Chapter 3

USE OF OBSERVING TIME AND SCIENTIFIC PRODUCTIVITY

USE OF TELESCOPE TIME

The available observing time on the ING telescopes is allocated between British, Dutch and Spanish time allocation committees, the CCI International Time Programmes (ITP), service and discretionary nights, and scheduled stand-down and commissioning time.

The ING Board has delegated the task of time allocation to British astronomers to the PPARC Panel for the Allocation of Telescope Time (PATT), and to Dutch astronomers to the NFRA Programme Committee (PC). It is the responsibility of the Instituto de Astrofísica de Canarias (IAC) to allocate the Spanish time via the Comité para la Asignación de Tiempos (CAT). For committee membership see Appendix I.

The PPARC made 27 nights per year of its share on the JKT available to the National Board of Science and Technology of Ireland and the Dublin Institute for Advanced Studies, until the JKT was taken out of service on August 1st, 2003.

The aim of the ING service observing programme is to provide astronomers with a way to obtain small sets of observations, which would not justify a whole night or more of telescope time. For each telescope and instrument several nights per month are set-aside especially for this purpose. During those nights, ING support astronomers perform observations for several service requests. As a result of the budget reductions, the service programme is now only active on the WHT.

Stand-down, commissioning and discretionary nights are used for major maintenance activities, commissioning of new instruments, minor enhancements, calibration and quality control tests, etc., and partly for astronomy, for example, as compensation for breakdowns or for observations of targets of opportunity.

The way the available observing time on the ING telescopes has been shared in 2002 and 2003 is summarised in Table 1.

	WHT		INT		JKT	
Time Allocation	**2002**	**2003**	**2002**	**2003**	**2002**	**2003**
UK PATT	156	159	125	134	175	90
NL PC	43	52	34	45	46	29
SP CAT	76	93	85	101	83	54
UK/NL WFS	—	—	60	50	—	—
ITP	10	—	17	—	16	—
Service	33	21	25	9	13	—
Instrument Builder's Guaranteed Time	4	—	—	—	—	—
Discretionary	43	40	19	26	32	8
Total	365	365	365	365	365	181

Table 1. Allocation of nights from Semester 2002A to 2003B. UK PATT allocation on the JKT includes Irish time. Service nights include UK and NL service time, and SP CAT time includes Spanish service time. Discretionary time includes all nights used for commissioning, maintenance, and stand-down activities. The JKT stopped operating in August 2003.

USE OF INSTRUMENTATION

Figure 1 shows the allocation of nights per instrument on the WHT in 2002 and 2003. As in previous years, the ISIS spectrograph and polarimeter was the most popular instrument, taking up some 30 to 40% of the scheduled observing time. These years, the visiting instruments have had a major impact, and the INGRID infrared camera and the AF2 fibre spectrograph enjoyed much interest.

Visiting instruments on the WHT during this period include the SAURON integral field spectrograph, the Planetary Nebula Spectrograph PN.S, the high-speed multi-CCD camera ULTRACAM, and the IR multi-object spectrograph CIRPASS.

On the INT, dark time periods were almost exclusively used for CCD imaging with the Wide Field Camera (over all nights: 69% and 81% for 2002 and 2003 respectively). The rest of the time was for the use of the IDS spectrograph (31% and 19%). Since decommissioning of IDS in August 2003, the INT became solely dedicated to wide field imaging programmes.

The JKT was a single instrument telescope for CCD imaging during the reporting period.

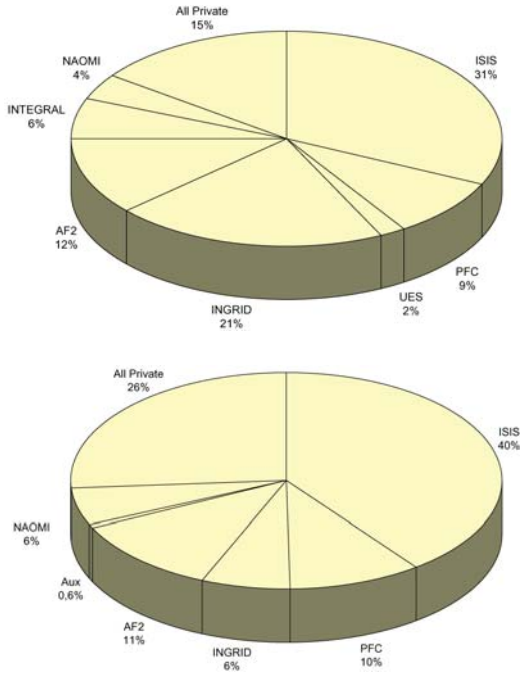

Figure 1. Above: Use of instrumentation in semesters 2002A and 2002B on the WHT. All private includes ULTRACAM, PN.S and SAURON. Below: The same for semesters 2003A and 2003B. Commissioning nights are excluded. All private includes ULTRACAM, SAURON, PN.S, INTEGRAL, CIRPASS.

