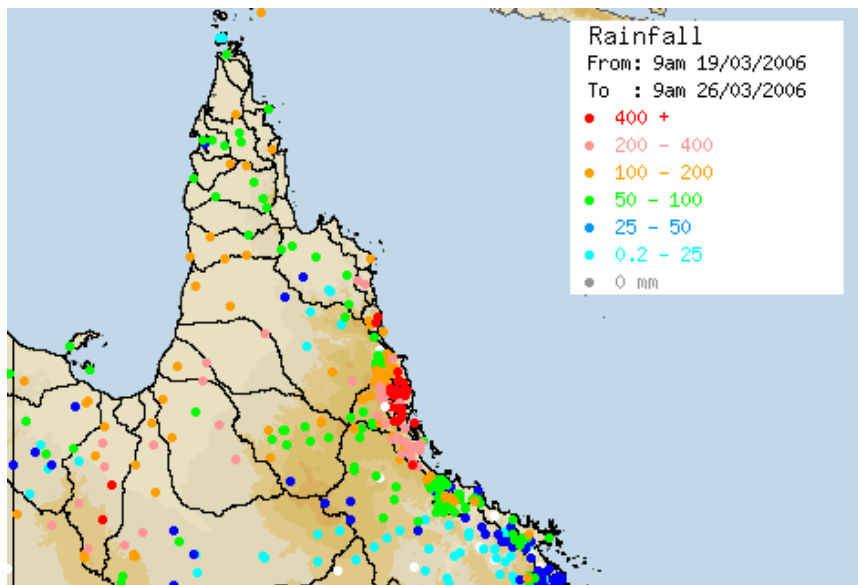




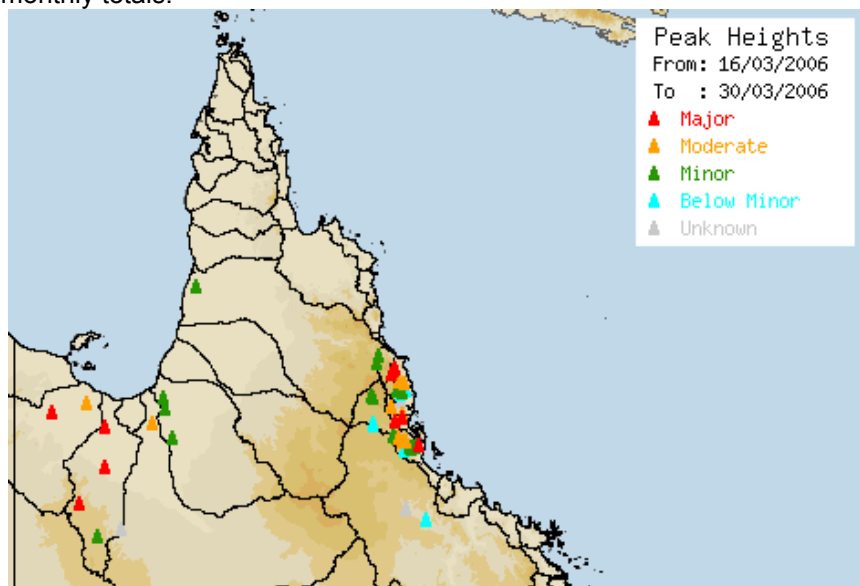
REPORT ON FLOODING FROM TC LARRY MARCH 2006

INTRODUCTION

Tropical Cyclone Larry crossed the North Tropical Coast near Innisfail in the early hours of 20th March. Rainfall associated with TC Larry resulted in flooding in the Mulgrave, Russell, Tully, Murray and Herbert Rivers on the north Tropical Coast and in the Flinders, Nicholson and Leichhardt Rivers in the North West Gulf. Road and rail access was disrupted for several days due to flooding and, at times, prevented road access to the Babinda-Innisfail area from both the north and south. Fortunately, the river rises in the Johnstone River at Innisfail remained below minor flood level.

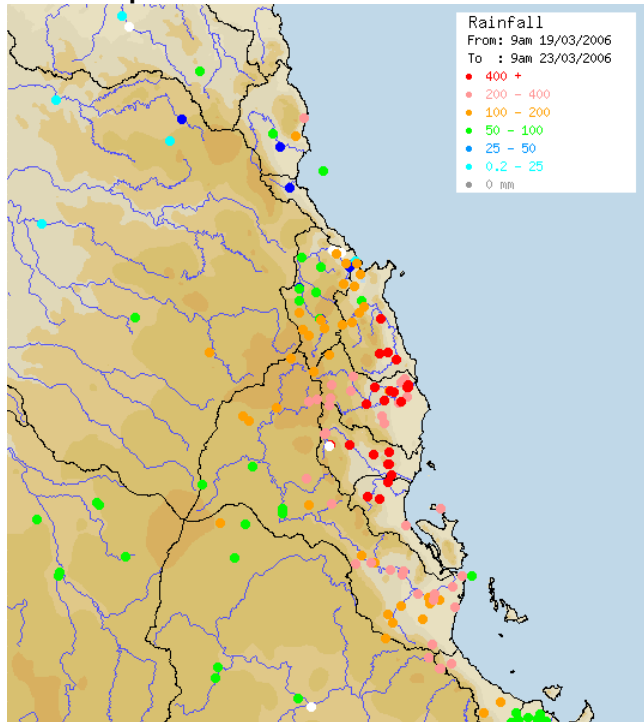


The heaviest rainfalls were in the Tully and Mulgrave River on the North Tropical Coast and in the Leichhardt River in the Western Gulf. Several locations in the Gulf exceeded records for daily and monthly totals.



