

Heavens above

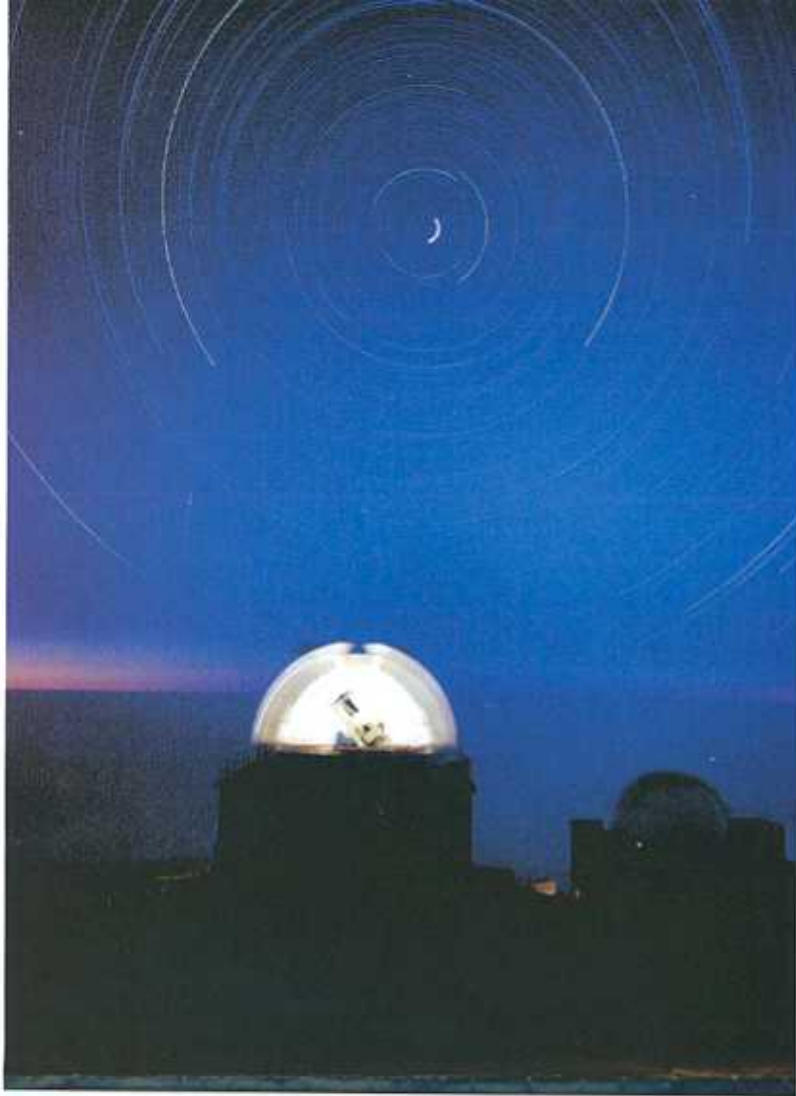
If the stars hold the secrets of the universe, La Palma is the place to discover them. The island has some of the clearest skies and is about to become home to the world's largest telescope.

SARAH ANDREWS reports

THE night sky is a fascinating place, inhabited by constellations, shooting stars, comets and quasars which hold the answers to the creation of the universe. It is mind-boggling to think that these twinkling lights above us started their journey from millions of light years away. And La Palma is the perfect place to see them.

Just off the coast of Africa, San Antonio de Palma is one of the smallest islands in the Canary ▶





Previous page: The M92 Globular Cluster, which is 85 light years across.
Left: The dome of the Jacobus Kapteyn telescope; on the rim of Caldera de Taburiente National Park. Right: The Crab Nebula (top) and the Ring Nebula

Island archipelago. Dominated by a steep mountain range running through its centre, the island has a population of less than 90,000, which depends mostly on the island's banana crop for income. While these statistics might not mean much to your average holidaymaker, they make exciting reading to stargazers.

The lack of industrial areas means there is little pollution to cloud the night sky, making La Palma one of the world's best spots for astronomical observation.

The 2,400m Roque de los Muchachos is the site of the Grantecan (Gran Telescopio Canario) which, when completed in 2005, will be the largest telescope in the world, with a mirror diameter of 10.4m. It will be used to study quasars, radiogalaxies and protogalaxies and will allow astronomers to study the light from the stars and how planets are born around distant suns.



