Appendix A

The Isaac Newton Group of Telescopes

The Isaac Newton Group of Telescopes (ING) consists of the William Herschel Telescope (WHT), the Isaac Newton Telescope (INT) and the Jacobus Kapteyn Telescope (JKT). The three telescopes have complementary roles. The WHT, with its 4.2 m diameter primary mirror, is the largest in Western Europe. It was first operational in August 1987. It is a general purpose telescope equipped with instruments for a wide range of astronomical observations. The INT was originally used at Herstmonceux in the United Kingdom, but was moved to La Palma in 1979 and rebuilt with a new mirror and new instrumentation. It has a 2.54 m diameter primary mirror and is mostly used for wide-field imaging and spectroscopy. The JKT has a primary mirror of 1.0 m diameter. It is mainly used for observing relatively bright objects. Both the INT and the JKT were first operational in May 1984.

The Isaac Newton Group operates the telescopes on behalf of the Particle Physics and Astronomy Research Council (PPARC) of the United Kingdom and the Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO) of the Netherlands.

The following table shows each telescope's location:

	Latitude	Longitude	Ground Floor Height
WHT	28° 45′ 38.3″ N	17° 52′ 53.9″ W	2,332 m
INT	28° 45′ 43.4″ N	17° 52′ 39.5″ W	2,336 m
JKT	28° 45′ 40.1″ N	17° 52′ 41.2″ W	2,364 m

The ING is located at the Observatorio del Roque de Los Muchachos (ORM), on the island of La Palma. The ORM, which is the principal European northern hemisphere observatory, is operated on behalf of Spain by the Instituto de Astrofísica de Canarias (IAC), as is the Teide Observatory on Tenerife. The operation of the site is overseen by an International Scientific Committee, or Comité Científico Internacional (CCI). Financial and operational matters of common interest are dealt with by appropriate subcommittees.

The observatory also includes the Carlsberg Meridian Telescope, the 3.6m Italian Galileo National Telescope, the 2.5m Nordic Optical Telescope, the 60cm telescope of the Swedish Royal Academy of Sciences, the 50cm Swedish Solar Telescope, the 45cm Dutch Open Solar Telescope, and the German High Energy Gamma-Ray Array.

The observatory occupies an area of 1.89 square kilometres approximately 2,350m above sea level on the highest peak of the Caldera de Taburiente National Park, in the Palmeran district of Garafía. La Palma is one of the westerly islands of the Canary Archipiélago and the Canary Islands are an autonomous region of Spain.

The site was chosen after an extensive search for a location with clear, dark skies all the year around. All tests proved that the Roque de Los Muchachos is one of the best astronomical sites in the world. The remoteness of the island and its lack of urban development ensure that the night sky at the observatory is free from artificial light pollution. The continued quality of the night sky is protected by law. The mountain-top site has a remarkably stable atmosphere, owing to the local topography. The mountain has a smooth convex contour facing the prevailing northerly wind and the air-flow is comparatively undisturbed, allowing sharp and stable images of the night sky. The site is clear of cloud for 90 per cent of the time in the summer months.

The construction, operation, and development of the ING telescopes is the result of a collaboration between the United Kingdom and the Netherlands. The site is provided by Spain, and in return Spanish astronomers receive 20 per cent of the observing time on the telescopes. A further 75 per cent is shared by the United Kingdom and the Netherlands. On the JKT the international collaboration embraces astronomers from Ireland and the University of Porto (Portugal). The remaining 5 per cent is reserved for large scientific projects to promote international collaboration between institutions of the CCI member countries.

Many of the state-of-art telescope and instrument components are custom-built. New instruments are designed and built by technology groups in the United Kingdom, the Netherlands, and Spain, with whom the ING maintains close links, and by astronomers and engineers working at ING.

