

+ Researchers

More women astronomers who have helped develop astronomical technology:

Anne-Marie Lagrange

French astronomer at the Astrophysics Laboratory of Grenoble. Her work centred on the development of adaptive optics. She led the team that built NAOS, the adaptive optics module for the VLT at the European Southern Observatory.

Suzie Ramsay

British astronomer. After working on the development of several different astronomical instruments at the UK Astronomy Technology Centre in Edinburgh, she is currently working at the instrumentation division of the European Southern Observatory.



Marcia Rieke

American astronomer and Professor at the University of Arizona. She is the Principal for an infrared camera that will be fitted on the James Web Space Telescope (JWST). When it is ready in 2014, it will be used to observe the first phases in the formation of stars and galaxies. She is also working on the development of NASA's Spitzer space telescope.



Janet Akyuz Mattei (Turkey, 1943-United States 2004)

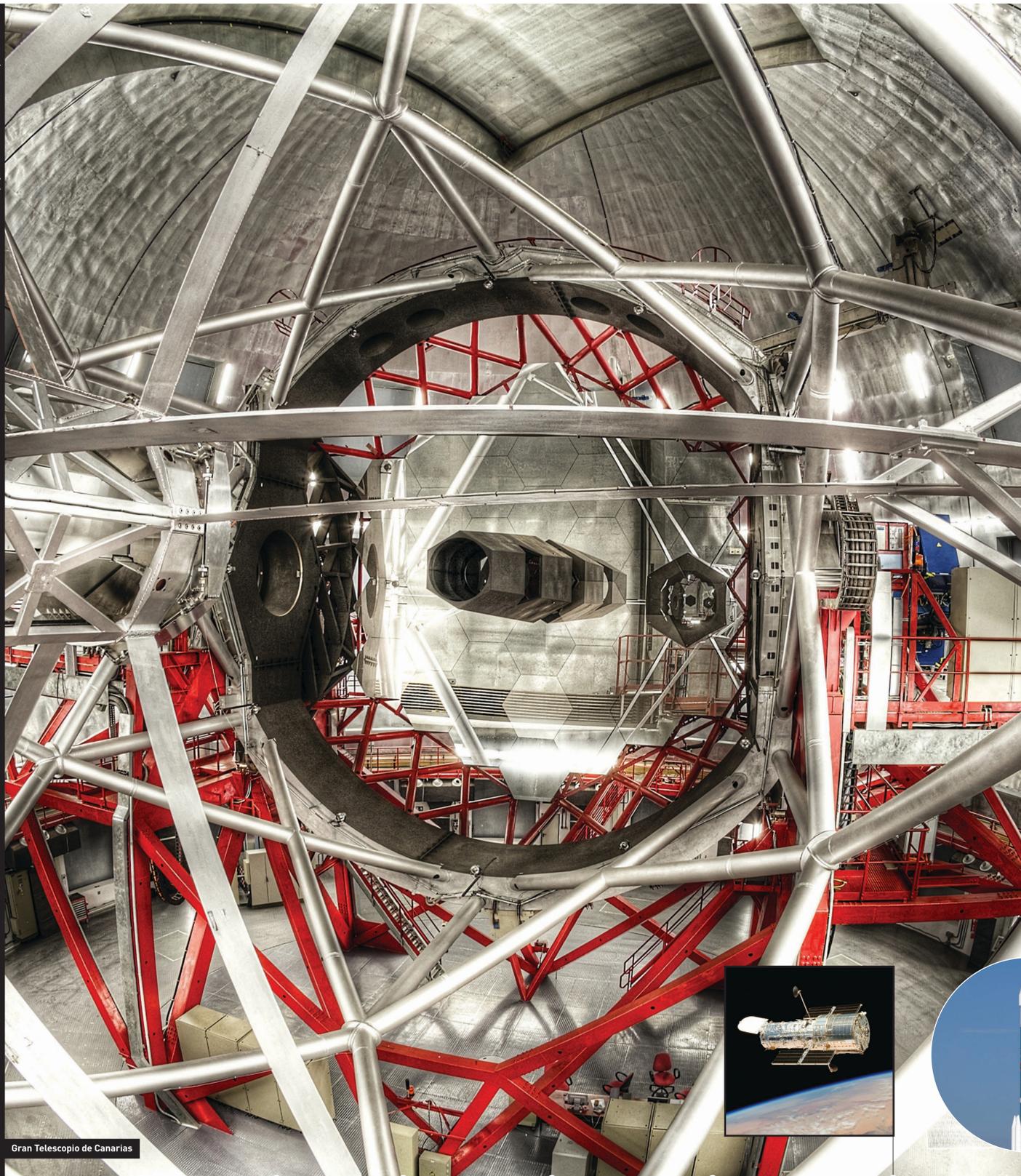
Director of the American Association of Variable Star Observers, an organisation of amateur astronomers, for 30 years. She has also co-ordinated many joint programmes of observations with amateur and professional astronomers.



Catherine Cesarsky (France, 1943)

An astrophysicist who has held important posts in French political science. She championed her country's involvement in international astronomy projects, like launching satellites and building observatories. Between 1999 and 2007 she was Director General of the European Southern Observatory. In 2006 she became the first woman President of the International Astronomical Union.

Picture: Pablo Bonet. The Astrophysical Institute of the Canary Islands



Gran Telescopio de Canarias

Other eyes for seeing

Astronomy is the science that studies objects in the Universe. Before the invention of the telescope, these objects could only be observed with the naked eye. For thousands of years human beings interested in the sky had to use their eyes to see the objects in it. Since antiquity there have been instruments to help astronomers in their work, like the astrolabe and the armillary sphere, which compute the position and movement of stars.

In the 21st century, telescopes like the Gran Telescopio Canarias begin to use adaptive optics. This is a system that uses deformable optics to correct defects caused by the Earth's atmosphere to images of celestial objects.



MILESTONES IN ASTRONOMICAL INSTRUMENTATION

1609

Galileo uses the recently-invented telescope to observe the Moon, Jupiter and the stars.

1840

First **photograph of the Moon**, which is also the first astronomical photograph in history.

1814

The **Sun's spectrum** is catalogued for the first time.

1880

First photograph of the **Orion nebula**.

1930

The age of radioastronomy begins.

1946

Interferometry, in which a number of telescopes work together to produce **higher resolution images**, is applied for the first time.

1959

The Soviet Union lands its Luna 2 probe on the Moon. The **exploration of the Solar System**, which continues today, begins.

1967

One of the Vela satellites detects a **gamma ray burst** from outer space for the first time.

1970

The **Uhuru satellite**, the first satellite developed for X-ray astronomy, is launched.

1975

The **European Space Agency (ESA)** is founded with 18 members including Spain.

1983

The **IRAS satellite**, a space observatory that completed an infrared scan of the whole sky, is launched. It was a joint project between the United States, the Netherlands and the United Kingdom.

1989

The European Space Agency's **Hipparcos satellite is launched**. During the four years of its mission it measured the distance and movement of one hundred thousand stars near to the Sun with unprecedented accuracy.

1990

The **Hubble Space Telescope is launched**, ushering in a new era in deep space observation.

2009

The GTC, the **Gran Telescopio Canarias**, which is the largest optical telescope in the world, enters service.

2003

The **Spitzer telescope**, an infrared space telescope, is launched.