viera y Clavijo: a Pioneer Vision

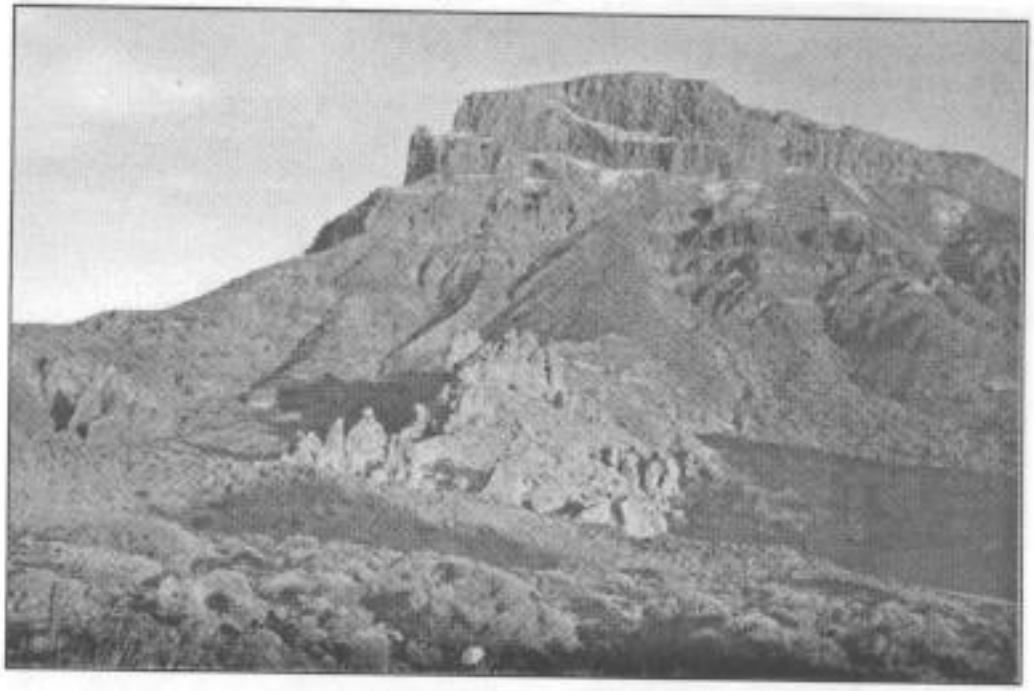
- ✓ In the late 18th century, José de Viera y Clavijo discussed the physical and astronomical observations that might be carried out on Mount Teide in his History of the Canary Islands.
- ✓ He described mount Teide, in Tenerife, as an exceptionally suitable place for observing the sky and atmosphere.

The Modern Pioneer: Charles Piazzi Smyth and Mount Teide

- ✓ In 1856, Charles Piazzi Smyth tested the idea that higher altitudes would improve astronomical observations through greater atmospheric transparency, following Newton's suggestions.
- ✓ Mount Teide, Tenerife, (3,718 m) had become a major attraction for European geographers and naturalists.

