

WATERSPOUTS OFF THE NORTH-WEST COAST OF TASMANIA

Terry Hart and Steve Pendlebury

Two waterspouts were observed off the north-west coast of Tasmania at about 7 am, 31 March 1977. They were observed at Looee about three kilometres west of Burnie. One waterspout came ashore (with no reports of damage) and the second, bigger spout dissipated offshore after lasting about half an hour.

Most eye-witness reports describe the second waterspout, which was apparently more impressive. It was located five to six kilometres offshore, slanting west to east from its base. The rotation was observed to be ANTICLOCKWISE. The sea was said to be "boiling" and capable of creating havoc for small shipping.

The synoptic situation showed a strong pre-frontal north-westerly airstream. Witnesses said that there had been an eerie calm before the waterspouts appeared, but most synoptic stations at 6 am and 9 am reported mean wind speeds of at least 20 km per hour with some reports in the area greater than 30 km/hour. Later in the morning, gusts up to 60 km/hour were reported at Devonport Airport, 50 kilometres to the east. Isolated thunderstorms were reported during the day over Tasmania and Bass Strait. The air was reasonably moist with a dew point of 15°C reported at several stations, with air temperatures about 18°C. The aerodromes at Wynyard (15 kilometres to the west) and Devonport reported scattered stratocumulus with base 1000 to 1500 feet, and broken cumulus with base about 2000 feet.

Several instability indices were calculated from the radiosonde traces for 9 am. The Showalter Index (instability indicated if less than or equal to 3) was +5 at Laverton and +3 at Hobart. The Sly Index (using a surface temperature of 18°C and dew point of 15°C at 1000 mb) was 34 at Laverton and 37 at Hobart. (Values greater than 30 show significant instability).

Acknowledgement: Bureau of Meteorology for providing information.

COLD END TO MAY

Harvey Stern

Victoria experienced a severe cold snap on the last day of autumn, 1977. Snow fell at many centres and the highest temperature reported in the State was only 11°C. Melbourne's maximum temperature of 8.3°C was equal to the lowest maximum ever recorded there during May. On 12 May, 1896, the maximum was also 8.3°C.

Figure 1 shows the 1000/500 mb thickness analysis and the MSL pressure analysis for 10 am EST on 31 May, 1977. It depicts a vigorous southwesterly airstream blowing across Victoria. A thickness minimum of 522 geopotential dekametres is indicated just to the NNE of Melbourne.

Figure 2 illustrates the Laverton and Wagga radiosonde soundings for 9 am EST on 31 May, 1977. The 500 mb level temperature at Laverton was minus 34.9°C and at Wagga it was minus 35.2°C.

The concept of energy dispersion may be employed to explain the occurrence of the "cold outbreak". There appears to have been a "cause and effect" relationship between events over the South Atlantic on about 25 May, and the equatorward extension of a cold trough which took place over the Indian Ocean between 27 and 29 May. This equatorward extension seems to have been responsible for extremely rapid amplification, between 29 and 31 May, over the Australian region, of another cold trough. This latter cold trough is pictured on Figure 1. It was the rapid nature of the amplification over the Australian region that led to the severity of the "outbreak".

Melbourne's lowest maximum temperature on record was registered on 4 July, 1901, when the highest reading was a mere 4.4°C. However, that low figure was not associated with a "cold outbreak". It was due to fog persisting all day.

Acknowledgments: Mr. T. Skinner and Bureau of Meteorology for providing advice and information.

