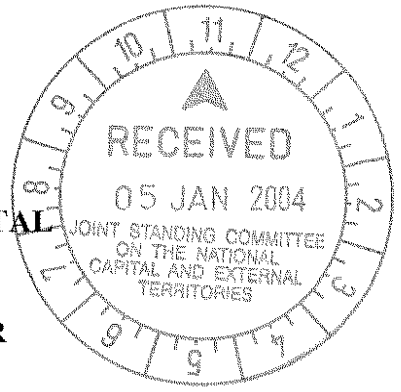
SUBMISSION 16



BUREAU OF METEOROLOGY
SUBMISSION TO
JOINT STANDING COMMITTEE ON NATIONAL CAPITAL AND EXTERNAL TERRITORIES

INQUIRY INTO THE ADEQUACY OF FUNDING FOR AUSTRALIA'S ANTARCTIC PROGRAM

The purpose of this short submission is to inform the Inquiry on the role of the Commonwealth Bureau of Meteorology in the implementation of Australia's Antarctic Program, including its funding and management.

2 The Commonwealth Bureau of Meteorology (the Bureau) was established by the Meteorology Acts of 1906 and 1955 and the Director of Meteorology carries a statutory responsibility for the discharge of Australia's meteorological (i.e. weather and climate) activities in Australia and all its territories, including Australia Antarctic Territory. As an Executive and Prescribed Agency since 1 July 2002, it is separately funded through its own Parliamentary Appropriation.

3 The Bureau operates as an integrated (observation, research, service provision) national agency and it is also responsible for coordination of Australia's international role in meteorology and related aspects of hydrology and oceanography through the programs and activities of the World Meteorological Organization (WMO), one of the Specialised Agencies of the United Nations. The inherently global interdependence of atmospheric and oceanic processes make it essential that all of Australia's meteorological operations (including those on remote islands and in Antarctica) be carried out in a closely coordinated way within the overall international framework of standards and procedures agreed through the WMO.

4 Weather and climate data collection from Antarctica and the Southern Ocean are an integral part of Australia's forecasting and warning operations and the Bureau's need for meteorological information from the Antarctic and for improved understanding of Antarctic weather and climate processes was one of the major triggers for the establishment of ANARE (Australian National Antarctic Research Expeditions) more than fifty years ago. During the 1950s and 1960s, the Bureau hosted the International Antarctic Analysis Centre (IAAC) and the International Antarctic Meteorological Research Centre (IAMRC) as a foundation for the subsequent integration of both operational and research aspects of Antarctic meteorology into the responsibilities and work programme of World Meteorological Centre Melbourne and the Bureau of Meteorology Research Centre.

5 The Bureau has, from the beginning, discharged its national and international responsibilities for Antarctic weather and climate through the ANARE framework in which its scientific responsibilities (data collection, research and service provision) are funded and managed as an integral part of the Bureau's national operations (over recent decades, via the Bureau's Regional Office for Tasmania and Antarctica, located in Hobart) but it relies fully on the logistics support of the Australian Antarctic Division (AAD) to transport its staff to and from Antarctica and to house and support them in the field as part of the integrated management of Australia's Antarctic bases. From the perspective of the Bureau, this arrangement has proved very satisfactory over the life of ANARE with consensus generally achievable amongst the ANARE agencies on the scope and timing of expeditions and on the location and staffing of permanent bases.

6 With the increase in scientific and policy focus on climate issues through the 1970s, 80s and 90s, the Bureau, in collaboration with AAD glaciologists, CSIRO oceanographers and other ANARE partners, proposed the elevation of work on the 'role of Antarctica in the global climate system' to the status of one of the key goals of the Australian Antarctic Program and this was subsequently accepted by Government. Unfortunately, this increased priority for climate work in Antarctica coincided with the beginning of sustained real reductions in Bureau appropriations and the Bureau has not been able, over the past decade, to strengthen its role in Antarctic science to the extent that is needed to do justice to this nationally and internationally important goal. It has, however, managed to maintain most of its vital ongoing data collection program at Macquarie Island (both conventional meteorological observations and ozone measurements) and to provide widely recognised international leadership, in WMO and other for a, on both operational and research aspects of Antarctic meteorology. Circa 1970 the Bureau had eight staff engaged full time on Antarctic meteorological Research. The Bureau today, operating with funding that supports 350 fewer staff throughout the organisation, has had to reduce its Antarctic research effort and give priority to basic monitoring and operational services support in the region. Our Antarctic-specific research effort today is, in aggregate, limited to around two FTE staff. Activities that the Bureau has had to forego as a result of real resource reductions include:

- Studies on wind-flow in the Antarctic boundary layer using an enhanced network of Automatic Weather Stations and Wind Profiles;
- Studies of Stratospheric Ozone Depletion through increased frequency of ozone-sondes at Davis and Macquarie Island in spring and early summer;
- Studies of sea-ice formation and decay using high-resolution satellite imagery (X-Band) received on new equipment at Casey;
- Development of improved numerical models of weather systems in the Antarctic region with particular emphasis on:
  (a) enhancing local forecasting capabilities; and
  (b) capturing the role of ice-sea-atmosphere interactions in the global climate system.

7 When the original concept of Cooperative Research Centres (CRCs) was established, the Bureau embraced the CRC mechanism as a vehicle of opportunity for channelling additional Commonwealth funding, beyond what it could commit from its own budget, into the discharge of its statutory and international meteorological responsibilities in Antarctica. While this proved helpful and the original CRC for the Antarctic and Southern Ocean Environment contributed substantially to the Bureau's capacity to perform its Antarctic role, the CRC arrangement lacked the guarantee of long term certainty of funding for data collection which is the sine qua non for important scientific work on the role of Antarctica in the global climate system as well as for Australia's essential contribution to the ongoing operation of the WMO World Weather Watch. Similarly, while the new Antarctic Climate and Ecosystems CRC will provide a useful mechanism for focussing on a number of specific scientific problems, it will be essential that it, and its successor mechanisms, be underpinned by a substantially strengthened long-term meteorological data collection and processing infrastructure in Antarctica and the Southern Ocean (islands, ships and ocean buoys).

8 The Bureau considers, therefore, that one of the key issues to be considered in assessing the overall adequacy of funding for Australia's Antarctic Program is the level of funding that can be sustained for long-term weather and climate data collection and processing through its own ongoing operations in fulfilment of it's statutory responsibilities in Antarctica.

9 In summary, the Bureau of Meteorology has major scientific responsibilities in Antarctica and relies heavily on the logistics support of the AAD to operate vital monitoring, forecasting

(and some research) programs at Casey Davis and Mawson on the continent, and at Macquarie Island in the sub-Antarctic region. Adequate funding for the AAD to provide the logistics support for those Bureau programs is, therefore, vital to their success. We sense that the AAD like the Bureau, has reached appoint where the resources available to it are not sufficient to support the scientific activities that need to be undertaken in the Antarctic region. It is in this context that we support increased funding for the AAD.

10 The Bureau would be pleased to provide more detailed information on its Antarctic operations and resource allocations if this would be helpful to the Inquiry.

23 December 2003