The Observing Campaign at Guajara and Teide



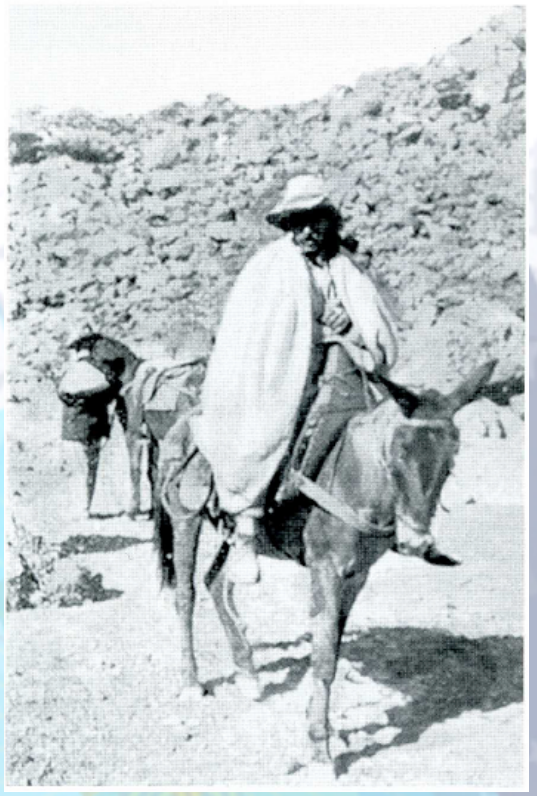


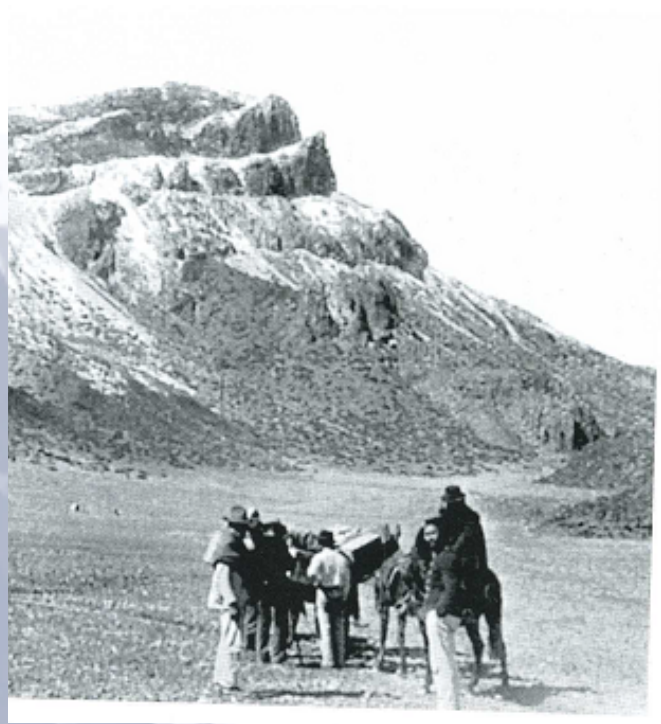
Astronomy in the Canary Islands in the Early 20th Century

- ✓ In 1910, Jean Mascart travelled to Tenerife to observe the anticipated return of Halley's Comet.
- ✓ He joined a multidisciplinary German scientific expedition.
- ✓ G. Th. Pannwitz led a programme of physiological experiments at a high-altitude station.

The Camp at Guajara

- ✓ Mascart observed from the summit of Guajara between 5 April and 16 May.







The Camp at Guajara

- ✓ Location of the 22 cm 'large refractor'.

