

## ARCHIVE: Known Impacts of Tropical Cyclones, East Coast, 1858 – 2008

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The date of the cyclone refers to the day of landfall or the day of the major impact if it is not a cyclone making landfall from the Coral Sea.

The first number after the date is the Southern Oscillation Index (SOI) for that month followed by the three month running mean of the SOI centred on that month.

This is followed by information on the equatorial eastern Pacific sea surface temperatures where:

W means a warm episode i.e. sea surface temperature (SST) was above normal;

C means a cool episode and

Av means average SST

Date	Impact
January 1858	From the Sydney Morning Herald 26/2/1866: an article featuring a cruise inside the Barrier Reef describes an expedition's stay at Green Island near Cairns. "The wind throughout our stay was principally from the south-east, but in January we had two or three hard blows from the N to NW with rain; one gale uprooted some of the trees and wrung the heads off others. The sea also rose one night very high, nearly covering the island, leaving but a small spot of about twenty feet square free of water."
Middle to late Feb 1863	A tropical cyclone (TC) brought damaging winds and seas to region between Rockhampton and Hervey Bay. Houses unroofed in several centres with many trees blown down. Ketch driven onto rocks near Rockhampton. Severe erosion along shores of Hervey Bay with 10 metres lost to sea along a 32 km stretch of the coast. Twenty acres of forrest were also lost to the sea. From 'Below these Mountains' By Lyall Ford published by Taipan Press Freshwater Qld.- At noon on Friday 13 <sup>th</sup> February 1863 two emigrant ships , the 'Everton' and 'Wanata', were struck by a cyclonic gale while anchored off the northern end of Moreton Bay and both had to run out to sea. The winds eased by noon the next day and they were able to return to the Bay. On the 16 <sup>th</sup> February the schooner 'Bounaparte' arrived in Moreton bay badly damaged. It had encountered the cyclone 60miles north of Breaksea Spit and lost both masts and sustained much damage to its bulwarks. A major flood then occurred in the Brisbane River with one ship coming adrift from its moorings and others had to be removed from wharves. Some stores in the town were flooded several feet deep.
17-19 Mar 1864	Long period of gales in Brisbane. Finished and unfinished houses, stores, sheds, awnings, and signs blown down; roofs and portion of roofs carried away; trees blown down and gardens devastated. Tremendous gales off the coast on 18th. Stone jetty washed away at Cleveland. Considerable wind and rain damage at Toowoomba and trees down at Gladstone. Severe flood at Maryborough reached 27 feet (8.2m) above low water. Water reached the eaves of cottages and one homestead was swept away. The barque <i>Panama</i> , 414 tons, was wrecked on the 18th on Breaksea Spit near Sandy Cape with 10 people on board. At 4 am on 19th wind shifted from ESE to NW with increased violence. The ship was then driven onto the beach and broke in two. One of the crew drowned and ten were lost and never seen again.
2-3 Mar 1867	A tropical cyclone brought gales for 24 hrs at Bowen (2nd) with many buildings unroofed, verandahs carried away and windows smashed. Boats smashed. <b>Townsville hit (3rd) with almost every building blown down.</b>

8 Mar 1867	Cleveland Bay Townsville. A strong gale from the WSW prevailed in the morning. At noon the wind strengthened and the rain became very heavy. The wind backed around to the SSW and continued to steadily shift around the compass. At 2pm the hurricane was at its greatest with pieces of 8 foot (2.4 metres) galvanised iron being whisked away like feathers and from 2 pm to 4 pm it was dangerous to walk the streets. Tents were blown down first, then the roofs and afterwards the houses. The town was a complete wreck. Rain fell in torrents..
21 April 1867	Severe flood and gale at Brisbane and Ipswich; loss of life occurred ; houses were unroofed and damage was done to the new Victoria Bridge works.
26-28 April 1867	Heavy gales and floods southeast Queensland. Wind lasted several hours at Ipswich (27th) and trees uprooted in all directions with some houses and cattle killed or maimed by falling branches. Great damage done to crops and railway embankments. At Logan (27th), trees uprooted in all directions. At Warwick verandah coverings torn to ribbons. Lowest wharves covered by floods in Brisbane. Many dwelling houses flooded. Fences were blown in all directions, windows were smashed and verandahs carried away. Trees were blown out of the ground. Wind lifted house off its foundations and carried it 9 metres. Barometer down to 993 hPa at sea level in Brisbane. Floods destroyed the bridge at Ipswich.
30 Jan 1870	Cyclonic southeasterly winds during the afternoon and evening at Bowen and then turned northerly. Much damage in the town. Assembly rooms and 2 houses blown down. Old telegraph office unroofed. In Herbert street all verandahs down, roofs partially stripped and windows smashed. <b>One man was killed by falling house.</b> Heavy floods south of Bowen. Disastrous flood at Clermont with 5 feet of water over town carrying away houses, furniture and fences. <b>Five lives were lost at Peak Downs and four children were drowned at Lilyvale. In all 15 lives were lost.</b> Thousands of sheep were lost.
20 Feb 1870	A TC hit Townsville lasting 10 hours. A steamer <i>Black Prince</i> and schooner <i>Wonder</i> wrecked. Nearly every house damaged and <b>some completely unroofed.</b> Large trees torn up by roots and streams flooded. Telegraph lines down. Heavy Floods.
5 Mar 1870	Early on 5th at Maryborough wind veered from S to NW and reached hurricane force by daybreak. <b>Weaker houses were levelled to ground.</b> Heavy rain fell. The wind veered to NE and eased but rain came down heavier. By 2pm 5th floods covered the wharf. Severe flood followed and the town cut off from communication with outside world. <b>13.9 inches (353mm)</b> fell at Maryborough in the 24 hours to 9am on the 6th. Flood level exceeded <b>1864 level by 4 feet.</b> Many people were rescued and <b>one woman drowned.</b> At Gympie 4 houses were badly damaged by the winds and many trees were blown down. Floods there came up quickly on the 6th and flooded many buildings.
28 Dec 1873	A TC hit Bundaberg and Maryborough. The worst began at Bundaberg at 5am 28 <sup>th</sup> and <b>13 houses were blown down and some entirely destroyed.</b> Hotels and commercial buildings were unroofed and farm houses were blown flat to the ground. Window panes were blown out of buildings. At Maryborough a Southerly gale started Saturday night and blew all Sunday (28 <sup>th</sup> ) but no damage was mentioned. The vessel <i>James Patterson</i> encountered strong SE wind Wide Bay and wind veered to E and N ending in NW gale. Hove to off Wide Bay Bar for 24 hours and crossed bar at 3.00 pm 28 <sup>th</sup> . <b>Schooner James Nash still missing 26<sup>th</sup> January 1874 with 7 on board.</b> They left Baffle Creek for Maryborough on the 29 <sup>th</sup> December 1873.
22 Jan 1874	A furious gale along the northern coast destroyed much property. At St Lawrence <b>a new wharf disappeared, the Post Office and miles of telegraph lines were blown down and several stores were wholly or partially destroyed.</b> Trees for miles around were uprooted. The schooner <i>Countess of Belmore</i> was badly damaged. At Keppel Bay some of the houses were partially unroofed and the jetty was washed away. <b>Although it was neap tides the sea rose 3 feet higher than ever before.</b> The ketch <i>Hibernia</i> was driven ashore on Northwest Island (all safe). The <i>James Patterson</i> grounded on Masthead Island (all rescued).The S.S. <i>Lord Ashley</i> was caught in it and was almost wrecked.
25 Feb 1874	The ship <i>Southern Belle</i> encountered a furious gale off Frazer's Bay and narrowly escaped shipwreck. She was eventually towed into Keppel Bay on 5 March. The schooner <i>Chance</i> returned to Maryborough on 26 <sup>th</sup> Feb disabled. It was 200 nm on its way to Noumea when it encountered a gale which lasted for 2 weeks. The schooner <i>Io</i> struck SE gales on the 21 <sup>st</sup> at Refuge Bay and NE gales off Gladstone on the 24 <sup>th</sup> /25 <sup>th</sup> .

24 Feb 1875	Steamer <i>Gothenberg</i> wrecked off Cape Upstart (near Ayr) in TC <b>102 lives lost</b> . On the 23rd NE gales and 8 inches (203mm) at Rockhampton. Gales and heavy rain at Maryborough. Winds at Maryborough were stronger on the 24 th with flood rains. Flood there reached it highest point on the 28 th at 28 feet (8.5m) above normal low water. At Pialba on 25th wind shifted from NE to SE and increased to a heavy gale with continuous rain. Heavy erosion on the beach. On the 26th gales shifted to NE. On the 1 <sup>st</sup> March R.M.S. <i>Brisbane</i> experienced a very heavy gale on the voyage from Sydney. Both saloon and second class cabins were flooded, the deck planks were damage and several horses and sheep drowned.
16 Mar 1875	Gales and heavy rain at Maryborough. Verandahs were blown down. A vessel at sea reported:- SE gale off Wide Bay bar on the 16th. !7th E and stronger gale with huge seas washing boat off deck.. 4pm 17th wind lulled and turned W. 7pm 17th hurricane force WNW winds. Midnight moderating weather.
17 Feb 1876	Severe gale at Townsville with much damage in the town. On the 16 <sup>th</sup> at Bowen a child was killed and a number of people were injured. In Bowen several buildings including the hospital were blown down while others including the Council Chambers and the Lands Office were shifted or greatly damaged. The hurricane was of short duration in Bowen (where there was 2 fatalities) with many injured by flying debris and a horse was cut in two by a flying sheet of iron.
21 Mar 1876	<b>Heavy gale at Townsville. SSBanshee wrecked at Hinchinbrook Is with seventeen persons drowned.</b>
8 Mar 1878 -15.5(-15.2) End W	<b>TC hit Cairns. Iron roofing flying through air many properties destroyed. Steamer Louise, and sailing vessels Merchant, Kate Conley and Hector Miss were sunk in Cairns inlet with no survivors ever found. See "Ships and cedar cargo caught" from Johnstone Shire Story.</b>
2 Feb 1882 -1.3(-1.0) Start C	TC hit Cardwell with considerable damage. Wind commenced Thur 2 <sup>nd</sup> and blew all night and throughout Fri there were many squalls. Shewroft's Hotel and 3 houses were blown down and a number of other houses unroofed.. There were sheets of iron flying all over town. A boatshed was demolished, the boats were broken up and the jetty was swept away. The vessel Victory heading south anchored under South Barnard Island near Innisfail for shelter, but after losing both anchors headed for Cardwell. At Dungeness near Hinchinbrook, the steamer Kent was blown over the mangroves into the scrub. The Gunga heading south took refuge in Mourilyan Harbour. Plantations in the Herbert were badly damaged.
30 Jan 1884 -12.5(-10.9) Start W	TC hit Bowen gale commenced Tue night 29 <sup>th</sup> . On the 30 <sup>th</sup> an Auctioneers premises, A Merchants premises, the R.C. church, a brick primary school and 2 Banks <b>were blown down</b> . The brick 2 story Supreme Court, Immigration Depot, Magistrates Quarters, 'Times' Office, Bank of NSW and all the hotels were <b>unroofed and badly damaged</b> . Numerous other buildings in the town and country were blown down and <b>100 people were left destitute</b> . Only <b>3 houses were left standing</b> . The wind <b>drove the sea on shore to the fences of the telegraph office (50 yards from the shore)</b> . <b>The sea broke over the jetty</b> . The Steamer <i>Fiado</i> was taking on board a cargo of frozen meat from the Poole Island Meatworks and the jetty there was washed away and the <i>Fiado</i> was beached. Reports of an <b>estimated 3 metre storm surge</b> at Poole Is from Holthouse's book <i>Cyclone</i> . The steamer launch and all punts disappeared. The Pilot Shed was flattened and all pilot boats and the cutter were swept away. All boats were broken up. Many cattle and horses were killed by falling trees. Further inland at Ravenswood on the 30 <sup>th</sup> the R.C. church was levelled, the priest's house partially blown away and the Anglican parsonage and a shop were unroofed. Many private houses were unroofed and a few entirely blown down. There was a heavy flood at Mackay.
21 Jan 1887 12.2 (12.5)	Heavy gale and rains over southern part of Queensland with intense damage. 19th-21st - W to NW gale off Double Island Point with telephone lines down along the coast. A ship, 43 km ENE of Noosa at 8pm 20 <sup>th</sup> read bar 1002 hPa had SE winds and heavy NE swell. Bar 998 hPa at midnight with hurricane force winds then a lull with bar down to <b>992 hPa</b> . Then the wind turned NE with gales at 8pm 21 <sup>st</sup> moderating by 8am 22 <sup>nd</sup> . At 9am Friday 21 <sup>st</sup> 2 inches or 51mm of rain past 24 hours in Brisbane and then <b>8 inches (203mm)</b> in succeeding 12 hours with gales. No major wind damage though <b>easterly gales at Sandgate had seas breaking over the jetty and all the bathing houses were washed away</b> - large trees were blown down in different directions. <b>A man was drowned at Wolloongabba and another at South Brisbane</b> . At Goodna flooded houses were under water. Rail lines cut out of Brisbane - Bowen Bridge 5 feet (1.5m) under water 4pm a large number of people were rescued from Breakfast Creek and a house

	<p>floated into the Creek. Many people were rescued from the South Pine River and 2 miles of railway was washed away between Toombul and Bald Hills.</p> <p>On Saturday 22<sup>nd</sup> there was little rain in Brisbane with the low overland to the west. Many people rescued from floodwaters around Breakfast Creek.</p> <p><b>Two men were missing at Gold Creek reservoir believed drowned when water in the form of a large bore came over the by-wash</b> . The baths were carried away at Ipswich. <b>Three girls aged 7 to 10 were missing believed drowned.</b> 23rd - Very high flood Brisbane <b>crewman of barque Afton drowned</b> after the boat was swamped in fast flowing Brisbane River. 24th - 18 inches (457mm) in 24 hours at Brisbane - railway line washed away Laidley- boats rescuing people South Brisbane- <b>two men drowned- enormous amount of timber lost to sea</b> - There was fearful loss of property on the Logan River with the destruction of the railway Bridge. <b>At Logan a family of five were drowned, two men were drowned, a man and his son were drowned crossing a creek and 60 to 70 families were washed out of their homes.</b> 25th - The steamer <i>Barrabool</i> ran aground in Brisbane River and <b>two sailors drowned</b>. Flooding also at Bundaberg, Maryborough and Gympie (river 40 feet (12.2 m) above normal). There were stock losses in the thousands in the Warwick area. One newspaper (<i>Maryborough Chronicle</i>) <b>had the loss of life around Brisbane as 70.</b></p>
8 Feb 1887 11.0 (11.1)	SE to ESE gale with shipping halted and a 17 ton ketch lost on Wide Bay Bar.
22 Feb 1887 11.0(11.1)	Cyclone off Bloomsbury (north of Mackay) 23rd. SE gale off Woody Island (Hervey Bay) 22nd with floods Gympie, Maryborough and Tewantin. Maryborough 13 inches (335mm) in 24 hours on the 26th. Heavy floods at Maryborough and Bundaberg on the 27th.
17 Feb 1888 -2.2(-5.6) C	TC recurved just east of Mackay. <i>Geelong</i> ran aground <b>2 drowned</b> . <i>Youyang</i> dismasted. <b>Several Mackay houses completely demolished.</b> Wharves awash at Rockhampton (20th). Flooding at Pialba with water three feet over the road at Stockyard Creek and rising and trees blown down in all directions. Enormous Breakers were raging outside of Fraser Island
28 Jan to 1 Feb 1890 20.8 (21.9) C	TC off North Coast 28 <sup>th</sup> (the bar at Townsville on the 28 <sup>th</sup> was 995.6 hPa), Central Coast 30 <sup>th</sup> and South Coast 1 <sup>st</sup> . Floods at Maryborough 28 <sup>th</sup> , the wharves were under a foot of water and a <b>man drowned in Alice Street</b> . In Bundaberg there was <b>one known death</b> and Plantations, Sawmills, a Foundry and farms were badly damaged by floods and 200 houses were affected some submerged to the roofs. Easterly gales reported at Burnett Heads. There were floods at Gympie and Brisbane peaking on the 25 <sup>th</sup> with 4 to 7 feet of water over Mary Street at Gympie. At Mackay gales and heavy seas disrupted shipping on the 29 <sup>th</sup> .
11 Mar 1890 14.3(10.4) C	TC crossed S Qld coast. Brisbane River Flood. 24 hour rainfall totals to 360 mm. Barometer at Maryborough 996 hPa 9.30 pm 9th with freshening and veering SW to NW winds bar down to 985 hPa 7 am 10th. Flood at Gympie 47 feet (14.3 m) above normal. Cyclonic affects Gunalda 9th/10th. Storm surge Sandgate 9/10 <sup>th</sup> . Record flood Lockyer Valley 83feet above normal Lowood Bridge 11 <sup>th</sup> , Brisbane flood 5.33m (13 <sup>th</sup> ) with 5 people drowned. The <i>Agnes</i> which survived the July 1889 winter cyclone foundered north of Brunswick heads with all hands lost. 3 bodies were washed ashore on the 12 <sup>th</sup> and the other 5 bodies were never found. <b>01Z 10 Mar 0.52m Surge Moreton Bay</b>
24 Mar 1890 14.3(10.4) C	TC crossed coast near Cardwell 24 <sup>th</sup> and recurved over Fraser Island 28 <sup>th</sup> bringing disastrous floods over much of Queensland and northern NSW. At <b>South Barnard Island:</b> two men were drowned when their boat was swept away after losing its jib. The <b>house on the Island was blown down</b> and the wife of one of the men was stranded for 2 days with her 4 children. <b>Two aboriginal beche de mere fishermen were drowned.</b> <b>Cardwell:</b> the winds started 7pm Sunday 23 <sup>rd</sup> and were at their worst until 7am Monday 24 <sup>th</sup> . <b>Only 4 houses were left standing</b> , the rest were wholly blown down, unroofed or destroyed. Two Govt. boathouses were destroyed, the jetty was wrecked, the Schoolhouse blown down, and the Courthouse almost blown away. The tide came up over the bank. <b>Dungeness:</b> (mouth of Herbert R.) The <b>sea came up high over town and all people left the town.</b> All buildings were more or less damaged with houses and shops blown down and Customs House unroofed. The schooner <i>Mary Ellen</i> was wrecked in the Herbert R. and 4 punts were wrecked. At <b>Halifax a man was killed</b> when a house blew down on him and a man was <b>drowned</b> at Victoria plantation. At <b>Ingham</b> the C. of E. was levelled to the ground. <b>Townsville:</b> a gale blew all Sunday 23 <sup>rd</sup> night until 9pm Monday 24 <sup>th</sup> with <b>15 small houses</b>

