

CASE STUDY: Gold Coast Cyclone, February 1954

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Around 10pm 20 February 1954 a severe tropical cyclone crossed the coast at the border Twin Towns of Coolangatta Tweed Heads. The large circulation of the cyclone is illustrated in Figure 1 which led to very damaging waves and storm surges. The close spacing of the isobars indicates the very destructive wind zone near the centre of the cyclone. These weather charts indicate that the cyclone approached the Gold Coast-Tweed area from the north northeast to be overland west of Coffs Harbour by 3pm 21 February 1954.

Record rainfall accompanied the cyclone and as an example 900 mm of rain were recorded at Springbrook in the 24 hour period up to landfall (see Figure 2). Floods combined with storm surge and cyclonic winds resulted in some 26 to 30 people losing their lives. In the worst hit areas of Northern NSW flood waters began to rapidly rise around 7pm 20 February which was some 3 hours before landfall. Figure 2 shows the 24 hour rainfall distribution around the worst affected areas while Figure 3 highlights the catchment areas.

Central Pressure

At Coolangatta there was a pressure in the eye of **973 hPa**. Some reports from the Coolangatta/Tweed Heads area had pressure readings to 962 hPa. The cyclone centre passed well to the east of Brisbane however a record low pressure reading of 982.7 hPa was recorded at the Weather Bureau in the City. At the Airport the mean seal level pressure was measured at 6pm at 981.8hPa (1.4hPa lower than the City reading at the time) so the lowest reading in Brisbane was probably 981.3hPa. At Cape Moreton Lighthouse (outside the eye) the lowest mean sea level pressure read was 978.0hPa at 3pm.

Condong Sugar Mill inland from Coolangatta: There were two barometers at the mill, one an aneroid registered 28.8 inches (975 hPa) while the other read 973 hPa. The eye took two hours to pass over the mill. The eye passed over around 11pm.

Observations from the ship *Kaipara* (from New York): The *Kaipara* berthed at New Farm in Brisbane on the afternoon of 21 February 1954. The captain said that the ship had a bad time in the cyclone with rooms flooded and superficial damage to the ship. The captain said that 'the winds were estimated to have reached 85mph and I have never seen such rain.'

Kaipara Observations with mean winds averaged over 10minutes and mean sea level pressure:

0600UTC 19/2/1954 26.7S 154.0E 150/50 knots bar 996.7hPa
0900UTC 19/2/1954 26.6S 154.1E 150/50 knots bar 994.2hPa
1200UTC 19/2/1954 26.6S 154.3E 130/50 knots bar 993.7hPa
0200UTC 20/2/1954 27.4S 153.6E 160/65 knots bar 974.1hPa
0600UTC 20/2/1954 27.0S 153.6E 210/40 knots bar 967.1hPa

Impact

Southeast Queensland: There was widespread structural damage Gold Coast, Sunshine Coast and around Brisbane. At Noosa, cyclonic southerly winds pushed the waters of Lake Weyba two thirds of a metre high over the road north of the lake. A storm surge of 0.64 m storm surge was measured on the Moreton Bay tide gauge. However it was much worse on the Beachmere foreshore with boats lodged in the mangrove tree tops. The sea came into the shopping area of Coolangatta and waves at Kirra brought 2 metre of water onto the highway picking up cars. Storm surge caused some fifty families to be evacuated from the Broadwater on the Gold Coast and a dramatic rescue of people from Macintosh Island. Macintosh Island in those days was farming land (see Figure 4) and the residents there were huddled in chest deep water on the highest point of the Island before being rescued by a surfboat during the calm conditions in the eye of the cyclone. After being rescued a wall of flood water swept over the Island.

Cudgen-Kingscliffe NSW: Some of the worst damage in that area and around the Cudgen in NSW where some houses were blown apart and trees more than 1 metre in diameter were twisted out of the ground.

Byron Bay: The sea came right into the town The outer section of the jetty was swept away at Byron Bay taking with it all 22 vessels comprising the fishing fleet.