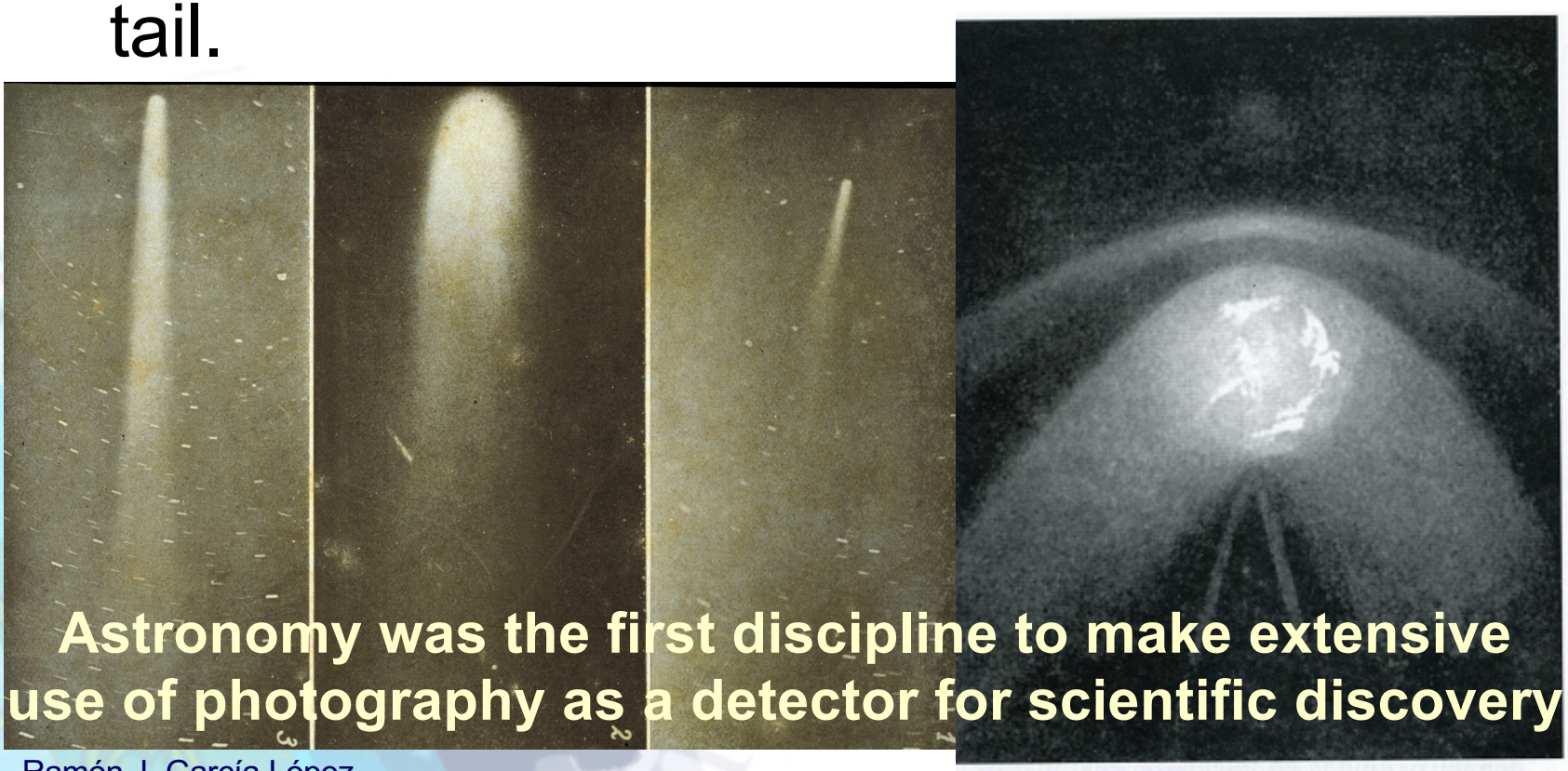




Ramón J. García López
Instituto de Astrofísica de Canarias

Jean Mascart: Astronomer

- ✓ From these images, Schwarzschild inferred the decrease in brightness along the comet's tail.



Astronomy was the first discipline to make extensive use of photography as a detector for scientific discovery

The First Observatory Proposal

- ✓ Jean Mascart was impressed by the excellent observing conditions in Las Cañadas del Teide and even suggested building an international observatory on the summit of Guajara.
- ✓ The First World War, its aftermath, the Spanish Civil War and the Second World War delayed Tenerife's emergence as an international scientific centre.

Neckel and Labs

- ✓ In spring 1959, German solar physicists Dietrich Labs and Heinz Neckel observed a total solar eclipse from Tenerife.



Teide Observatory and Francisco Sánchez

- ✓ Teide Observatory was established on 10 February 1959 under the University of La Laguna.
- ✓ Francisco Sánchez arrived in October 1960.