	<p>wrecked by the wind, <b>30 homes</b> blown off their blocks, 40 verandas wrecked and <b>3 or 4 houses washed away</b>. 110 people were homeless with the whole of Hermit Park under water. Heavy seas rolled over the top of the Breakwater which was <b>6 feet above high water spring tides</b>. Two boats sank in Ross Creek, the Launch <i>Eleanor</i> was lost, the ketch <i>Snowdrop</i> lost and the Customs launch sank. A <b>man</b> was washed off a cart and <b>drowned</b> and a <b>woman was killed</b> when her house caved in.</p> <p><b>Burdekin: 431 mm in 24 hours</b> at Ravenswood. A <b>man drowned</b> at Sellheim, several houses disappeared, a <b>man drowned</b> at Sandy creek and a <b>rescuer drowned</b>. <b>Ayr:</b> Church razed to the ground and the Police building unroofed. <b>Mackay: man drowned</b>.</p> <p><b>Emu Park:</b> Wednesday 26<sup>th</sup> 15 inches (381mm) in 12 hours and man <b>killed by lightning</b> 6.30 am Wed. Schooner <i>Matha Reid</i> dismasted and captain knocked senseless and thought to have died..<b>Darling Downs: 2 policeman missing</b> in floods near Dalby and at Roma 100 people were evacuated from floods. <b>Beaudesert: man drowned</b> in creek 28<sup>th</sup>. <b>Stanthorpe: Numerous buildings washed away, man drowned and a large number of stock lost</b>.</p>
<p>2 Apr 1892 6.9(9.3) C</p>	<p>TC recurved over Brisbane with <b>2 deaths</b>. Wind raged from 8am to 4pm Sat 2<sup>nd</sup> and the lowest bar at Brisbane (corrected to sea level) was <b>991.5 hPa at 2.30 pm</b>. <b>Clement Wragge quoted the wind strength in Brisbane 60 to 70 knots. 4.94 inches (125mm) of rain fell in Brisbane</b> during the storm.</p> <p>Details of damage in inner parts of Brisbane: <b>City</b> - Fences down, glass cracked, iron structure blown over and landslide at North Quay. <b>New Farm area</b> -Several houses partially unroofed, balconies badly damaged and a chimney crashed through a house at Bowen Tce. Chimney blown over at Teneriffe. <b>Sth Brisbane</b>- Sheds and outhouses unroofed, fences down, house unroofed Julia St and Church destroyed on top of Highgate Hill. A house was badly damaged at Coorparoo. <b>Kangaroo Pt.</b> - Several houses destroyed and unroofed, St Marys C. of E. (stone building) badly damaged. <b>Spring Hill</b>- Roof from house hit horse and killed it. Another house unroofed in Upper Edward Street and fences down. <b>Botanic Gardens</b>- Large shade trees levelled, snapped off close to roots. <b>Red Hill</b>- Shop badly damaged in Caxton Street, two shops completely demolished Musgrave Rd, a veranda blown away in Cairns Sr and a house destroyed corner of Latrobe Tce and Enoggera Tce. <b>Toowong</b>- Large trees uprooted, sheds blown off stumps and badly stripped. <b>Brisbane River</b>- wind blew funnel of <i>Bonito</i> three of the crew blown overboard and <b>one drowned</b>. Moreton Bay- A steamer on a reef near Mud Island. <b>Samford Rd</b> -<b>Farmer killed in when cart overturned trying to dodge fallen trees</b>. <b>Breakfast Creek</b> - rose rapidly at high tide at noon and kept rising during the afternoon flooding low parts. <b>House blown over Eildon Hill</b> and some houses partially unroofed and verandas wrecked at Hamilton. <b>Runcorn</b>- Bone Mill unroofed. <b>Beenleigh</b> - A great deal of damage <b>iron ripped from many roofs</b>, windows blown in, trees uprooted and fences blown down. <b>Southport</b>- at 8pm Fri 1<sup>st</sup> SW wind turned SE by daylight and at 10.30 am from the east. The worst wind was from 1pm to 2pm Sat 2<sup>nd</sup>. Immense tree were blown down, kitchen removed from house in Nerang St, a house on the Esplanade lost most of its roof, a stable was unroofed, the windows of the hotel were blown in, the veranda of a shop was wrecked and a house was partly unroofed. The sea came up over the Esplanade in places and 7 chains of the seawall was washed away. <b>Tweed Heads</b>- 2 hotels and the Police Station badly damaged, two houses were dismantled, hardly any building escaped some damage. 3 sea vessels were grounded. Some of the worst damage was Saturday night 2<sup>nd</sup> with a tornado. <b>Redland</b>- Every house suffered, a house on the Esplanade was unroofed, stables and outhouses were unroofed or blown down and a cutter was grounded. Schooner <i>Bellringer</i> with cargo of 49,000 feet of cedar driven ashore at Stradbroke Island.</p>
<p>21 Jan 1893 11.3(7.4) C</p>	<p>TC passed just east of Brisbane where mslp was down to 985.1hPa at 3am 22<sup>nd</sup>. At 5.30 p.m., Saturday- Barometer at Double Island Point was <b>983.7hPa</b>, whole gale from <b>south</b> with tremendous seas. Many trees uprooted, signboards carried away and <b>a few houses in the suburbs demolished</b>. At Maryborough on the 21st winds were southerly in the morning, west in the afternoon and turned cyclonic northwesterly in the evening with the greatest force at night. There were 2 deaths N NSW. The 285 ton wooden steamship <i>Tweed</i> was destroyed by waves on the 21<sup>st</sup> at Byron Bay having been grounded 2 weeks earlier by large seas. 0.58m surge Moreton Bay 2000UTC 21<sup>st</sup>.</p>
<p>1 Feb 1893 7.7(5.9) C</p>	<p>TC crossed the coast near Yeppoon <b>smashing buildings</b> and uprooting trees. Bar dropped to <b>969 hPa</b> when TC passed over the <i>Buninyong</i> near the Northumberland Group. <b>Wrecked 225 ton steamer Dickey</b> on Dickey Beach Caloundra. TC headed south and Crohamhurst (on Stanley R)</p>

	<p>recorded <b>907 mm of rain in 24 hrs</b> to 9am 3 Feb. A <b>15.2 m high wall of water</b> was observed to roar down a Stanley R gorge. More than <b>150 houses washed down</b> Brisbane R. <b>Indooroopilly Railway Bridge</b> and the <b>Victoria Bridge</b> both washed away. Flood height reached <b>9.25 m</b> on Port Office Gauge. <b>Seven men drowned</b> in an Ipswich Colliery. <b>Four children drowned</b> on the 3rd and a <b>policeman drowned</b> in a rescue attempt. On the 4th a <b>man drowned</b> after rescuing his father at South Brisbane. On the 6th a <b>man was found drowned</b> at O'Connell Terrace, a <b>boy drowned</b> at Petrie Terrace, a <b>man was drowned</b> at Rosalie and <b>two men were drowned</b> when a punt capsized at West End. On the 7th <b>two men were found drowned</b> at the Valley and Bowen Bridge and <b>three men were lost</b> when a boat capsized in the Brisbane River. At Maryborough <b>two men were drowned and a family missing believed drowned</b> while trying to cross the river. Unprecedented flooding at Maryborough with the Mary river Bridge washed away. The river peaked there at 4pm on the 5th with more than 130 families homeless after more than 130 homes were swept away. At Gympie numerous houses were washed away with a large number of homeless. There were <b>other deaths</b> in outlying areas.</p>
11 Feb 1893	<p>Short lived TC crossed the coast at Bustard Heads adding to Brisbane Floods. <b>Schooner (150 tons) wrecked at Inskip Point and a body of a man washed ashore.</b> Bar dropped to <b>982 hPa</b> on the <i>Fitzroy</i> in Hervey Bay on the night of the 10th/11th. <b>11Z 11 Feb 0.64m Surge Moreton Bay</b></p>
17 Feb 1893	<p>TC crossed the coast at Bundaberg. Floods in Brisbane R rose again and at <b>1020 am 19 Feb came within 25 cm of peak reached a fortnight earlier.</b> <b>Two children drowned.</b> TC induced <b>tornado</b> in Moreton Bay levelled 20 m wide path in forest and lifted boats out of water. Blew down several houses. House at Redcliffe blown along some distance and buggies lifted into trees. Floods from Rockhampton to Grafton. <b>05Z 17 Feb 0.61m Surge Moreton Bay</b></p>
19 Feb 1894 10.0(11.0) C	<p>TC passed east of Brisbane. <b>0.58 m</b> storm surge Moreton Bay tide gauge. There was an exceptionally high tide Monday (19<sup>th</sup>) morning at Southport-The low lying lands along the Esplanade were inundated, several bathing houses were destroyed. There was a very high tide at Cleveland with water flowing over the point. Also high tides in the Brisbane River with low lying wharves under water and ferry landings unapproachable.</p>
13 March 1894	<p>TC passed east of Cape Moreton with severe gales.</p>
6-8 Apr 1894 -3.0 (-0.8)	<p>The western edge of tropical disturbance <i>Zeta</i> (named by Clement Wragge) struck the coast in the vicinity of Cape Tribulation at 4.30pm 6 April. Unspecified damage was reported at Cooktown by the Courier Mail. Herberton reported 8.13 inches of rain in the 24h to 9am 7 April and Ingham 5.27 inches in the same period. During 7 April the Wild River poured over the bridge at Herberton. On the night of the 7<sup>th</sup> the Burdekin rose 20 feet over the railway bridge and was still rising. At Charters Towers the Burdekin rose 45 feet in 24h and was 40 feet over the rails, which was the highest for 13 years. At Townsville on the night of the 6<sup>th</sup> the winds increased to gale force and the next morning waves broke over the eastern edge of the jetty. At Geraldton (Innisfail) the river on the 7<sup>th</sup> reached a record level for the time. 3 feet of water came into in the Goondi Mill and the wharf, which was 40 feet above the level of the stream was submerged by 4 feet. All the lower parts of the Geraldtonj were under water on the morning of the 7<sup>th</sup>. 130 people took refuge in Public Buildings and several houses were almost completely covered by water. One man lost his life during rescue work while his mate had a narrow escape. 300 bunches of bananas were washed away. The gales blew down large areas of sugar cane.</p>
<i>Sigma</i> 26 Jan 1896 1.3(0.9) W	<p>TC passed just to <b>northeast of Townsville.</b> Bar at Townsville dropped to <b>991 hPa.</b> Ships were wrecked in the harbour, fences were laid flat and verandahs stripped off houses. Trees 6 ft in circumference were blown down. Seas were enormous and 510 mm of rain fell in Townsville during the cyclone. <b>Floods and storm surge</b> flooded the lower parts of Townsville with over <b>1.8 m</b> of water. 3 miles of suburbs became an inland sea with <b>large waves</b> breaking on the banks. <b>Seventeen people drowned</b> as a result and <b>one sailor was killed.</b></p>
<i>Eline</i> 4 Feb 1898 6.3(10.5) C	<p>TC recurved over Mackay. <b>Queen's, Riverview and Belmore Arms Hotels were unroofed and their verandas were blown away. The Courthouse was blown down, two churches, the blacksmith's shop, the Brewery, a stable, a shop and the Newspaper office were wrecked</b> and another church was forced off its blocks. A store, a wharf, the Railway offices and many houses were damaged. Two houses collapsed. Other buildings lost balconies, roofing iron and outhouses were blown down. The 24 hour rainfall in Mackay to 9am 5<sup>th</sup> was <b>12 inches (305 mm).</b> <b>Floods shortened the path of the Pioneer R to the sea by 4.8 km</b> (its present course). Lowest bar</p>

	reading was <b>984 hPa</b> . <b>All the buildings</b> on Flat Top Island were <b>destroyed</b> except the lighthouse.
12 14 Feb 1898 6.3 (10.8) C	Cyclone of monsoon origin tracked from the continent over Brisbane and down the NSW coast. The bar (at sea level) in Brisbane at 4pm Sunday 13 <sup>th</sup> was 997.7 hPa. The brig <b>Amy (220 tons) after leaving Woolongong at 9am 14<sup>th</sup> was driven ashore near Bulli and the crew of 8 all drowned. Another man died</b> on the beach from shock. The brigantine <i>Malcolm</i> foundered at Bulli and <b>the crew of 6 hands were lost</b> and 500 feet of the Bellambi jetty was washed away. The ship <i>Atocama</i> was abandoned on the 12 <sup>th</sup> 500 nm off the coast and <b>the Captain and 3 of the crew were saved but 13 of the crew were lost at sea</b> . The Schooner <i>Mary Peverill</i> was beached in the Whitsunday Passage though the crew survived. <b>Two men drowned</b> at Bungendore (near Canberra) in floods on the 15 <sup>th</sup> . In Sydney trees were uprooted, verandas were carried away and the ferries were suspended. The yacht <i>Greyland</i> was capsized (crew saved) in the harbour. <b>There were 30 known deaths</b> associated with this event.
6- 7 Mar 1898 19.2(12.2) C	TC <i>Luita</i> passed east of Brisbane and recurved towards SE. 508 mm of rain recorded in 48 hours at Crohamhurst. Water 4 feet (1.2m) over wharfs at Maryborough. Gales and very high seas along the South Coast. 3.27m Flood Brisbane.
<i>Mahina</i> 5 Mar 1899 13.8(9.1) End C	TC crossed the coast at Princess Charlotte Bay. Barometer read at <b>914 hPa in the eye</b> . <b>307 known fatalities</b> (295 Asian and Island origin and 12 European origin). Additionally about <b>100 Aborigines were swept out to sea or killed</b> by widespread falling trees in Forest country. <b>55 schooners</b> or other large vessels were lost. <b>55 luggers</b> were lost and 12 badly damaged. <b>42 other vessels</b> were wrecked and 12 badly damaged. There was a <b>huge storm surge of 14.6 m</b> on Barrow Point. On Flinders Island porpoises were found <b>15.2 m</b> up on the cliffs.
<i>Leonta</i> 9 Mar 1903 17.6 (8.1) End W	TC recurved over Townsville. Bar read down to <b>965 hPa</b> . Hurricane force winds were SW to S. Much severe wind damage with flying roofing iron, <b>buildings blown over</b> and verandahs wrenched away. The Townsville <b>Hospital with 36 cm thick brick walls was wrecked</b> by the wind and the brick <b>Grammar School was destroyed</b> . <b>Eight people were killed</b> in the hospital and there were <b>10 deaths in total</b> .
27 Jan 1906 -3.5(-8.0) End W	TC crossed the coast at Cairns. The wind commenced at 2.30pm and reached hurricane force until 9pm the town with iron was flying all directions. Wind moderated around 4am Sunday (28 <sup>th</sup> ). Sheets of roofing iron off houses, parts of verandas and branches off trees were strewn about the town. The storm was most severely felt in Chinatown, half of which was completely wrecked. Rhodes Hotel was unroofed and had several doors and windows blown in. The Crown Hotel stables were completely destroyed. The Newmarket Hotel had its roof lifted off. A boarding house was unroofed. The Methodist Church was blown off its stumps and the back of the building was destroyed. The Commercial premises of Preston and Co. was destroyed. The Commercial premises of Smellie and Co. lost its veranda and sustained serious roof damage. The Commercial premises of Newell suffered considerable damage. The 'Morning Post' lost its veranda. Till's sawmill was badly damaged. Private dwellings suffered damage and all old buildings suffered some damage. Many buildings destroyed in Innisfail and widespread damage to canefields and banana plantations.
TC 4 Mar 1906 - 5.2 (-7.1)	TC crossed the coast near Cairns and wrecked the town of Croydon. At 7am 4 <sup>th</sup> cyclonic winds began at 10 am there was a lull and then the winds resumed from the opposite quarter. Two churches were wrecked and another was blown off its stumps. The Post office lost part of its roof and the Court House was damaged. Three hotels were severely damaged and only portions of another two were left standing. Two houses were wrecked and all buildings more or less suffered with scores of people homeless. Severe damage also in surrounding towns. At Normanton the wind started Saturday night 3 <sup>rd</sup> and continued overnight though damage was slight with only portions of roofs dislodged. There were gales at Mackay on the 3 <sup>rd</sup> and the 5 <sup>th</sup> with the river in flood. A bridge was washed away at Cattle Creek.
19 Jan 1907 5.1(3.8) C	TC crossed the coast just to the north of Cooktown. Many buildings were totally <b>wrecked including 3 churches, two schools, 4 halls, 3 hotels, several shops and a large number of houses</b> . <b>There were 9 deaths</b> .
12 Mar 1908 0.2(8.2) C	TC crossed the coast near St. Lawrence. <b>Widespread damage</b> to trees, buildings, fences and telegraph lines between St Lawrence and Nebo. 3.59m Flood 15 March Brisbane. Floods also Fitzroy, Burnett, Mary, Logan and Albert. Serious flood at Rosewood.

<p>28 Jan 1910 5.6(8.5) C</p>	<p>TC crossed the coast to the north of Cairns on the 27<sup>th</sup> , then recurved west of Cairns before passing back out to sea on the 30<sup>th</sup> . On the 26<sup>th</sup> Strong gale at Cooktown from the SSE bar 994.9 hPa, two boats blown ashore. On the 27<sup>th</sup> W to NW Gale at Cooktown SE gale at Cairns. All the pleasure craft along the Esplanade at Cairns were swamped. Heavy gale and tremendous seas at Cairns. <i>Bombala</i> ran aground. On the 28<sup>th</sup> Heavy rains in Townsville and Ross Creek and Ross River in flood. Banked up by a 10 foot tide the river covered large portions of Hermit Park and South Townsville. 30<sup>th</sup> at 9am bar at Mackay 990.9 hPa with strong SW winds. At 9pm a whole gale from ESE at Sandy Cape. There were washout and railway line flooding in the Rockhampton area. There was a major flood at Mackay with damage to the bridges and the railway and stock losses.</p>
<p>11 Jan 1911 3.2(6.9) C</p>	<p>TC passed from Gulf south through inland Qld. Severe damage at Marburg and whole gale SE Qld coast. Landslide blocked No. 10 Tunnel on Cairns to Kuranda railway. Rail washaways on Cloncurry line and in the Mackay district. Sea-baths damaged at Sandgate. Ships unable to enter Moreton Bay.</p>
<p>10 Feb 1911 1.6(2.8) C</p>	<p>TC passed to the east of Pt Douglas. 3 buildings partially unroofed. Sugar cane damaged. Another landslip blocked No. 10 Tunnel on the Cairns to Kuranda rail line. 17 inches (432 mm) of rain in 24 hours at Redlynch near Cairns.</p>
<p>16 Mar 1911 3.5(2.4) End C</p>	<p>TC crossed the coast near Pt Douglas. Bar read at <b>959.7 hPa</b> by ship at Low Woody Is (9 nm south of Cape Flattery). <b>Two lives were lost</b> at Pt Douglas and <b>most buildings</b> in the town were levelled only <b>7 out of 57 houses left</b> standing with <b>100 persons left homeless. Similar damage at Mossman.</b> At Cairns balconies stripped off buildings and roofing iron lost and verandahs collapsed .The Empire Hotel had the Balcony torn off and one wall stove in. The cargo sheds on the wharf were badly damaged and one shed was wrecked. Considerable damage was done to houses, outhouses and stables in the suburbs with one house lifted completely off its stumps. The Chillagoe Company Warehouse and the Harbourmasters office were unroofed. Two boarding houses were badly damaged. A whole row of shops in Spence Street were badly damaged by one terrific gust. At Nelson on the Mulgrave, the hotel was wrecked, the ventilating roof of the Mulgrave Mill was taken away and a great deal of damage was done to the residences. Widespread damage to plantations near Cooktown by winds and floods.</p>
<p>23 Mar 1911 3.5(2.4) End C</p>	<p><b>TC wrecked Yongala , 3664 tons, just to east of Townsville 120 lives lost. One of the searchers reported that a few miles south of Cape Bowling Green a vast swathe was cut through the bush with every tree uprooted or snapped off. Another searched found the northern side of Cape Upstart swept clean of trees, snapped off 8 feet (2.5 m) from the ground.</b></p>
<p>7 April 1912 -21.2(-14.3) End W</p>	<p>TC recurved east of Cairns. Several houses badly damaged at Innisfail. Crop suffered badly, 40 % loss of banana and sugar crops. 4 boats lost.</p>
<p>16 17 Jan 1913 -3.5(-5.5) C</p>	<p>TC recurved seaward of Bowen. Shipping delayed along the Queensland coast South of Bowen due gales and huge seas. Floods and rail washouts Bundaberg area. Rosedale recorded 19 inches (483mm) and Bundaberg recorded 30.75 inches (<b>781mm</b>) in 41 hours including 10 inches (254mm) in 8 hours. <b>A man was drowned in Childers. A child was drowned</b> at Baffle Creek when a tree fell on a boat containing a family of 5.</p>
<p>22 Jan 1913 -3.5(-5.5) C</p>	<p>A cyclone moved eastward north of Cooktown. Cyclonic winds at Cairns. Big seas on Cape Grafton, the breakers on Barron Spit were visible for miles and all low parts of the town submerged. The Harbour Board flats were a sea of water.</p>
<p>31 Jan 1913 -3.5(-5.5) C</p>	<p>TC crossed the coast near Cairns. Front of <b>Stock Exchange blown in</b>, the Rice Mill on the Esplanade was severely damaged, balconies were stripped off buildings, two houses were lifted completely off their stumps, a sawmill was unroofed and other sheds were unroofed. Many trees were blown down. The <b>sea came onto the land</b> with a strong easterly gale on the morning of the 31<sup>st</sup> damaging many boats and smashing the seawall. Banana plantations were destroyed at Freshwater near Cairns. All trees were blown down on Green Island and it was denuded of vegetation. Seas broke right over Upola Bank and thousands of dead birds were found lying on the sandbanks. At <b>Yarrabah</b> the boy's Quarters were blown down, the girl's Quarters were badly damaged and out buildings were unroofed and a <b>baby died</b>. At Innisfail balconies and roofs were lost though most damage was caused by severe floods. <b>Goods and Buildings washed down River. Four lives lost.</b> In the district <b>90% of banana crop</b> lost and there was severe damage to other</p>