The most significant flooding occurred in the Leichhardt River where record major flood levels were reached at Gunpowder, Lorraine and Floraville.

North Tropical Coast Rainfalls

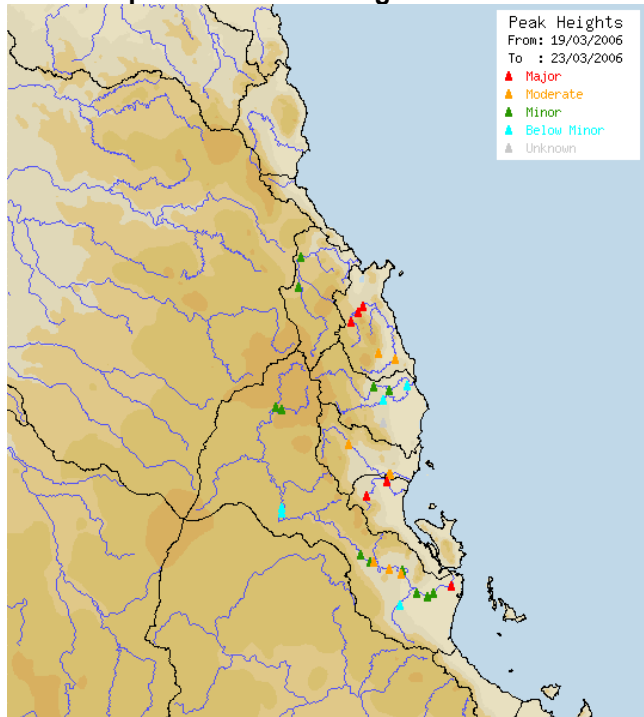


The heavy rainfall began around 3am on the morning of Monday 20th March in the Tully, Murray, Mulgrave, Russell and Herbert Rivers. The rainfall peaked around 9am and eased considerably during the afternoon and overnight Monday. Totals of up to 210mm were recorded in the 12 hours to 3pm Monday 20th March.

Further heavy rainfall was recorded during the afternoon and overnight on Tuesday 21st in the Tully River. No significant rainfall was recorded in the other catchments.

Totals of greater than 500mm were recorded during the 96 hours to 9am 23rd March 2006 in the Tully, Johnstone, Murray, Mulgrave and Russell Rivers. The rainfall in the Herbert river was less than 350mm for the same period.

North Tropical Coast Flooding

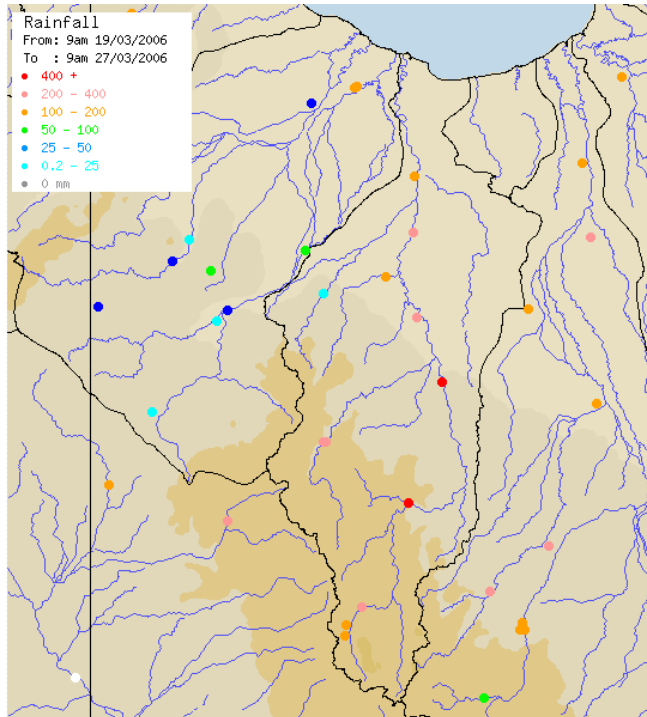


The heavy rainfall caused major flooding in the Mulgrave River and moderate flooding in the Russell River during Monday the 20th.

On the 21st and 22nd major flooding developed in the Murray River and in the lower Herbert River.

During the same period moderate flooding developed in the Tully River and some minor flooding occurred in the Barron, Johnstone and upper Herbert Rivers.