Teide Observatory and Francisco Sánchez



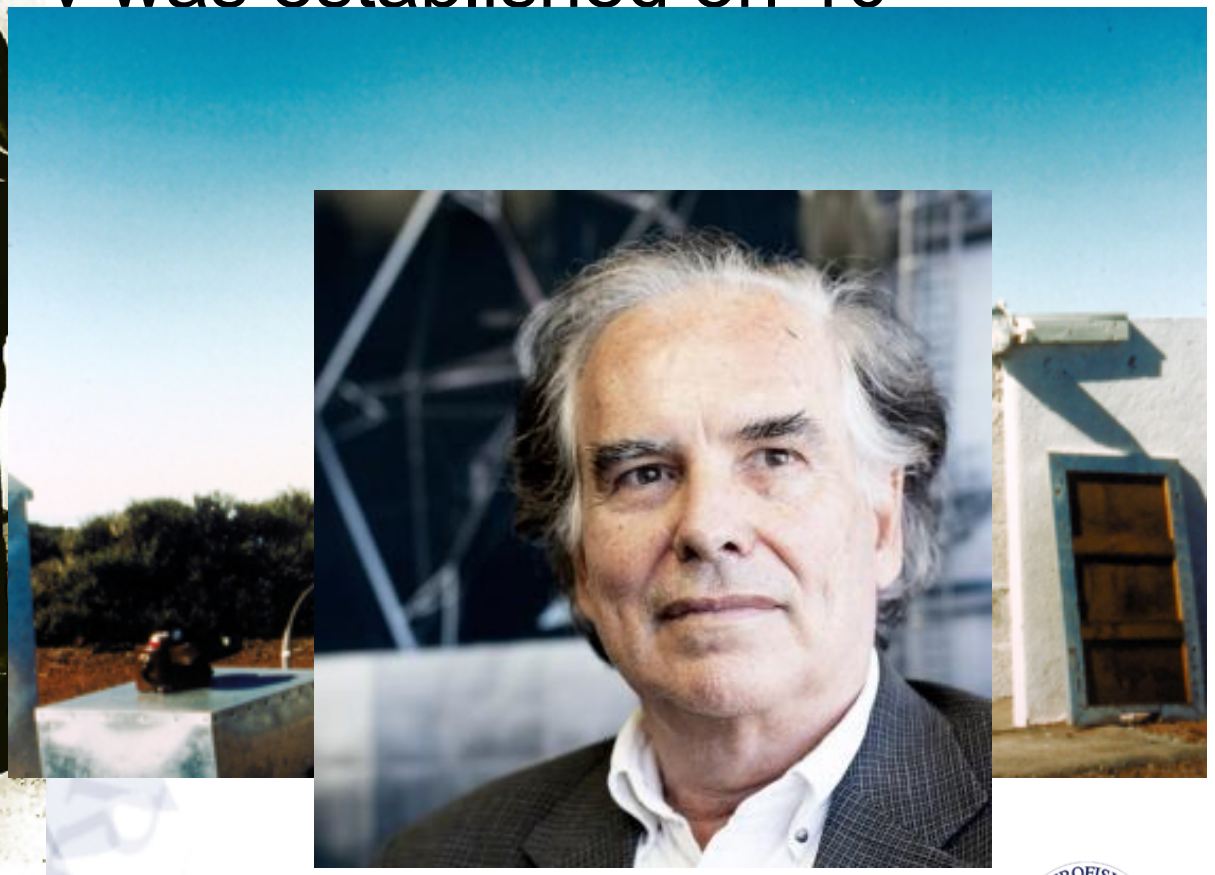
y was established on 10



Teide Observatory and Francisco Sánchez



y was established on 10



One Institute, five Campuses

- ✓ Public research consortium
- State Administration (Ministry of Science, Innovation and Universities)
- Canary Islands Regional Government
- University of La Laguna
- Spain's Senior Research Council











The 1980s: Internationalisation and La Palma

- ✓ Astronomical site surveys began on La Palma in 1978.
- ✓ International Cooperation Agreements in Astrophysics were signed in 1979.
- ✓ The Instituto de Astrofísica de Canarias (IAC) was established in 1982.
- ✓ From 1984, a new generation of advanced telescopes and instruments began operating.

International cooperation

- ✓More than 60 collaborative agreements active with institutions that operate scientific facilities at the IAC's observatories and collaborate with our scientists