	<p>crops. <i>SS Innamincka</i> grounded. Record floods Cairns and Malanda districts with much damage to roads and bridges and railway lines. <b>Schooner <i>Dancing Wave</i> missing. At Innisfail 100 houses were under water</b>, at Ingham 25 feet of water was over the bridge and at Cairns the Mulgrave was 20 feet over the railway bridge.</p>
<p>9-11 Feb 1915 -2.2(-14.6) Start C</p>	<p>TC moved parallel to the coast south of Townsville. At Bundaberg SE gales blew all night 8<sup>th</sup> /9th and on the 9<sup>th</sup> veered to westerly reaching hurricane force and the bar there went down to 983.1 hPa at 1pm. A number of houses suffered considerable damage there. The roof of a shop blew into the main street and a new building (almost erected ) was blown down. There was much damage to orchards and many trees were blown down in the surrounding country. There were cyclonic conditions at Hervey Bay on the 10<sup>th</sup> with the school being blown down at Pialba. Moderate flooding in the Mary River and local flooding in coastal districts south of Mackay. <b>Two men drowned</b> in the Stanley River at Woodford where they recorded 1146 points (291 mm) in the 12 hours to 9pm 9<sup>th</sup> . At Eumundi a large number of trees were downed and stock were lost. On the 9<sup>th</sup> at Manly gales and rough seas swept boats from their moorings and a wall was damaged. There was a 0.58 metre storm surge on the Old Pile Light tide gauge in Moreton Bay at 0907 UTC 11 February.</p>
<p>27 Dec 1916 15.4(10.1) C</p>	<p>TC crossed the coast near the Whitsunday Is. Dent Is recorded <b>958 hPa</b>. Lighthouse installations at Dent Is and <b>Flat Top Island were badly damaged</b>. TC then moved into the Clermont area causing <b>disastrous floods and the loss of 62 lives</b>.</p>
<p>15 Dec 1917 22.5(19.3) End C</p>	<p>TC crossed coast south of Bowen. Gales heavy rain.</p>
<p>21 Jan 1918 14.6(17.9) C</p>	<p>A TC crossed the coast just north of Mackay. The lowest pressure of <b>932.6 hPa</b> was recorded at 7.30 am 21<sup>st</sup> by a private observer (T. Croker) about 5 km from Mackay north of the river. Before the reading the winds were cyclonic south-easterly then there was a sudden lull and the winds turned northerly in a very short space of time the winds reached cyclonic strength. The Post Office barograph fell to 944.8 hPa at 4am 21<sup>st</sup> but was prevented by the flange from falling below 944.8 hPa.. The wind changed from the southeast to the north around 8am 21<sup>st</sup> with no abatement and increased in violence. The Harbour and Rivers Engineer's to Parliament stated that the cyclone was accompanied by an elevation in sea surface in the form of a wave which at Mackay slowly rose for about an hour reaching a <b>height of 7 foot 9 inches (2.36 metres)</b> above the highest spring tide level. Hardly any building in Mackay escaped damage and a <b>thousand were destroyed</b>. Three steamers were sunk and three were grounded. The cyclone brought a <b>3.6 m storm surge into Mackay</b>. An account by a Miss Moreton stated that the tidal water reached her house at 4.45 am and she drifted on floating debris until 8.50 am. One observer saw a <b>wall of water 7.6 m high</b> sweep over the beaches towards the town at 5 am 21 January at the height of the cyclone. In 1987 a survivor recalled seeing <b>waves 2.4 to 2.7 m high breaking in the centre of Mackay</b>. Severe storm surge damage was also experienced at Slade Point, Blacks Beach and Eimeo Beach north of Mackay. The cyclone was very large in size and destructive winds extended down to Rockhampton with the worst damage occurring after the winds shifted from SE to NE . Several houses were unroofed in North Rockhampton and along Lakes Creek Road. Trees were uprooted including large jacaranda trees. Many houses had verandas blown off and lost portion of their roofs. <b>Two men were drowned</b> at Rockhampton. <b>At Yeppoon, a man drowned</b>, trees were uprooted, three buildings were badly damaged or unroofed and several houses were lifted off their blocks. At Emu Park many houses were badly damaged and the fishing suffered severely. At Mt Morgan roofing iron was lifted off buildings and at Clermont thousands of trees were uprooted along all the surrounding roads and buildings lost roofing iron. Widespread flooding occurred in Central Queensland including a record flood at Rockhampton with widespread property damage. In Mackay the death tally was 20 on the 31<sup>st</sup> January 1918 and it is now though that a total <b>loss of thirty people lost their lives in the cyclone and the subsequent floods in Central Queensland</b>.</p>
<p>10 Mar 1918 -2.0(10.5) C</p>	<p>This cyclone is widely regarded as the worst cyclone to hit a populated area of Queensland. It crossed the coast and passed directly over Innisfail. Pen on Post Office barograph was prevented from registering below 948 hPa by flange on bottom of drum. <b>926 hPa read at the Mourilyan Sugar mill</b> at 7 pm 10 Mar. The eye wall reached Innisfail at 9 pm. In Innisfail, then a town of 3,500 residents, only around 12 houses remained intact <b>the rest being blown flat or unroofed</b>. A</p>

	<p>report from the Harbours and Marine Engineer indicated that at Maria Creek the <b>sea rose to a height of about 3m above high water (If this refers to HAT the water was 4.65m above the tide for that day)</b>. Around 4.40pm 10 Mar at Bingil Bay a <b>tidal wave</b> was seen surging in from the east into Bingil Bay <b>taking the bridge over the creek 400 m inland</b>. Mission Beach was <b>covered by 3.6 m water for hundreds of metres inland, the debris reached a height of 7m in the trees</b>. <b>All buildings and structures were destroyed</b> by the storm surge in the Bingil Bay Mission beach area. The surge was 2.6m at Flying Fish Point. Babinda also had many buildings destroyed and some reports suggest that not one building was left standing. There was widespread damage at Cairns and on the Atherton Tablelands. Recent reports suggest that <b>37 people died in Innisfail while 40 to 60 (mostly aborigines) lost their lives in nearby areas</b>.</p>
3 Mar 1919 -12.8(-9.0) W	TC crossed the coast at Maryborough. Serious washaway on Mary Valley line.
3 Feb 1920 -1.7(-1.4) W	<p>Disastrous TC crossed the coast north of Cairns. Barometer at <b>Pt Douglas</b> dropped to <b>962 hPa</b> and the town was practically demolished.</p> <p>At <b>Cairns</b> the bar dropped to 29.17 inches or <b>987.8 hPa</b> and the southeasterly winds were strongest from <b>2.30am Tues 3<sup>rd</sup> to daybreak</b>. A Café was <b>razed</b> to the ground, most of the houses along the waterfront were <b>unroofed</b>, 2 hotels were <b>badly damaged</b>, a building was <b>overturned</b>, street trees were blown down and windows were blown in including two of plate glass. There were <b>many heroic rescues</b> including an old man plucked from a house just before it toppled over and a girl ran through the storm at 2am to get assistance for a cyclist with a broken leg. A number of the rescuers were injured by flying debris. One hour after dawn the wind shifted to <b>north-easterly gales which swept a high tide over the seawall</b> and into the streets becoming <b>4 feet deep</b> over the Esplanade and <b>2 feet deep</b> in other parts. In the <b>Main Street in town</b> one side of the roadway and the footpath were <b>flooded by the sea</b>. The seawater subsided at 10am. Many people took refuge from the sea on the upper portions of their homes and <b>several people were rescued</b> including 2 women who gave birth during the night. The sea baths and the attached house were <b>washed out to sea</b>. Boats and boatsheds were badly damaged. And <b>ships anchored in the harbour were destroyed</b>. A large valuable quantity of cedar logs were lost from the wharves to the sea.</p> <p><b>Nearly every house in Kuranda</b> was unroofed. <b>At Mt Molloy, with the exception of one small house, all houses including the Post Office were blown down</b>. <b>At Chillagoe</b>, between early Tues and midday, the Hotel, Butcher Shop, C. of E., The Theatre, Bakery, School of Arts and several houses <b>were destroyed</b>. At Mareeba several houses and the Nurses Quarters were unroofed. A few places were unroofed at Herberton. <b>A man drowned in the Russell River</b>. Widespread floods in NQ and enormous cattle losses inland.</p>
1 April 1921 -7.1(1.3) C	TC crossed Cape York. <b>Sank two boats</b> and dismasted others in Princess Charlotte Bay area. Heavy floods.
5 April 1921 -7.1(1.3) C	<p>This tropical cyclone passed close to the vessel <i>Camira</i>, which was hove to near North Reef (120km east of Yeppoon). The vessel was in cyclonic conditions for 16 hours and 500 rams were swept overboard. Large seas would have affected Yeppoon but we have no record of the impact. <b>The cyclone then passed to the east of Bustard Heads whose bar dropped to 979 hPa. It passed over Bundaberg where numerous houses lost their roofs</b>. It then passed between Maryborough and Hervey Bay. Bathing houses were washed away at Pialba and 2 men were badly injured by a <b>storm surge</b>. A storm surge was also reported at the Forestry rail head at Wunggoolba Creek on the west coast of Fraser Island. The loco drivers house was isolated by the sea and the railway was undermined by the sea. 0.46m surge Moreton Bay 11Z 6<sup>th</sup></p>
28 Mar 1923 8.9(7.3) Start W	TC crossed Cape York and became very severe in Gulf.
26 Feb 1925 13.8(11.4) C	TC crossed the coast between Cooktown and Cairns. At Cooktown two hotels were slightly damaged and many outhouses and fences were blown down. At Mossman several small buildings were unroofed though most damage was done to the sugar cane which was flattened..
9 Feb 1926 -14.5(-11.1) W	TC recurved east of Townsville. Floods Herbert and Tully rivers. Damage to banana crop.
9 Feb 1927 1.1(8.1) C	TC crossed the coast just <b>to the north of Cairns</b> . The lowest pressure reading at Cairns was <b>971 hPa</b> . Many buildings were unroofed or damaged and <b>some 16 totally destroyed</b> . Considerable

	<p>damage to hotel and houses at Malanda. Sea wall at Cairns broken in several places. TC turned into a disastrous rain depression. <b>Unprecedented floods occurred in North Coast Rivers. Halifax, Ingham, Innisfail and Tully were partly submerged. There were many drownings 23 at Ingham, 15 at Cardwell and 1 at Townsville. 2,500 cattle and 1,500 horses drowned at Ingham.</b> Losses to crops stock and property in the Herbert reached 300,000 pounds (1927). Rail damage with washaways and many bridges carried away. Also flooding in south of state, with Surat under water and a drowning fatality at Toowoomba. Seven persons were also drowned near Miles and crops in West Moreton badly damaged. A large dam at Koorboora was wrecked. A total of <b>47 people lost their lives.</b></p>
2 Apr 1927 6.9(10.3) C	<p>Severe TC east of Gold Coast. Flash flooding and heavy seas and erosion at Coolangatta on the 1<sup>st</sup>. King tides stopped Tweed River Ferries. Record high tide Gold Coast. <b>One drowning</b> and shipping disrupted.</p>
14 Feb 1928 10.5(4.7) C	<p>TC crossed the coast at Brisbane. <b>Subsequent serious floods in SE Qld with 8 people drowned.</b> Around 6am to 7am Tuesday 14/2/1928 a severe gale hit Coolangatta and Tweed Heads suddenly. The winds veered from NE to E to SE. <b>Tweed Heads:-</b> Pacificque and Wells Hotels badly damaged. Heavy timber from front balconies became missiles damaging many buildings in town which then suffered water damage. A whole section of roof with hardwood battens and 22 sheets of iron lifted and carried 120 yards. Buildings also unroofed near the Railway Station. <b>Coolangatta:-</b>Hotel Grande had its balcony destroyed. House unroofed in Rainbow Bay. House lifted off its stumps in Dixon St and wrecked. Trees uprooted on Greenmount Hill. <b>Bilinga:-</b>Several houses and buildings damaged. <b>Murwillumbah:-</b>Roofing iron torn off a number of houses. Several chimneys toppled over. Trees uprooted. <b>Mullumbimby, Byron Bay and Bangalow:-</b> Houses unroofed and trees blown down. <b>Tweed Valley:-</b>House unroofed Barneys Point and crops badly damaged Two houses completely unroofed at Duranbah and farm buildings damaged. House unroofed at Bingham Point. <b>Cudgen Headland (now Kingscliff):-</b>Trees uprooted and house lifted off blocks. <b>Casino:-</b>Damage to buildings with sheets of iron torn off roofs. Water damage to most premises. <b>Lismore:-</b>Damage to telephone lines and crops. <b>Glen Innes:-</b>Immense damage to crops from wind and rain. Trees also down. <b>Grafton:-</b>South Grafton flooded. <b>Killarney:-</b>9.5 inches in one hour - Condamine River rose 17 feet in 40 minutes.</p>
21 Apr 1928 11.9(7.7) C	<p>TC recurved near Mackay and over Broadsound. <b>Floods with extensive damage Callide, Dawson and Dee Valleys. Houses washed away and 9 people drowned.</b> Extensive flooding south to border with extensive crop losses and thousands of cattle lost. <b>Low parts of Brisbane flooded with one drowning.</b></p>
22-23 Jan 1929 16.0(15.3)C	<p>TC moved towards coast and recurved away northeast of Townsville. Floods between Mackay and Townsville and south of Gladstone. In Bundaberg several shops and houses flooded. <b>Youth drowned at Abercorn.</b> Major flood Proserpine River.</p>
22-23 Feb 1929 18.0(13.0) C	<p>TC moved towards coast and recurved away east of Bowen. <b>31.33 inches (795mm)of rain in 65 hours</b> at Rockhampton. Fitzroy River peaked at Rockhampton pm Sat 23<sup>rd</sup> (reached just over 25 feet (7.6m))and <b>Two men drowned in Rockhampton area.</b> Bridges and crops badly damaged around Rocky.</p>
26 Feb 1929 18.0(13.0) C	<p>TC crossed the coast near Mossman. Low lying parts of Cairns flooded. <b>Man drowned in Little Mitchell River near Mareeba.</b> Cairns Harbour anemometer read 32 miles in the hour from 9.30pm to 10.30pm. Mon 25<sup>th</sup>. Floods in the Herbert and <b>Man drowned in Mossman River</b> on 28<sup>th</sup>. Another person drowned giving a <b>total of three deaths.</b></p>
28- 29 Feb 1929 18.0(13.0) C	<p>Above cyclone recurved towards southeast and redeveloped off the Central Coast. Bar down to 986.1hPa at Double Island Point 8pm 28<sup>th</sup>. Huge seas off the south coast. A Passenger <b>Ship was disabled and just made it into Brisbane. Seas came up into the surf club at Kirra with much sand erosion and the rocks on the point moved. Buildings and roads damaged in Coolangatta. The seas broke over the jetty at Byron Bay. Farms were flooded at Southport and 100 houses vacated at Lismore.</b></p>

<p>5 Jan 1930 12.7(8.7) Start W</p>	<p>TC crossed the coast at Cape Flattery. Two luggers wrecked at Torres Strait. Launch wrecked on Sudbury Reef near Cairns though crew escaped and reached Cairns in small boats. Island Steamer <i>Morinda</i> struck heavy weather at Cooks Passage (NNE of Cape Flattery) on the 4<sup>th</sup> and was buffeted for 24 hours with winds estimated at 74 knots and bar down to 987 hPa. as they hove to 40 nm off Osprey Reef. From 5th to 9th heavy flooding of practically all rivers between Townsville and Cooktown. Complete dislocation of rail and road traffic, causing serious delays to mail, and much loss of crops. Innisfail isolated and some wharves submerged. <b>A man drowned in Liverpool Creek.</b></p>
<p>20 Jan 1930 12.7(8.7) Start W</p>	<p>TC crossed coast near Mossman. Bar down to 1000 hPa at Cairns with rivers between Cairns and Ingham in flood. From 20<sup>th</sup> to 31<sup>st</sup> floods over greater part of the State. Traffic between Townsville and Cairns again completely disorganised and low lying portions of Cairns inundated. Other districts experienced serious traffic interruptions and mail delays. These included Mackay-Townsville. <b>Three railway passengers drowned</b> whilst being ferried across the Burdekin River and <b>drowning fatalities occurred in the Warrego, Pioneer and Houghton rivers.</b> In Mackay damage costs were high and low lying parts of the city were submerged.</p>
<p>28 Jan 1930 12.7(8.7) W</p>	<p>TC recurved east of Mackay. Floods see above.</p>
<p>1-8 Feb 1931 -14.9(-0.8)W</p>	<p>TC entered Coral Sea near Cooktown and moved down to Hervey Bay. Initially serious <b>flooding in NQ chiefly between Cairns and Ingham and a man drowned in the Russell River.</b> Then <b>major floods in SE Qld with 1300 homes inundated in Brisbane on 5 Feb with two drownings.</b> <b>Storm surge of 0.76m on Moreton Bay tide gauge.</b> Most of the flooding was in Breakfast Creek where 1056 houses were flooded (396 above floor level). Around noon 5 Feb before the heavy rain in the creek catchment, high tide at the mouth of Breakfast Creek tide level was 1.1 m above ordinary high water spring. The subsequent flood levels above Bowen Bridge exceeded the 1893 flood levels. Severe beach erosion, Currumbin Creek mouth breached. Large storm surge at Wynnum Manly and Hemmant on the 5<sup>th</sup>.</p>
<p>19 Jan 1932 1.8(1.0) End W</p>	<p>TC tracked from Gulf to east of Townsville. <b>Disastrous flooding between Mackay and Cairns. Two people drowned. Rail line washouts and bridge destroyed over Elliot River. Stock drowned and considerable crop damaged and houses inundated in Innisfail and Tully.</b></p>
<p>23 Jan 1934 6.5(4.9) C</p>	<p>TC crossed coast between Cairns and Innisfail in the early morning 23 January 1934. Much damage at Innisfail, particularly buildings on the Esplanade. Commonwealth Hotel had balcony blown away. Commonwealth Bank damaged and Exchange Hotel and Advocate Office lost parts of their roof. Most outbuildings unroofed or damaged and many trees uprooted with branches strewn everywhere. Innisfail was isolated with the river in flood. Wind and rain struck the Tablelands at 4am 23<sup>rd</sup> with railway washaways, crop damage, and two serious landslides over railway line. At Malanda 3 shops had awnings blown away and trees were blown down from Atherton to Yungaburra.. Cairns Ingham railway cut several places. Cardwell recorded 22 inches of rain from 4pm 22<sup>nd</sup> to 7pm 23<sup>rd</sup>. Serious flooding over large part of state with <b>one drowning.</b></p>
<p>1 Feb 1934 6.5(4.9) C</p>	<p>TC tracked from Gulf down to NSW coast. Serious flooding along Central Highlands (<b>Man drowned</b>) and in SE Qld (<b>child drowned</b>). Considerable wind damage Hervey Bay in N'y gales. Widespread shed and tree damage in Brisbane. Flooding from storm surges and large waves in Moreton and Hervey Bays. <b>1.16 m storm surge on Moreton Bay tide gauge (largest on record).</b></p>
<p>12 Mar 1934 0.2(2.1) C</p>	<p>TC crossed the coast near Cape Tribulation with a <b>9.1 m storm surge</b> at nearby Bailey Creek destroying banana plantations. <b>The Pearling fleet just off the coast near Cape Tribulation was devastated with many luggers and 75 lives lost .</b> Banana plantation settlers in the Cape Tribulation area stated that the centre of the cyclone was over Bailey's Creek where huge trees 4 feet across were snapped like carrots. The plantations were destroyed and the worst damage was in a six mile wide swathe. The damage extended from Bloomfield to Snapper Island. At <b>Daintree</b> the bar dropped to <b>978 hPa</b> at 10 am 12<sup>th</sup> and by 12.30 pm huge trees were snapped and all vegetation was defoliated. Three houses were <b>totally demolished</b>, one house had its veranda torn off, one house was torn in half and one half blown away, another house was lifted and turned upside down and the sawmill was unroofed. At <b>Mossman</b> the cyclone struck at 10am 12<sup>th</sup> and a hotel lost its balcony and main roof. The front veranda of a Café was torn off and the</p>

