

Assuming that correlation coefficients provide a guide to the performance of a particular model, the results for the individual experiment attempted suggest useful forecasting ability up to a period of 3-4 days. Surprisingly, the model performance for the data sparse Southern Hemisphere is comparable with that obtained for the Northern Hemisphere. The correlation coefficient fell gradually during the first six days of the forecast and then rose to a high, and probably unrepeatable, secondary maximum around the seventh or eighth day. This secondary maximum was then followed by a further decline. The root mean square error distribution of height showed a similar pattern.

Synoptic deficiencies of the forecasts presented were the consistent errors occurring in the longitudinal position of upper troughs and the failure of the model to adequately predict the development and subsequent movement of cut-off lows. The diagnostic results, however, indicate considerable dynamic similitude between the atmosphere and the model.

In the general discussion that followed Mr. Clarke's address, Mr. Gauntlett inquired whether consistent phase errors in the forecasts were a manifestation of the finite difference scheme employed or perhaps the result of some physical deficiency in the model. In reply, Mr. Clarke acknowledged the possibility of the finite difference scheme causing a decrease in the phase velocity due to truncation errors. He suggested that further sources of error might be inaccuracies in the initial analyses and insufficient horizontal resolution in the forecasting model.

Dr. Tucker suggested that the rise of the correlation coefficient after one week could be explained by assuming that after this period the major wave components of the forecast field had, through a consistent accumulation of forecasting errors, once again become in phase with the analysed field. In reply, the speaker explained that a detailed examination of the model forecasts did not support this theory. In the speaker's opinion, the apparent poor performance of the model around the fifth and sixth days was geographically restricted to the data sparse area of the central Pacific and could be attributed to low quality verifying analyses in that area.

Mr. Wallington queried the significance of correlation coefficients in assessing the performance of a particular forecasting model over extended periods. He suggested the alternative procedure of identifying features of the synoptic pattern and studying how the model accommodated the movement and development of these particular features.

#### REFERENCE

Smagorinsky, J. 1965 Monthly Weather Review, 93, No. 12, Dec. 1965.

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### TROPOSPHERIC JET STREAMS IN THE SOUTHERN HEMISPHERE

By T. T. Gibson

Mr. Gibson of the Meteorology Department, University of Melbourne, introduced the topic by drawing attention to the importance of the extratropical jet stream (ETJ) as a dynamical feature of the upper troposphere. He commented that, whereas meteorologists in Australia tend to attribute to the sub-tropical jet stream (STJ) a predominant control of the weather systems in their area, his own training in Canada made him conscious of the significance of the ETJ.