Western Gulf Rivers Rainfall

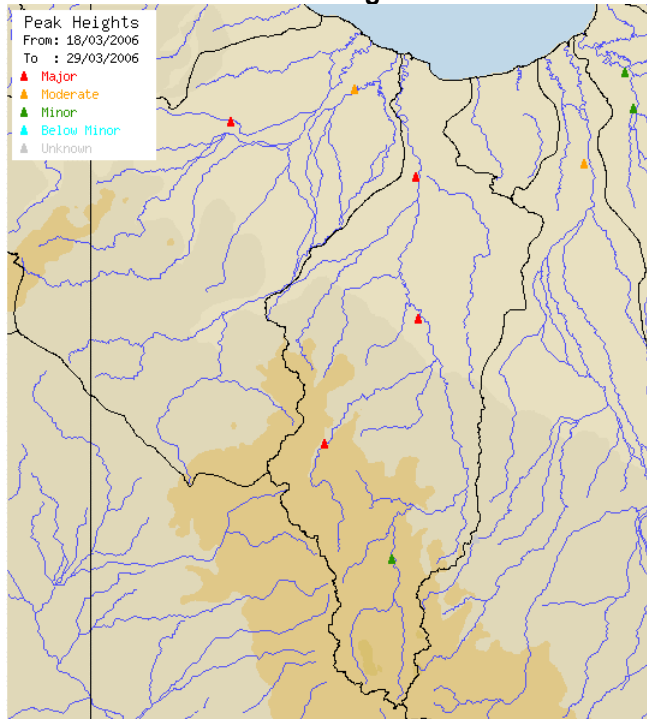


The heavy rainfall in the Leichhardt River Catchment began around noon on the 21st March and lasted for around 36 hours.

In the 24 hours to 9am Wednesday 22nd March, a total of 435mm was recorded at Gereta Station. This was the highest 24 hour total recorded in the region by a large margin and totals of this amount did not extend much beyond the area between Gereta and Kamilaroi.

In the 4 days to 9am 24th March, rainfall totals for the catchment area above Julius Dam were less than 230mm.

Western Gulf Rivers Flooding



The flooding in the Leichhardt River system started on the morning of Wednesday 22nd March.

A record major flood peak was recorded at the NRW gauging station on Gunpowder Creek early Wednesday.

The record major flooding extended downstream to Lorraine where a peak was recorded on Thursday 23rd and to Floraville where the river peaked on Sunday 26th March.

Moderate flood levels were reached in the lower Flinders River at Walkers Bend. Moderate to major flooding occurred in the Nicholson/Gregory River System but this was mostly due to earlier rainfall and not a direct result of TC Larry.

RAINFALL

The rainfall in North Queensland fell in area between Ingham to just south of Cairns. Due to the speed of the cyclone movement, the coastal rain was not as severe as in other cyclonic events. However a day later, very heavy and in some cases record rainfall fell in the Leichhardt River catchment.

The highest daily rainfall totals were Gereta Station in the Gulf with 435.5mm on the 22nd, Mcavoy Bridge Alert 315mm and Deeral 310mm on the 20th and Sweeney Creek U/S Alert 301mm on the 22nd. A record daily rainfall of 278.6mm fell at Kamilaroi Station. This was the highest total in 108 years of record.

Daily Rainfall – Highest on Record for MARCH				
Location	Dist	New Record	Previous record for March	Record Length (years)
Kamilaroi Station	29	278.6 mm 22nd	257.3 mm 2 Mar 1936	108
Inorunie Station	29	142.0 mm 21st	87.9 mm 12 Mar 1936	45
Stirling Station	29	95.6 mm 21st	86.4 mm 18 Mar 1972	41
Clonagh Station	29	138.0 mm 22nd	125.0 mm 04 Mar 1996	53
Gregory Downs	29	117.0 mm 23rd	101.1 mm 10 Mar 1965	76
Iron Hurst Station	30	111.0 mm 21st	92.7 mm 04 Mar 1971	32
Flora Downs	37	202.0 mm 22nd	200.7 mm 18 Mar 1971	59

Monthly Rainfall – Highest on Record for MARCH				
Location	Dist	New Record	Previous record for March	Record Length (years)
Kamilaroi Station	29	581.4 mm	506.3 mm in Mar 1971	108
Miranda Downs Stn	29	378 mm	360.2 mm in Mar 1898	98
Magowra Station	29	382 mm	357.8 mm in Mar 1974	37
North Head	30	302.6 mm	246 mm in Mar 1994	34
Hope Vale	31	1261.4 mm	1088.7 mm in Mar 1973	55
Daintree Tea	31	1697 mm	1643 mm in Mar 2004	41