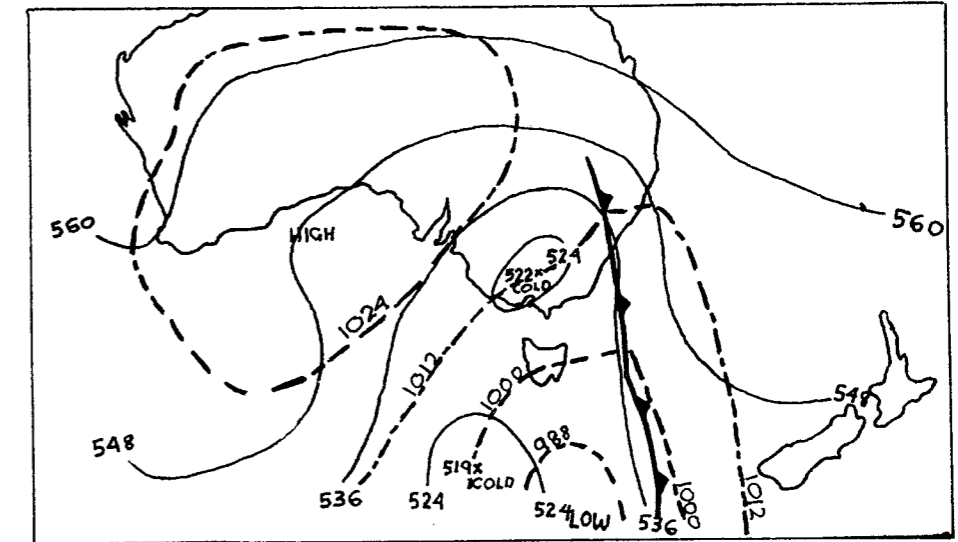


Figure 1 1000/500 mb Thickness Analysis (——) and MSL Pressure Analysis (-----) for 10 am EST on 31 May, 1977.

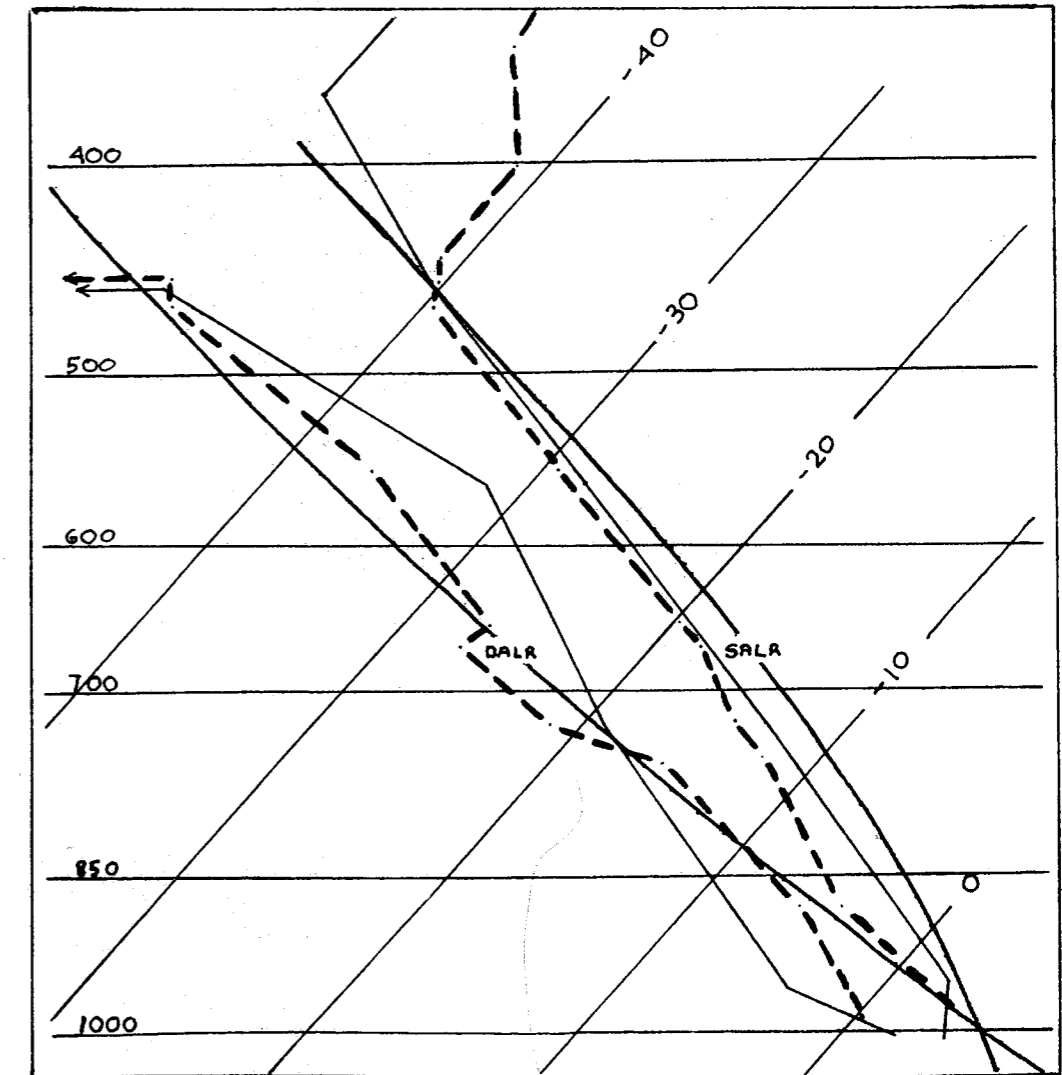


Figure 2 The Laverton (——) and Wagga (-----) radiosonde soundings of temperature and dewpoint for 9 am EST on 31 May, 1977.