

## REFERENCES

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Mean Westerly Jet Streams in the Southern Hemisphere

by H. R. Phillpot

Mr. Phillpot of the International Antarctic Analysis Centre, Melbourne, described some investigations that he had made for presentation at the Matthew Fontaine Maury Memorial Symposium for Antarctic Research to be held in conjunction with the Tenth Pacific Science Congress in Honolulu in August 1961.

Meridional cross-section diagrams of temperature and zonal wind had been constructed. Some were for selected days in September 1959 and January 1960, extending along a meridian through eastern Australia, south of latitude 25°S across the Antarctic continent and the Pole into the South American sector, to show the temperature and zonal wind distribution between 500 mb and 50 mb; other diagrams showed mean monthly cross-sections for July 1959, October 1959, January 1960 and April 1960 (drawn along meridians through (i) eastern Australia (ii) South Africa and (iii) South America, again to show the temperature and zonal wind profiles from latitude 25°S to the Pole, between 500 mb and 50 mb; and a third set had been drawn for selected days in 1960 extending along a meridian through eastern Australia south of latitude 30°S to the Pole, to show the zonal wind distribution up to the 30 km level.

The thermal wind equation was used to derive wind values where direct measurements were lacking.

It was established that two westerly wind maxima might be found simultaneously on a given meridian. It was also shown that in all seasons except summer a mean wind maximum having jet stream characteristics could be found between latitudes 20° and 35°S near the 200 mb level with speed ranging from 50 to 85 kts but exceeding 100 kts over Australia; whilst another westerly wind maximum might be found between latitudes 40° and 55°S throughout the whole year. The high latitude westerly wind maximum had jet stream characteristics only in summer and autumn - in winter and spring it was found to be portion of a broad westerly circumpolar current similar to that suggested by Murgatroyd, although the mean speed, exceeding 200 kt at 30 km, was very much greater than that so far depicted for the northern hemisphere winter.