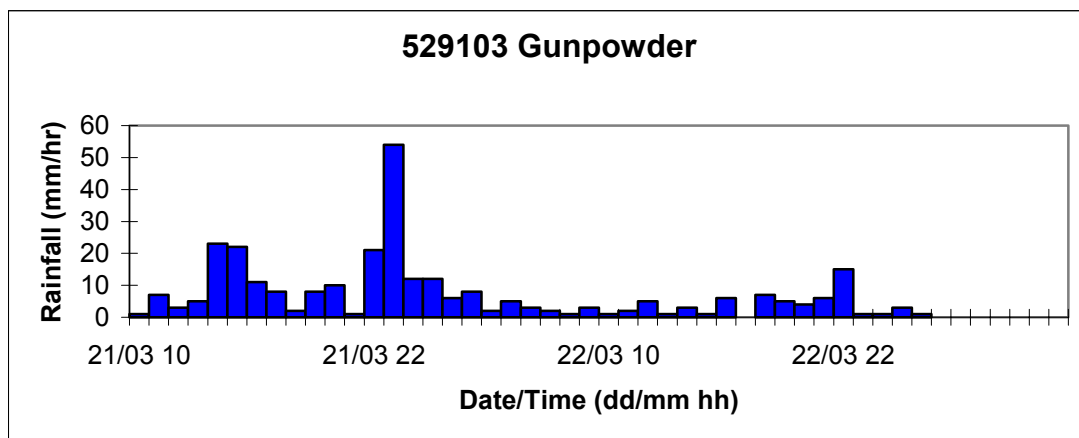
Leichhardt River Rainfall Analysis

Rainfall Totals:

CBM No	Station	Rainfall (mm) 24 Hours to 9am				Total
		21-Mar	22-Mar	23-Mar	24-Mar	
029141	CLONCURRENCY AWS	5.0	109.6	42.0	0.2	156.8
029127	MT ISA	0.4	89.2	58.2	0.4	148.2
029126	MT ISA MINE		84.6	57.6	0.2	142.4
029123	LAKE MOONDARRA	4.2	154.0	70.8		229.0
029027	KAMILAROI	12.4	278.6	148.8	4.8	444.6
029131	GERETA STATION	17.2	435.5	147.2		599.9
029032	LORRAINE		129.0	92.0	0.4	221.4
529013	GUNPOWDER TM	0.0	230.0	62.0	1.0	293.0
029065	NARDOO	4.2	80.0	100.0		184.2
52901	FLORAVILLE TM	1.2	78.5	38.6	6.0	124.3
029078	COTSWOLD STATION	9.6	135.6	58.0	0.6	203.8
029086	COWAN DOWNS	6.8	31.4	111.6	44.6	194.4
029050	WONDOOLA STATION	22.0	65.4	51.4	78.0	216.8
029167	CENTURY MINE AWS	2.6	0.0	28.2	21.8	52.6
52900	GREGORY DOWNS TM	2.2	0.0	na	na	151.9
029077	BURKETOWN AWS	9.2	98.8	19.6	0.2	127.8

Temporal Patterns:

The nearest pluviograph in the area is operated by DNRM at Gunpowder, approximately 75 kilometres northwest of Gereta Station. A one hourly plot for the period 9am 21st March to 9am 23rd March is shown below. The most intense 1 hourly rainfall of 54 mm was recorded in the hour to 11pm 21st March, more than double the next highest hourly period.

