

OPERATIONS

National Facility Support

The AT National Facility Support Group, located in Marsfield, provides support for public relations activities, communications, educational programs and time assignment processes.

Staff changes

In February 2001, Dr John Whiteoak retired from the ATNF after a highly distinguished career. He first joined the CSIRO Division of Radiophysics in 1965 and was the Project Secretary during the construction of the Australia Telescope. From 1989 until his retirement in 2001 he was the Deputy Director of the Australia Telescope. John's many contributions include three years as Officer-in-Charge at Narrabri, an immense scientific output, many former students who have gone on to become professional astronomers, and an outstanding role with the International Telecommunication Union. To honour his career a scientific symposium was held at the ATNF in Marsfield on 7 February 2001.

Photo: John Masterson



Dr John Whiteoak

Higher-degree students

Education is one of the ATNF's key performance indicators. ATNF staff members participate in a long-standing program to co-supervise higher-degree (Masters and PhD) students. This arrangement gives students access to world-class observing facilities and the chance to interact with a range of practising astronomers. At the end of 2001, 25 students were taking part in the program: their projects are listed in Appendix H. Four students completed their PhDs during the year: their theses are listed in Appendix G.

Most of the higher-degree students undertake studies in astronomy, but the ATNF also offers higher-degree projects in areas of engineering such as microwaves, digital and electronics, and in computer-related topics.

Summer vacation program

For more than a decade the ATNF has coordinated a program each summer for undergraduates in science, mathematics, computing and engineering who have completed at least three years of their degree. The students work on individual research projects under the supervision of research scientists for 10 to 12 weeks. During this time they experience the working environment of a major research facility. A number of former vacation students have later returned to the ATNF, either as employees or to do a co-supervised higher degree.

For the 2001/2002 program there were 234 applications for 22 positions, 10 with the ATNF (two of these at the Narrabri Observatory) and 12 with CTIP. The program included a series of introductory lectures, tours of the CSIRO Marsfield and Lindfield laboratories, and a weekly session where a staff member talked on a research topic.



2001/2002 ATNF summer vacation students

Photo: Shaun Amy

A highlight of the program was an observatory trip where the students visited either the Parkes radio telescope (with Naomi McClure-Griffiths) or the Australia Telescope Compact Array (with Bob Sault) and worked in small teams to take observations with the radio telescopes. A one-day symposium, organized by the vacation students, was held at the end of the program with a presentation given on each of the research projects.

Work experience students

Each year, typically 30 school students do a week of work experience at either the Parkes Observatory or at the Compact Array. The students are assigned to staff members, and help visitors with observing or work in the Visitors Centres.

ATNF photoarchive

The ATNF historic photographic archive dates from 1939 and comprises over 100,000 individual negatives or slides, and associated prints. The collection includes photographic records of the people involved in Australian radio astronomy, key events, radio telescopes and field stations, space missions, engineering achievements and commercial work.

In 2001, a thorough assessment was made of the contents of the collection. This involved the careful examination of many thousands of images to determine which images are worth retaining. Approximately 50% of the images were identified as being of significant historical interest.

As part of the collection has been deteriorating, in October 2001 it was relocated to a purpose-built room in Marsfield, where the temperature and relative humidity are maintained at suitable levels



This photograph taken in 1952 shows the World War II Georges Height radar antenna installed at the CSIRO Potts Hill field station. In 1951 this antenna was used for the first Australian observations of neutral hydrogen.

for ongoing conservation. As the next stage of the project, in 2002 the most historically significant photographic negatives and prints will be scanned so that the images are available as a digital image-library database. The archive is being developed as a resource for those researching the history of Australian astronomy and for exhibitions, education and public relations.

Public outreach

The ATNF supports a wide range of public outreach activities. Some statistics relating to the public relations activities are shown in Figures 7 and 8 (page 17). Here we describe some of the major public relations events that took place during the year.

ATNF Open Day at Marsfield

The ATNF, in conjunction with CTIP, held an Open Day at the Marsfield site on 24 November 2001. The day was a great success with well over a thousand members of the public wandering through the laboratories, admiring our displays and chatting to astronomers and engineers.

In feedback, visitors revealed that they greatly enjoyed themselves and considered that they learnt a great deal about the ATNF and CTIP, and also about CSIRO in general. In particular, the tours of the ATNF receiver laboratories and the Square

Kilometre Array exhibit were big hits with the Open Day visitors. Other exhibits featured remote observing with the ATCA, an “astronomer’s corridor”, the history of the Parkes radio telescope and an area where visitors could ask an astronomer questions about astronomy.