Teide Observatory (Tenerife): The Sun Takes Centre Stage

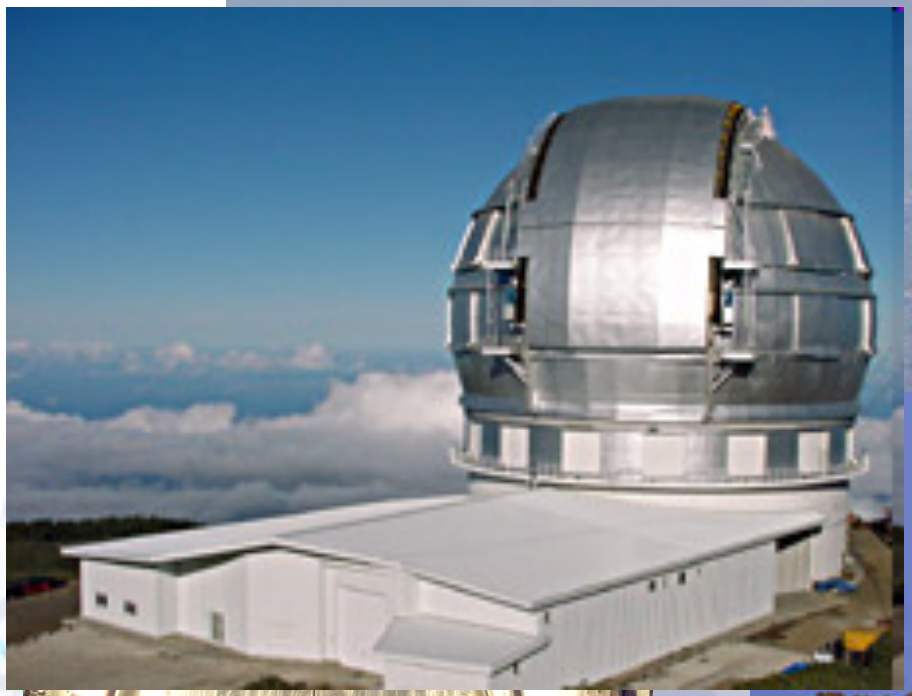


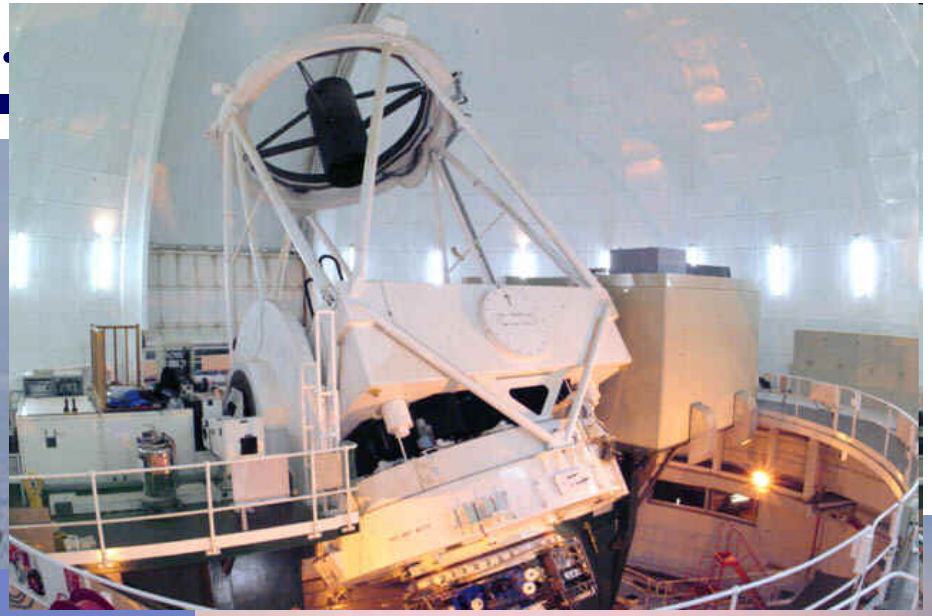
Ramón J. García López
Instituto de Astrofísica de Canarias

Roque de los Muchachos Observatory (ORM; La Palma)