	windows smashed. Windows of the Post Office were smashed. Roads were strewn with iron timber and other debris. At Mossman Beach a number of houses were damaged and <b>one house was lost to the sea</b> . Not much damage at <b>Port Douglas</b> though there was a <b>1.8 m storm surge there</b> . At <b>Cairns</b> limbs snapped from trees and a large tree was uprooted however most damage was from huge seas which damaged rowing boats beached along the Esplanade. Rail services were cut by floods between Cairns and Innisfail. Large washaways on the Cairns to Mossman road by <b>landslides and huge seas</b> .
22 Mar 1936 1.8(8.0) C	TC recurved seawards of Fraser Island. Extensive erosion Gold Coast, the Southport Spit was breached and protective timber walls were constructed at Coolangatta, Kirra, Narrowneck and Currumbin. Ships showed a very large cyclonic circulation northeast of Fraser Island at 9am Sunday 22 March 1936. <i>Merkur</i> near 24.5S 154E bar 992 hPa wind SE 48-65 knots <i>Malatta</i> near 21S 155E bar 992 hPa wind NW 23-40 knots <i>Cape Leeuwin</i> Sheltering in lee of Sandy Cape wind SE 48-55 knots <i>Ormiston</i> near 23S 152.7 wind S 48-55 knots. Captain of the <i>Merkur</i> said it was hard to estimate wave heights but they towered 50 feet above him in the troughs. <b>Coolangatta:-</b> Damage to old Kirra SLSC club. New Club protected by bringing boulders and sandbags in. Several people seriously injured in Car park when wave surged up into car park and floated a pile of logs which were to be used for a retaining wall. Storm tide kept flood waters inland flattening cane and maize crops. <b>Southport:-</b> New channel cut through to sea from Broadwater just north of Jubilee Bridge (between Southport SLSC and Sheraton Mirage). Channel 40 feet wide and one foot deep at high tide. On Sunday night (22 <sup>nd</sup> ) sea came 100 yards further inland from normal high tide mark. <b>Moreton Bay:-</b> Storm tide came over retaining walls at Cribb Island, Nudgee Beach, Shorncliffe and Flinders Parade Sandgate. Houses were wrecked at Cribb Island. At Sandgate the sea flooded along 9 <sup>th</sup> Avenue, Griffith St and Murray St. At Redcliffe Sea walls and beach buildings were damaged. The sea broke over the sea walls at Wynnum and flooding the Esplanade and damaged boats. At Cleveland the tide flooded the road to Cleveland Point. <b>Yeppoon:-</b> Waves came over the sea wall and entered a beach Cafe.
16-21 February 1937	The Stinson cyclone. Intense cyclone approached North Coast from New Hebrides and moved south to the NSW coast. The ocean vessel, <i>Babinda</i> , was caught off Double Island Point on Friday the 19th. Her intermediate propeller shaft broke, and in response to her S.O.S. she was towed to Brisbane. Her crew said it was the worst weather they had ever encountered. The Stinson Mail aeroplane, <i>City of Brisbane</i> , crashed on the Lamington Plateau on the 19 <sup>th</sup> . Conditions then near the crash site on Lamington Plateau were southerly winds strong enough to blow down quite a number of large trees.
15 16 Mar 1937 6.2(1.1) C	TC tracked from Kimberleys to SE Qld causing widespread major floods and gales along east coast with ship foundering. <b>Goods train wrecked</b> near Bundaberg when railway lines were undermined. <b>Hotel and shop washed away at Childers</b> . Steamer <i>Haiping</i> abandoned in heavy seas near Sandy Cape. The crew were rescued by an escorting ship. The sea broke over a retaining wall at Manly. <b>A youth was drowned at Grafton</b> , Warwick was isolated, a bridge near Bishop Street Kelvin Grove was swept away and there were landslides in the Maleny area.
19 Jan 1938 7.5(5.9) C	Monday 17 <sup>th</sup> Large cyclone heading towards Queensland Air and sea services disrupted. 7foot 11 inch tide and sea came right over southern parts of Stradbroke Is. 18 <sup>th</sup> At 9pm wind destroyed 3 huts at Burleigh Camping Reserve. Waves breaking a mile off Kirra Point. Waves coming over retaining walls in Moreton Bay. 19 <sup>th</sup> Buildings washed off beaches at Hervey Bay. Bar reading of 992 hPa read at Bundaberg at 9am. High tide inundation at Sandgate and Cribb Island with backyards flooded- Also inundation at Fairfield, Stones Corner and Bowen Bridge and along the Pacific Highway. Streams flooded and the Kyogle railway washed away. 20 <sup>th</sup> Water 10 feet deep in Main Street of Kyogle. Some houses completely submerged. A man was drowned. A house was washed away at Casino. Pile Light tide gauge measured a .52 metre storm surge at noon 20 <sup>th</sup> when the predicted tide was 2.07 metre. Severe beach erosion Gold Coast.
27 Mar 1938 -3.6(1.3) C	TC recurved east of Bowen Gales, high seas and torrential rains. Harbour works damage and bridges washed away at Mackay. Severe Beach erosion Gold Coast.
27-29 Jan 1939	Low moved offshore between Rockhampton and Mackay and became slow moving TC. Shipping delayed by gales and high seas. Flooding with stock losses and towns isolated in Dawson Valley.

17.0(12.8) C	
6 Mar 1939 11.6(9.6) End C	TC crossed coast near Cape Byron.
18 Feb 1940 -4.1(-4.9) Start W	TC crossed the coast near Cardwell where the pressure dropped to <b>965 hPa</b> . Huge seas left a trail of damage along the strand in Townsville. <b>Three open baths, a Memorial Park, and a seawall were destroyed. Flood waters driven back by storm surge isolated many parts of the city streets under 1 to 1.5 metres of water.</b> A horse was found drowned with rider missing. Sea high up on residential land and fishermen at mouth of Ross River suffered much damage to boats gear and houses. Waves 3 feet above flooring wrecked a house. Bayview Hospital damaged by wind. Giant fig trees uprooted. Houses in the Stanton and Melton Hills suffered the most damage with roofing iron torn off and outhouses blown over. Trees were defoliated. <b>Ingham:-</b> Police house, Church and 2 hotels unroofed and badly damaged. Italian Club lifted and carried 90 metres down the street. Nearly every building in town damaged. At the coast large slice of Esplanade and the road were swept away. Tanks all over town moved hundreds of metres. <b>Innisfail:-</b> Mother and child injured by falling tree and another child injured by wind. Many trees down. <b>Tully:-</b> Wind torn down fences, outhouses and unroofed sawmill. Palm Island:- Two dormitories unroofed concrete jail flattened, Breakwater (hulk of ship) torn to pieces by the sea. Waves caused tremendous changes to sea front. <b>Region:-</b> Flooding caused much damage to crops and infrastructure.
6 Mar 1940 -10.6(-7.9) W	TC crossed the coast north of Cooktown. Cooktown recorded 1374 points (349 mm) of rain in 24 hours. The Laura railway bridge was washed away. The Cooktown baths were badly damaged by the seas. The Endeavour River was 7 feet over the bridge. The railway line was washed away between Kuranda and Mareeba. Flooding in Northern Interior.
17 Mar 1940 -10.6(-7.9) W	TC crossed the coast near Mackay with little damage. The bar was down to 990.5 hPa at Mackay and the lowest bar at St. Lawrence was 996.6 hPa at 5.25 am 18 <sup>th</sup> . There were floods southeast Queensland and a farmer drowned in a flooded creek at Maryvale near Warwick. Gales uprooted trees and blew them over the railway line near Grafton.
23 Mar 1940 -10.6(-7.9) W	TC crossed Cape York Peninsula. Flooding in Gulf Country and Far North Coast.
7 April 1940 -9.6(-11.6)W	TC crossed the coast near Townsville. From a railway crew the worst damage was between Clevedon and Cromarty (32 km southeast of Townsville) where trees both sides of the line were snapped off, a signal was snapped and railway houses unroofed. A little further to the southeast at Giru, 12 miles of telephone poles were blown down. The lowest bar at Townsville was <b>993.2 hPa</b> at 11.50 am 7 <sup>th</sup> . <b>A woman was killed at Townsville</b> when a chimney was blown down and came through the roof. Part of the roof was blown off the bus depot at Townsville and several houses at North Ward lost verandas. 70 tents in an army camp at Bowen were blown down and 14 inches of rain(356mm) of rain fell in 18 hours. <b>Man was drowned at Mirani and a man died of shock at Home Hill.</b> Disastrous <b>flooding Central Coast</b> . Damage worst in Ayr district and estimated to be up to <b>\$1 million 1940 dollars</b> . Peak heights recorded were at Mt McConnell on the Sellheim River on 8 <sup>th</sup> and at Ayr on the Burdekin River on 8 <sup>th</sup> . Saltbush Park on Funnel Creek peaked on 9 <sup>th</sup> , as did Connors River.
8 Feb 1942 -3.6(-7.5) End W	TC crossed the coast north of Rockhampton. Trees uprooted, fences blown down and iron ripped off roofs. Main grandstand at the Show-grounds was unroofed. The city was blacked out from downed power lines. <b>Extensive damage and loss of life occurred from flooding in the Burnett River and Dawson and Callide Valleys.</b> In the Dawson Valley and Callide head waters the towns of Rannes and Wowan <b>were evacuated with much loss</b> . The following towns suffered extreme flooding. Bundaberg (3rd highest), Gayndah (3 metres higher than 1893 record), Wallaville (probably equal to or higher than 1890 and 1893). <b>The death toll was 6 (maybe7) - 2(maybe 3) in Bundaberg, 1 Monto, 1 Mundubbera and, 1 Boyne Island and 1 in Chinchilla.</b> In Mundubbera 10 houses were swept away and 30 others inundated. In Bundaberg wharf sheds and cranes were lost, sugar sheds and many houses were damaged, an island disappeared, cane farms were damaged and

	500 people were evacuated. 4000 sheep drowned in the Condamine.
16 18 Feb 1942 -3.6(-7.5) End W	TC crossed coast near Cardwell and moved back out to sea north of Mackay on the 18 <sup>th</sup> .
31 Jan 1943 9.4(11.2) C	TC crossed coast near Rockhampton. Flooding along the coast between Mackay and Maryborough.
16 Dec 1943 -8.6(-4.3) Start W	TC crossed the coast at Princess Charlotte Bay causing gales and shipping delays. Severe structural damage at Coen.
28 Mar 1944 5.6(1.3) W	TC crossed the coast near Townsville. Floods along North Coast caused considerable traffic delays.
31 Jan 1945 5.1(5.2) End W	TC crossed the coast near Cooktown.
17 18 Mar 1945 13.2(4.1) C	A small but deep TC crossed the coast south of Cooktown after incidents with ships off Port Douglas. Before landfall a ship 195 km ESE of Cooktown at 10am 17 <sup>th</sup> reported a <b>pressure of 978 hPa and 80 knot winds</b> . A Netherlands Merchant ship, the <i>Sibigo</i> , which escaped to Perth before the Japanese invasion of the Dutch East Indies became attached to the Allied shipping pool and made many trips between Australia and New Guinea. As the cyclone approached the coast the <i>Sibigo</i> was bashed by huge seas and developed engine trouble and could only steer into the wind. Seas broke right over the top of the vessel. At <b>5.30 pm Friday 16 March 1945 the Captain gave the order to abandon ship</b> and minutes later the <i>Sibigo</i> sunk. Extensive air and sea searches rescued 13 of the 85 crew <b>though 72 seaman were lost at sea</b> . Two ships heard the <i>Sibigo's</i> S.O.S, and one ship got within 30 nm of her but could not get much closer and by <b>6am Saturday 17 March 1945 the bar was dropping and the wind reached 80 to 100 knots</b> . The captain stated it was impossible to see the sea from the bridge as the air was full of spray and spume. This ship just made in back to port with little fuel left. Shipping damage included the <b>wrecking of a a ketch</b> . Details of the coastal affects of the cyclone are sketchy due to the large war coverage in the press at the time and communication from Cairns northwards was lost. A Bureau report mentions "Storm damage at Mossman on the 17 <sup>th</sup> ". There were widespread floods in N Qld.up to Cooktown with 4 rail bridges under water between Cairns and Innisfail. In Cairns the wind uprooted trees. High seas and winds destroyed part of the jetty at Green Island while a mine floated ashore at the Island and exploded causing damage there. A beacon in Grafton Passage was washed away.
8 Feb 1946 4.4(0) Start C	TC crossed coast near Cardwell around noon Saturday 9 February 1946. Winds at Babinda unroofed 12 houses and flattened telegraph poles. At Tully the wind smashed plate glass windows, tore down awnings in Main Street and unroofed Grandstand at Show-grounds. Flood rains North Coast.
2 Mar 1946 -2.0(-2.4) C	TC recurved over Cairns and Townsville. Pressures of <b>983 hPa</b> were read at Cairns and Innisfail. Heavy seas pounded the Cairns waterfront with part of the jetty washed away. At Innisfail the wind ripped off some roofs and blew down fences. The Goondi Mill lost roofing iron and the Newspaper Office was damaged. There were washaways, landslides and trees across the road in the Palmerston area. Record flooding occurred in the Burdekin. The cyclone hit Townsville Saturday (2 <sup>nd</sup> ) night and lightning struck the Powerhouse leaving the city without Power and light. Water entered many houses in Townsville and two houses were swept away at Hermit Park. There was much property damage from wind and flood in Townsville. <b>The airspeed indicator at Garbutt Airport failed at 61 knots. 8 people died in Townsville, 3 drowned and one died from shock</b> when told relative drowned. <b>Total death toll was 8. A family of 4 drowned</b> when the Don broke its banks at Merinda near Bowen. Water was waist deep in Home Hill and at Sellheim the gauge at 8pm on the 3 <sup>rd</sup> reached 78 feet 6 inches (a record). At Mackay a 30 foot launch was swept out to sea. Railway lines were cut in many places and the Alligator Creek Bridge near Townsville was washed away.
23-25 Mar 1946 -2.0(-2.4) C	TC accompanied by flood rains crossed the coast near Double Island Pt and passed over Moreton Bay and just inland of Southport at 3pm 25th. <b>0.73 m storm surge recorded on Moreton Bay tide gauge (fortunately at low tide).</b>

<p>4 April 1946 -9.6(-7.7) C</p>	<p>Passed just to the east of Fraser Island and brought heavy to flood rains to SE Qld.</p>
<p>23 Jan 1947 -4.9(-4.8) C</p>	<p>TC crossed the coast near Caloundra with heavy gales and high seas. The Roof and veranda were torn from a house at Caloundra. A steel roof was torn from a 2 story block of flats at Burleigh. Many tents were destroyed at Caloundra, Southport Burleigh and Coolangatta. Waves broke into the beach pavilion at Coolangatta and flooded campers at Kirra. Navy tug <i>Woree</i> was wrecked on the Clarence River bar. For the 4 days ended 9am 26<sup>th</sup> Springbrook recorded 1392mm, with 695mm for 24 hours to 9am 25<sup>th</sup>, the highest since 1931. In the same 4 days Mt Tamborine recorded 995mm and Nerang 695mm. Tamborine was isolated by landslides. Waterford bridge washed away. <b>Record floods in SE Qld with water up to telephone wires. Two lives were lost and widespread damage occurred from floods and high winds.</b> <b>0.55 m storm surge</b> on Moreton Bay tide gauge. 1200m of 3.5m seawall was washed away at Margate. Fences were torn down by the sea near McDonald Creek Margate.</p>
<p>10 Feb 1947 - 4.1(0.9) C</p>	<p>TC crossed the coast at Broadsound. Floods in most east coast rivers. <b>Some loss of life occurred</b> as well as much damage to infrastructure.</p>
<p>7 Jan 1948 -3.0(-0.2) Start W</p>	<p>TC moved towards SE across Cape York with heavy floods between Cooktown and Cardwell. Structural damage Thursday Island and possible devastating storm surge Saibai Island.</p>
<p>28 Jan 1948 -3.0(-0.2) Start W</p>	<p>Severe TC passed to east of Brisbane and produced a <b>96 knot gust at Lord Howe</b> Island. 0.46 m storm surge on tide gauge in Moreton Bay, <b>1.5 m surge on foreshore.</b></p>
<p>24 Mar 1948 -4.1(-1.4) W</p>	<p>TC recurved over Fraser Island. Gales and high seas caused severe beach erosion over South Coast Beaches and local structural damage in adjacent areas. Tewantin reported the <b>worst erosion ever experienced.</b> Flooding in coastal streams.</p>
<p>10 Feb 1949 2.0(0.1) Start C</p>	<p>TC crossed the coast North of Cooktown with much devastation. Only 12 of the towns 125 houses intact with <b>30 flattened, 40 badly damaged</b> and others requiring repairs. There were <b>300 left homeless out of a population of 420. Five business houses out of the 25 were wrecked</b> with the others damaged, some extensively. Main part of hospital OK but surrounding buildings wrecked. Shire Office was flattened and the Railway Station and Wharf sheds were extensively damaged. Wind was estimated to have increased from SE/60 knots to ESE at 80 knots. People sheltered in the stone Bank of NSW building. At Laura the only store in towns was demolished. Big seas washed away part of the Cairns to Mossman Road and a 35 foot launch was wrecked at Turtle Bay near Cairns on the 9<sup>th</sup>. Cairns to Mareeba road cut and Mossman isolated by floods. Three stockmen missing Normanton Area. Widespread floods in the south Peninsula across to the Normanton areas. There were 250 to 375mm totals between 10th and 13th in the far north coast from Cooktown to Cardwell and Tully areas, which were responsible for the suspension of rail, road and air traffic. On 15<sup>th</sup> TC moving from Gulf towards Townsville, gusts to 43 knots at Cairns with big seas. Women rescued from houseboat. <b>Man drowned in Townsville.</b></p>
<p>2/3 Mar 1949 5.6(2.9) C</p>	<p>TC made stuck Gladstone at 2pm on the 2<sup>nd</sup> and then passed over Rockhampton. <b>Widespread damage in 15 towns. Two men died, one in Rockhampton and the other in Gladstone as they were blown from the roofs of their homes while making repairs. Another man was killed in Rockhampton after being struck by a falling branch. A child was killed in Bundaberg by a falling gum tree. A dairy farmer was drowned in the Biloela district and another man was drowned near Thangool.</b> Barometer in Rockhampton dropped to <b>960 hPa</b> and the maximum wind gust on the airport anemometer was <b>87 knots just after 7pm on the 2<sup>nd</sup>.</b> In Rockhampton <b>1000 houses were damaged, 500 were wrecked.</b> Most of the 1500 homes in Gladstone were damaged and many buildings were extensively damaged. 12 homes were badly damaged in Yeppoon and 25 inches (635mm) of rain was recorded there in 24h which flooded business premises. In Emu Park most of the 200 houses were damaged while the Yeppoon to Emu Park scenic road was devastated with trees littering the whole highway. Heavy seas closed the ports of Rockhampton, Gladstone, Bundaberg and Maryborough while a lightship was grounded on Breaksea Spit. There were severe floods in the Central Qld and <b>3 drivers were drowned.</b></p>

<p>15 Jan 1950 5.1(10.1) C</p>	<p>TC recurved near Cooktown with gales and floods in most coastal districts. Railway line to Cairns cut and the main road cut at Kuranda. Mountainous seas at Cairns on the 15<sup>th</sup> with additional lines attached to 3 ships in port. By the 17<sup>th</sup> a 300 yard section of the Esplanade at Cairns in danger of collapsing at high tide.</p>
<p>16/19 Jan 1950 5.1(10.1) C</p>	<p>TC tracked from Gulf to Sydney. High winds uprooted trees at station near Julia Creek. NE gales Moreton Bay and <b>2 metre waves. Storm surge of 0.58m on Moreton Bay gauge.</b> Flinders Pde awash <b>Shops and houses flooded at Sandgate. Two houses</b> evacuated at 9.30am 18<sup>th</sup> (high tide) and 2.5 feet of water in one and houses 10<sup>th</sup> Av and Claytons St in 2.5ft deep lake. Sea water inundation at Wynumn with damage to boats. Small tornado at Hendra on the 18<sup>th</sup> unroofed house and move house next door off stumps. Big seas at Kirra smashing against seawall. <b>Postman electrocuted by fallen</b> power line at Ipswich on the 18<sup>th</sup>. <b>A man was killed</b> in car accident in blinding rain at the Gabba. <b>A boy drowned</b> in the flooded Bremer River on the 20<sup>th</sup>. <b>3 horseman were drowned on the 18<sup>th</sup> when Washpool Creek</b> (80 km from Grafton) rose rapidly. Another <b>4 lives lost in NSW from cyclone including girl swept by storm surge and waves off Esplanade at Cronulla, a boy electrocuted by fallen power lines at Gordon in Sydney, a man drowned near Goulburn and another man drowned in the Macleay River at Kempsey. Seven yachts completely wrecked in Sydney Harbour. Record pressure reading of 988 hPa in Sydney. 10 lives lost in total.</b></p>
<p>27-28 Feb 1950 17.6(13.4) C</p>	<p>TC recurved over Gladstone and Hervey Bay. Sea water flooding at Hervey Bay. Floods SE Qld including northeastern suburbs of Brisbane .</p>
<p>11 Mar 1950 17.6(17.3) C</p>	<p>TC crossed the coast at Carmilla (S of Mackay) with severe structural damage. At Carmilla <b>one girl was killed and 4 others injured.</b> Trees a <b>metre in diameter were uprooted. 400 people live in the area and only 8 buildings left standing.</b> At 10pm 11<sup>th</sup> gales started and at 2am 12<sup>th</sup> the first homes was unroofed and the strongest winds were from 3.30am to 4.15am. In one house the walls moved in and out before it collapsed. <b>The Hall and 3 houses were completely wrecked. 15 business houses and the school residence were uninhabitable. Every other house in town was unroofed.</b> 20 farmhouses within 16 km of Carmilla were battered with windmills destroyed. Rail and farm buildings damaged between Kalarka and West Hill.</p>
<p>10- 24 Jan 1951 16.5(16.4) C</p>	<p>TC crossed SE Gulf near Karumba early on the 10<sup>th</sup> and then looped around and entered the SW Gulf and made landfall again near Karumba again on the 22<sup>nd</sup>. Heavy rain at Cairns 6<sup>th</sup> to 17<sup>th</sup> with 430 mm recorded at Cairns Airport. <b>There was a major landslide at Ellis Beach on the 12<sup>th</sup>.</b> Major flood in the Burdekin with the railway bridge closed for 3 weeks . Houses evacuated.</p>
<p>25-30 Jan 1951 16.5 (16.4) End C</p>	<p>TC slow moving around Fraser Island. 50 to 60 knot winds Moreton Bay. <b>Extensive damage to boats and structural damage to buildings. Several houses undermined by sea. One life lost at Caloundra.</b> Severe erosion Gold Coast with Southport Spit breached and had to be closed with bulldozer. Floods from rain and storm surge caused evacuation of residents on Macintosh Island, one house on the Island was blown off its stumps. Breakers were observed on the Nerang River. The road at Mermaid Beach was “feet under water”, the Burleigh skating rink and pool were smashed and great boulders were flung across the road at Currumbin. 367mm at Tewantin in 24 hours flood in Noosa River.</p>
<p>19 Mar 1951 -1.4(3.2) Start W</p>	<p>TC crossed the coast near Maryborough. Heavy flood rains South Coast and Darling Downs.</p>
<p>7 Feb 1954 -3.6(0.5) Start C</p>	<p>TC crossed the coast south of Townsville. The system went on to produce heavy flooding.</p>
<p>20 Feb 1954 -3.6(0.5) Start C</p>	<p>TC crossed the coast at <b>Coolangatta</b> where there was about a 10 minute calm. The barometer there fell to 28.7 inches or 971.9hPa. Some reports from the Coolangatta/Tweed Heads area had pressure readings to 962 hPa. Worst damage in that area 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. Record mean sea level pressure readings of <b>982.7 hPa at Brisbane, 981.8hPa at Brisbane Airport and 978.5hPa at Cape Moreton were recorded.</b> Widespread structural damage Gold and Sunshine Coasts and around Brisbane. <b>0.64 m storm surge on Moreton Bay gauge however much worse on foreshore with boats in the tree tops at Beachmere.</b> Waves at Kirra brought <b>2 metre of water onto highway picking up cars. 900 mm</b> of rain were recorded at <b>Springbrook in the 24 hour period up to landfall</b> and <b>floods combined with storm surge</b> on the Nerang River caused evacuations of families and a</p>