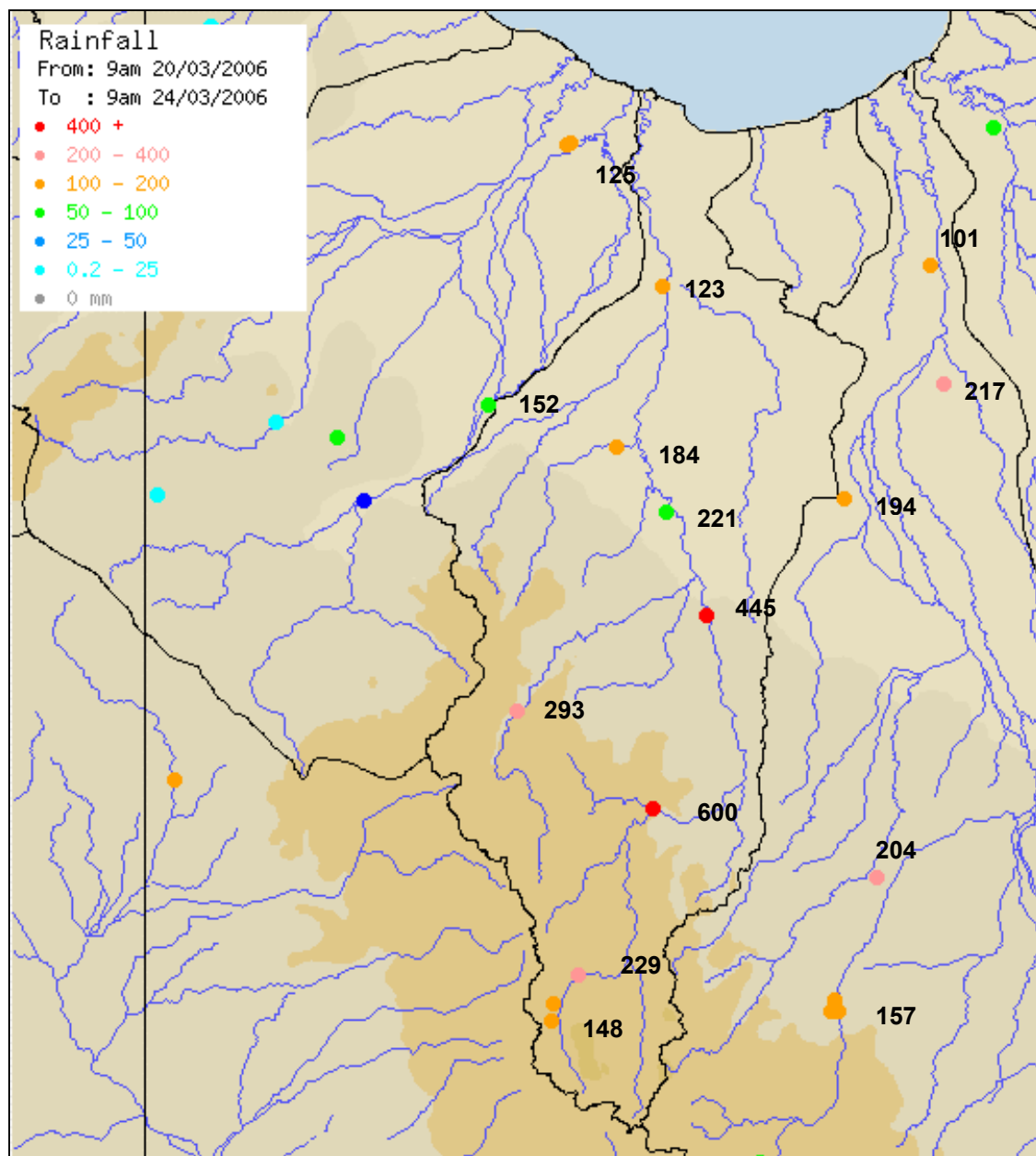


Intensity- Frequency- Duration Analysis:

Intensity-Frequency-Duration (IFD) analysis of the actual event rainfall was conducted at the Gunpowder station. The IFD analysis of the station at Gunpowder shows that the maximum hourly intensity of 54 mm was between a 5 and 10 year Average Recurrence Interval (ARI) or had an Annual Exceedance Probability (AEP) between 18% and 10%. The 24-hour total of 230 mm was between a 20 and 50 year ARI.

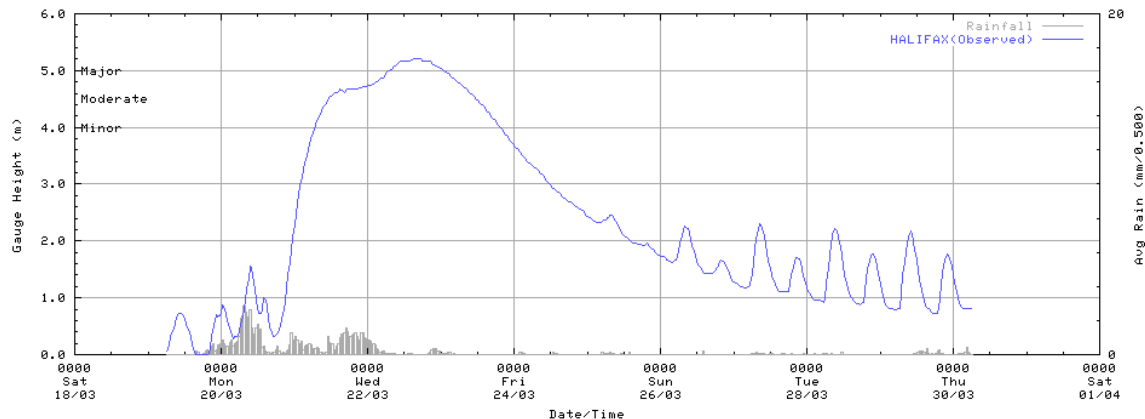
The 24 hour total of 435 mm at Gereta Station was in excess of 1% AEP. Records from Gereta Station start in 1908 but there are numerous decades missing between 1920 and 2000. However in 1st August 1911, 457 mm was reported in 24 hours.

Rainfall Map For the Gulf Rivers:



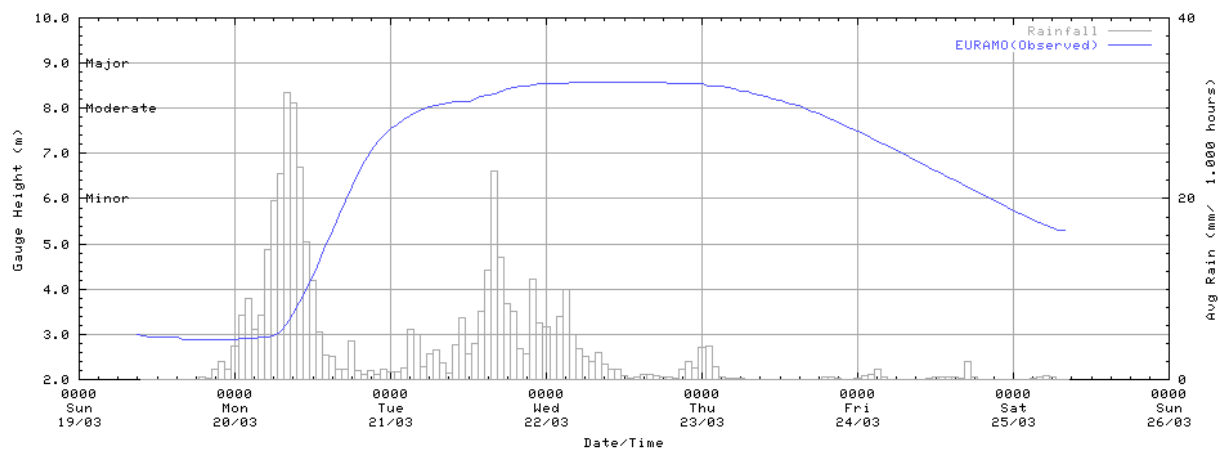
FLOODING SUMMARY

Herbert River: Minor to moderate flooding occurred in the lower reaches of the Herbert River from the 22nd to 23rd March following the heavy rain associated with TC Larry. Minor flooding was reported from Nash's Crossing to Gairloch with moderate flooding occurring at Halifax. All river levels had peaked by the night of the 22nd, with flooding easing slowly during the 23rd.



Tully and Murray Rivers: The heaviest rainfall from TC Larry occurred in the Tully river catchment with over 500 mm recorded at Euramo in the 72 hours to 9am 22nd March.

River levels rose slowly in both the Murray River and the Tully River and eventually overtopped the Bruce Highway at Euramo midday 21st March. The river level at Euramo peaked at 8.60 metres during 22nd March. The Murray River at Murray Flats overtopped the Bruce Highway overnight on 21st March and peaked at 8.1 metres during 22nd March. High river levels were maintained for several days before moderate flooding started to ease. River levels fell below the levels of the Bruce Highway for both rivers on the 24th March.

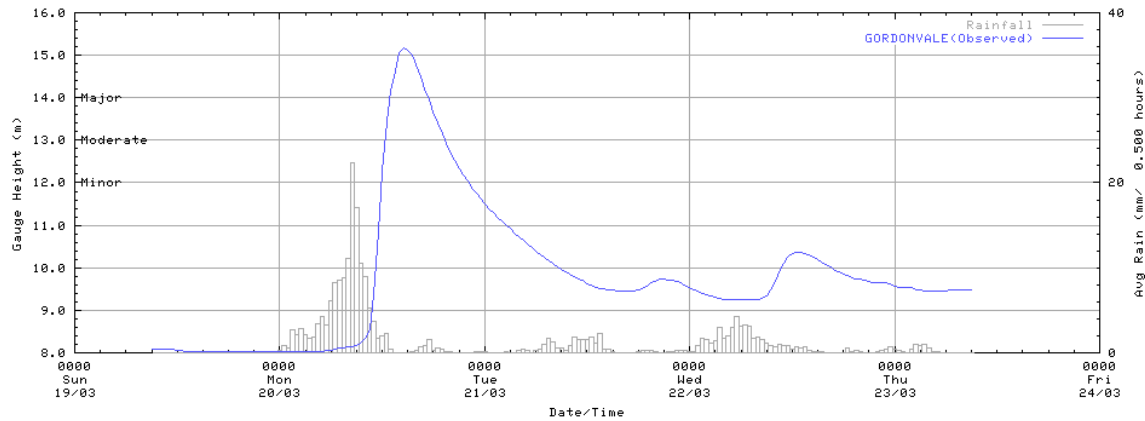
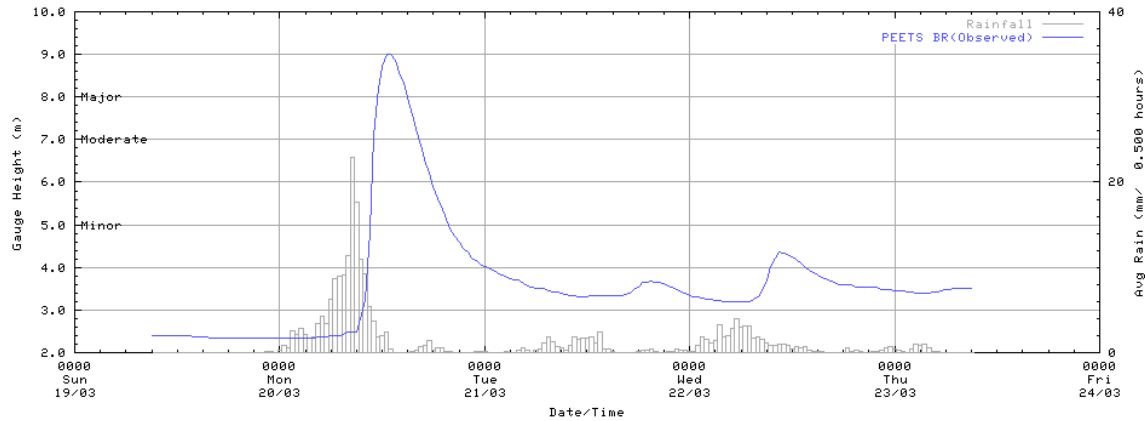


Renewed rises and minor flooding occurred in the Tully and Murray Rivers following heavy rainfall on the 30th March. Flood warnings were issued on the 30th and 31st March but the rivers did not reach the level of the Bruce Highway.

