

# ROYAL METEOROLOGICAL SOCIETY: AUSTRALIAN BRANCH MEETING

21 March 1978

## The Work of the European Centre for Medium Range Weather Forecasts

L. Bengtsson

Dr Bengtsson opened the talk with a presentation of the historical development of the Centre. The project had its beginnings in a preliminary European Economic Community study during 1965-1969 and a later cost benefit study predicted the financial advantages of medium range (4 to 10 days) forecasting. The convention to set up the Centre was signed in November 1973 and ratified in November 1975. Participating nations comprise most western European countries (with the exceptions of Norway and Luxembourg) and Yugoslavia. After some competition for hosting it was decided to locate the Centre in the United Kingdom, temporarily in Bracknell until it moves to its permanent site in Reading by January 1979.

Numerical modelling over extended periods poses special problems. It is particularly important, for example, to employ a conservative finite-difference scheme. A global model is used in order to admit inter-hemispheric interaction that may be important over the time scale of interest. Dr Bengtsson compared two model runs initialised with different data - climatology and an observed state - in the southern hemisphere. Small but significant differences (particularly with regard to the phase speeds of major systems) were apparent in the northern hemisphere after 9 days. There is also a demand from some users for global forecasts, e.g., for ship routing. The horizontal resolution of the model is 150 km, with 15 levels in the vertical.

Over the forecast period, predictability can be associated only with the large scales. An example was shown in which deviations of long waves from the climatological pattern were predicted out to 10 days with reasonable accuracy over the northern hemisphere.

Data will be assimilated every six hours (with one forecast per day). Improvements in data coverage are expected to lead to better quality of forecasts; the speaker mentioned progress expected during FGGE from buoys, satellites, and constant level balloons.

The computer system will consist of a CRAY-1 processor with a CYBER 175 as an interface to perform most of the data handling. It is expected that this system will produce a 10-day forecast in 8 hours. Operational forecasting is planned to begin in 1978.

Questioned about procedures in the event of a machine failure, the speaker replied that no back-up facilities had been arranged. Mr Southern asked how well the model predicted the formation and breakdown of blocking patterns; Dr Bengtsson replied that the model had successfully predicted breakdown in some situations. In reply to a question about short period forecasts from the model, he said that there was some demand for such output from smaller member nations, and that this pressure might increase.

R.A.P.

