



Dr Geoff Love
DIRECTOR OF METEOROLOGY

REVIEW BY THE DIRECTOR OF METEOROLOGY

A YEAR OF CHANGE AND CELEBRATION

The past year has been one of significant change, with the Bureau undergoing a number of organisational, structural and technology-related changes which will contribute to a transformation in its operation over the next few years.

From 1 July, the Bureau formally commenced its new responsibilities for water information, now under the Government's Water for the Future strategy. A new Water Division was created within the Bureau, integrating both new and existing water activities in three new Branches: Water Data Management; Water Analysis and Reporting; and Water Forecasting Services. Towards the end of June a fourth Branch was added: Water Information Technology Planning and Development.

In September, the Centre for Australian Weather and Climate Research (CAWCR) was established as an equal joint research operation of the Bureau and CSIRO. Researchers from the two organisations are now working side by side to provide a coordinated approach, through a single science plan, to weather and climate research in Australia.

In the Administrative Arrangements Order approved by the Governor-General on 25 January, the Bureau of Meteorology was given responsibility for the Ionospheric Prediction Service, the financial responsibility for which was formally transferred from the former Department of Industry, Tourism and Resources in December. The Ionospheric Prediction Service was progressively integrated into the Bureau during the first half of 2008. There is a good match between the business models of the two organisations, with both being mainly government-funded, in the public interest, and providing data and information services to the community. The integration offers opportunities through synergies between related functions.

In response to the above changes to the Bureau's responsibilities, and based on advice contained in the recent Review of the Bureau of Meteorology – *Creating an Australian Bureau of Meteorology for the 21st Century* (the Review), significant reorganisation of the Bureau's management and reporting structure was undertaken. The restructure involved realignment of responsibilities at the Deputy Director (Division Head) level, refocusing of activities at the Branch level and the formal nomination of a Chief Climatologist and Chief Information Officer along with the existing Chief Financial Officer.

Finally, based on the advice of the Review, and with a view to the evolutionary change in Bureau business practices mentioned above, the decision was made to close the Special Services Unit. After 18 years in operation, the commercial and special services undertaken within the unit are being progressively integrated into program activities.

The changes to the Bureau's structure were implemented in stages, on 15 September, during December and from 1 January, with further changes likely to follow as the remaining pieces of the reorganisation are put in place.

The year was also a time for reflection and celebration as the Bureau of Meteorology marked its Centenary in 2008. Although the idea of a national approach to meteorology was agreed by the colonies before Federation, it was not until 1 January 1908 that the Bureau commenced operations. '100 years of science and service' has been the theme for many celebratory events and activities throughout Australia during the first half of 2008, providing the opportunity to acknowledge and appreciate the contributions of staff, cooperative observers and volunteers who have all played a significant role in the story of the Bureau and the development of meteorology in Australia.

PERFORMANCE OVERVIEW

During 2007-08 the Bureau once again successfully met the challenges of providing meteorological and related services for the community. Higher than average mean temperatures continued to be recorded across Australia, with the highest annual mean and maximum temperatures on record across much of the south. Average to above average annual rainfall was recorded in north, northeastern and northwestern Australia, with average to below average annual rainfall recorded in southeastern and central Australia. One of the most severe long-term droughts on record persisted in the far southwest and southeast of the continent, accompanied by record high temperatures and record low inflows to water storages.

Notable achievements included:

- completion of the first round of funding to State and Territory agencies under the \$80 million Modernisation and Extension of Hydrologic Monitoring Systems Programme;
- development of systems to aggregate water data supplied by State and Territory agencies into what will become a publicly accessible national database – the Australian Water Resources Information System;
- commissioning of the Melbourne high resolution Doppler radar at Laverton, commencement of Doppler services by the upgraded Yarrowonga (Victoria) radar, and commissioning of replacement radars at Mt Kanigan near Gympie (Queensland) and Bairnsdale (Victoria);
- enhancement of the web displays of the high resolution radars in Adelaide, Brisbane and Melbourne by the addition of accumulated rainfall and Doppler velocity displays;
- the launch of a new national cyclone web page on the Bureau's public website as a one-stop shop for tropical cyclone-related services and information;
- commencement of the construction of new field offices at Broome and Esperance in Western Australia;