	dramatic rescue of people from Macintosh Is. The floods and cyclone then hit the Lismore district with gales whipping up large waves on the then 11.3 km wide Richmond River. <b>30 people tragically died from these unprecedented effects.</b> The outer section of the jetty was swept away at Byron Bay taking with it all 22 vessels comprising the fishing fleet. The sea broke through and flooded parts of the town in Byron Bay. Report from Richard Everingham 195 Newnham Rd Mt Gravatt who was working at the time at the Condong Sugar Mill. 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. Further south Dorrigo reported 809mm in the 24 hours to 9am 21 February.
22 - 26 Feb 1955 15.2(4.2) C	Deep monsoon depression developed in the Southeastern Gulf Country near Normanton and moved down through Queensland into Central NSW. Unprecedented floods in NSW and 25 people lost their lives. 120,000 sheep and 2000 cattle were drowned. At Maitland 30 houses and at Singleton 26 houses were washed away. At Dubbo 5 houses were destroyed and 250 badly damaged. At Gilgandra a wall of water several feet high wrecked 35 % of the buildings. Twenty four houses were totally destroyed and 350 badly damaged.. 800 houses were damaged at Moree and at Inverell 300. Many other houses were damaged in other centres.
7 Mar 1955 2.9(5.1) C	TC crossed coast just south of Mackay <b>with eye passing over Sarina and bar down to 963 hPa. Lugger Barrier Princess lost with 8 hands.</b> Widespread structural damage and heavy flood rains. Bar down to 957 hPa on vessel Cape Hawke just off Mackay at 2pm 7 <sup>th</sup> with SW wind Force 12 and over. 50 to 80 knot winds affected the coast between Cape Capricorn and Mackay and several buildings were unroofed at Yeppoon. Major floods Flinders Burdekin and Fitzroy Rivers.
27 Mar 1955 2.9(5.1) C	TC crossed the coast at Bundaberg causing some structural damage there. <b>TC induced tornado caused considerable damage to houses and churches at Yandina</b> in a 300 m wide swath. A record flood occurred in the Mary River while <b>a life was lost in Brisbane River Floods.</b>
<i>Agnes</i> 6 Mar 1956 9.4(11.0) C	TC passed right over Townsville Met Office with <b>bar down to 961 hPa.</b> Moved up to Ingham and then westward into the Interior. Widespread damage between Cairns and Mackay. Maximum wind gusts <b>73 knots at Townsville and 79 knots at Cairns.</b> Damage at Cairns similar to that at Townsville due to extremely gusty westerly winds. Four deaths occurred from floods in the Interior.
5-19 Feb 1957 -2.2(0.8) Start W	Long lived TC which produced <b>109 knot gust at Willis Island</b> and went on to cross the NSW coast south of Pt Macquarie. Severe erosion by huge waves and high tides on South coast. Extensive damage to shipping harbours and foreshores in NSW.
15-18 Feb 1958 -6.9(-8.2) W	Long lived TC crossed the coast south of Ayr and moved back out to sea. Near record floods in the lower Burdekin. Heavy floods Central Coast and Highlands. <b>Exceptional 24 hr rainfall totals:- 878 mm at Finch Hatten and 864 mm at Mt Pelion where 292 mm fell in 2.5 hrs and 589 mm in 6.75 hrs. Record Pioneer Flood with 3 lives lost and much damage in Mackay with 20 houses washed away.</b>
1 April 1958 1.2 (-2.7) W	Small intense TC hit Bowen. <b>Gusts to 98 knots observed at Bowen until anemometer disabled. 77 houses and various buildings at Bowen were destroyed.</b> Many other buildings were damaged. A <b>2 metre storm surge</b> arrived at Bowen with the cyclone. <b>Tornadic outbreaks</b> at Proserpine, Mackay and Sarina.
20 Jan 1959 -8.7(-9.7) W	TC from Gulf moved into Coral Sea between Cooktown and Cairns then moved ESE. Flooding occurred in the Burdekin while the TC was in and near the Gulf. Homesteads were isolated and hundreds of acres of cane were flooded. Wind damaged banana crops along the north coast. Considerable damage to grape crop at Herberton. Power lines torn down at Cairns and boats damaged at Cairns and Green Island.
<i>Beatrice</i> 21 Jan 1959 -8.7(-9.7) W	TC crossed the NSW coast near Lismore. Severe beach occurred in S Qld and N NSW- buildings and equipment were damage at Jack Evan's pool at Pt Danger - 90 m of a concrete wall was undermined at Coolum . Flooding caused damage in northern NSW. Earth dam burst at Stanthorpe causing damage to bridges livestock and Machinery. Steamer <i>Natonei</i> founded off Double Island Point on the 24th.
<i>Connie</i> 16 Feb 1959 -14.0(-4.8) W	TC crossed the coast at Guthalungra where pressure in the eye was recorded at <b>948 hPa. Severe wind damage occurred at Ayr Home Hill and Bowen. A man was killed</b> at Ayr when a shop fell on him. At Ayr 33% of homes severely damaged, Buffalo Hall wrecked, schools and hotels unroofed. At Home Hill 100 persons homeless and no building escaped damage with every

	<p>window broken in the main shopping area. 700 wind-mills destroyed in the Ayr Home Hill area. The anemometer at <b>Bowen recorded wind gusts up to 100 knots over a 2 hour period with forty homes</b> totally destroyed, 190 badly damaged and 300 partly wrecked. Severe damage to Powerhouse, Salt works, coke works and railways - dozens of boats swamped. Wind also caused considerable damage at Proserpine with 50 houses and the Hospital badly damaged. There was even damage at Rockhampton as the cyclone moved south. Flood waters at Mackay caused evacuations and damage - Floods swept away the Mirani railway bridge and under- mined the Forgan Bridge. Clermont had the worse floods since the 1916 cyclone. Laidley had its worst flood on record with 50 shops under 8 feet of water - 200 families were evacuated and 50 people were rescued from the roof tops. Killarney also had a record flood with 2 bridges swept away. In Allora people were evacuated from their homes. On the 18th Brisbane had wind gusts to 48 knots with minor damage and power lines down. Floods extended down to NE NSW where a <b>man was killed</b> by fallen power lines..</p>
<p><i>Annie</i> 1 Jan 1963 9.4(4.3) W</p>	<p>Rapidly developing TC crossed Sunshine Coast. <b>Houses were unroofed at Buderim, Landsborough, Mt Mellum, Flaxton and Maleny</b> and banana plantations suffered considerably. Falling trees cut power and telephone lines. Campers lost tents and caravans were capsized and small craft wrecked. Luckily it crossed at low tide as the Moreton Bay tide gauge indicated a <b>0.76m storm surge</b>. Flooded streams submerged road bridges.</p>
<p>24 Apr 1963 6.1(5.4) W</p>	<p>TC stayed more than 500 km off the South Coast however system generated very large swells with 1000km of the easternmost Australian coast suffering varying degrees of beach erosion. American Navy vessel suffered damage off South Coast in 13 m waves. <b>Couple were swept offshore by southerlies at Hervey Bay resulting in one death</b>. Winds brought down power lines on Sunshine Coast.</p>
<p><i>Audrey</i> 13- 14 Jan 1964 -4.0 (-5.3) End W</p>	<p>TC tracked from the Gulf down to Coffs Harbour. There were extensive flooding and stock losses in SW Qld and northern NSW with wind damage in the western Darling Downs. The cyclone hit St George at 8am 14th where 52 houses lost all or part of their roofs and 22 of the business houses were badly damaged - 38 mm of rain was recorded in 15 min. At Goondiwindi 50 buildings were unroofed, the railway goods shed was destroyed and a church hall was flattened. Telegraph poles were snapped off. At nearby Boggabilla every building was partially or completely unroofed. Building, were also badly damaged at Windorah, Quilpie, Cheepie, Charleville, Talwood, Toobeah, Pittsworth, Glen Innes and Grafton. Very heavy rain accompanied the cyclone with major flooding. Up to 294 mm of rain was recorded in southwest Queensland towns including 181 mm in 12 hours at Eulo.</p>
<p><i>Gertie</i> 15/16 Apr 1964 +13.5 (8.2) Start C</p>	<p>TC recurved to NE of Whitsunday Group. Heavy coastal rain with sugar cane damaged around Cairns and Innisfail. Flood waters damaged railway lines and bridges and a few cars were lost in swollen creeks.</p>
<p><i>Flora</i> 6 Dec 1964 -3.0(-1.4) End C</p>	<p>TC from Gulf entered Coral Sea near Innisfail and moved towards ESE. Cape Cleveland reported 75 knot gusts with tree damage and paint stripped off lighthouse. At Palm Is power lines were blown down, coconut trees snapped and uprooted and small craft were destroyed. Lucinda lost power. Severe flooding occurred with the main northern railway line washed away in several places. Cardwell was isolated by flooding.</p>
<p><i>Judy</i> 30 Jan 1965 -4.0(-1.8) Start W</p>	<p>Long lived TC came from Gulf into Coral sea near Innisfail and brought flood rains to North Coast. Flood waters entered shops in Townsville. Severe flooding occurred at Bluewater. The TC moved down off the South Coast and large swells caused severe beach erosion.</p>
<p><i>Dinah</i> 28/30 Jan 1967 14.6(7.8) Start C</p>	<p><i>Dinah</i> caused <b>severe damage at Heron Island</b> initially from inundation from large NE swells and a day later from winds. It recurved and passed over Sandy Cape which recorded a <b>central pressure of 944.8 hPa and high water 10 metres above normal</b>. Although well off the coast many trees were blown down from Rockhampton to Grafton. Houses were unroofed at Bundaberg Maryborough and along the Sunshine and Gold Coasts. Banana and cane crops were wiped out on the Tweed Coast and a severe wind gust overturned a car at Evans Head. Huge seas and storm surge caused severe erosion at Emu Park, Yeppoon, and in the Maryborough Bundaberg area. <b>Storm surge inundated cane farms at Bli Bli and was knee deep in Hastings St Noosa. Around Sandgate seawater 1.5 metres deep came into houses. More than one hundred homes were flooded and at Cribb Island one house was washed into the sea. Storm surge also affected the Gold Coast and water lapped the decking of the Jubilee Bridge which is about 1.5 metres above highest astronomical tide.</b> A similar storm occurred on</p>

	the Tweed River isolating Fingal. A section of the esplanade collapsed at Surfers Paradise The hardest hit area of northern NSW was around Brunswick Heads where several banana plantations were wiped out and hundreds of acres of sugar cane in the Tweed Valley were blown over. A wind gust overturned a car at Evans Head.
<i>Barbara</i> 22 Feb 1967 12.9(11.1) C	TC crossed coast near Lismore. There was wind damage in the Coolangatta area with tents down and power disrupted by falling trees and flying sheets of roof iron.
<i>Elaine</i> 18 Mar 1967 7.8(5.9) C	TC moved SSE past the South Coast. Severe flooding occurred in the Brisbane Creeks and in the Logan River. Further beach erosion As <i>Elaine</i> was developing into a cyclone from the 14 <sup>th</sup> to the 16 <sup>th</sup> just to the east of Cairns, torrential rain fell in the North Coast Herbert and Barron Divisions. The major feature of the months flooding was the record flooding in the Herbert. Falls of up to 1321 mm in 4 days in the Barron and Herbert districts produced the highest flood on record in the Herbert River. The Bureau's river height observer at Glen Eagle station was forced to evacuate his homestead , shortly before it was <b>washed away in a flood which reached the level of 6.85 metres above the previous record in 1927.</b> <b>The bridge at Long Pocket linking Abergowrie and Ingham was washed away</b> after being almost 15metres under water , and the population of Abergowrie was isolated for weeks. <b>Ingham itself was almost completely submerged in the flood-waters which were 17 kilometres wide at the peak.</b> Road and rail traffic were brought to a stand-still, and Hinchinbrook Shire Council is reported to have estimated road and bridge damage alone at about \$7.5 million. <b>Near record flooding was also reported in the Barron , Johnstone and Tully</b> The damage to sugar mill tramlines and bridges was severe. Huge fields of sugar cane were washed out and in some places cane has been covered by 2 metres of silt. Cars were washed into raging flood-waters and costly farm machinery inundated. Thousands of people had the heart-breaking experience of flood damage due to knee deep water in their homes and when this receded , 300mm of mud. Some people were rescued from roof tops and there were many reports of bravery under very difficult conditions. Helicopters were used in some of the rescue work.
<i>Glenda</i> 2/4 Apr 1967 -3.0(+0.4) C	TC moved south 500 km east of Brisbane. Gold Coast beaches completely eroded by large waves. <i>Glenda</i> was last of a series of cyclones and beaches along the south coast of Queensland were further eroded. The erosion came within 20 yards of the new Coolangatta SLSC and the patio was damaged by subsidence. <b>6 men lost their lives in two separate boat incidents in waves to 16 m off the S Qld Coast.</b> The <i>Maranui</i> at 1520UTC 4 April 1967 was located at 30.0 <sup>o</sup> S 158.5 <sup>o</sup> E wind turned southerly/75 knots MSLP 985.4hPa. At 2000UTC located at 29.6 <sup>o</sup> S 158.0 <sup>o</sup> E wind SW/70knots MSLP 981.6hPa . On 2300UTC 1 April the 9000 ton <i>White Ocean</i> was 100 mi south of the centre in waves generally less than 20 feet in height. But occasionally waves were much higher and crashed into the superstructure 50 feet above the waterline. The Capt and 3 <sup>rd</sup> officer were caught on the forecandle on one of these waves. The third officer was killed and the Capt badly injured. The 33ft <i>Beagle</i> was anchored in the lee of Double Island Point at 0830UTC 2 April when the boat was caught broadside by a huge wave and broken up with 5 of the crew of 6 were drowned. The previous day the <i>Malveena</i> reported waves to 50feet along the open coast near here.
<i>Ada</i> 17 Jan 1970 -10.1(-5.7) W	Small TC passed through Whitsunday Group and hit mainland, with a radar eye diameter of <b>20 km</b> , at Airlie Beach where a <b>central pressure of 962 hPa was recorded.</b> <b>14 lives were lost. Tourist resorts were destroyed and 80% of the buildings at Airlie Beach were badly damaged and sea water entered shops</b> there. Flooding was severe along the coast from Mackay to Bowen with <b>major floods in the Pioneer and Don Rivers.</b>
<i>Gertie</i> 16 Feb 1971 15.7(12.5) C	TC crossed the coast at Cardwell. Damage was confined to trees and power lines. There was also some sugar cane damage. Flooding closed some bridges but damage was minimal.
<i>Dora</i> 17 Feb 1971 15.7(12.5) C	TC crossed the coast north of Brisbane. There was fairly widespread structural damage at Redcliffe the worst case being a roof removed from a block of home units. Trees and powerlines were down. Some flooding caused traffic disabilities.
<i>Fiona</i> 20 22 Feb 1971	<i>Fiona</i> tracked from the Gulf and entered the Coral Sea near Rockhampton. Flooding in the Burdekin and Fitzroy Basins varied from minor to major with severe damage to infrastructure.

<p>15.7(12.5) C</p>	<p>Motorists were cut off for days. A <b>house was destroyed by a tornado near Sarina with trees down</b>. Paw Paw crops were lost near Gladstone by wind and rain effects. A <b>0.6 m to 0.9 m storm surge</b> was observed at Gladstone and Bundaberg respectively.</p>
<p><i>Althea</i> 24 Dec 1971 2.1(4.3) End C</p>	<p><i>Althea</i> crossed the coast just north of Townsville with a <b>106 knot gust</b> being reported at the Townsville Met Office. There were <b>three deaths in Townsville and damage costs in the Townsville region reached 50 million 1971 dollars. Many houses were damaged or destroyed (including 200 Housing Commission homes) by the winds. On Magnetic Island 90% of the houses were damaged or destroyed. Two tornadoes</b> damaged trees and houses at Bowen. There was a major flood in the Burdekin but coastal floods were short lived. A <b>2.9 m storm surge</b> was recorded in Townsville Harbour, however <b>the maximum storm surge of 3.66m was to the north at Toolakea</b>. This storm surge occurred at low tide, however the surge and large waves caused extensive damage along the Strand and at Cape Pallarenda.</p>
<p><i>Bronwyn</i> 8/9 Jan 1972 3.7(4.7) Start W</p>	<p>TC from Gulf moved southwards through state. Half of state received more than 50 mm of rain and Paluma had 1270 mm in 48 hrs. Serious flooding occurred and Giru was isolated. <b>0.9 m of water</b> entered Ingham. The Burdekin flooded Ayr and Home Hill.</p>
<p><i>Daisy</i> 11 Feb 1972 8.2(4.8) Start W</p>	<p><i>Daisy</i> made landfall on Fraser Island and the bar at Sandy Cape dropped to <b>968.8 hPa. 200 homes were damaged at Pialba</b> and more houses were unroofed in widely scattered townships. Forestry officials reported serious damage to forests near Maryborough and on Fraser Island. Flooding occurred throughout SE Qld with <b>severe floods in Brisbane creeks</b>. There was much damage to commercial stock in Brisbane. On the Gold Coast the mouth of Tallebudgera Creek silted up causing <b>severe flooding upstream</b> to commercial and domestic properties. <b>Peak swell heights to 8.3 m</b> were read at the Sth Nobby wave recording station on the Gold Coast. Severe erosion occurred down to Brunswick Heads and on the western side of Fraser Island where a <b>3 m storm surge</b> was reported. A noticeable storm surge at time of high tide was observed at; Sandy Cape, North Stradbroke, Woorim, Coolum, Tangalooma, Torquay, Sunshine Beach, and Brunswick Heads. At Tweeds Heads the surge brought high water an extra 2 ft (0.6 m) whilst Pumicestone reported a 2 ft 8in surge (0.8m). A 10 foot (3m) surge was reported on the western side of Fraser Island</p>
<p><i>Emily</i> 2 Apr 1972 -5.5(-6.1) W</p>	<p><i>Emily</i> crossed the coast just to the SE of Gladstone while rapidly weakening. Wind damage was confined to trees and sheds. The cyclone had been very severe and generated huge seas. <b>It claimed the lives of 8 seaman in three separate incidents</b> off the southern and central Queensland coasts. Flooding occurred with Kingaroy being isolated for a time and Breakfast Creek flooded some houses in Brisbane.</p>
<p><i>Madge</i> 4 Mar 1973 0.8(-4.9) End W</p>	<p><i>Madge</i> crossed the coast just north of Cooktown. The only impact from the cyclone was flooding and the road from Cooktown to the aerodrome was 1.8 m under water. The Bruce Highway was cut in 6 places between Townsville and Cairns.</p>
<p><i>Una</i> 19 Dec 1973 16.9(23.1) C</p>	<p><i>Una</i> crossed the coast just to the east of Townsville and was rapidly intensifying at landfall. Wind damage was confined to trees and street signs at Ayr and Townsville. There were power failures at Ayr and Home Hill. A house was unroofed at Home Hill, power poles were down and Palm trees snapped off. Mango crops were ruined. <b>Major Flooding occurred</b> at Theresa Ck, and in the Pioneer, Dawson, Fitzroy and Burnett Rivers. <b>Two adults and Two children were drowned in Floodwaters</b>. The maximum storm surge was 0.8m.</p>
<p><i>Wanda</i> 24 January 1974 20.8(18.0) C</p>	<p><i>Wanda</i> was a weak cyclone when it crossed the coast near Maryborough. The winds were strongest in the night after landfall when a high strengthened in the Tasman Sea. Tewantin and Caloundra then had average <b>50 knot</b> easterlies and Cape Moreton had average <b>56 knot</b> easterlies. Torrential rain followed and in the 5 days to 9am 29 Jan falls reached 900 mm in the Brisbane area. Mt Glorious had 1318 mm. The Bureau in Brisbane recorded <b>314 mm in the 24 hours</b> to 9am 26 Jan and the <b>1931 flood was exceeded at 9am 27 Jan</b>. Heavy rain in the 24 hours to 3pm 27 Jan caused the major flood. In the Brisbane Ipswich region <b>6007 houses were flooded. 56 of these were destroyed or condemned</b>. Damage on a large scale was <b>200 million 1974 dollars. 12 People were drowned in Brisbane and Ipswich. Additionally several elderly people suffered fatal heart attacks while being evacuated and a 2yr old child drowned in a Brisbane creek</b>. Major floods also affected the Gold Coast and NE NSW. 700 people were evacuated from caravan parks in the Broadbeach area. Around 1000 people were evacuated from the canal estates of Miami Keys, Moana Park, Rialto,</p>