Johnstone River: River rises occurred in the North and South Johnstone River following the rain associated with TC Larry, however flood levels generally remained below the minor flood level.

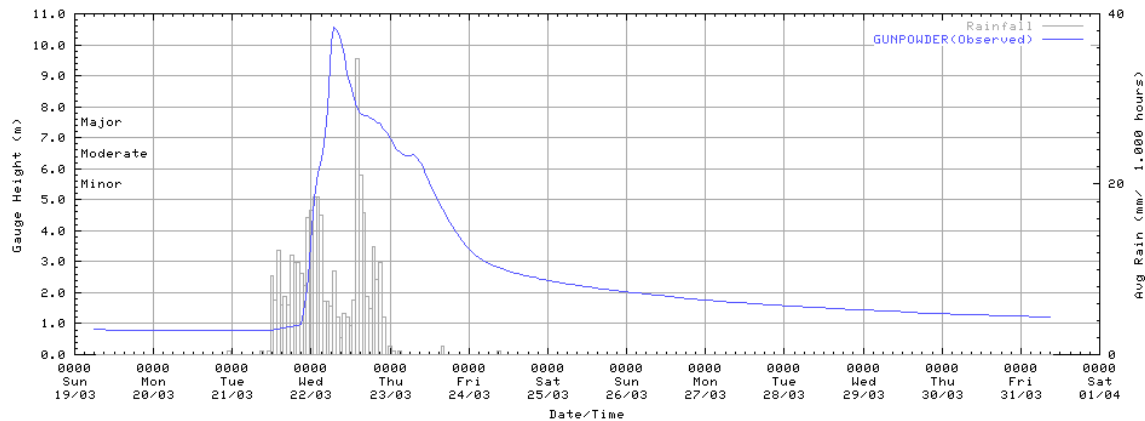
Mulgrave and Russell Rivers: Rapid river rises occurred in the Mulgrave and Russell Rivers on the 20th March following heavy rainfall. The highest rainfall total recorded was 139mm in 3hours to 9am at The Boulders on Babinda Creek. Major flooding occurred in the Mulgrave River during the day in the Peets Bridge to Gordonvale area, with the river level at Gordonvale peaking at 15.2m, 1 metre over the Bruce Highway Bridge.

Minor flooding also occurred in the Russell River but river levels were all generally below the minor flood level by the 21st March.

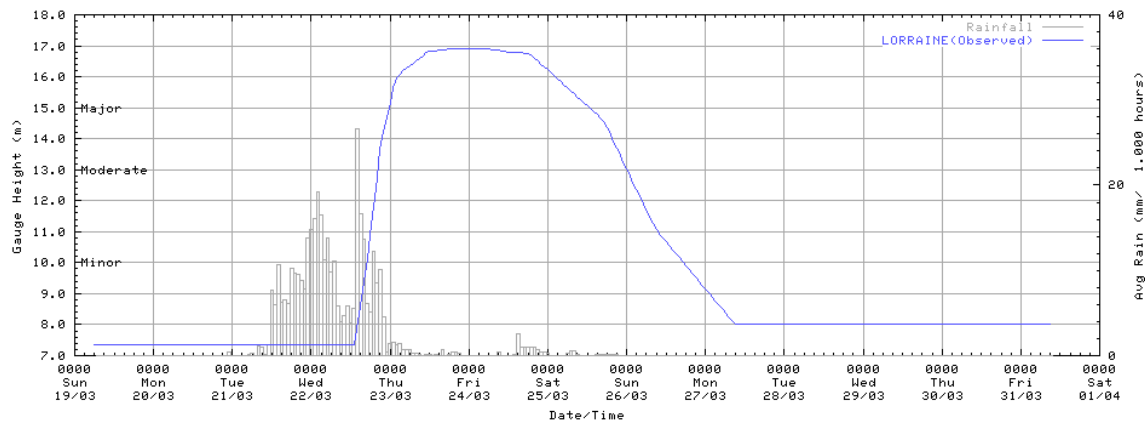


Leichhardt River: Very heavy rain was reported in the Leichhardt River in the 24 hours to 9am Wednesday 22nd March with the highest total of 435mm recorded at Gereta Station. The rapid onset of the intense rainfall meant that rivers and streams responded very quickly and were generally in minor flood by the morning of Wednesday 22nd March. Record river levels and major flooding were reported at several stations.