TELESCOPE RELIABILITY

During the year 2002 and 2003 the ING telescopes again performed very well, with downtime figures due to technical problems averaging at 2.6%, 1.1%, and 1.7% in 2002 and 2.3%, 1.0% and 2.7% in 2003 on the WHT, the INT, and the JKT respectively. These figures meet the target value of a maximum of 5% technical downtime. Down time due to poor weather averaged 26% in 2002 and 23% in 2003. The historical trends of technical down time and weather down time by semester are plotted in Figures 2 and 3. Figure 4 shows the seasonal average.

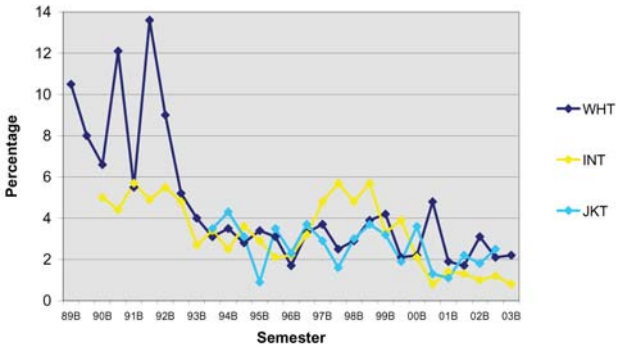

Figure 2. Technical downtime per semester.

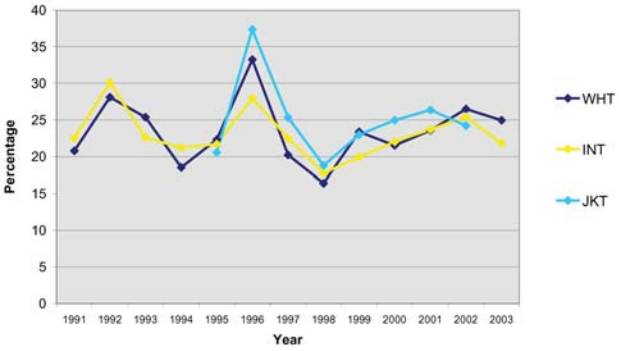

Figure 3. Weather downtime per year.

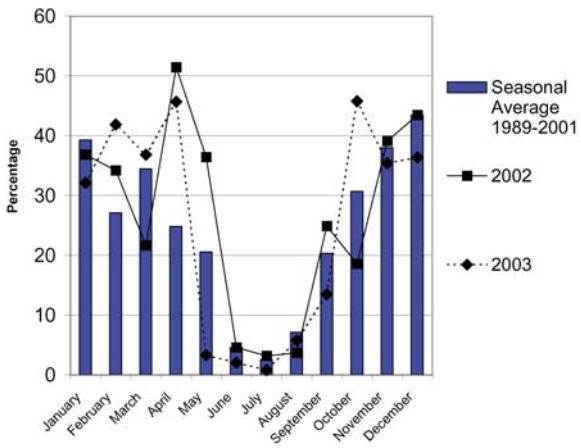

Figure 4. WHT monthly weather downtime.

SCIENTIFIC PRODUCTIVITY

An important metric of the success of the ING telescopes is the number of publications published in refereed journals and for this reason the ING bibliography (see Appendix E) is updated annually. Traditionally, this bibliography has been compiled by visually scanning all articles in many journals and identifying those which make use of data from our telescopes. However most journals are now published electronically and often have quite sophisticated search engines associated with them and it is therefore appropriate to conduct the search with the help of these facilities.

Our selection process identifies papers that make direct use of observations obtained with the ING telescopes, in order to qualify. Papers that refer to data presented in earlier papers (derivative papers) are not counted.