Perched at the edge of the Caldera de Taburiente National Park, this spot is unique because of its natural conditions. Peeking above the cloud cover that keeps the island's interior smothered most of the time, 75 per cent of the nights here on the Roque are completely clear and in summer, the percentage rises to over 90 per cent. The pure air means no pollution interferes with celestial observations and the atmosphere does not distort the findings because of the smooth wind which blows in straight layers rather than turbulent circles.

The amount of light coming from La Palma's towns is strictly controlled by a unique 'Sky Law' which determines what kind of lights are used in public spaces. The law even prohibits air traffic, radio waves and large buildings near the observatory.

It is a four-hour ferry trip to La Palma from Tenerife and the first view of the island, nicknamed *la isla*



Telescopes are scattered over the mountain like pieces of a spaceship

bonita (the beautiful island) due to its lush vegetation, is of the cobbled-stone centre of its capital, Santa Cruz de la Palma, and the steep, green hillsides that stretch out of town. Down on the coast, far from the

island's highest point, the stars are so luminous they are still a stunning sight, even outshining the competing ground light.

Driving along the winding curves up the mountain, past majestic pine forests and dry volcanic rock walls, it is almost an hour before the first telescope is spotted.

Over 19 countries and 60 institutions have telescopes and equipment here and at the Teide Observatory in Tenerife. A huge, white globe rises from the grassy mountaintop; a futuristic vision that seems out of place in this rugged landscape. It is not the only alien addition to the area; six other telescopes, including the unfinished Grantecan, are scattered over the mountain like pieces of a spaceship that has crashed to earth.

Apart from a few open-door days in summer, the observatory is closed to the public, although school groups and a few special visits are allowed ▶





Top: The Isaac Newton telescope dome. Right: The telescope itself. Far right: The M51 galaxy, also known as the

Whirlpool Galaxy

by prior arrangement. During the day, visitors can drive around the complex to see the telescopes up close and at night there is nothing to stop people from pulling up beside the gate to gaze into the star-studded sky.

The William Herschel is, for now, Europe's largest telescope and, along with the Isaac Newton and Jacobus Kapteyn, forms the Isaac Newton Group of Telescopes, a collaborative project between the UK, the Netherlands and Spain.

While much of the research done on the mountain is too complicated for us mere mortals to comprehend, it has been involved in research which is more interesting to the general public. For example, the ultra-sophisticated

La Palma has a strict Sky Law that determines what kind of lights are used in public spaces

adaptive optics system on the William Herschel was used to take some of the sharpest pictures ever of a near-earth asteroid in 2002. The year before that, it had been instrumental in the discovery of the first black hole on the edge of our galaxy.

The group's astronomers sometimes

give evening tours of the facility to a lucky few. The centre of activity is the control room's panel of over a dozen computers that controls the telescope's movement and converts the stars into cheerless dots on a screen.

"This is why astronomers appreciate the stars so much," says one of the astronomers, Javier Méndez. "They never really see them."

The actual telescope in the Herschel dome is a robot-like machine dominated by a mirror 4.2m wide – the third largest in the world when it was built in 1987. These days bigger and more advanced telescopes are given the glory but this one is still awe-inspiring.

Our visit begins just after sunset, ▶

when the sky is still a grayish blue, flecked with pink. The scientists in the control room are regulating the telescope and it rotates slowly beside us, whirring quietly. The floor we are standing on rotates too.

A section of the dome opens and the telescope focuses its lens, waiting for the appearance of the night's stars. By the time we spot the first pale flicker in the sky, it has long been a digital dot on the computers inside, but it is still a thrill to see it inside the Herschel dome.

"I can never tire of stars," says Méndez, after a few hours of watching them appear. "They're like a great piece of art; the more you observe them, the more you appreciate them." ■

The William Herschel was used to take some of the sharpest pictures ever of a near-earth asteroid

Right: The William Herschel telescope.
Below: The opened dome shutter with the wind shield raised



