

JOINT COLLOQUIA

26th April, 1956

Measurement of Atmospheric Ozone and their Meteorological Significance by C.F. Barratt

Mr. Barrett, of the C.S.I.R.O., Division of Meteorological Physics, described how the amount of ozone in the atmosphere above a given place can be determined from measurements of the absorption of the ultra-violet radiation of the sun. Such measurements have been made for some time in many parts of the world by means of a spectrophotometer designed by Dobson. The ozone is found to be small in total amount and to be mostly in the lower stratosphere; the amount is found to vary with latitude, season and synoptic situation. Atmospheric ozone is formed photochemically from oxygen by the action of solar ultra-violet radiation, but the distribution calculated theoretically disagrees markedly (except above 30 km) with that observed. The theory indicates, however, that, below about 30 km, the ozone is largely protected from photochemical action, so that the amount is strongly influenced by meteorological factors, notably advection, vertical motion, and turbulent transfer. An outline was given of the roles which these processes are at present believed to play in the phenomena. Detailed studies should be helpful in various meteorological problems, including forecasting.

There are three Dobson spectrophotometers in Australia which have been adjusted in the Division of Meteorological Physics. During the IGY, these will be stationed at Macquarie Island, Melbourne and Brisbane as part of a world-wide network.

31st May 1956

Before the colloquium Mr. Unstead of Decca Radar showed a film in which the development movement and decay of rain areas as seen by radar was illustrated by time/lapse photography.

The accuracy of forecast and found winds. by G.T.Rutherford.

The paper presented by Mr. Rutherford, of the Bureau of Meteorology, appears in Australian Meteorological Magazine No. 12 March, 1956; p. 43-60.

As well as meteorologists, representatives of the Department of Civil Aviation and Commercial Airline Companies were present.

In the discussion Captain Gibbs of Australian National Airways suggested that if a pilot found an incorrect wind due to inaccuracies in his compass or air speed indicator it would be preferable for him to use that wind rather than another wind as he would then take care of the inaccuracies of his instruments providing the wind was not changing along his route. Mr. Gibbs of the Bureau pointed out that this was in order provided these winds were not regarded as accurate by other pilots or meteorologists.

Mr. Perry of D.C.A. spoke on methods of navigation and the difficulties in obtaining accurate winds.

28th June, 1956

Meteorology at Mawson by P.J.R. Shaw

Mr. Shaw, who recently returned from twelve months duty at Mawson on the Antarctic continent described the topography of the area and discussed the climate of Mawson in terms of averages of meteorological elements and compared them with those of Adelie Land. Although the temperatures were similar, there were only 30 days severe blizzard in the month and days on end of uninterrupted sunshine in summer.

Little difficulty was experienced with instruments. Drifting snow in the screen was overcome by the use of a canvas cover and the door was left open in blizzards. A snow trap was used to prevent snow entering the head of the Dines anemometer.

Records of temperature and wind at remote stations at Mount Henderson (8 miles inland, altitude 2,000 feet) and Ytterskjera, a small island five miles to sea were described as well as the katabatic wind and vertical temperature distribution at Mawson.

Meteorological observations were made on a trip 200 miles inland. It was noted that the wind descending from 6,500 feet, 150 miles inland, swings from due south there to southeast at Henderson with little variation under widely varying pressure gradients demonstrating the coriolis deflection of the katabatic wind.