	<p>Mermaid Waters, Florida Gardens and Burleigh Waters. Houses were swamped from water up to 1.5m deep. Evacuations also occurred along the coastal strip at Surfers (where waist deep water flooded streets near the river), Miami, Nobbys (where water came up to window sills and to the tops of caravans) and Bundall Rd Southport where floods spread over the Isle of Capri and Sorrento. Evacuations were carried out at Biggera Waters, Hollywell and Paradise Point. 200 people were stranded on Hope Island and Nerang was completely isolated. In total 2500 Gold Coast people were evacuated. The Nerang River rose to a record level of 9.91 m. Heavy swells caused severe beach erosion along southern Qld and NE NSW. The Sth Nobby station recorded <b>significant swell heights to 4.5 metres</b>. Maximum heights were probably nearly double this. The maximum storm surge associated with <i>Wanda</i> was 1.0 m between Noosa and Double Island Pt.</p>
<p><i>Pam</i> 6 Feb 1974 16.2(19.1) C</p>	<p><i>Pam</i> was a very large intense cyclone which passed 500 km to the east of Brisbane. However a <b>0.68m storm surge</b> was recorded on the Moreton Bay gauge and combined with a king tide, the high tide of 7 Feb on the gauge reached <b>3.13 m (a record)</b>. This rise in sea level flooded Brisbane creeks at high tide and caused cancellation of some bus services. Along the open coast the beaches were already severely eroded due to earlier cyclones and this amplified the effects of run up from the large waves generated by <i>Pam</i>. At Palm Beach <b>residents had to abandon their houses and units as seawater drove over 6.2 metre boulder walls and surged through these premises</b>. The Sth Nobby Wave Station recorded <b>long period swells (13.1 sec) with a significant wave height of 3.8 m</b>. Large waves also entered Botany Bay and badly damaged a restaurant on the foreshore.</p>
<p><i>Yvonne</i> 10 Feb 1974 16.2(19.1) C</p>	<p><i>Yvonne</i> crossed the coast near Dunk Island. On Dunk Island the wind tore roofing iron loose, uprooted large trees and brought down power lines. Bloodwood trees up to 1 metre in diameter were uprooted or snapped off. The area affected was 50 to 60 km wide embracing Cardwell and El Arish. On the mainland trees up to 1.5 m were uprooted.</p>
<p><i>Zoe</i> 13 Mar 1974 20.3(15.5) C</p>	<p><i>Zoe</i> crossed the coast at Coolangatta and then recurved back out to sea. There was no significant wind damage however flooding was extensive with <b>major floods in Brisbane creeks cutting main roads and some houses were flooded</b>. Major flooding occurred in N NSW and <b>200 people were evacuated in Murwillumbah and 500 families were evacuated at Lismore. Landslides cut the main railway line</b> in 4 places between Casino and Coffs Harbour. There was severe erosion along the Gold coast beaches and the significant wave height at Sth Nobby reached 3.8 m.</p>
<p><i>Gloria</i> 16 Jan 1975 -4.9(-0.2) C</p>	<p><i>Gloria</i> developed close to the coast and moved towards the SE. The only impact was flooding at Lucinda and Mackay with many roads cut including the Bruce Highway.</p>
<p><i>David</i> 19 Jan 1976 11.8(14.7) C</p>	<p><i>David</i> crossed to the north of St Lawrence. It passed over Gannet Cay AWS where a central pressure of <b>970 hPa</b> was recorded. It was intensifying right up to the time of landfall. A feature was its huge size with gales extending from PNG waters down to Lord Howe Is. It generated huge swells and these combined with large tides caused extensive damage to Heron Island as it passed to the north. It crossed the coast in a sparsely populated area however winds unroofed <b>30 buildings</b> in Yeppoon and several in Mt Morgan. Wind gusts reached <b>95 knots at Pine Islet and 84 knots at the Gladstone Met Office</b>. Large seas combined with high tides caused considerable damage to breakwaters, retaining walls and other structures especially at Rosslyn Bay Harbour (Yeppoon) where the Breakwater was destroyed along with yachts and trawlers. <b>Storm tides flooded houses and shops</b> at Urangan, Noosa and Kirra. <b>Storm surge at Beachmere on Moreton Bay cut all roads into the town. The Port of Brisbane was closed</b>. At wave recording stations the significant wave (peak) height reached <b>5.8 m (8.9 m)</b> at Double Island Pt and <b>3.8 m (8.7 m)</b> at Yeppoon. Tides were up to one metre above predicted levels.</p>
<p><i>Alan</i> 1 Feb 1976 12.9(12.6) End C</p>	<p><i>Alan</i> crossed the NQ coast near Bloomfield R Mission and caused no structural damage. During the next ten days it became an intense monsoon depression and had a central pressure of 989 hPa near Tennant Ck. It recurved and passed near Birdsville and moved out to sea near Byron Bay. In its traverse of the inland it caused widespread flooding and in particular <b>record flooding</b> in the Condamine near Warwick.</p>
<p><i>Beth</i> 22 Feb 1976 12.9(12.6) End C</p>	<p><i>Beth</i> crossed the coast near and to the north of Bundaberg. The cyclone was very asymmetric with a band of hurricane force winds on the southern flank where it interacted with an intensifying high to the south. Widespread damage occurred in the Maryborough Bundaberg area with <b>200 homes unroofed, two aircraft damaged and rainfall up to 200 mm caused flash</b></p>

	<b>flooding</b> and cut roads for 18 hours. Heavy swell pounded the south coast and The wave recording station at Double Island Pt. recorded a significant wave (peak) height of <b>5.4 m (10.0 m)</b> .
<i>Colin</i> 4 Mar 1976 13.2(9.3) End C	<i>Colin</i> moved southwards and was 220 km east of Fraser Island at one point. By far the greatest impact was from the large waves it generated and extensive beach erosion occurred along South Queensland Beaches. The wave recording station at Double Island Pt recorded a significant wave (peak) height of <b>6.4 m (9.6 m)</b> . Further south waves off Sydney Heads were estimated at <b>12 m in height</b> and <b>several launches were destroyed when 2 m waves penetrated into Botany Bay. A woman was killed at Tathra (S NSW)</b> when swept off a cliff top by a large wave. Scores of Houses were unroofed at Swansea near Newcastle.
<i>Dawn</i> 5/6 Mar 1976 13.2(9.3) End C	<i>Dawn</i> developed on the N Qld coast and moved down the coast crossing Fraser Island. <b>Two homes were unroofed</b> in N Mackay and tree were uprooted on Heron Is. Rainfalls up to 230 mm between Proserpine and Bundaberg caused <b>flash flooding</b> .
<i>Otto</i> 6 10 Mar 77 -9.5(-3.8) W	<i>Otto</i> moved from the Gulf into the Coral Sea near Cape Tribulation and made landfall again near Bowen. There was no significant wind damage however it severely aggravated already serious floods between Cairns and Ingham which resulted in <b>\$6 (1977) million crop and property damage</b> . Heavy seas destroyed <b>1200m of the esplanade</b> at Machans Beach Cairns. Hay Point also suffered some sea damage. The wave station at Double Island Pt. recorded a significant wave (peak) height of <b>3.8 m (6.3 m)</b> .
<i>Keith</i> 31 Jan 1977 -4.0(0.2) W	<i>Keith</i> first hit the coast east of Cairns, then moved back over the ocean and crossed the coast again at Cape Cleveland. Extensive wind damage to the tropical rain forest east of Babinda over the Graham Range as noted in the Hydrological experimental catchments. Large trees were uprooted and some snapped off above the roots. Elsewhere only minor wind damage occurred, however wind and rain combined to cause <b>extensive losses to the banana and sugar crop</b> . Floods cut the highway between Cairns and Townsville. <b>Two men were killed</b> when a yacht smashed into rocks on the western side of Acheron Is.
<i>Gwen</i> 27 Feb 1978 -24.4(-11.1)	<i>Gwen</i> passed directly over Edward River Mission in the Gulf and maintaining its movement towards the SE it became a rain depression. In sections of the Herbert district extremely heavy rain fell and up to 500 mm in 24 hr from a farm in the Palm Creek area. The Herbert at Gairloch rose 4.2 m in 11 hrs. Gales were reported near Townsville with a gust to 59 knots there.
<i>Peter</i> 1-2 Jan 1979 -4.0(0.6) Start W	<i>Peter</i> moved from the Gulf to the Cairns region where it moved back overland. There was no significant wind damage, however there was record rainfall. On 5 Jan Mt Bellenden Ker (1554 m elevation) recorded <b>1947 mm of rain in 48 hours</b> . Serious flooding occurred from Tully to Cooktown especially around Cairns. <b>Flood damage was estimated at \$10 (1979 million)</b> and there were <b>two deaths</b> .
<i>Greta</i> 11 Jan 1979 -4.0(0.6) W	<i>Greta</i> moved from the Gulf and then crossed Princess Charlotte Bay before making landfall again. The only impact was flood rains over Northern Cape York Peninsula.
<i>Kerry</i> 1 Mar 1979 -3.0(-0.6) W	<i>Kerry</i> crossed the coast near Proserpine. In Mackay one house suffered extensive damage and 26 houses lost parts of their roofs. A large section of roof was torn off a warehouse and caravans were damaged. Power lines were blown down. At Seaforth 16 m trees were uprooted. The Mackay Met Office recorded a <b>maximum wind gust of 76 knots</b> while the highest <b>10 minute mean wind was 50 knots</b> . Huge seas caused <b>1 million 1979 dollars damage</b> to boats in the harbour. On Brampton Is. the staff's quarters were unroofed and many trees were blown down and a <b>storm surge</b> there brought the sea <b>one metre above the highest recorded tide level</b> . Hayman Is also reported a <b>one metre storm surge</b> . The Mackay Eungella road was cut by fallen trees and landslides and floods cut the Bruce Highway. The Mackay wave recording station measured significant wave heights to 4.02 metres maximum height 5.91metres and peak energy period 9.19 seconds
<i>Paul</i> 7 8 Jan 1980 3.2(-1.4) W	<i>Paul</i> moved from the Gulf to enter the Coral Sea near St Lawrence. Heavy rain caused a <b>record flood in the Don R.</b> which changed its course in the lower reaches near Bowen. Two houses were washed away. Severe damage resulted in the market garden industry. Large swells affected the south coast. The Brisbane wave recording station recorded significant (peak) wave heights of <b>4.3m (9.8m)</b> on 8 Jan.
<i>Ruth</i> 12 14 Feb 1980	<i>Ruth</i> remained over the ocean between Australia and New Caledonia. The highest astronomical tides for 10 yr combined with large NE swells caused damage at Heron Is. The big tides and heavy

1.1(-1.4) W	swells caused extensive foreshore erosion along the Gold and Sunshine Coasts. The Brisbane wave recording station recorded significant (peak) wave heights of <b>4.0m (6.3m)</b>
<i>Simon</i> 24 Feb 1980 1.1(-1.4) W	<i>Simon</i> was rapidly intensifying and moving towards the coast when it recurved seawards over Port Clinton with a radar eye diameter of 35 km. In this remote area it caused <b>extensive damage to vegetation</b> . It passed slowly to the north of Heron Is which experienced <b>wind gusts to 93 knots</b> and a great deal of damage. Neap tides saved the Island from swell damage. Huge swells were observed but their energy was dissipated on the exposed fringing reef. <b>A yacht ran up onto Lady Elliot Island and a rescue helicopter turned over</b> but there were no casualties. As the cyclone passed to the east of Fraser Island a ship near Indian Head reported <b>wind gusts greater than 100 knots</b> . Sandy Cape Lighthouse reported winds gusting to <b>92 knots</b> . Houses lost roofing iron at Hervey Bay where there was flooding. The Burnett Heads wave recording station recorded significant (peak) wave heights of <b>4.5m (8.9m)</b>
<i>Eddie</i> 10 Feb 1981 -3.2(-5.7) Av	It crossed the coast at Princess Charlotte Bay with only minor impact. Cooktown had a 0.64m storm surge. There was minor flooding.
<i>Cliff</i> 15 Feb 1981 -3.2(-5.7) Av	<i>Cliff</i> crossed Fraser Island and made landfall near Bundaberg. Sugar cane crops were damaged around Bundaberg and several houses were damaged further south. <b>A storm surge brought water into the streets at Urangan</b> . There was a <b>0.7m storm surge</b> on the Gold Coast with a large swell. A large wave train brought a <b>surge of water into Currumbin Creek which swept a man off the bank drowning him</b> . The Brisbane wave recording station recorded significant (peak) wave heights of <b>4.3m (7.2m)</b>
<i>Freda</i> 26 Feb 1981 -3.2(-5.7) Av	<i>Freda</i> developed near Cooktown and moved away from the coast. There was flooding in the Barron, Herbert, Tully and Johnstone rivers. A 10 m trawler capsized 300 km east of Mackay. The crew of 4 were rescued.
<i>Elinor</i> 3 4 Mar 1983 -28.0(-26.0) W	<i>Elinor</i> crossed the coast near Carmila. <b>2 yachts were wrecked</b> near the coast. A <b>one metre storm surge</b> was reported at Collins Is (Broadsound). Wind blew down 0.75 diam trees, power lines and caused minor house damage along the Central Coast and Islands. Heavy rain Yeppoon area.
<i>Jim</i> 8 Mar 1984 -5.8(0.6) Av	<i>Jim</i> crossed the Peninsula Coast near Cape Grenville uprooting moderate to large trees.
<i>Kathy</i> 19 Mar 1984 -5.8(0.6) Av	<i>Kathy</i> crossed the Peninsula Coast near the mouth of the Pascoe River with only slight tree damage.
<i>Lance</i> 7/9 Apr 1984 2.0(-1.4) Av	<i>Lance</i> underwent rapid extra tropical transition near and east of Brisbane. Sustained winds reached at least 60 knots. There was damage to boats on the western side of offshore Islands in storm force westerlies and 20 boats were driven ashore on Moreton Island. On the Gold Coasts SES estimated 250 houses were unroofed and another 2000 houses damaged with many houses losing roofing and sustaining rain damage. Wind drove rain into high rise buildings. Huge seas hit the Gold Coast. On Moreton Bay the 14m motor cruiser <i>Shadrack III</i> sunk at 10.10 am 8 <sup>th</sup> and the crew of 4 were rescued by helicopter. At 6am 9 <sup>th</sup> the crew of two on the yacht <i>Igor</i> were rescued by helicopter off Stradbroke Island. At 7am 9 <sup>th</sup> the crew of four on the trimaran <i>St Therese</i> were rescued by helicopter off Stradbroke. At 10am 9 <sup>th</sup> the crew of 6 on the trimaran <i>Kindara</i> were rescued by helicopter off Brunswick Heads. The yacht <i>Hussar</i> was wrecked but the crew of two scrambled to safety on Moreton Island on the 9 <sup>th</sup> . The Brisbane wave recording station recorded significant (peak) wave heights of <b>5.1m (8.8m)</b> on 9 Apr. There was significant wind damage to state forests in the Warwick region of the Darling Downs.
<i>Pierre</i> 22 Feb 1985 6.7(0.4) Av	<i>Pierre</i> moved from Cape York to make landfall a Shoalwater Bay and then moved out to sea. Only minor temporary flooding.
<i>Tanya</i> 1 April 1985 14.4(5.1) Av	<i>Tanya</i> crossed the Peninsula Coast near Coen. Minor damage to vegetation.

<p><i>Winifred</i> 1 Feb 1986 -10.7(-0.6) Start W</p>	<p><i>Winifred</i> crossed the coast with a radar <b>eye diameter of 41 km</b> just south of Innisfail. The worst affected areas were between Babinda and Tully. Instrumentation at Cowley Beach, which was near the southern eye wall at landfall, showed the maximum 10 min average wind was between <b>68 knots and 83 knots</b>. Further to the north the maximum <b>gust at Cairns was 64 knots</b>. Central pressures of <b>958 hPa</b> were observed at both Cowley Beach and South Johnstone. Some extreme wind effects were observed to the north in the westerly winds. A house severely damaged on a 70 m ridge north of Innisfail was calculated (By James Cook Uni) to have been hit a <b>145 knot gust</b>. Other structural Damage: <b>Innisfail</b>- 190 houses damaged ranging from extensive to minor; <b>Mourilyan</b> 20 houses unroofed every other house damaged 12 vessels sunk in harbour; <b>South Johnstone</b>- 30 houses unroofed 50 damaged; <b>El Arish</b> - one house destroyed, 15 unroofed and most others damaged; <b>Babinda</b> -16 buildings (shops, churches, houses) damaged severely, 50 houses unroofed and 500 houses in district damaged; <b>Silkwood</b> -25 houses severely damaged 25 partly damaged ;<b>Mirriwinni</b>-50 houses damaged; <b>Kurrimine Beach</b>- 25 houses severely damaged 51 partly damaged; <b>Cairns</b> - 5 houses unroofed and 10 damaged; <b>Millaa Millaa</b>- 12 houses damaged 150 to 300 farm buildings damaged; <b>Malanda</b> -30 houses damaged 20 farm buildings severely damaged.</p> <p>A near record flood occurred in the Herbert R. and a major flood occurred in the Tully R. The total coast of Damage reached <b>130 million 1986 dollars</b> of which \$87M was agricultural damage. There was a <b>1.6m storm surge</b> on the gauge at Clump Pt. There were <b>3 deaths</b> two from wind effects and one drowning.</p>
<p><i>Charlie</i> 1 Mar 1988 2.4(-1.3) Start C</p>	<p><i>Charlie</i> made landfall with an average <b>radar eye diameter of 37 km</b> at Upstart Bay near Ayr while rapidly intensifying. The lowest pressure reading was <b>981 hPa at Cape Bowling Green</b> at the time of landfall. Cape Bowling Green recorded a maximum <b>1 minute average wind of 75 knots</b>. Twenty four hours before landfall an instrumented ship recorded a gust of <b>80 knots</b> when the cyclone passed over it. At Ayr <b>2m deep water</b> flooded many houses. 4 houses were partly unroofed and others had windows smashed. The area where it made landfall is sparsely populated which limited structural damage however there was widespread sugar cane damage. Total crop losses were <b>\$15 (1990) million</b> most of which was caused by flooding. Large seas were generated by <i>Charlie</i> and the Abbot Point wave recording station measured significant (peak) <b>wave heights to 3.1m (5.6m)</b>. Beach erosion occurred between Bowen and Townsville and the most serious was at Beachmont where a dune breach caused <b>tidal inundation over 1800 hectares of grazing land</b>. A <b>stockman was drowned</b> in flooded Marian Creek south of Sarina on the 1<sup>st</sup>. There was an unofficial rainfall report of <b>912 mm</b> in the 24 hours to the 1<sup>st</sup> from Gibberland Station in the Connors Ranges. Nearby there was an official report from Carmila of <b>804 mm</b> in the 24 hours to the 2<sup>nd</sup>.</p>
<p><i>Aivu</i> 4 Apr 1989 21.0(13.5) C</p>	<p><i>Aivu</i> crossed the coast with a <b>radar eye diameter 30 km</b> of near Ayr. Just before landfall the diameter was 22 km. A pressure of <b>959 hPa</b> was read in the eye at Fredericksfield which is 20 km inland from the coast. Insurance pay out (1990 \$) for Buildings cars boats etc were \$26 million. Total damage was about <b>\$40 (1990)million</b>. Agricultural damage was also around <b>\$40 million</b> and infrastructure losses were about <b>\$10 million</b>. Wind destroyed some houses however mostly it caused loss of roofing iron or awnings etc. A <b>3 metre storm surge</b> destroyed numerous beachfront properties in Upstart Bay and <b>drowned one man</b>. <b>Major flooding</b> occurred in the Pioneer and Proserpine Rivers. As <i>Aivu</i> approached the coast during 2 April flood rains affected SE Qld and NE NSW. Seven people were lost presumed drowned (Two in Brisbane, Two in the Gold Coast Hinterland and three in NE NSW).</p>
<p><i>Nancy</i> 3 Feb 1990 -17.3(-9.0) Start W</p>	<p><i>Nancy</i> crossed the coast near Byron Bay and then moved seawards again. The strongest wind report was a mean wind of <b>60 knots gusting to 73 knots</b> at Cape Moreton Lighthouse near Brisbane. The lighthouse also recorded the lowest pressure reading of <b>982.7 hPa</b> while it was experiencing the strongest wind speeds. There was some structural damage to houses on the offshore islands and elevated areas near the coast however the major impact was from flooding. Heavy rain (up to <b>530mm in 24 hrs and 132mm in 3 hours</b> ) occurred between the coast and ranges south from Brisbane causing <b>flash floods and drowning six people (5 in NSW and one in Qld)</b>. Damage costs from flooding in Qld and NSW reached <b>\$36 million</b>.</p>
<p><i>Ivor</i> 19 Mar 1990 -8.5(-8.8) End W</p>	<p><i>Ivor</i> crossed the coast near Princess Charlotte Bay. There was some structural damage to sheds and light damage to the main buildings in Coen. There was evidence of a <b>tornado track</b> from a swath of damaged trees 100m wide extending as far as the eye could see 40 km south of Coen. David Ambrose (07 38471847) was on board the vessel <i>Mustique</i>, which encountered sustained</p>