- deployment of a new deep ocean tsunami monitoring station in the Coral Sea;
- installation of the first two coastal sea level monitoring stations at Point Murat in Western Australia and Luganville in Vanuatu as part of the Australian Sea Level Observation System of the Australian Tsunami Warning System project;
- finalisation of contractual arrangements for external hosting of the Bureau's web-based services;
- completion of the Large Scale Data Storage System contract and commencement of its installation;
- dramatic improvements in performance of the Australian Community Climate and Earth System Simulator – a global numerical weather prediction model;
- development by CAWCR scientists of new climate change projections for Australia, including the most comprehensive projections for regional climate change to date, released as the *Climate Change in Australia* report;
- completion of projects, in partnership with the Department of Climate Change, focusing on shipborne meteorological observations recorded in ship log books and selected land-based coastal meteorological observations, to extend the historical time series of meteorological data for a variety of purposes including climate change studies;
- delivery of a suite of oceanographic products from the operational ocean forecast system component of the BLUElink project (OceanMAPS) which extends ocean analysis and forecast products out to seven days;
- the recognition of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) – *Climate Change 2007* to which CAWCR and other Bureau scientists contributed, through the award of the Nobel Peace Prize jointly to the IPCC and former US Vice President Al Gore; and
- provision of critical input on scientific issues through the Australian delegation to the United Nations Framework Convention on Climate Change Conference of the Parties and Subsidiary Bodies.

The Bureau's performance exceeded many of the performance targets identified in the Portfolio Budget Statements 2007-08. The specified performance targets were reviewed as part of the 2007-08 Budget process to stretch performance and promote continuous improvement.

SIGNIFICANT ISSUES

Many challenges continued to face the Bureau of Meteorology in 2007-08, including:

- establishment of the Bureau's new role for water information under the Government's Water for the Future strategy;
- implementation of many of the recommendations from the Review of the Bureau of Meteorology – *Creating an Australian Bureau of Meteorology for the 21st Century*;
- planning for the upgrade of the Bureau's supercomputer, power upgrades to the Central

Computing Facility and the relocation of its Disaster Recovery Site;

- development of a four-year Operational Plan covering the sustainable delivery of services throughout the forward estimates period as well as the next financial year; and
- equitable and sustainable satisfaction of the community's need for new products and services.

FINANCIAL RESULTS

The 2007-08 financial year finished with a modest operating surplus of \$4.356 million. Income for the Bureau increased from \$238 million in 2006-07 to \$253.7 million in 2007-08. The major contributing factor to this increase was the transfer of the Ionospheric Prediction Service to the Bureau and increased funding for the Bureau's new water functions. Further information on the financial performance of the Bureau of Meteorology is available in the financial statements, commencing on page 151 of this report.

OUTLOOK FOR 2008-09

The next twelve months will be an exciting time for the Bureau as the changes brought about in 2007-08 are consolidated and the opportunities offered by the new arrangements continue to be captured. To meet future community needs, there will be a focus on five key areas utilising new and upgraded technology for innovation:

- Next generation weather forecasting: an advanced weather forecasting system which builds on US National Weather Service technology to enable forecasters to edit graphical displays of weather elements, from which text forecasts and media-ready graphics are automatically produced for possible interactive use via the internet.
- Supercomputing and supermodelling: a focus on development and operation of advanced models and leading-edge supercomputer facilities, enabling the Bureau to implement and exploit the climate and weather prediction capacity available through the collaborative arrangements established with the CSIRO and the United Kingdom's Met Office.
- Radars for regional communities: building on past investment in greatly enhanced radar capacity for capital and large regional cities, consolidating the existing radar network and, subject to Government policy, adding new radars to meet identified needs in additional regional communities.
- Measuring for tomorrow: recognising that the Bureau's existing range of observations will not be adequate for assessing the state of the atmosphere or the wider environment in the detail needed for future operations, nor for 'earth system' modelling, and improving the spatial coverage of current conventional observations as well as observing additional parameters such as greenhouse gas concentrations, soil moisture and radiation fluxes.
- Integrated data provision: developing innovative ways to allow all Australians to make significantly greater use of the Bureau's databases of weather, climate, water and oceanographic information.