Kyogle: People watched helpless from the Kyogle railway station as six persons drowned when their home was washed away. A mother and her two children drowned when a small rescue boat capsized in waves on Fawcetts Plain. An aboriginal man was caught in floodwaters and drowned. Others were washed away but survived by clinging to trees until rescuers arrived. It was in the early hours on Sunday 21st February 1954 when the Richmond River at Kyogle peaked, recording an unprecedented height of 62 feet, 6 inches or 19.1 Metres. This day followed disbelief when news filtered through of the drowning of ten district people. The cyclone had produced enormous amounts of rain and wind, the effect caused destruction to bridges which were swept away or destroyed. Apart from the houses that were washed away, many were swept off their stumps or badly damaged.

Murwillumbah: The town suffered a record flood and many were rescued but one man was drowned

Lismore: A seven year old boy was swept away in the flood. In another incident a family was rescued by boat from a farmhouse near Lismore. The boat then traversed back across 1.7km of water and when they were half way across, it was swamped by metre high waves generated by the gales and a woman with two children were drowned. Another man and a boy were drowned near Lismore.

Casino: In another rescue attempt a motor boat with 4 men in it hit a tree and 2 were drowned. At one stage four miles east of Casino a man, two women and a baby were marooned on the highest point of the roof of the farmhouse. Six miles of floodwaters were rushing passed either side of them.

Armidale: Four persons were drowned at Armidale, and a 21 month-old baby was missing, after a car was washed into a flooded creek near Armidale on Saturday night.

Coffs Harbour: A record flood hit the Coffs Harbour region where some of the heaviest rainfall was recorded:

Dorrigo Myrtle St 39km W of Coffs Harbour 190mm to 9am 20th 809mm to 9am 21st

Dorrigo Post Office 39km W of Coffs Harbour 169mm to 9am 20th 745mm to 9am 21st

Tallowood Point 24km W of Coffs Harbour 144mm to 9am 20th 505mm to 9am 21st

Meldrum 60km W of Coffs Harbour 90mm to 9am 20th 479mm to 9am 21st

Megan 32km W of Coffs Harbour 76mm to 9am 20th 432mm to 9am 21st

Kalang Rd 42km WSW of Coffs Harbour 71m to 9am 20th 446mm to 9am 21st
Glenreagh Forestry 32km NNW of Coffs Harbour 54m to 9am 20th 441mm to 9am 21st
Coramba 13km NW of Coffs Harbour 106mm to 9am 20th 421mm to 9am 21st
Upper Orara 13km W of Coffs Harbour 158mm to 9am 20th 421mm to 9am 21st

Kempsey: experienced a night of terror on Saturday, when the town was struck by cyclone winds and had six inches of rain in six hours. Houses were unroofed, fences flattened, trees uprooted, and communications were cut. Scarcely a house escaped damage, and the grandstand at Kempsey Showground was severely damaged. The entire tiled roofs at South West Rocks were swept away. Kempsey business centre is almost deserted. Telephonic and electric light wires were torn down last night, but are gradually being repaired. It is thought that between 26 and thirty lives were lost in total. Twenty four hour rainfall totals are shown in Figure 5.

Sydney: A boy was drowned in a canal at White Bay on Tuesday 23 February.