DETAILS

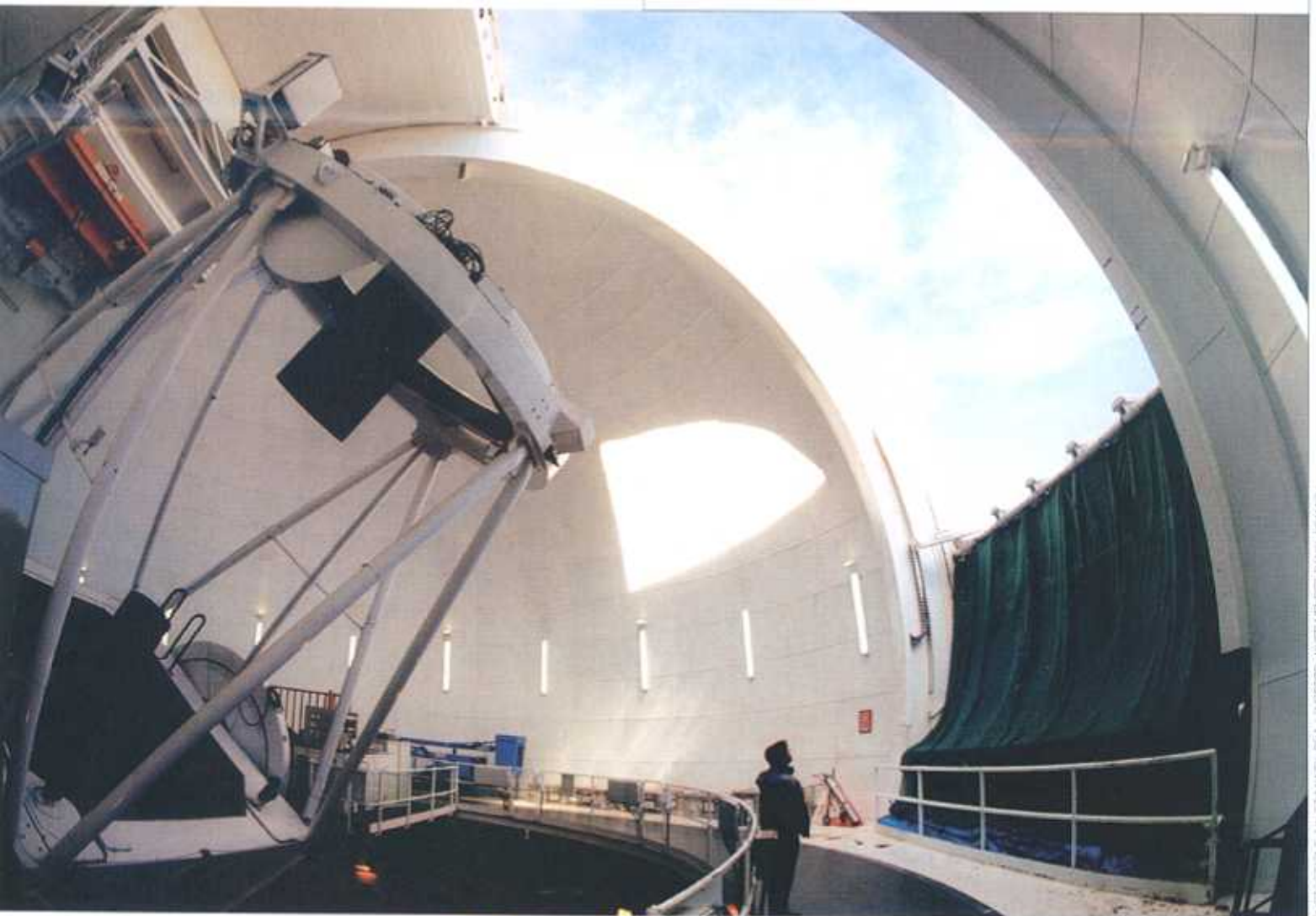
EL ROQUE DE LOS MUCHACHOS

is an unbeatable place to stargaze, but mountainous La Palma has a wealth of other top spots too. Head up to one of the island's many *miradores* (lookout points) for amazing views. The **MIRADOR DE LLANO DE LA VENTA** and **MIRADOR DE LA BRUJA** offer good vantage points, though any spot above about 1,300m should be fine.

The island of La Palma has a few picturesque beaches on its west coast, but most of those who visit come for the nature

on display and for the great hiking that can be done in and around the **CALDERA DE TABURIENTE NATIONAL PARK**. At lower altitudes the temperature hovers around 22°C year-round, so any time is a good time to visit.

TO ARRANGE A VISIT: Visits are by prior arrangement only – contact the Gabinete de Dirección del IAC on 0034 922 605 200 or email gabineteweb@iac.es. For more information about the observatory, visit www.iac.es.



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