	<p>winds of 114.5 knots (maximum reading on the anemometer). They spent the period steaming between Flinders and Stanley Islands in Princess Charlotte Bay. David Curnock , a dentist in Cairns was one of the crew and he recalled the ship's barometer falling to 928hPa The windward side of trees were stripped of bark.</p> <p>There was extensive damage to Coral along the coast.</p> <p>The cyclone retained its identity as a monsoonal low and moved through the eastern Gulf and back down the east coast with heavy rain south of its centre. As it moved down the Central Coast unofficial 24 hr falls of 1000mm were reported near Yeppoon and this caused <b>flash flooding and extensive damage</b> in the Yeppoon area. 572.4mm in 24h to 9am 27 Mar at Pacific Heights Yeppoon.</p>
<p><i>Joy</i> 22 25 Dec 1990 -2.4(-0.8) W</p>	<p><i>Joy</i> intensified as it approached Cairns and late on 22 Dec it developed a circular radar eye <b>50 km in diameter</b> 200 km NE of Cairns. It then became slow moving and developed the <b>concentric eye pattern of the very severe tropical cyclone</b>. The strongest winds at Cairns with gusts to <b>67 knots</b> were recorded late on 23 Dec when <i>Joy</i> was 130 km NE of Cairns. An AWS on Green Island recorded a <b>gust of 97 knots</b>. The cyclone gradually lost intensity after 24 Dec and crossed the coast near Townsville as a much weaker system. Destructive winds buffeted the Coasts and Tablelands between Cape Tribulation and Innisfail. There was structural damage to buildings however large economic losses resulted from damage to crops , road surfaces, power lines and water supplies. On Boxing Days gales caused extensive damage to boats in the Whitsunday Group. Early on 27 Dec <b>a tornado at Mackay demolished 2 houses, damaged another 40</b> and caused extensive damage in a seaside caravan park. <b>6 lives were lost</b>, 5 were drowned in swollen rivers (1 at Bowen and 4 at Rockhampton) and a man drowned while surfing in cyclone generated seas at Mackay. Exceptional flood rains fell and over the period 23 Dec to 7 Jan and some stations in the Pioneer catchment received 2 metres of rain. Damage coast reached <b>\$62 (1990) million</b>.</p>
<p><i>Betsy</i> 13 Jan 1992 -25.4(-17.1) W</p>	<p><i>Betsy</i> passed 450 km seawards of Fraser Island but being an exceptionally large cyclone generated very large swells which caused severe beach erosion particularly at Noosa where all sand has been washed away. Forty people were rescued at the normally safe beach at Noosa. A yacht off Fraser Island had to be rescued by the coastguard.</p>
<p><i>Fran</i> 16 Mar 1992 -24.2(-17.5) W</p>	<p><i>Fran</i> crossed the coast neat the Town of 1770. The maximum anemometer wind gust recorded was <b>76 knots</b> on Great Keppel Island (just off the coast from Yeppoon).In Bundaberg <b>40 houses were unroofed</b>, one was blown off its stumps and at Bargara the caravan Park was evacuated. Heavy damage to fruit and vegetable crops occurred in the Bundaberg district. At Burnett Heads the marina and 3 yachts were damaged and there was extensive damage to pontoons and yachts forced against a rock wall. Powerlines, trees, and roofs were damaged at Gympie. There was roof damage along the Sunshine Coast when <i>Fran</i> crossed Fraser Island on its way back out to sea. <b>A storm surge inundated</b> 20 business premises, 100 houses and 50 caravans at St Hervey Bay. People were evacuate from the Caravan Parks. One house had seawater through lower levels at Burrum Heads. There was <b>major flooding</b> in the Kolan R and moderate flooding in the Burnett R. Heavy swells caused damage on Heron Island and severe erosion on the Gold and Sunshine Coasts. In total there were <b>2,624 insurance claims</b> for property damage. It has been estimated that the total damage bill (with flood damage) was <b>8 to 10 million 1992 dollars</b>.</p>
<p><i>Roger</i> 17 Mar 1993 -8.5(-12.5) W</p>	<p><i>Roger</i> came within 250 km of Fraser Island before turning back out to sea. The cyclone had a very large circulation and came near the coast as a ridge built up along the NSW coast. This developed an extensive area of gale to storm force winds. Six houses sustained roof damage on the Sunshine Coast There were large blackouts in SE Qld due to fallen trees. Banana growers in SE Qld lost about 50 % of their crop as winds twisted and uprooted the trees. In N NSW fallen trees closed the 64 km Tweed Range Scenic Road. The <b>winds and seas closed the Port of Brisbane</b> for the first time since <i>David</i> in 1976. A <b>man drowned</b> in the surf at Agnes Waters. Seas were still large on 20 Jan and a <b>man was drowned</b> at Surfers Paradise and more than 60 people were rescued. A <b>storm surge of 0.74m</b> was measured on the Gold Coast Seaway gauge on 17 Mar and the peak water level reached 0.16m above highest astronomical tide(HAT). There was serious beach erosion along the Sunshine coast. The Brisbane wave recording station recorded significant (peak) wave heights to <b>7.5m(13.2m)</b> on 17 Mar. Ship observations off Brisbane indicated that the larger swells came from the north, northeast and east.</p>
<p><i>Rewa</i> 19/20 Jan 1994</p>	<p><i>Rewa</i> came within 100 km of the coast as it was recurving away from Australia. Two men were rescued from a fishing trawler near Yeppoon by an army Blackhawk helicopter. The upper trough</p>

<p>-1.6 (0.2) C</p>	<p>system interacting with <i>Rewa</i> as it recurved generated severe flash flood thunderstorms over Brisbane which resulted in four deaths. Three died in traffic accidents and a boy was swept down a drain. A man was also rescued by a SES helicopter when his car was swept into a flooded creek. 100 homes were damaged by the floodwaters.</p>
<p><i>Violet</i> 8 Mar 1995 3.5(-5.1) End W</p>	<p><i>Violet</i> came close to the coast near Byron Bay while weakening below tropical cyclone intensity. Earlier it passed close to Lord Howe Island where gusts reached 68 knots with tree damage across the island. Heavy swells caused severe beach erosion near Evans Head.</p>
<p><i>Barry</i> 9 Jan 1996 8.4(1.3) Weak C</p>	<p><i>Barry</i> tracked from the Gulf through Central Qld. A surface trough extended from the centre to the east coast and was associated with wind gusts to 70 knots as it moved down the coast from Sarina to Hervey Bay. This resulted in pockets of structural and tree damage along this part of the coast along with tides of up to a metre above normal.</p>
<p><i>Celeste</i> 27 Jan 1996 8.4(1.3) Weak C</p>	<p><i>Celeste</i> very rapidly developed near the coast and came close to Bowen as it was moving southeastwards out to sea. With a <b>radar eye diameter of 40 km</b> it was 24 km north of the town when the airport reported an average wind 50 knots with gusts to 64 knots. Queensland emergency services reported 18 houses damaged in Bowen of which only 3 sustained major damage. There was \$300,000 (1995 dollars) damage at Hayman Island as the cyclone passed 25 km north of the Island. The Hayman Is wave recording station measured significant (peak) wave heights to 3.2m (6.7m)</p>
<p><i>Ethel</i> 12 Mar 1996 6.2(5.0) End weak C</p>	<p><i>Ethel</i> moved across Cape York from the Gulf and then turned rapidly back towards the east coast of Cape York Peninsula and then intensified again before making landfall near Cape Melville. Many vessels were sheltering in nearby Princess Charlotte Bay and maximum sustained winds of up to 50 60 knots were reported.</p>
<p><i>Ita</i> 24 Feb 1997 +13.3 (+3.0)</p>	<p><i>Ita</i> crossed the coast near Cunggella in Bowling Green Bay around 1200 UTC on the 24th. The strongest wind reports were from the Alva Beach AWS with a 10 minute wind of <b>42 knots</b> from the east with gusts to <b>50 knots</b> at 1030 UTC on the 24th .Power lines were brought down. Flooding occurred in the vicinity of Alva Beach and in coastal streams to the south, in particular the Pioneer. A tornado was observed at Yukan, 13km south of Sarina at 0530 UTC 24th. A 25 metre high tree was uprooted by the vortex. It cut a 20 to 30 metre strip through sugar cane. Flooding caused \$450,000 damage to roads in the Mirani Shire. The highest 24 rainfall total was 375 mm at Dalrymple Heights.</p>
<p><i>Justin 1</i> 9 Mar 1997 -8.5(-4.0) Start W</p>	<p><i>Justin</i> lay well out to sea but was a very large cyclone and tides exceeded HAT at most centres between Bundaberg and Cooktown. The highest overall tide gauge recordings in relation to HAT were 0.4 m above HAT at Shute Harbour and 0.5 metres above HAT Mackay. The Mackay wave station recorded significant (peak) heights to <b>4.8m (8.45m)</b>. Wind observations showed a large area of gales of relatively constant direction over open waters extending from around Hayman Island to the Capricorn Channel, a distance of some 500 km for more than 36 hours. The large waves and high tides resulted in severe beach erosion and inundation along coast and offshore Islands between Townsville and Bundaberg. There was some wind damage over the Whitsunday Group and sea damage to retaining walls, marinas and yachts. A Canadian couple were rescued from a 15 metre ferro concrete yacht by helicopter 1 hour 20 minutes out from Townsville.</p>
<p><i>Justin II</i> 22 Mar 1997 -8.5(-4.0) Start W</p>	<p><i>Justin</i> crossed the coast near Cairns while rapidly intensifying and with a <b>radar eye diameter of about 25 km</b>. The maximum winds reported were from Green Island AWS with average winds to <b>55 knots and gusts to 69 knots</b>. The lowest pressure there was <b>994.6 hPa in the eye</b>. <b>Two people were killed</b> as <i>Justin</i> passed over the area. A lady was killed by a landslide at Paluma near Townsville. A boy was electrocuted by a fallen power line at Innisfail 70 km south southeast of Cairns. The total horticultural and sugar cane damage bill is expected to reach <b>\$150,000,000</b>. Damage to roads and bridges etc are expected to exceed \$20,000,000. Cairns harbour wall was badly damaged and 50 berths in the marina were destroyed. There was widespread tree damage which brought down power lines and caused massive blackouts. Large landslides covered roads leading up into the Atherton Tablelands.. In the Tablelands fifteen homes were damaged by trees smashing through roofs. There was also wind damage in the Townsville area. Thirteen flooded homes were evacuated in Dimbulah. <b>Major flooding</b> occurred in the Johnstone, Tully and Herbert Rivers. Ten houses were inundated at Innisfail. Four houses were inundated at Cardwell. At Deeragun in Townsville 60cm of water covered the suburb and several houses were</p>

	evacuated. At Giru the town was covered by 25 cm of water.
<i>Sid</i> 10-11 Jan 1998 -23.5 (-17.3) W	<p>Ex TC <i>Sid</i> crossed the Peninsula from the Gulf and intensified to a severe monsoon low near Townsville. Townsville recorded 549 mm of rain in the 24 hr period to 2300 UTC on the 10th. Included in this period was 120.6 mm in one hour and 205.2 mm in two hours. A man was drowned when his car was washed off a creek crossing in Townsville. In Townsville around 100 residences had substantial over floor flooding with hundreds more sustaining property flooding . Numerous cars were damaged by flooding, and up to 50% of the houses in Townsville lost power at some stage. Damages to local Government infrastructure were high. On Magnetic Island a huge landslide caused major damage to a tourist complex. The small communities of Black River and Bluewater suffered extensive damage from flash flooding. Flooding impacted on 48 houses with the majority rendered uninhabitable. 14 were totally destroyed with 8 washed away. One hundred houses experienced over floor flooding in Halifax and Ingham. There was also extensive damage to the rural sector. Wave action and storm surge inflicted severe damage and erosion to coastal areas around Townsville with damage from these effects quoted as reaching \$19 million. The sea reached a level just below HAT at 2221 UTC 10 January and the Townsville wave recording station recorded waves with Hsig of 2.93 metres and Hmax of 5.41 metres at 0500 UTC 10th Jan. Seven vessels sunk in Townsville Harbour. The total damage bill was well in excess of \$100 million.</p>
<i>Yali</i> 26 Mar 1998 -28.5 (-21.0)	<p><i>Yali</i> passed 500 km east of Brisbane on a southerly track. Wind gusts to 54 knots were recorded at Cape Moreton and Double Island Point. The Brisbane wave recording station recorded significant (peak) wave heights to <b>6.0m(11.5m)</b> on 26 Mar. A storm surge of 0.3m coincided with high spring tides. There was beach erosion from the Sunshine coast to Northern NSW beaches. There were tree damage and power blackouts on the Sunshine coast.</p>
<i>Rona</i> 11 Feb 1999 8.6(10.9)	<p><i>Rona</i> made landfall just to the north of Cow Bay which is near the Daintree River Mouth. The main wind damage extended from Newell Beach to Cape Tribulation with the major damage between Cape Kimberley and Cape Tribulation. Some trees in the Cape Tribulation area which survived the 1934 cyclone were felled by <i>Rona</i>. The maximum wind speeds were recorded by the Low Isle automatic weather station with 10 minute average winds to 71 knots and a maximum wind gust of 85 knots. The lowest pressure of 983.0 hPa (not in the eye) was recorded at Low Isle. A 1 metre storm surge was recorded at Port Douglas (at low tide) and a 1.4 m surge was recorded at the mouth of the Mossman River. These sites were south of the maximum wind zone where the largest storm surge would be expected. Major flooding occurred between Cairns and Townsville. Despite the confined wind fetch inside the Barrier Reef, <i>Rona</i> generated some large waves as indicated from wave recording stations run by the Beach Protection Authority. At the Low Islet station the peak significant wave height (the average of the one-third highest waves in a 26.6 minute period) exceeded 3.5 m and the maximum wave height exceeded 6.3 m. The Cairns station recorded significant wave heights to 2.49 m and a peak height of 4.65 m. These were record heights (since recordings commenced in 1975) for Cairns although readings were missed when tropical cyclone <i>Justin</i> made landfall near Cairns in March 1997. At Dunk Island the corresponding readings were 3.06 m and 5.69 m. There was major damage to crops and infrastructure in the Douglas Shire and major damage to crops between Townsville and Cairns.</p>
<i>Steve</i> 27 -28 February 2000 12.9 (9.1)C	<p>Tropical cyclone <i>Steve</i> crossed the coast at the Cairns Northern Beaches around 7 pm Sunday 27/2/00. It was named at 7 am that morning while near the Holmes Reef , which is located 230 km east-northeast of Cairns. Cairns Airport reported its lowest MSL pressure 991 hPa at 6.39 pm Sun (not in the eye.) Max gust <b>was 77 knots at 6.45 pm</b> and 6.50 pm Sun. The maximum 10 min average wind was 120/56 knots at 6.51 pm. At Green Island the lowest MSL pressure was 984.6 at 5.53 pm Sun (not in eye). Max gust there was 85 knots around 6.30 pm. The highest significant wave at the Cairns Wave recording Station was <b>2.75 m</b> around 8pm Sunday and the maximum wave height was <b>5.0 m</b> after this at midnight. The maximum storm surge at Cairns (1 metre) was at 7.30pm Sun. As <i>Steve</i> developed a monsoon rainband extended from it towards Cairns and Cairns Airport recorded <b>237 mm in the 24 hours to Sat 26 Feb 2000</b> which caused flooding of some houses. The rain increased in the Barron River Catchment around the time of landfall. Emerald Crest recorded <b>256mm in the 12 hours to 6.25 am Monday 28 February 2000</b>. This resulted in Major flooding at Mareeba in the early hours of Monday and in Cairns during Monday. <b>At Mareeba 90 people were evacuated including 20 by helicopter</b> evacuation from roof tops. A</p>

	<p>railway bridge was washed away. The flood level reached <b>12.4m at Mareeba ( a record) at 4.37 am Monday morning</b>. Many buildings in Cairns suffered severe water damage including the Cairns Hospital. Powerlines were down throughout the district with more than 40.000 without power. <b>A 17 yr old youth drowned in a flooded stream south of Cairns</b> the day after the cyclone made landfall. Many buildings in Cairns suffered roof damage including the Cairns Yacht club with lost a large section of the roof. Kuranda township on the Atherton tableland west of Cairns suffered high wind damage with hundreds of trees uprooted. Twelve houses were extensively damaged when large trees fell on them. The two highways to the Atherton Tablelands were closed by fallen trees and landslides. The Gillies Highway was closed for a week. Crop damage from rain and wind was severe and the sugar cane damage has been quoted at 20 million AUD.</p>
<p>Tropical low 17 Mar 2000 9.4 (13.0) C</p>	<p>The low originated as a circulation south of Honiara. It moved west and Gales were reported from a ship at 0000 UTC 16th at 18.6S 149.6E Willis Island reported northeasterly gales on the 16<sup>th</sup> .Satellite derived winds at 0851 UTC 16th showed winds in the easterlies to 45 knots near the coast south of 17S. Gales on the mainland were reported from Lucinda (northeasterly winds averaging 34 knots) at 1316 UTC 16<sup>th</sup> and Cardwell (northeasterly winds averaging 35 knots at 2000 UTC 16<sup>th</sup> . Rainfall: max 24 hour total 300mm in 24 hour to 2300 UTC 16th Flooding: One of the highest floods on record at Giru (town just south of Townsville)</p>
<p><i>Tessi</i> 2 Apr 2000 16.8 (9.8) C</p>	<p>The cyclone formed a small compact radar eye (diameter 10 to15 km) near the coast after 1800 UTC 2 April 2000. It appears the worst wind damage was just outside this eye in the area around Mutarnee ( a small village 60 km northwest of Townsville). Here many large trees were uprooted and the roof of a farmhouse was lifted off, battens and all, and deposited 50 metres away in a cane field. The most extensive tree damage was further east in the normally uninhabited beach areas where some isolated beach huts were unroofed. The eye wall cloud passed over this uninhabited area consisting mostly of marsh land. An anemometer on Magnetic Island (about 15 km or 8 nm northeast of the Townsville measured a 10-min average easterly wind of 59 kts at 1600 UTC 2<sup>nd</sup> which, in conjunction with some other data, indicated that <i>Tessi's</i> centre was about 40 km from Townsville at its closest approach. <i>Tessi</i> was responsible for setting new weather records for April at the Townsville Meteorological Office; highest wind gust (70 knots), highest daily rainfall (271.6mm) and the highest monthly rainfall (539mm to 27 April 2000). However official daily rainfall is measured up to 9am local (2300 UTC) and 423.4 mm was measured in the 24 hours up to 1500 UTC 3 April 2000. The maximum wind gust at Townsville occurred at 1540 UTC 2 April 2000 when the centre of cyclone was 40 km away. The cyclone caused widespread wind damage in Townsville mainly to trees and power lines. Most structural damage was due to falling trees though there were isolated reports of roof damage attributed to the wind itself. Widespread flooding occurred with the associated downpour, which also led to a severe landslide in one of the more affluent residential areas of Townsville on Castle Hill. There was also wave damage along the Strand at Townsville with several boats destroyed. Gales extended down the coast to Gumlu (120 km southeast of Townsville). Here an anemometer failed at 60 knots. The extent of the gales on the northern side was 30 km.</p>
<p><i>Abigail</i> 24 Feb 2001 11.9(9.2)</p>	<p>During the first phase of its life <i>Abigail</i> was a tropical cyclone for only three hours. The cyclone crossed the coast about 30 km northwest of Cairns over the northern Cairns beaches (Palm Cove and Ellis Beach) around local noon on the 24th. The maximum 10-min avg sustained wind was 40 kts, recorded at the Green Island AWS, with the lowest sea level pressure there 992.7hPa. The impact in the Cairns area was minimal. There was some local flooding and trees downed at Edge Hill and in the northern suburbs</p>
<p><i>Sose</i> 5- 12 Apr 2001 0.3(-0.7)</p>	<p>Although Tropical Cyclone <i>Sose</i> remained far from Australia's shores, the large size of the circulation in combination with a high centred near New Zealand resulted in gales which generated huge waves that battered portions of Australia's East Coast. The significant wave height at the Brisbane wave rider buoy reached 4.8 m with the wave period reaching 16 seconds. The large seas combined with large tides caused beach erosion. There were two drownings on the Queensland coast near the Town of 1770 on the 8th when large E swells came into an area usually protected from the prevailing SE swells.</p>
<p><i>Beni</i> 2-5 Feb 2003 -7.4(-5.4)</p>	<p><i>Beni</i> weakened below tropical cyclone intensity before it reached the Queensland coast, however it had some impact. On the 2<sup>nd</sup> Maximum wave height on the Brisbane wave rider buoy reached 4.8m Hsig and 8.5m Hmax. Many beaches were closed on the Sunshine and Gold Coast and 12 members were rescued from two outrigger canoes in Moreton Bay. The only impact from wind</p>