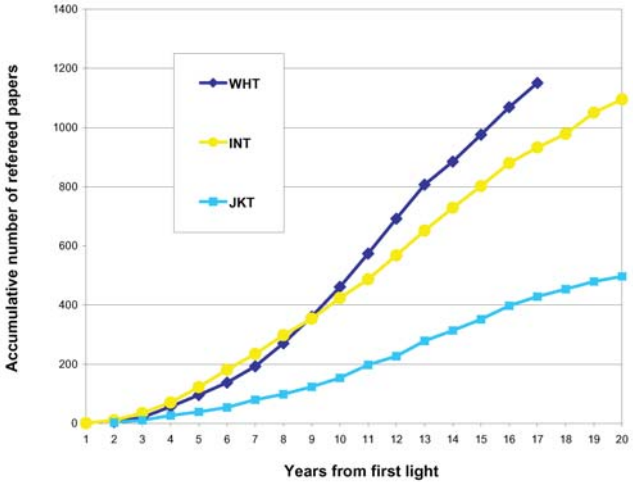

Figure 5. Accumulative number of refereed papers per telescope from first light.

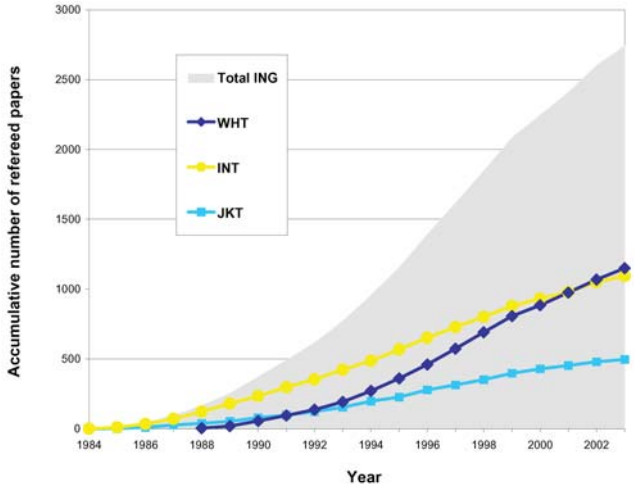

Figure 6. Accumulative number of refereed papers per year.

When we analyse ING publications for the five years between 1995 and 1999 inclusive it can be seen that more than 95% of articles are published in a small number of core journals. These core journals consist of the British journal *Monthly Notices of the Royal Astronomical Society*, the American journals *Astrophysical Journal*, *Astrophysical Journal Letters*, *Astrophysical Journal Supplement Series*, *Astronomical Journal* and *Publications of the Astronomical Society of the Pacific*, plus the European journal *Astronomy and Astrophysics* (including the now defunct *Astronomy and Astrophysics Supplement Series*). We also include *Nature* and *Science* as core journals due to their perceived high impact. Journals making up the remainder of publications are widely spread among such journals as *Icarus* and the *Irish Astronomical Journal* to name a few. The bibliography for the years 2002 and 2003 was compiled from only the core journals listed above for reasons of efficiency (up until the year 2000 a wider search was conducted which partly explains the drop in publications). Search engines were used to select papers and the resulting list of papers visually inspected to ensure that they satisfied the selection criteria described above.

An analysis of these numbers follows (see Figures 5–8 and Table 2). Note that if a paper makes use of more than one telescope we count that paper for each telescope. Also, concerning perceived nationality we use the nationality of the first author's institution although in a few cases two institutions are credited. Similarly, if

Year	WHT	INT	JKT	Total
1984	—	1	—	1
1985	—	10	3	13
1986	—	24	8	32
1987	—	36	16	52
1988	5	52	12	69
1989	15	58	15	88
1990	37	54	26	117
1991	39	63	19	121
1992	42	56	25	123
1993	55	70	30	155
1994	78	63	44	185
1995	90	81	29	200
1996	100	84	52	236
1997	113	77	35	225
1998	118	72	38	228
1999	115	78	46	239
2000	78	53	31	162
2001	91	46	25	162
2002	93	72	26	191
2003	82	44	17	143
Total	1151	1094	497	2742

Table 2. Number of refereed papers per year and telescope.