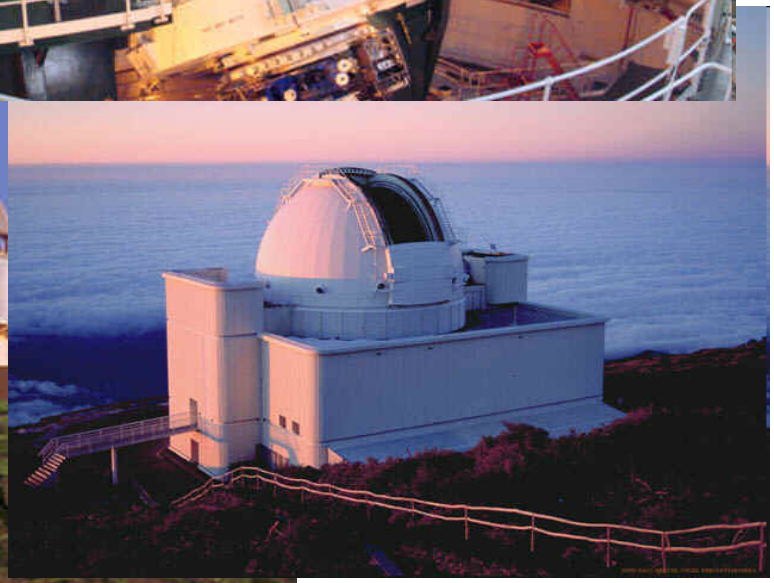


ORM: A Rich Night-Time Community on a Dark Island…





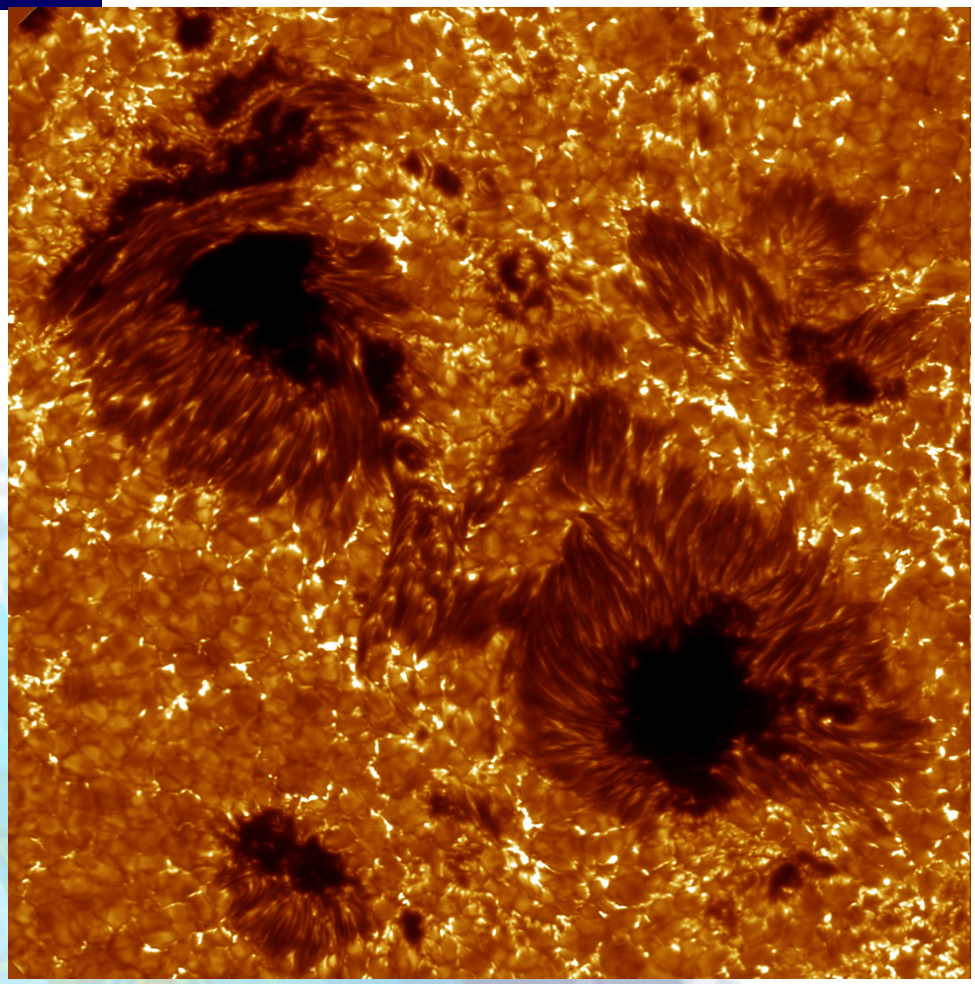


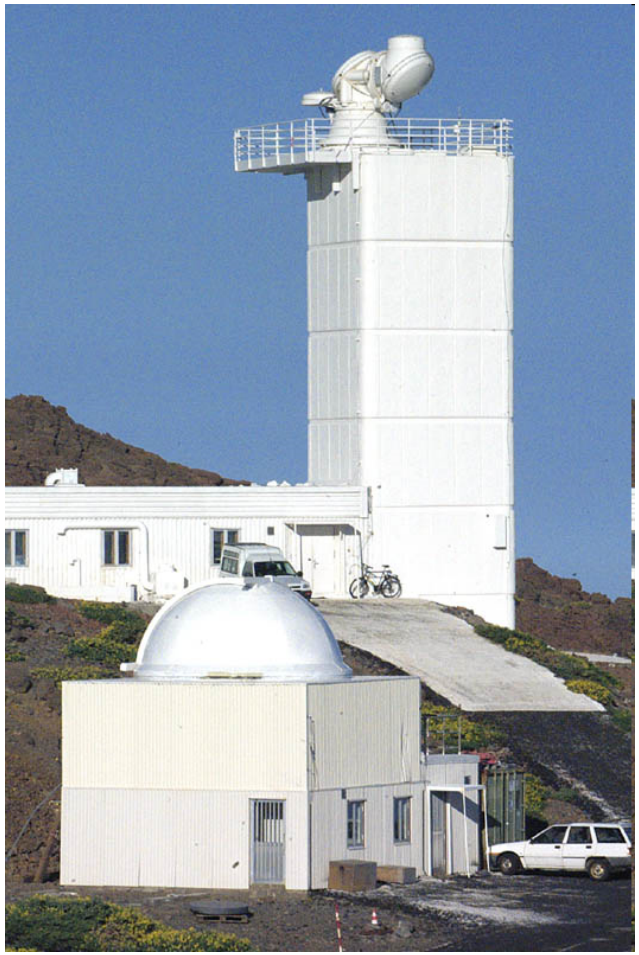




Ramón J. García López
Instituto de Astrofísica de Canarias

…with a Touch of the Sun





…and the Magic of the MAGIC Telescopes



GTC: Gran Telescopio Canarias, the 'Crown Jewel'

- ✓ The 10.4 m Gran Telescopio Canarias (GTC) is a powerful optical–infrared telescope that started operations at the Roque de los Muchachos Observatory in 2009.
- ✓ A Spanish initiative led by the IAC, with partners in Mexico (IA-UNAM and INAOE) and the University of Florida (USA).



