

HARDEN UP

QUEENSLAND

CASE STUDY: Brisbane Tornado, 4th November 1973

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This was perhaps Australia's most damaging tornado. It had an extremely long track travelling from Brookfield to 8 Mile Plains and then across to Victoria Point (see Figure 1). The length of the track was 51 km and 100 m to 230 m wide. It caused severe damage with 500 houses unroofed, 1390 damaged and 500 declared structurally unsafe.

The mean sea level analyses (Figure 2) show a cold front approaching Brisbane with the storms developing in an intensifying trough ahead of the front. This trough is indicated by the increased pressure gradient and distortion of the isobars east of the front. The storms can be seen to have developed in this trough by 6pm. The tornado began on its path eastward around 6.10pm.

The Brisbane upper winds showed increasing upper winds with height and by 0400UTC (2pm) the winds at 700hPa (elevation 3km) were northwesterly at 58knots. This wind change with height helps tornado formation along with the relative warm low level temperatures (17.4°C at 850hPa) and cool upper temperatures (-12.7°C at 500hPa).

Damage Photos

At the end of this report are three damage photos showing the destruction.

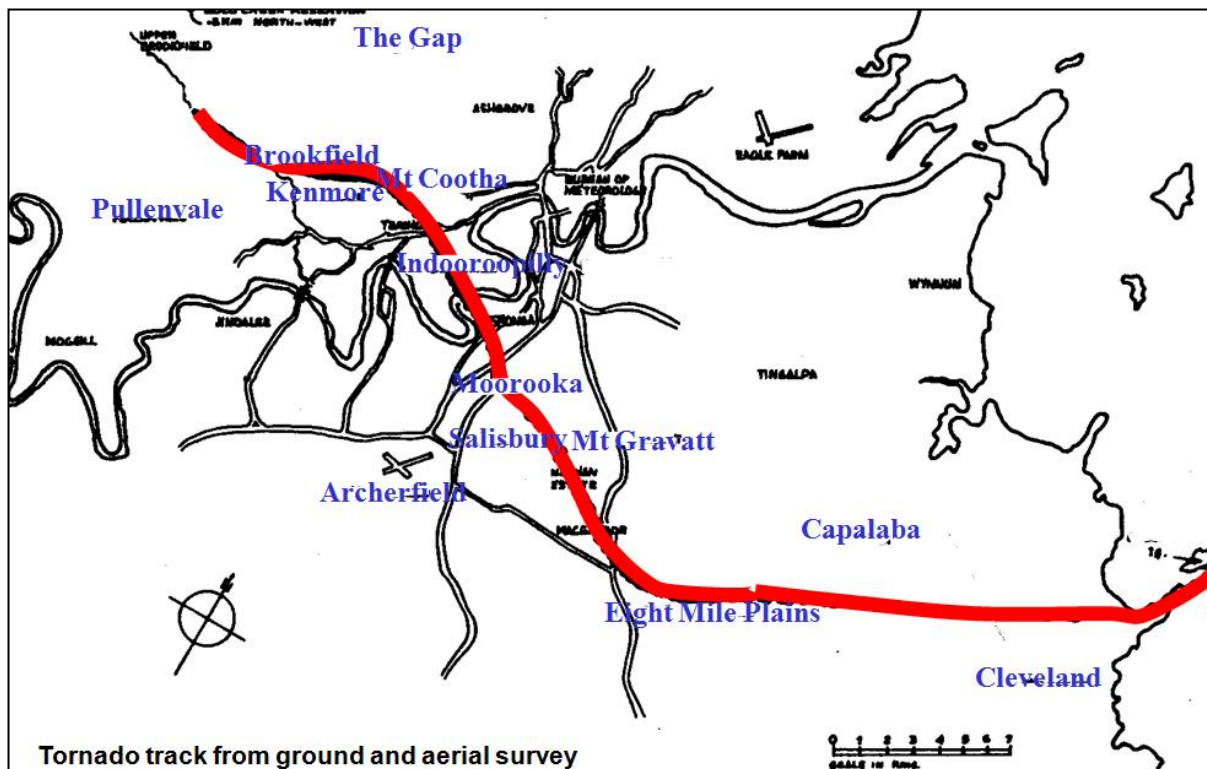


Figure 1 Tornado track.

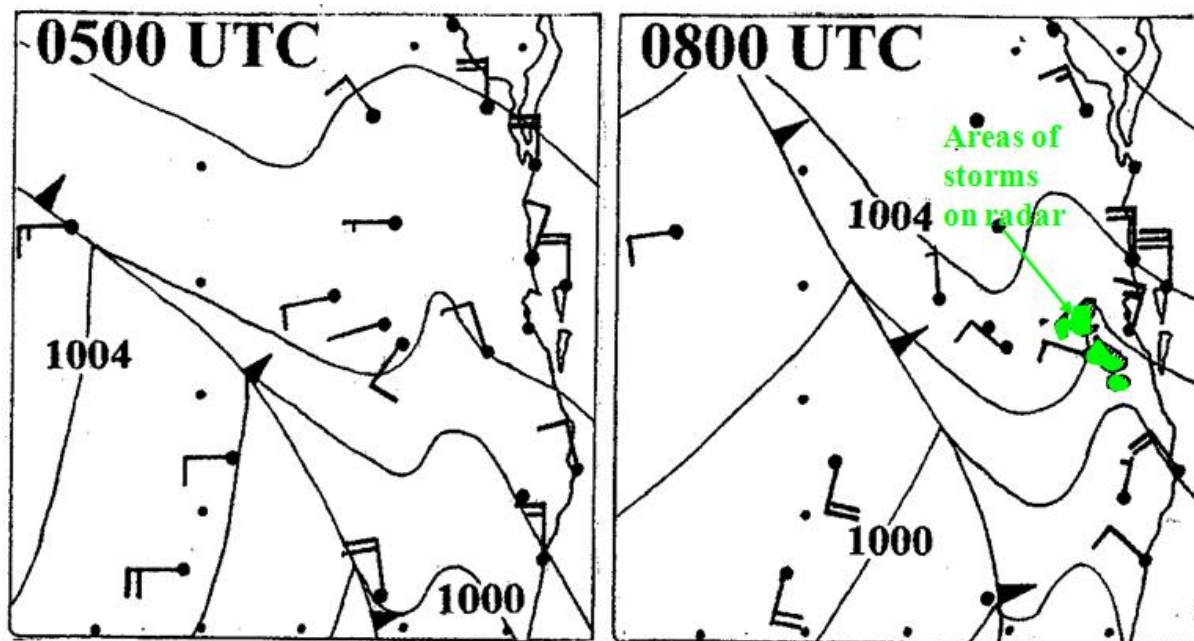


Figure 2 Mean Sea Level Analyses leading to the development of the Thunderstorms at 0500UTC 4 November 1973 (3pm local time) and 0800UTC 4 November 1973 (6pm local time) with the later time showing the locations of the storms just before the tornado developed.

500hPa	280/37knots -12.7°C	280/55knots
700hPa	320/18knots 6.4°C	320/58knots
850hPa	290/35knots 17.4°C	340/37 knots
900hPa	330/10knots 19.6°C	330/29knots
950hPa	340/23knots	
	2200UTC 3/11/1973	0400UTC 4/11/1973

Table 1 The upper winds and temperatures at Brisbane Airport on the day of the tornado.