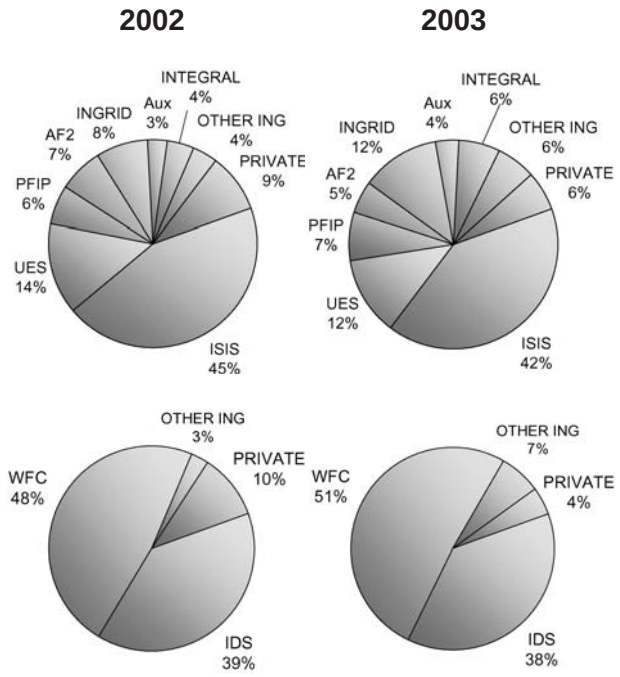

Figure 7. Top: Use of instrument data in WHT papers. Bottom: Use of instrument data in INT papers.

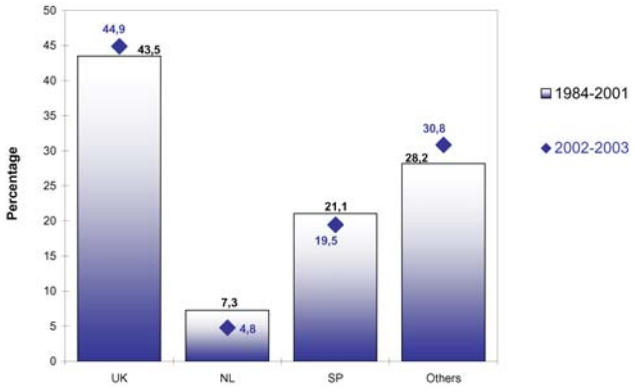

Figure 8. ING's paper authorship.

a paper makes use of more than one instrument, that paper is counted against each instrument.

Of all the available instruments on the WHT, the ISIS spectrograph remains the most productive instrument, with 42% of all publications during the reporting period. In 2003 INGRID became the second most productive instrument. The number of papers from visitor instruments on the WHT also remained significant, with 14 papers over two years.

On the INT the papers are split very evenly between IDS spectrograph and the Wide Field Camera as might be expected from the split of observing time between these instruments, roughly 50–50.

Concerning the nationality of the first author's institution, there is little change, at least considering the fluctuations from year to year. The UK share is steady around 45%, and the Spanish share about 20%. The NL share also showed little systematic change. Interestingly, about one third of the papers have a first author from other countries, emphasising the international character of the observatory and the high level of international collaboration between research groups.

THE ING ARCHIVE

All data taken with the ING telescopes is archived in the UK, at the Institute of Astronomy, Cambridge. The data archive is managed by the Cambridge Astronomy Survey Unit.

Archival data from the ING telescopes is made available to anyone upon request, after a one-year proprietary period. The number of archive retrieval requests has remained high over the past two years, with over 500 requests per year, for retrieval of more than 40,000 data sets. The historic trend of the archive requests can be seen in Figure 9. This level of archive use underlines the importance of the ING archive as a general tool for astronomy research.

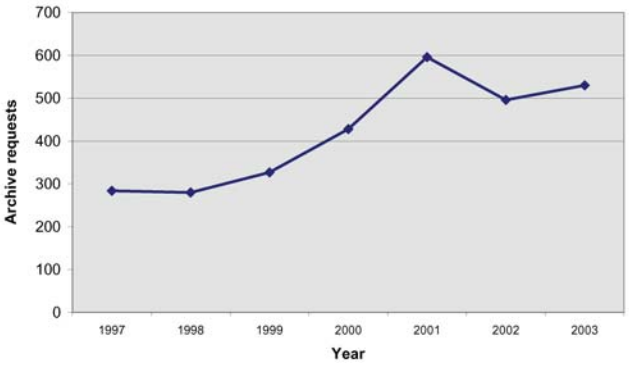

Figure 9. Number of ING archive requests.