GTC in Action



New acquisition

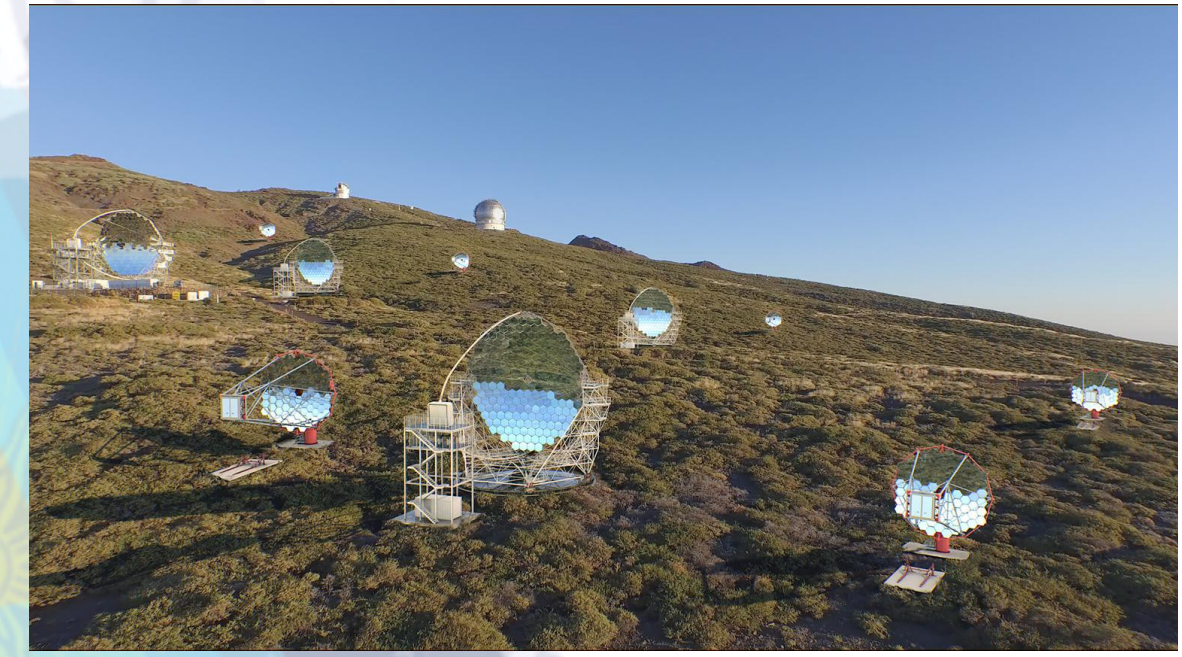
- ✓ Four Large-Sized Telescopes to be part of the Cherenkov Telescope Array Observatory-North



Ramón J. García López
Instituto de Astrofísica de Canarias

Looking Ahead…

- ✓ Nine new Medium-Sized Telescopes to complete the CTAO-North Array
- ✓ First one, the pathfinder, in 2027



Ramón J. García López
Instituto de Astrofísica de Canarias

Looking Ahead…

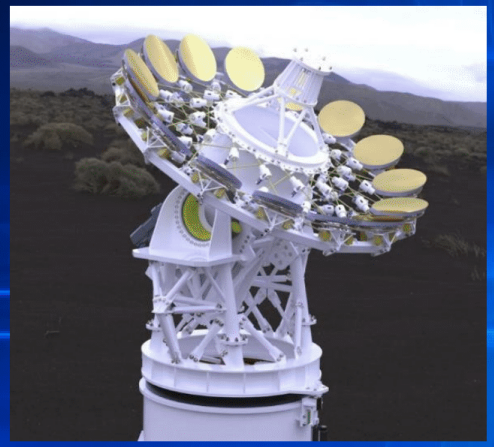
- ✓ The Canary Islands as a leading world centre for solar astronomy, hosting a major collection of solar telescopes, including the new 4 m European Solar Telescope.