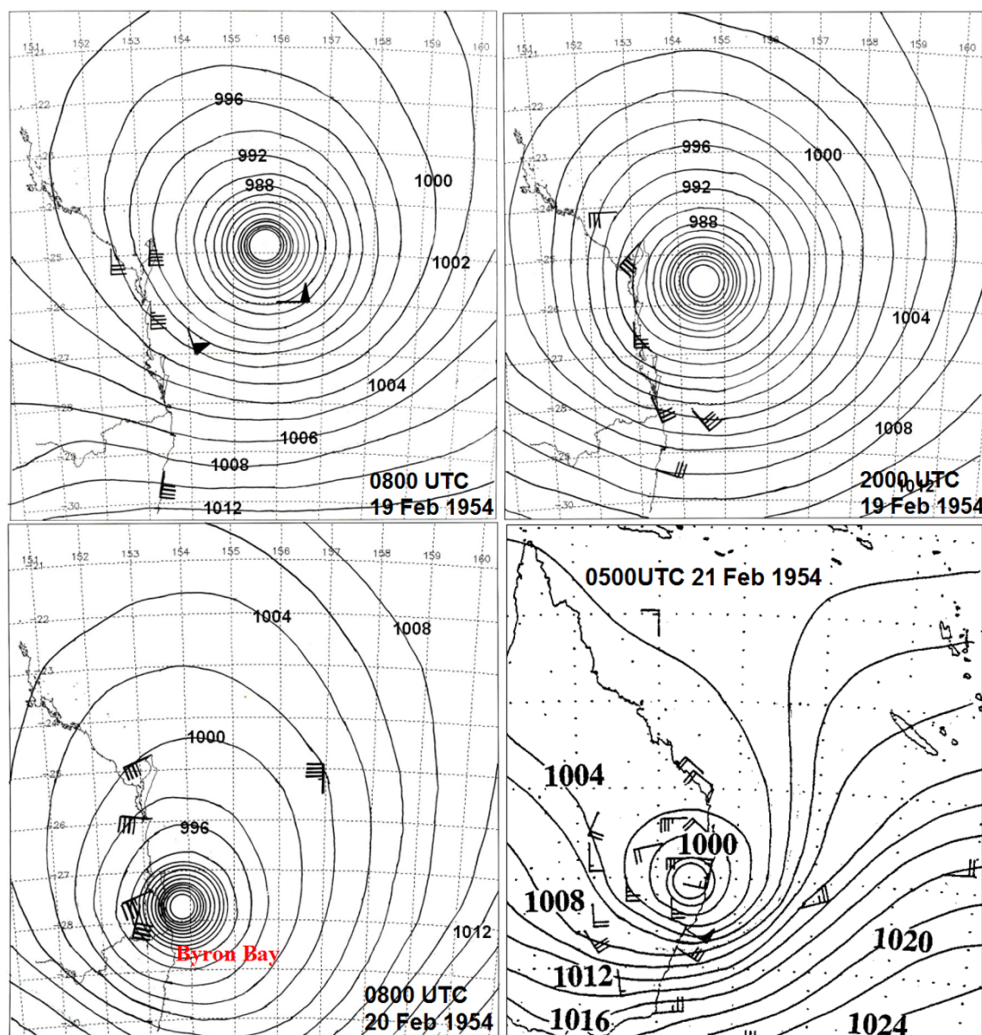


Figure 1 The mean sea level pressure distribution (hPa) with some wind observations where a barb/half barb/flag represents 10knots/5knots /50knots. This covers the period 6pm 19 February (top left), 6am 20 February (top right), 6pm 20 February (lower left) and 3pm 21 February (lower right).

