

To: ATUC
From: Philip Edwards
Date: 19 October 2006
Subject: ATCA/Mopra operations report

Narrabri Staff

Dion Lewis's term as Mopra Support Scientist finishes at the end of October, and Dion will then be turning his attentions to completing his PhD. Dion has done a great job easing the way for observers through the introduction of MOPS, changes to TCS, and the introduction of remote observing, readily fielding answers to calls at all hours of the day and night, and we wish him all the best for the future. The future of the Mopra Support Scientist position is being considered as part of the on-going ATNF Operations Review. There is no doubt that support for Mopra observers is needed — one possibility is that a position will be advertised for a Millimetre Support Scientist to provide support for both Mopra and ATCA observers. The contributions of Tony Wong and Juergen Ott to mm observing at the ATCA and Mopra are also greatly acknowledged.

ATCA Issues

The Narrabri Observatory Open Day was held on Saturday, July 29th and the 7th ATNF Synthesis Imaging School was held from September 18th to 22nd. The tremendous efforts of ATNF staff from all sites ensured both events were great successes.

Generator/mains power synchronisers are now fitted to all antennas at the ATCA and Mopra. These allow seamless transfer of power between the mains and the generator for planned running such as during reconfigs and maintenance without affecting the cryogenic systems. They cannot protect against an unplanned loss of power, but will synchronise back after the mains returns preventing unnecessary power interruptions.

The (UPS) Uninterruptible Power Supply on CA01 was recently replaced as part of an on-going program to replace units which are no longer supported by the manufacturer with newer models. The next UPS replacement will probably take place during the array shutdown in late March/early April 2007 for the 7mm receiver installations.

The degraded 3mm performance of CA05 earlier in the mm season was ultimately traced to subsidence and cracking of the foam plug at the top of the feed horn. Replacement of the plug restored the performance of the receiver to its previous level, and a new material has been sourced for fabricating these plugs in the future.

The main observing computer, ellen, has been replaced by a new pair of linux machines named skull and xbones. All scheduling files and tasks were moved to xbones in October and the VAX machines noel and leon will no longer be relied upon. Schedule files are now made by ssh-ing to the atcaobs account on xbones and running atcasched, the linux version of the sched program that ran on leon and noel. The ATCA webpages have been updated to reflect these changes, and a new version of the Users Guide has been produced. It has been observed that there is a lot of duplication of information in the Users Guide, Guide to Observations, and ATCA web pages: in the future there will be an effort to consolidate these into a single resource, so that updates can be more easily and uniformly made.

Mopra Issues

It is pleasing to note that there were a number of observing proposals submitted for Mopra in the Oct06 semester, and as a result, Mopra observing will continue into early December this year. This is undoubtedly due to the availability of MOPS, which was installed in May and has undergone several upgrades in subsequent months.

The launch of the CLOUDSat satellite in April has introduced a potentially powerful source of RFI in the 3mm band. An automated warning system has been set up to alert observers to impending passes of CLOUDSat over Mopra and the ATCA.

With the arrival at the end of July of the long-awaited giga-bit links connecting Narrabri and Mopra with Epping, Mopra remote observing from Narrabri has become the default mode of operation. The experience of observers to date has been overwhelmingly positive, with the staff support, catered accommodation, and other amenities available at Narrabri all being appreciated. The ability to step outside and get a feel for the weather has naturally been lost, but the on-line monitoring, including the Mopra webcams and Siding Spring cloud camera, are generally agreed to provide the required level of information. It has been noted that accommodation at Narrabri is more expensive than the (self-catering) accommodation at Mopra, and the possibility of providing a self-catering option for observers at Narrabri is being considered.

Remote observing from Narrabri will continue to be the default for this year. As was the case for remote observing with the compact array, remote observing from Epping will be introduced first, with remote observing from other sites likely to be considered further into the future.

7mm upgrade

The prototype trial 7mm receiver was installed on CA06 in August during the split array period and found to perform in line with expectations. CA06 still has perforated panels in the outer two rings of the dish, and it is planned to perform holography of the surface in November in order to tweak its performance. Also related to the NASA contract is the no-blank modification to the phase and sampler rotators. These boards are now in production and will be installed across the array. The 7mm receivers are planned to be installed over a three week shutdown of the array from March 26th through to April 13th. As the conversion boxes will be taken off in advance, nominally the week of January 8th (but possibly late December), no 12mm or 3mm observing will be possible between that time and the completion of the 7mm receiver installation. NASA equipment is expected to arrive in December, with JPL engineers arriving for tests in mid-January.

Infrastructure

The design of the major refurbishment/extension of the Narrabri Control Building has been completed, but unfortunately, financial pressures on CSIRO's capital investment program have resulted in the funding for the construction being delayed by at least a year. Repairs and maintenance which had been put off under the expectation the building would proceed are now being prioritised for the coming months. An planned upgrade to the air conditioning in the Lodge has also, unfortunately, had to be postponed.