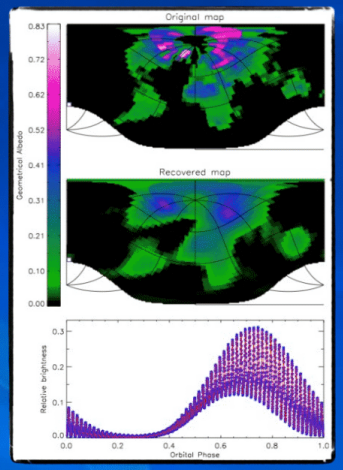
Looking Ahead…

Prototyping ELF: small-ELF

ELF: Exo Life Finder
IAC (Spain)- CNRS (France)- Univ. Hawaii & Univ. Georgia (USA)



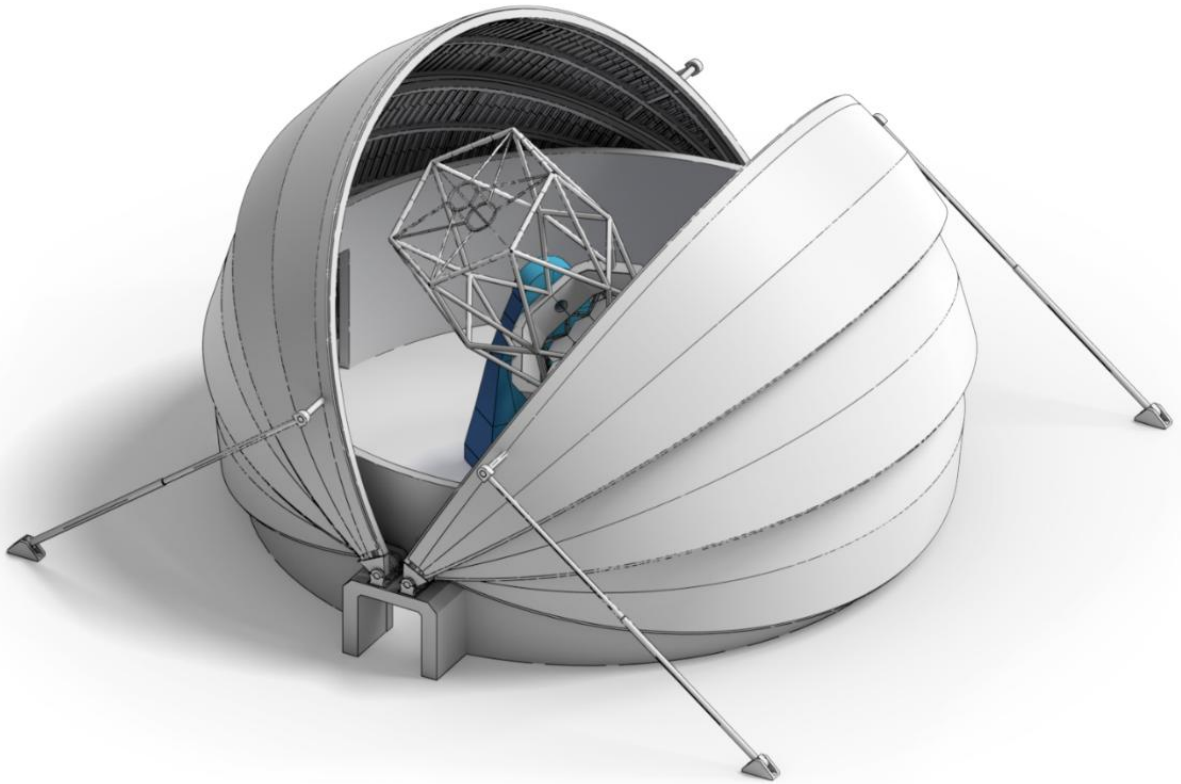




MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES
Gobierno de Canarias

Looking Ahead…

- ✓ New Robotic Telescope, 4 m diameter



Our observatories

- ✓ The IAC administers two international observatories
- ✓ We behave as a “neighborhood”
- ✓ We are open to other very-high-quality facilities to be installed at our observatories
- ✓ The International Scientific Committee looks afterwards
- ✓ Canarian skies are open to conduct the best astronomy
- ✓ That is our commitment and our vision

An Inspiring Experience and a Spirit of Lifelong Learning