	<p>appears to be the loss of power at Agnes Waters and Town of 1770 late on 5 February 2003 (local time).</p> <p>On 6 February 2003, 160 people were stranded by floodwaters at Wowan (80km west of Rockhampton). Buildings were flooded in Wowan with the school completely flooded.. The Town of 1770 and Agnes Waters were still isolated by floodwaters on 8 February 2003. Many Peaks was also isolated. A deluge at Kabra (west of Rockhampton) early on 6 February 2003 flooded a house with a metre of water. In the Banana shire one person was rescued from a roof a man was washed away in a car and drowned while another woman was rescued. The floods are though to have caused 10 Million dollars worth of damage to Public Infrastructure.</p>
<p><i>Fritz</i> 11 Feb 2004 8.6(-1.1)</p>	<p>Fritz crossed the far northern Queensland early on 11 just to the south of Cape Melville. "Fallen trees caused water and power outages at the remote communities of Wujal Wujal, Bloomfield and Ayton north of Cairns. Landslides closed the Gillies Highway near Cairns, and a landslide caused major damage to properties at Yorkeys Knob (northern beach suburb of Cairns). Rainfalls in the 24 hours to 9 AM 11 February reached 204 mm at Weipa and 173 mm at Saddle Mountain (near Cairns). Further south totals on the 12<sup>th</sup> reached 309 mm at Upper Murray and 292 mm at Paluma. There was flash flooding in the Innisfail/South Johnstone region with falls of 74 mm in one hour.</p>
<p><i>Hybrid cyclone</i> 5 March 2004 0.2(-2.5)</p>	<p>Very large long-period waves were generated by the storm. Waves with significant wave heights of 7.1m and maximum heights 14.3m were recorded on the the buoy off Stradbroke Island around 05/0700 UTC, coming from the east-northeast. The peak height measured on the Tweed Buoy was just over 14 m and this occurred at 1700 UTC on 6 March, when the significant wave height was between 5 and 6 metres. The wave periods were almost 13 seconds and approached from the east-northeast. Even in Moreton Bay a maximum wave height of over 3.5 metres was measured around 1500 UTC on 5 March. The worst effect from storm surge appears to have been in association with the Friday night's high tide at Currumbin on the Gold Coast when cars were floating around the car park. This was not a big tide (0.74 m below the Highest Astronomical Tide--HAT) and therefore the wave effects appear to have added over a metre to the tide. Northeasterly gales in Moreton Bay early on Saturday raised the level of the Bay 0.7 metres. Cape Moreton's strongest winds were at 05/0500 UTC-- 30/56 knots (10-min mean) and peak gust 67 knots. Twenty-four hour rainfall totals from 04/2300 to 05/2300 UTC reached 284.0 mm. Up to 106,000 customers lost power during the passage of the subtropical storm through the greater Brisbane Metropolitan area, the Sunshine Coast, and the Gold Coast with tree and associated minor structural damage reported throughout the area and extending into northern New South Wales. There/were 3 fatalities associated with this event. A man is missing in the flooded Mary River near Gympie, a 10-year-old boy who was drowned after being swept away from his family when they tried to cross a creek in the Tweed River catchment; and an elderly woman drowned in a creek near Nambucca Heads (South of Coffs Harbour). Two people were rescued from a 4WD in a flooded creek on the northern Gold Coast. Five people were rescued from the top of their car in a flooded stream near Caboolture north of Brisbane. At Bundamba near Ipswich two girls fell into strong rapids and were rescued by Police. At Murphy's Creek near Toowoomba fire-fighters rescued a stranded motorist. Five people were rescued after they were swept into the sea by the run up from large waves. In Moreton Bay a French yachtsman was rescued after an air and sea search.</p> <p>The State Emergency Services (SES) says its crews were called out to about 200 jobs across the Brisbane area, 80 on the Gold Coast and 70 on the Sunshine Coast. Most were minor roof damage and sandbagging requests. Police say there were many trees and power lines down across Brisbane, the Gold Coast, the Sunshine Coast, Ipswich and Toowoomba. On the Gold Coast, police say some cars became bogged in flooded roadways, although there are no reports of any injuries. The Warrego highway at Cunningham's Gap, west of Brisbane, was closed due to rockslides. Four metres of roadway were washed away on Sydney Street at Brassall in Ipswich as a bus passed over it.</p>
<p><i>Grace</i> 19-24 March 2004 0.2(-2.5)</p>	<p>During its formative stages and due to its proximity to the coastline, the initial tropical low-pressure complex that eventually consolidated into Tropical Cyclone Grace caused widespread flooding and damage to roads and property along the far north Queensland coast, mainly between Cooktown and Cairns. Topaz recorded 759mm in the 72 hours to 2300UTC 20 March</p>

	<p>2004 (the highest 24hour total was 372mm). Winds and waves brought tide levels above the highest tides of the year (HAT) and this was particularly evident at Cooktown where a 0.4 m storm surge was recorded on the morning high tide (0.3 m above HAT) on 19 March. Many boats were upturned in the harbour and washed away. Further south storm surges caused the flooding around the northern beach suburbs of Cairns and required the closing of some roads. The strongest winds were recorded from Green Island AWS with average winds reaching 120/41knots and gusting to 49 knots. The strongest winds from Low Isle were 140/39knots gusting 50 KTS. Floodwaters closed all major roads into Cairns. In addition, a large section of one lane of the Captain Cook Highway north of Cairns collapsed after a landslide consisting of nearly 20 metres of rock and boulders the size of cars destroyed the ocean-side road. The scenic coastal highway and link between Cairns and Port Douglas was closed for several days. Residents were evacuated from the Whitfield range area due to landslides. An estimated \$20,000,000 (US) damage to the Cairns region. On Saturday (19 March), SES workers were rescuing motorists who had driven around the closure signs only to be swept from the roads. Also, a man was rescued clinging to the roof of his car in floodwaters north of Cairns after being trapped there for four hours. Gales and large wave then affected the central and south coasts. Heron Island recorded gales with gusts to 48 knots and Cape Moreton recorded gusts to 54 knots. On 23 March a helicopter and coastguard rescued a stricken craft near the Gold Coast Seaway.</p>
<p>Tropical Cyclone <i>Kerry</i> 3-15 Jan 2005 1.8 (-11.8)</p>	<p><i>Kerry</i> remained offshore in the Coral Sea although there was an impact from long period waves (Hsig to 3metres) along the southern Qld and N NSW coasts. There were many rescues on the Gold and Sunshine Coasts and unfortunately one surfer drowned.</p>
<p>Cape York and Coral Sea Hybrid 19-25 January 2005 1.8 (-11.8)</p>	<p>A tropical low moved from the Coral Sea onto Cape York Peninsula before moving back into the Coral Sea and then down into the Tasman Sea. Two cars collided with a truck near Yalboroo, south of Proserpine, in heavy rain 23 Jan 2004, resulting in two deaths and three injuries. A farmer drowned in floods in the Burdekin District. There was a rescue in the Townsville region with this event when a truck driver became stranded on his vehicle There was an unofficial though reliable report of 642mm of rain in 24 hours just to the west of Townsville on Sunday morning 23 Jan 2004. More than 10 people have been rescued from floodwaters south of Charters Towers in north Queensland overnight. Rivers and creeks have flooded, isolating the mining town after a weekend of relentless rain in the region. Ten tourists have been rescued in the Whitsundays, in north Queensland, after being caught by rising floodwaters. Maximum average winds at land stations Hayman Island 100/42 knots 241234UTC. Five people drowned between Newcastle and Woolongong over the weekend. 29/30 Jan 2005. The tropical low intensified off the NSW coast over the weekend and developed a long fetch of gales between it and a high near NZ. Hsig on the Crowdy Head and Port Kembla buoys were only 2-3m but significantly over the weekend peak energy periods increased from 10sec to 13 secs.</p>
<p><i>Ingrid</i> 10 March 2005. SOI -13.5 0.2 (-13.3)</p>	<p><i>Ingrid</i> made landfall on a remote part of the east coast of Cape York Peninsula as a severe tropical cyclone. It was a small system in size and severe damage was confined to a 40km wide swathe close to the coastal crossing near Bombardt Point. A storm surge survey measured a surge of 2.8metres. Trees were blown down across the Cape as it continued westward after crossing the east Coast damage. Long period waves (10sec) with Hsig 1m came through the reef and were measured on the waverider bouy near Clifton Beach on the 8<sup>th</sup>. This caused inundation there on the high tide. It was estimated that (AUS) \$2 million worth of damage was caused in Queensland from Ingrid, with the Cook Shire Council estimating that damage of up to \$1 million had occurred to shire roads and the Douglas Shire reporting up to \$300,000 of road damage.</p>
<p>Tropical Cyclone Jim 26 Jan 2 Feb 2006. 12.7 (4.5)</p>	<p>Jim developed near Lucinda. Heavy rain was driven on-shore between Ingham and Townsville, causing flooding of coastal rivers and streams. The heaviest falls in the 24 hours to 9:00 AM on 27 January were 258 mm at Home Hill, 211 mm at Lucinda, 189 mm at Alva Beach and 188 mm at Townsville. A barge being used in the reconstruction of the Willis Island Meteorological Station (mid Coral Sea) was damaged during the storm and lost the loading ramp on its front.</p>

<p>Tropical Cyclone <i>Kate</i> 22 –24 Feb 2006 0.1 (8.9)</p>	<p>Kate developed east of Torres Strait and became a tropical cyclone <i>Kate</i> at 1809 UTC 22 February 2006 and further it reached maximum intensity around 2300UTC 22 February. <i>Kate</i> had a big impact on Torres Strait Islands where it washed away a jetty and added to the erosion damage caused by the gales last July and <i>Ingrid</i> and the Port Moresby cyclone last summer.</p>
<p>Hybrid low pressure system 3-5 March 2006 13.8 (9.7)</p>	<p>By 2000UTC 2 March a tropical low had deepened and moved down to the east of Fraser Island while high pressures were maintained over northern New South Wales. This increased the pressure gradient and observed winds between Fraser Island and Coolangatta. Wave heights began to increase during Friday the 3 March on the south Queensland buoys and at this stage more rapidly on the Sunshine Coast than on the buoys further south. Twenty four hours later at 2000UTC 3 March the low did not noticeably deepen but moved closer towards the higher pressure, which was maintained at 1018 hPa over the period at Coffs Harbour. As a result an intense pressure gradient with gale to storm force onshore winds had developed off the south Queensland Coast. Later that evening at 0800UTC 4 March the quikscat data indicated gale force winds extending out at least 400km east of the coast.</p> <p>The maximum wind averaged over 10minutes was from Cape Moreton 53knots at 1430UTC 3 March 2006. Wind damage affected many areas of Southeast Queensland. A Counter Disaster and Rescue Service spokeswoman said volunteers had been "flat out" as trees crushed houses and cars. A nursing home at Kirra was evacuated when a tree fell on a unit. No residents were injured. In Brisbane, residents of a unit block in Woolloowin and a house in Chermside were lucky to escape when trees fell on their properties. Traffic accidents kept police busy and one vehicle crashed into a house at St Lucia. Energex staff were braced for action as blackouts hit about 100,000 homes and businesses from Friday morning to Sunday afternoon. At Mt Tamborine and Bonogin boggy grounds hampered restoration efforts and in Beaudesert trees and branches continued to damage wires. In Moreton Bay on Sunday 5 March boats were damaged and ripped from their moorings. One of these yachts was found later in the week at Noosa Heads.</p> <p>The second highest significant wave height since 1976 was recorded at the EPA's Brisbane wave recording station on Saturday (4 March). Significant wave heights up to 7.2m were recorded by an EPA wave monitoring buoy located 10km southeast of Point Lookout, North Stradbroke Island while individual waves up to 15.0m (and possibly 16.7m) were also recorded. Significant wave heights of 5.4m, 5.3m and 5.5m were also recorded respectively at the Sunshine Coast, Gold Coast and Tweed Heads wave recorders. These waves were the second, fifth and third highest wave events at these sites."</p> <p>A significant storm surge occurred with stormwater outlets blocked by surging waves and this caused localised flooding of low lying coastal areas such as Flat Rock Creek and Marine Parade Kirra.</p> <p>The mayor of Redcliffe said there was a significant storm surge in Moreton Bay though following the first Severe Weather Warning sand bagging was carried out and this prevented large-scale erosion.</p>
<p>Tropical cyclone Larry 17-21 March 2006 13.8 (9.7)</p>	<p>Severe Tropical Cyclone Larry crossed the tropical north Queensland coast near Innisfail during the morning of 20 March, 2006. Major damage to homes and other buildings was caused by Larry as well as extensive damage to local crops. Larry reached Category 5 for a time just before landfall.</p> <p>As at 30/10/2006 there were 30,594 insurance claims for a total of 14,000 houses of which 500 were written off. Building costs estimated at 1.5 billion 2006AUD. Sugar industry losses were around 200millionAUD with total crop losses exceed 0.5 billion 2006AUD. The worst town affected being Silkwood with 99% of the houses damaged. Examples of the extreme wind damage were 4 high voltage transmission towers blown down along the Palmerston Highway and another north of Babinda. An Australian record wind gust of 293.7km/h was recorded on the eastern slope of Mt Bellenden Ker from a C.S.I.R.O. anemometer. Very large storm surges (debris lines to 5m above MSL) were measured in the Bingil Bay area.</p>
<p>Tropical cyclone Monica 17-21 April 2006 15.2</p>	<p><i>Monica</i> made landfall on a remote part of the east coast of Cape York Peninsula south of Lockhart River as a severe tropical cyclone. Lockhart River reported a maximum wind gust of 109 km/h gust at Lockhart River, 3pm EST 19 April and a lowest MSL pressure of 986.0 hPa. Highest rain totals were 215 mm at Lockhart River in the 24 hours until 9am on 19 April.</p>

<p>(6.4)</p>	<p>239 mm at Violet Vale in the 24 hours until 9am on 20 April 282 mm at Musgrave in the 24 hours until 9am on 21 April</p> <p><b>Flood Damage</b></p> <p>Strathmay Station (Western Cape) recorded 800 mm on top of an already large wet resulting in 25cm of water running through the house and a wall of water 5k wide and up to 4 metres deep running across the property. Owners state that the local aboriginals had confirmed that the land around the house had never previously flooded (approx. 100 years).</p> <p>Lotus Bird Lodge (Eastern Cape) experienced 3 metre deep floodwaters through its 4 star accommodation Lodge.</p> <p>There was little structural damage from the cyclone (except for around Lockhart River where Cyclone Monica struck). Damage and impact was largely flood related – decimated roads, significant stock losses, buildings water damage, contents, trees down, flooded plant and equipment.</p>
<p>28 Dec 2007- 5 Jan 2008</p>	<p>Between 0000UTC and 1200UTC 28 December 2008 a tropical low deepened as it moved towards the southwest to be located northeast of Fraser Island . At the same time a high built up east of New Zealand so that an intense pressure gradient developed south of the low with Automatic Weather Station (AWS), ship and Quikscat satellite observations indicating an extensive area of gale to storm force winds in this zone between the low and the high.</p> <p>The resultant large waves affected the open coast along Fraser Island and to a lesser extent the Gold and Sunshine Coasts. 3000 campers were evacuated off Fraser Island.</p> <p>By 0000UTC 30 December 2007 gales were affecting the coast between Sandy Cape and the Queensland New South Wales Border bringing down trees causing roof damage and power blackouts over an extensive area. A large area of gales, were directed towards the whole southeast Queensland coast maintaining large waves which peaked at 6.2 metres significant wave height on the Brisbane buoy during the day. The peak energy period was 12 seconds, which ensured extensive beach erosion especially on Fraser Island.</p> <p>Between 0000UTC 2 January 2008 and 0000UTC 3 January 2008 the low became organised into a complex system with two centres and with a centre developing east of Brisbane the large wave energy created began being directed more towards the Gold Coast. The southern low approached southeast Queensland on the 4 January where by 1100UTC the pressure gradient and gale force winds contracted to the Queensland/New South Wales Border area. Extreme rainfall fell on both sides of the border in the Springbrook with totals to 364mm most of which fell in the four hours to 1400UTC 4 January 2008. This caused major floods in both Qld and NSW.</p>
<p>13-18 Jan 2008</p>	<p>A low moved east from the Gulf of Carpentaria and then moved out into the Coral Sea and the heaviest rainfall over the 24 hours up to 9am 14 January was 353mm at Proserpine. The low then turned back towards Townsville and appeared to reach tropical cyclone intensity soon after landfall. Trees were blown down at Cape Cleveland as it came ashore. The heaviest 24 hour totals occurred further down the coast where Crystal Brook recorded 245mm in the 24 hours to 9am 15 January 2008.</p> <p>Later there were widespread areas of fallen trees between Townsville and Charters Towers as it moved inland and intensified. From radar (Fig. 8) it appeared to reach maximum intensity around 0150UTC 15 January (11.50 am EST) while located between Townsville and Charters Towers. It passed to the east of Charters Towers at 3pm EST where average winds of 52 knots were estimated with a MSL pressure of 993hPa which indicated that the central pressure was near 988hhPa at this time. Torrential rain fell at Charters Towers causing severe flash flooding and 147mm was reported there as the low passed the station. The low then passed southwards through Central Queensland. Totals inland Queensland reached 313mm in the 24 hours to 9am 17 January with the heavy rain over a vast area. This also continued over the following 24 hours with totals inland to 219mm.</p>
<p>11-12 February 2008</p>	<p>A tropical low moved from the Gulf of Carpentaria towards the Townsville area and spectacularly intensified over land between 0000UTC and 1200UTC 11 February (10am and 10 pm 11<sup>th</sup> EST). Subsequently this maximum wind zone moved over the coast inflicting major damage to over 60 marine craft at Airlie Beach and other areas and one of the worst areas hit was the Bucasia Beach area north of Mackay. Extremely heavy rainfall formed near Townsville where the heaviest rain</p>

	fell between 0500UTC and 1200UTC 11 February. 24 hour rainfall totals reached 400mm.
15 February 2008	<p>A ridge strengthened along the east coast south of the monsoon trough. This trough with an embedded low was initially located near Mackay but was pushed northwards by the ridge. The low was northeast of Mackay region at 9am 15 February 2008 around the time of the extreme rainfall with a very moist airmass (dew points to 25 degrees Celsius). The monsoon trough was well to the north of Mackay and the rainfall occurred near the leading edge of a surge in the southeasterly trades associated with the strengthening coastal ridge to the south. Extremely heavy rain fell at Mackay with 562mm between 3am and 9am 15 February 2008 including 177mm in the last hour. There were heavier reports from around Mackay. Devastating flooding resulted in Mackay with damage caused by the floods reaching hundreds of millions of dollars.</p>