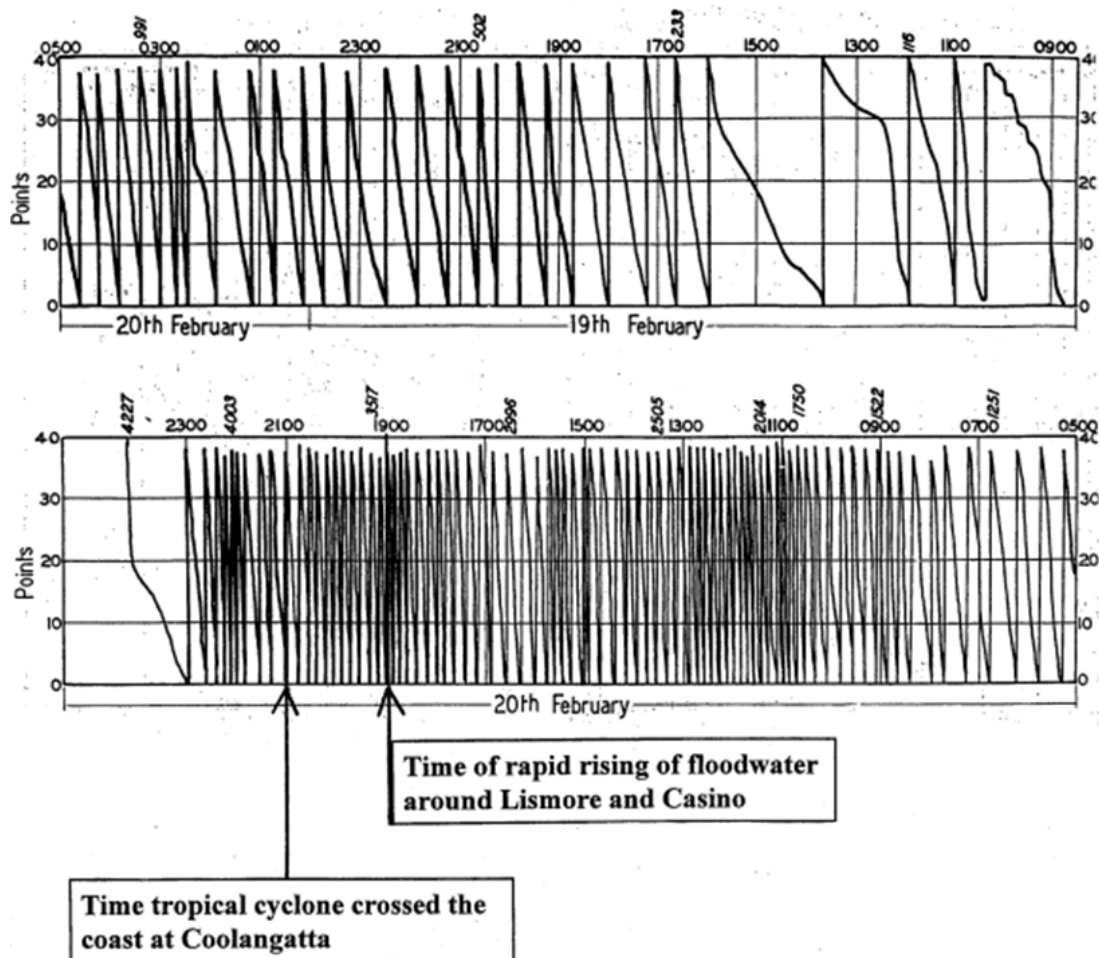


Figure 2 Springbrook Forestry pluviograph where one vertical trace registers 40 points (about 10mm) of rain. The instrument recorded 42.27 inches of rain mostly before landfall and the times of the rapid rise of the floodwater and landfall are indicated.



Figure 3 Mackintosh Island in the 1950s (top) and today (bottom).



