



ROLL CLOUD OVER SPENCER GULF

Looking west at an approaching roll cloud over Spencer Gulf, near Port Lincoln, at 1.15 pm on 27 November 1977. A further faint roll is visible just to the west of the main roll, and an area of sea fog can be seen toward the upper left side of the photograph. The ship, *Danny F*, was 230 m long, which implies that the vertical extent of the roll ranged from 250 m to 300 m, with the base of the order of 200 m above the sea surface. P. Western (Airlines of South Australia, who photographed the cloud) assessed the overall length to be 5 km.

Situation

Several days of persistent northeasterly tropical inflow over eastern parts of the Australian continent resulted in sultry, humid conditions and wide areas of Ac-As (with isolated thunderstorms) over most parts of South Australia during the day or so prior to the event. A weak anticyclone moving slowly southeastward across the Bight toward Tasmania on 26 and 27 November produced a cooler south to southeast airflow toward the South Australian coast. Consequently, on the morning of the 27th the main frontal zone delineating these two very different air masses was located generally along the South Australian coastline with indications that at least one weaker zone had penetrated parts of coastal districts.

Increasing instability in the main coastal front produced strong convective activity with characteristically small thunderstorm frontal waves. The effect was most noticeable in the vicinity of Kangaroo Island and the Neptunes where variable conditions were reflected in adjacent (and sequential) reports of thunderstorms, sea fogs, showers and squalls in those areas during the late morning. The frontal zone moved across Kangaroo Island and southern Gulfs during the afternoon, and into most coastal districts by the evening of the 27th.

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