Parkes 40th Birthday

On 1 November 2001 the Observatory commemorated 40 years of unbroken scientific achievement with a half-day symposium “Parkes: 40 years of scientific excellence”, held at the Visitors Centre. Over a hundred ATNF staff, retirees and invited guests heard a program covering the entire life of the telescope, from recollections of the early days to signposts for future directions, but with particular emphasis on recent scientific highlights in HI and pulsar work. The wide-ranging program was reflected in the span of ages and diversity of presentation styles of the six invited speakers. There was unanimous agreement from all who attended that the symposium was an outstanding success.

At the conclusion of the symposium, special guest of honour Lettie Bolton, widow of the Observatory’s first Director, took part in a small ceremony officially naming the tree-lined avenue from the telescope to the Observers’ Quarters as the John Bolton Avenue.



Photo: Shaun Amy

Roopesh Ojha, a postdoctoral fellow at the ATNF, talking to a visitor at the ATNF Marsfield Open Day



Photo: John Sarkissian

Mrs Lettie Bolton (left) with ATNF Bolton fellow Naomi McClure-Griffiths (right)

In recognition of the important role played by the Observatory in the local community over the last four decades, the Mayor of Parkes, Cr Robert Wilson, presented the Observatory with a fine engraved clock. All then adjourned for an excellent dinner in a marquee set up adjacent to the Visitors Centre. Informal presentations from Peter Churchill and Mike Dinn, the current and former Directors respectively of Tidbinbilla, and recollections from many older members of the party, including Bruce Slee and Lettie Bolton, concluded a most memorable and enjoyable day.

Parkes Observatory Open Weekend

On 3 – 4 November 2001, the Observatory held an Open Weekend. Several special activities were provided to entertain and educate interested members of the public on the history and important continuing research work of the Observatory. Foremost among these were the telescope tours, proving just as popular as they did on the last Open Weekend in October 1998. Some 1,800 people were conducted through the tower over the two days, a figure which is evidently close to the physical limit, given the genuine curiosity and wonder shown by the public in the details of the telescope and consequently their reluctance to be rushed through too quickly! Special thanks go to Professor Matthew Bailes, Haydon Knight and Jamie Stevens for not only attempting stoically to

maintain normal observing throughout both days, but explaining their work so clearly and patiently to the endless procession of visitors.

Astronomy lectures and the “meet an astronomer” marquee were also very popular. For the more adventurous, a local charter company ran helicopter joyflights over the telescope throughout both days, a novelty deemed a great success on all sides.

A highlight of the weekend was an outdoor screening of the movie *The Dish*, held on the Saturday night in a paddock adjacent to the dish. (For the historically minded, the projector screen was mounted on the frame of the long disused 408-MHz calibration horn.) With a barbecue provided by Rotary of Parkes prior to the screening, an estimated audience of 600 from far and wide settled back and enjoyed the film on a beautiful evening with the illuminated 64-metre telescope as the backdrop. As if on cue, the moon rose behind the screen halfway through the film—a truly magical moment! Many letters appeared subsequently in the local papers pronouncing the evening a tremendous success, and requesting it become a regular event.

In all over 3,000 people visited the Observatory over the weekend. Most stayed for several hours, and the feedback from visitors was entirely positive.

New Visitors Centre for the Parkes Observatory

The long-awaited official opening of the upgraded Parkes Visitors Centre and grounds took place on 24 March 2001, attended by local and visiting dignitaries, and with CSIRO's new Chief Executive Geoff Garrett performing the honours.

The new centre has double the floor-space of the old, with greatly increased space for exhibits, shop and audio-visuals. The new entrance to the Centre complements newly landscaped grounds to present a welcoming and attractive face to visitors. The new design features a dedicated audio-visual theatre and lecture room specifically designed to encourage visits from school groups. Many new and upgraded displays have been introduced to the Visitors Centre, mainly through the efforts of Helen Sim and Lucia Bromley-Gambaro. Fabulous video footage of the construction of the telescope and of the Apollo 11 mission, extracted from deep within the archives, is a great new feature. Improving and adding to the exhibits is the focus for activity in the short-term future, with emphasis on more interactive displays a priority for 2002.



Photo: John Sarkissian

CSIRO Chief Executive Dr Geoff Garrett, opening the Parkes Visitors Centre



Photo: John Sarkissian

Rick Twardy, Manager of the Parkes Visitors Centre

The Centre now boasts two new audio-visual shows. The first was produced for the ATNF by the Australian Business Theatre, using the same multiple slide projector format as the original, and was premiered in August 2000. Response to this show has been excellent, both in feedback and in increased attendance. After the formal Opening Ceremony in March 2001, the Visitors Centre premiered a new three-dimensional virtual reality tour of the Solar System entitled *The Sun—What a Star*. This show, produced by the Swinburne University of Technology's Astrophysics & Supercomputing group, complements the more traditional program of the slide show very nicely, and is also proving to be a crowd-pleaser. Visitors are also able to roam the grounds and inspect a number of new outdoor exhibits. The opening of the Discovery Centre was well timed: since the release of the film *The Dish* in October 2000, the Parkes visitor numbers have more than doubled.

