

Correspondence

Bureau of Meteorology Research Centre

The Bureau of Meteorology Research Centre (BMRC) formally commenced operations on 1 January 1985. Its establishment marks a reorganisation of research and development within the Bureau and the closure of the Australian Numerical Meteorology Research Centre (ANMRC), which was sponsored jointly by the Department of Science and CSIRO. The closure of ANMRC was the result of a government rationalisation of meteorological research in CSIRO and the Bureau.

The essential role of the BMRC is to act as the research agency of the national meteorological service in Australia, and therefore it has been set up as a largely self-contained research centre within Head Office of the Bureau. Its objectives may be summarised as follows:

- (i) to advance the science of meteorology, with particular emphasis on the Australian region and southern hemisphere; and
- (ii) to support the Bureau's services by the development of operational techniques and the provision of scientific advice for other units within the Bureau.

The BMRC has a staff establishment of 64 positions comprising research scientists, meteorologists, computer systems officers, and technical and administrative support staff. The current staff number is approximately 35, and further positions are being filled as research requirements are identified.

To carry out its objectives the BMRC has been structured into six research groups, each identifying an area of expertise and an operational requirement of the Bureau. These groups are Mesoscale Modelling, Medium-Range Prediction, Long-Range Forecasting, Aviation Meteorology, Data Analysis, and Tropical Meteorology.

Obviously the development of broad prediction systems gives rise to strong interaction between these groups as well as between BMRC and the operational sections of the Bureau. Key components of such systems are the large-scale and mesoscale numerical models developed within the ANMRC. The assimilation-forecasting system is being developed further by the Medium-Range Prediction Group; as well as being used for research in extended-range numerical weather prediction (NWP), it provides the boundary conditions for the regional numerical model.

A new version of the regional model is scheduled for operational implementation in 1985. It is maintained by the Mesoscale Modelling Group, and it is being adapted for detailed study of the Australian tropics by the Tropical Meteorology Group. To focus research on the Australian monsoon, this Group is planning an observational program, known as AMEX (Australian Monsoon Experiment), which is scheduled for early 1987. The objectives of AMEX are to investigate the interactions between cumulonimbus convection and the Australian summer monsoon circulation, and also the generation, evolution, and propagation mechanisms of the northern Australian cloud lines and their effect on northern Australian weather.

The Long-Range Forecasting Group is concerned with the detection, documentation, and simulation of the causes of major interannual fluctuations of Australian climate. Research over many years has suggested that certain features of our climate can be predicted statistically with some accuracy because of their correlation with precursor variables. The derivation of further significant correlations between indices of climate variation, such as the Southern Oscillation with the sea surface temperature north of Australia, is therefore being undertaken by this Group. A global two-layer model is also being used to simulate and analyse very long time sequences of the atmosphere's general circulation.

Optimisation of the retrieval of satellite data and the development of techniques for the incorporation of meteorological data into numerical prediction systems are major functions of the Data Analysis Group. The Group is also responsible for the primary analysis of the data acquired in Phase III of the Cold Fronts Research Programme carried out during November-December 1984. This Programme has involved collaboration between the Bureau, CSIRO, and the universities, and the data obtained will be valuable for future case studies and sensitivity tests for prediction systems.

An area of research receiving little attention in recent times by either of BMRC's predecessors is that of aviation meteorology. BMRC is establishing a group to concentrate initially on problems of identifying and forecasting weather conditions in the vicinity of airports. This work will involve both the development of instrumentation for measuring appropriate atmospheric parameters and the analysis of operational data.

Dr M. J. Manton
Chief, BMRC
GPO Box 1289K
Melbourne
Australia, 3001

