

# 'A remarkable contribution to world science'

An evaluation of Australia's Antarctic science program was completed in May 2003. The evaluation was conducted by the Antarctic Science Advisory Committee (ASAC) by engaging independent teams of internationally recognised scientists from Australia and overseas who were not participants in Australia's Antarctic science program. The evaluation was overseen by a steering committee (chaired by Prof. John White, FAA, FRS) and four discipline-based subcommittees. The final report was written by ASAC and submitted to the Parliamentary Secretary the Honourable Dr Sharman Stone.

The Terms of Reference for the evaluation were:

- To evaluate the quality of the science output against the current Strategic Plan;
- To evaluate the relevance of the scientific output to the goals of the national Antarctic program as measured against the Strategic Plan;

- To evaluate the quality and relevance of the scientific output resulting from research projects supported by Australian Antarctic Science Grants (AASG);
- To evaluate the quality and relevance of the scientific output resulting from research projects ineligible for AASG funding; and
- To provide advice on areas of science that require either a greater or lesser emphasis and/or on new research endeavours to be undertaken.

The evaluation was highly complimentary of the Australian Antarctic science program – the steering committee stated that Australia is 'well served by its Antarctic science program', that it represents 'a remarkable contribution by Australia to world science', and that 'the strengths in the individual components of the program be maintained'. ASAC considered that the program successfully meets its scientific goals, a view that was supported by the steering

committee who gave a strong endorsement of the quality of the overall scientific program.

The major recommendation is that the Australian Antarctic science program shift from the current discipline-based programs to overarching Antarctic themes of great scientific merit and practical value. The steering committee identified three themes to which ASAC has added a fourth:

- Ice, Ocean, Atmosphere and Climate
- Southern Ocean Ecosystems
- Adaptation to Environmental Change
- Impacts of Human Activities in Antarctica

The recommendations within ASAC's report 'Evaluation of Australia's Antarctic Science program' have been accepted by the Parliamentary Secretary. The report is available on the AAD's web site at <http://www.aad.gov.au>.

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## Australian team recovers NASA balloon

The TIGER-ANITA long duration balloon flight, with its scientific payload, had been circling the Antarctic interior at an altitude of approximately 40 km (130,000 feet) when its trajectory moved to the north. The possibility that its track could take it over the ocean meant that the instruments and data it carried could be lost, so the NASA crew monitoring the balloon brought it to earth by remote control. Its landing site was in the Australian sector, west of the Prince Charles Mountains, south of Mawson station.

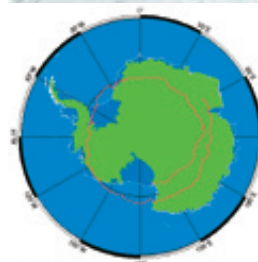
In the spirit of international collaboration, a request to assist in the retrieval of the scientific information carried by the balloon was made. Using an AAD chartered Twin Otter aircraft, a group consisting of Canadian aircrew, and Australian scientists, engineers and tradespeople were able to fulfil that request.

The information that was held on the computer drives that hung beneath the balloon was of interest to scientists researching the fabric of our universe. TIGER (Trans Iron Galactic Element Recorder) recorded the direction of arrival and the energy of cosmic rays that had atoms with weights near that of iron. ANITA (Antarctic Impulsive Transient Antenna) used up to a quarter of the Antarctic ice sheet as a neutrino detector. So there was considerable interest in retrieving the data that had been collected.

Fortuitously, the chief pilot of one of the



MIKE WOOLRIDGE



Above: Retrieving the instrumentation from the balloon's payload. Left: The balloon's track

Twin Otters that had been working out of Davis, was at McMurdo station for a few days and was able to attend a briefing on the payload and the parts that were to be retrieved. At Davis, the news of the balloon had also tweaked some interest. Studies of the stratosphere often use balloons of this type so there was considerable interest amongst the Space and Atmospheric Science staff. As it was in an exotic location, Bob Jones, the Davis station leader, had numerous people to choose from to assist in the balloon recovery.

The last known landing position of 71°45'S, 58°45'E was a few hours flying

west of Beaver Lake and at an elevation of 2.5 km. The air would be cold and thin. On approach to the site, the solar panels of the balloon's payload were easily spotted and the pilot landed the rescue team nearby.

In temperatures of -25°C the site, payload and parachute were photographed so that the scientists and engineers at NASA could study aspects of the landing. Next, the team set to work removing the computers and instrumentation that operated the balloon and its scientific experiments. After about 45 minutes, the balloon's support instrument package and the other items that were required were safely stowed in the aircraft and the team posed for some photographs.

As a result of our efforts, scientists probing the nature of the universe will be united with their data a year before it had previously been thought possible. The Australian Antarctic program has been exposed to some aspects of long distance balloon technology, and the international cooperation that is the centrepiece of Antarctic relations has been reaffirmed.

For more information go to the TIGER website: <http://tiger.gsfc.nasa.gov> or the ANITA website: <http://www.phys.hawaii.edu/~anita/>

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