Computing

Marsfield computer services

The information technology (IT) infrastructure at the CSIRO Marsfield site is managed by the computer services group (CSG), CTIP, while ATNF-specific tasks such as astronomical software and user support are managed by the ATNF. There were no staff changes to the CSG in 2001.

Observatory Computer Committee and Computerfests

Computer staff at each of the three main ATNF sites report to a local program leader. Coordination across the sites is performed by a four-person Observatory Computer Committee (OCC). This holds three meetings per year, rotated between the sites.

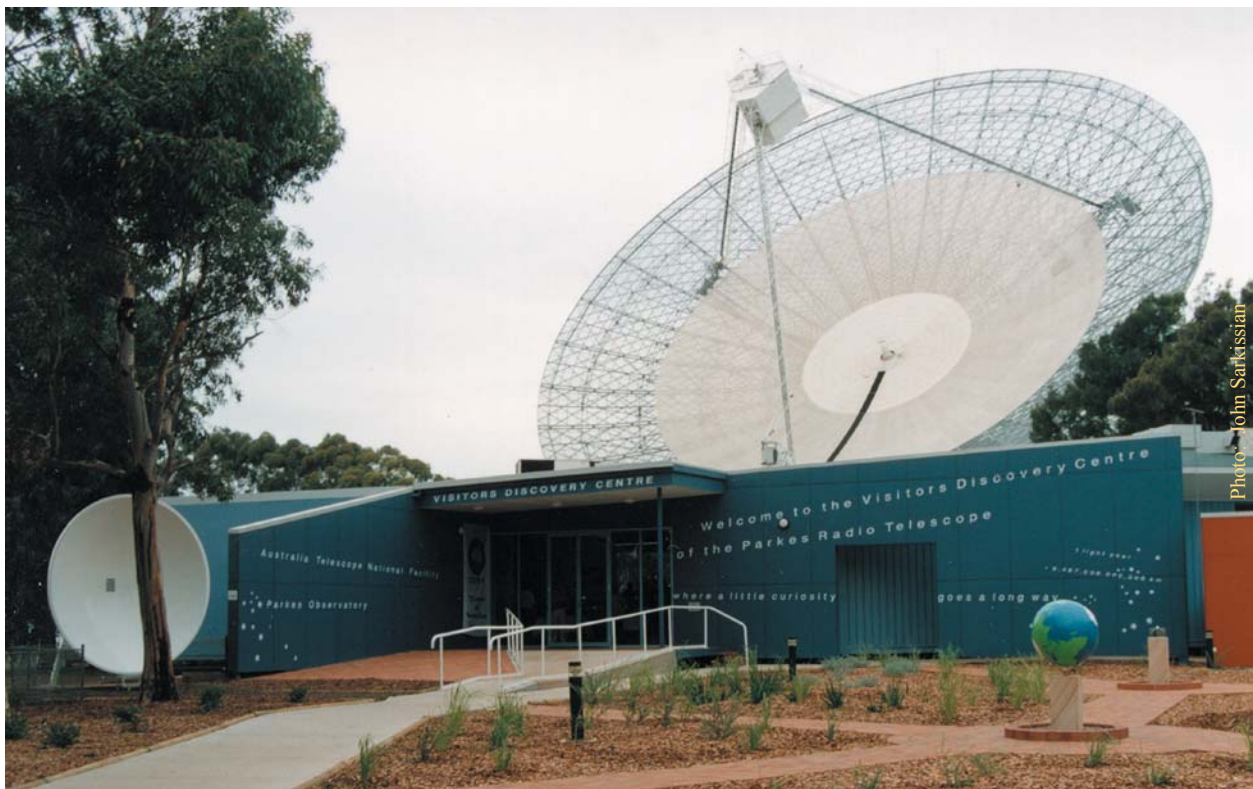
“Computerfests” are held in association with the OCC meetings. These gather together many ATNF staff working in computing related areas. The Computerfests provide a forum for staff who might

not otherwise meet each other to discuss common interests and this helps coordinate the computer developments between the sites.

