



## Optics, Astrophysics and Space Technologies

The Canary Islands are the headquarters of the **Canary Island Astrophysics Institute (IAC)**, a highly international Spanish research centre that is also responsible for operating the Teide Observatories (Izaña, Tenerife) and the Roque de los Muchachos Observatory (Garafia, La Palma).

The extraordinary astronomic quality of the skies up in the mountains of the Canary Islands, protected by law, and a series of international agreements, have enabled these observatories to attract telescopes and other instruments from over 70 scientific institutions from 19 countries.

Much of the technology used in their research is developed by the IAC itself. Thanks to their experience and the knowledge accumulated from pioneering space projects in Spain, the IAC has attained a leading position in the most important areas of know-how and technology for developing advanced instrumentation. This experience has been enhanced recently with the launch of what is currently the largest and most advanced telescope for **optical infrared astrophysics**: the "Gran Telescopio CANARIAS", or Great Canary Island Telescope (**GTC**). This project has also advanced skill building in these technologies among Spanish companies. The installation of this telescope in the Roque de los Muchachos Observatory keeps the Canary Islands on the leading edge internationally.

Apart from participating in the GTC, the IAC also plays a highly active role in the leading international projects and initiatives in the field of astrophysics. This is the case of the European Optical Infrared Co-ordination Network for Astronomy - OPTICON; the project to build the European Extremely Large Telescope (E-ELT) and two of its possible future instruments; the instrumentation for the HERSCHEL, PLANCK and IMAX VLTs; and the conceptual design study for the future European Solar Telescope (EST); among others.

The IAC is currently a powerful technological research and development centre, among the best of its kind in the world, capable of championing the scientific, technological and cultural resources of the "Canary Island skies" to the benefit of all. It has proved a useful instrument, not just for facilitating the use of the observatories by the national and international scientific community, but also for optimising Spain's scientific and technical development.

As for **space technology**, the **National Aerospace Institute (INTA)'s Canary Island Space Centre (CEC, from the Spanish)** is located in the south of the island of Gran Canaria. According to experts in these matters, it is ideally placed to provide support for launching satellites, the remote control of satellites, acquiring Earth observation satellite data, detecting and locating emergency alerts picked up by the Cospas-Sarsat satellites for saving human lives, as well as for communications with geo-stationary satellites. The Space Centre has provided support for many international space missions.