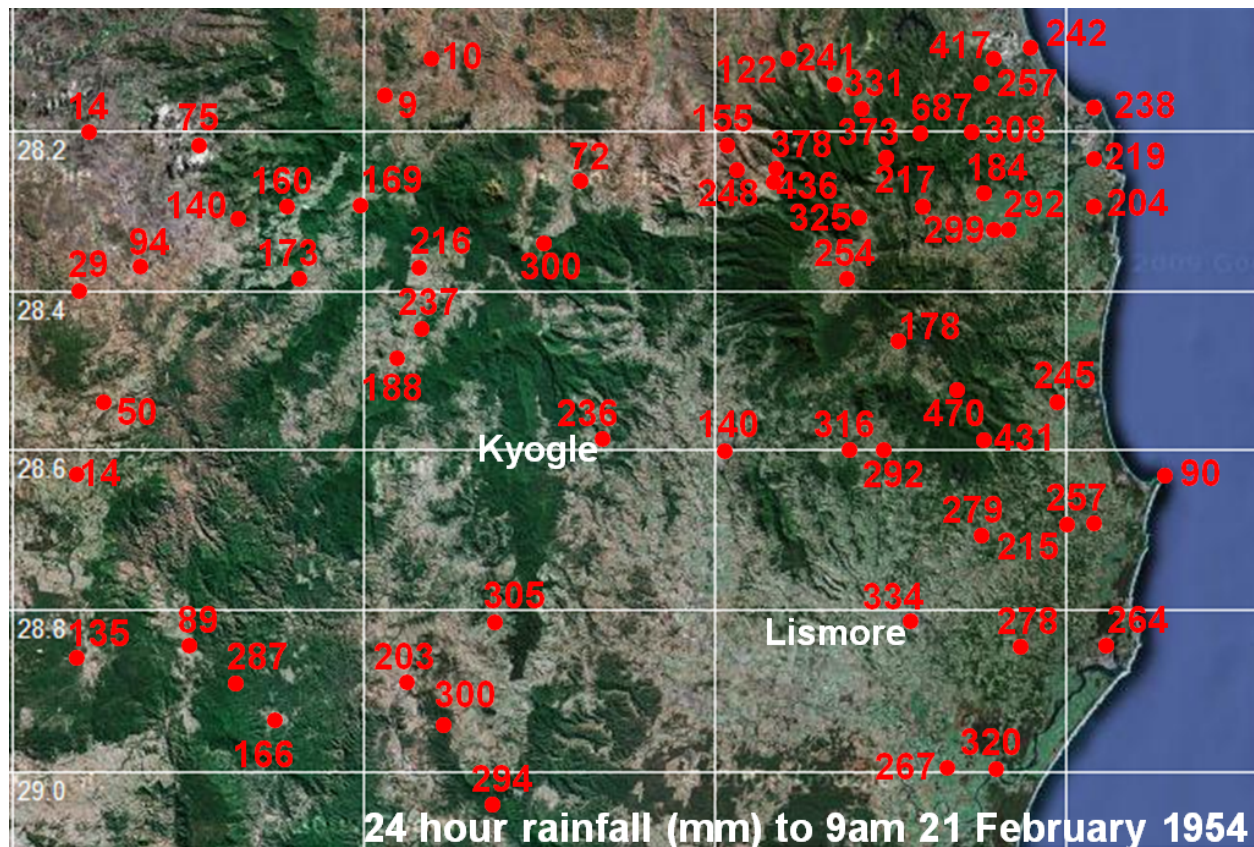


Figure 4 Twenty four hour rainfall totals around the worst hit flooded area.

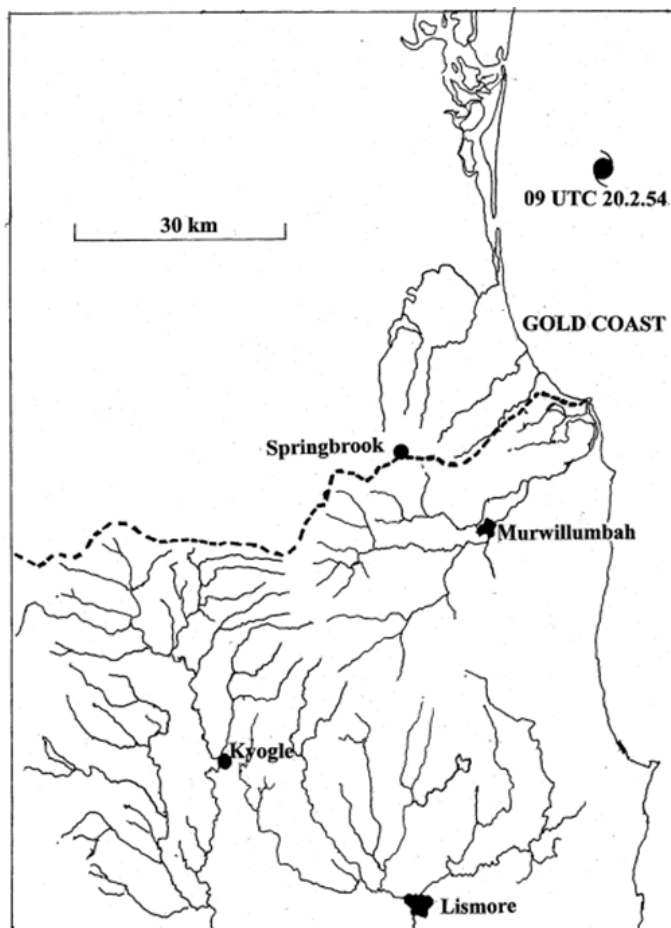


Figure 5 Position of the cyclone at 7pm when the disastrous flooding began together with the location of Springbrook in relations to the various