Unified email

In 2001 CSIRO experienced significant change in its IT infrastructure. Most visible to staff was the “unified email project”. The main aims of this project are that all CSIRO users will have their email boxes on Exchange servers which communicate with a small set of email “clients”. This process allows email users to read standard email attachments and provides other collaboration tools. As part of this project, all CSIRO email addresses now have a standard form—Firstname.Lastname@csiro.au. The ATNF now supports the email clients Outlook (which is used by the majority of CSIRO staff), Netscape and Pine.

To manage the change to unified email required substantial resources from the CSG and other ATNF IT staff. The transition went reasonably



The Visitors Discovery Centre at the Parkes Observatory

smoothly, although there were some initial disruptions, in particular from “lost” emails. The transition, for many staff, from the mail client Eudora to Outlook also caused some initial problems.

Nexus authentication

Authentication domains are used to check the user names and passwords of computer users. Another significant IT-related change which began in 2001 is that CSIRO is moving to a single authentication domain, called “Nexus”. For this domain, staff and visitors will log in using a CSIRO identification code as their username. Nexus computer accounts currently require that human resources staff allocate the CSIRO identification codes while IT staff allocate the computer accounts. This process will be streamlined in future.

aips++ development

aips++ is an object-oriented data processing environment being constructed by an international consortium of leading radio astronomy observatories. Four ATNF staff members contribute to the development of core aips++. ATNF also uses aips++ as its toolkit for the development of the successful multibeam pipeline software. In 2001 the project continued to have a development cycle of six months, with a new software release at the end of each cycle. The aips++ software is distributed to approximately 10 institutions in Australia.

At a synthesis workshop held in Narrabri in September 2001 (page 42), practical aips++ sessions were held for students so that they could learn how to use the toolkit structure. These sessions were well received. In addition, some of the 2001/2002 summer vacation students used the aips++ toolkit to good effect as the basis for their software development.

ATCA polarization data can now be fully calibrated in aips++. An ATCA-specific calibration tool is being developed to make this as simple as it is useful.

The aips++ team has also been working closely with members of the ALMA project as they evaluate whether to use aips++ as their main data processing environment. This work has proceeded well and aips++ has successfully delivered what has been requested of it so far. A final decision is yet to be made.

Spectrum management

CSIRO, initially through the Division of Radiophysics and later through the ATNF, has been involved in activities related to spectrum management and the protection of radio astronomy for about 30 years. Following John Whiteoak’s retirement in 2001, Tasso Tzioumis has taken over responsibility for these activities. The areas in which the ATNF are currently involved include:

- ◆ Participation in national spectrum planning and protection activities through the Australian Communications Authority (ACA).
- ◆ Participation in regional and international meetings under the auspices of the International Telecommunication Union (ITU). These include regular meetings of ITU Study Group 7 (Science Services).
- ◆ Participation by the ATNF Director in the Working Party meetings of the OECD megascience forum where an international task force is being set up to investigate radio-frequency interference and protection measures.
- ◆ Participation in IUCAF (Inter-Union Commission for the Allocation of Frequencies), an inter-union committee of the IAU, URSI and COSPAR. IUCAF provides a scientific committee and frequency allocations for radio astronomy and space science.
- ◆ In August 2001 a new committee, the Radio Astronomy Frequency Committee in the Asia Pacific Region (RAFCAP) was formed to co-ordinate the spectrum management activities in the region. Tasso Tzioumis is the secretary for this committee.

Equal Employment Opportunity

The ATNF has an active EEO group with five EEO contact officers. Two are based in Sydney, two are at Narrabri and one is at Parkes. Staff at any of the sites can contact any of the EEO officers and are assured that all discussions will be held in confidence. The EEO officers meet several times a year and work to promote good workplace relations, to provide information and advice to staff and management on EEO policies, and to support staff involved in complaints procedures. To promote EEO within the ATNF, staff talks are given at each of the ATNF sites. EEO talks are also given to summer vacation students and to new staff. The group has an EEO resource library and maintains extensive Web pages at

<http://www.atnf.csiro.au/management/hr/eoo>.

Occupational health and safety

Each ATNF site has its own occupational health and safety committee, which meets at least four times a year to review issues and identify any new hazards. Each workplace is assessed annually by a member of the local committee, and a formal report made. Training programs in a number of areas (e.g. training for supervisors, ergonomics, correct lifting techniques, electrical safety and defensive driving) are offered throughout the year.

Over a number of years the ATNF's rate of occupational health and safety incidents has been in line with that of similar institutions, such as the Anglo-Australian Observatory and the Very Large Array. In 2001 the ATNF recorded a total of 16 incidents with a total time lost of 26.2 weeks. The standardized incidence rate of 13 incidents per 100 full-time equivalent employees was slightly below the rate for all of CSIRO.



Photo: John Sarkissian

The Parkes Radio Telescope