THE INTERNATIONAL AGREEMENTS

The international agreements by which the Roque de Los Muchachos and Teide Observatories were brought into existence were signed on La Palma on 26 May 1979. The participant nations at that time were Spain, the United Kingdom, Sweden and Denmark. Later other European countries also signed the agreements. Infrastructural services including roads, communications, power supplies as well as meals and accommodation facilities have been provided by the Spanish side. In return for the use of the observatory and its facilities all foreign user institutions make 20 per cent of time on their telescopes available to Spanish observers. Representatives of the participant institutions meet together as the International Scientific Committee, or Comité Científico Internacional (CCI).

The inauguration of the Canary Islands observatories took place on 29 June 1985 in the presence of the monarchs and members of the Royal Families of five European countries, and the Presidents of another two.

THE PPARC-NWO ING BOARD

The PPARC and the NWO have entered into collaborative agreements for the operation of and the sharing of observing time on the ING telescopes. The ING Board has been set up to oversee the operation of this agreement, to foster and develop collaboration between astronomers of the United Kingdom and the Netherlands and to ensure that the telescope installations are maintained in the forefront of world astronomy. In particular, the ING Board oversees the programme of instrumentation development, determines the programme of operation and maintenance of the installations, approves annual budgets and forward estimates and determines the arrangements for the allocation of observing time.

TELESCOPE TIME AND DATA OWNERSHIP

Spain has at its disposal 20 per cent of the observing time on each of the three telescopes. It is the responsibility of the IAC to make this time available to Spanish institutions and others, via the Comité para la Asignación de Tiempos (CAT).

A further 5 per cent of the observing time is for international collaborative programmes between institutions of the CCI member countries. It is intended that this time be used for the study of one, or a few, broad topics each year by several telescopes. This time is allocated by the CCI.

The remaining 75 per cent of the time is distributed as follows. The PPARC and NWO share the time on all three telescopes with 80 per cent being allocated to PPARC and 20 per cent to NWO. The PPARC-NWO ING BOARD has delegated the task of time allocation to astronomers to the PPARC Panel for the Allocation of Telescope Time (PATT) and the NFRA Programme Committee (PC), which have set up procedures for achieving the 80 : 20 ratio whilst respecting the separate priorities of the United Kingdom and Dutch communities. The PPARC has made 27 nights per year of its share on the JKT available to the National Board of Science and Technology of Ireland (NBST) and the Dublin Institute for Advanced Studies (DIAS). The Irish Advisory Committee for La Palma set up by the two Irish Institutions has decided that JKT proposals by Irish astronomers should also be submitted to PATT. Irish astronomers are not however discouraged from applying for use of the other telescopes of the ING. In a similar way, the University of Porto (Portugal) has 28 nights of observing time on the JKT and access to the INT and WHT under open competition with other astronomers.

PATT includes representatives from the Republic of Ireland and Portugal. All the above agreements envisage that observing time shall be distributed equitably over the different seasons of the year and phases of the Moon.

Notwithstanding the above, any astronomer, irrespective of nationality or affiliation, may apply for observing time on the ING. Astronomers who are working at an institute in one of the partner countries should apply through the route appropriate to their nationality or the nationality of their institute.

Time is allocated in two semesters, from 1 February to 31 July (semester A) and from 1 August to 31 January (semester B). The corresponding closing dates are the end of September and March respectively. Decisions on time allocations are made on the basis of scientific merit and technical feasibility of the proposed observations.

The PPARC-NWO ING Board and the CCI have decided that ING policy is that data belongs exclusively to those who collected it for a period of one year, after which it is available in a common archive for all astronomers. It may be used at any time for engineering or instrumental investigations in approved programmes carried out to improve facilities provided at the observatory.

Service observations which are made by support astronomers at the request of others are similarly treated. However, calibration data may well be used for more than one observation and may therefore be available in common to several groups. It may happen that identical or similar service observations are requested by two or more groups. Requests which are approved before the data are taken may be satisfied by requiring the data to be held in common by the several groups. It is up to them how they organise themselves to process, analyse, relate to other work, and eventually publish the data.

Requests for observations from programmes already executed on the telescopes should be referred to the original owners of the data, and/or to the data archive. This is the policy whether or not the data were obtained by PATT, NFRA PC, or CAT scheduled astronomers, or by service requests.