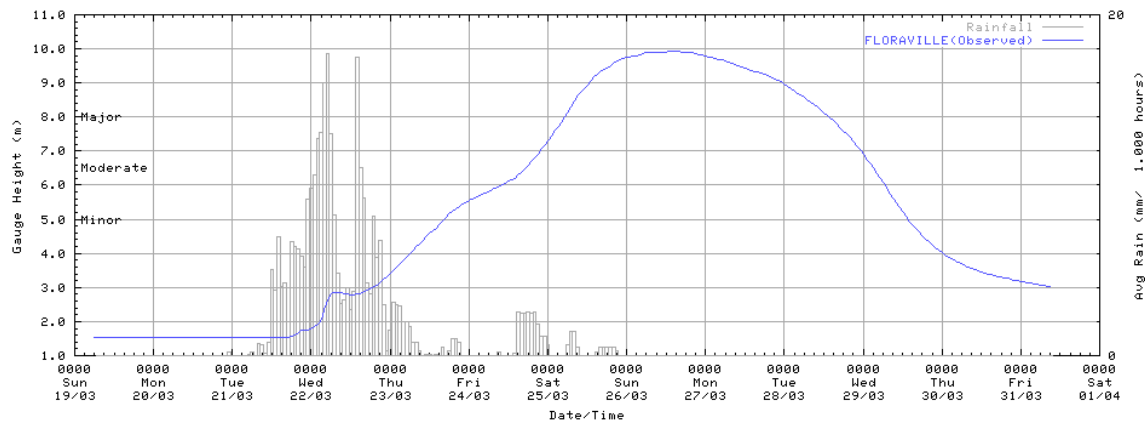
On Gunpowder Creek, the peak reached 10.63 metres at 7am Wednesday 23rd March after only about 8 hours intense rainfall. This was the highest peak, by nearly 2 metres, since records commenced in 1971.



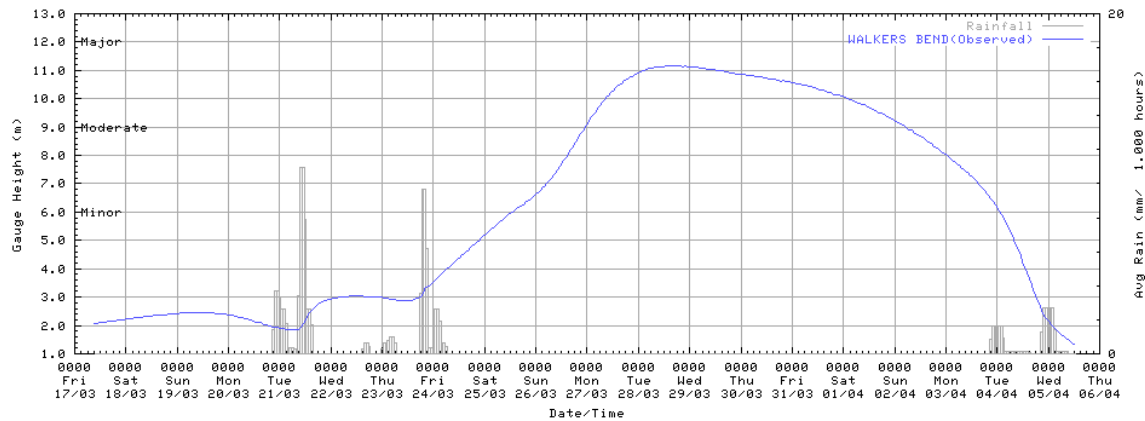
At Lorraine, the river commenced to rise rapidly on the morning of Wednesday 23rd March and reached a peak of 16.9 metres at 6pm Thursday. This level was maintained overnight before starting to fall quickly on Saturday. The peak of 16.90 metres at Lorraine was the highest recorded level at the site since records started in 1974.



Downstream at Floraville, the river peaked at 9.91 metres on Sunday morning (26th). This was the highest recorded level since records commenced in 1984. Locals advise that this flood was the highest in the area since 1964.



Flinders River: Moderate flooding also occurred in the lower Flinders River at the end of March. River level rises at Walkers Bend were reported from 25th March with a flood peak of 11.17 metres occurring on 29th March with moderate flooding.



PEAK HEIGHTS

Peak heights between 16/03/2006 and 29/03/2006

Station No.	Sens No.	Station Name	Date	Height	Flood Class
HERBERT					
<i>Herbert R u/s Glen Eagle</i>					
531015	0	SILVER VALLEY TM	20/03/2006 15:10	5.87	Minor
531021	0	ARCHERS CREEK TM	20/03/2006 14:44	6.52	Minor
032169	0	GLENEAGLE ALERT	22/03/2006 12:22	6.74	Below Minor
<i>Herbert R d/s Glen Eagle</i>					
032170	0	NASH'S CROSSING ALERT	22/03/2006 01:30	5.75	Minor
032184	0	ZATTAS ALERT	22/03/2006 02:14	5.03	Minor
532010	0	GOWRIE CREEK TM	21/03/2006 22:45	6.60	Moderate
032174	0	ABERGOWRIE ALERT	22/03/2006 06:34	8.83	Moderate
032091	0	ELPHINSTONE PKT	21/03/2006 09:00	8.10	Minor
032091	0	ELPHINSTONE PKT	22/03/2006 09:00	10.00	Moderate
532028	0	ABERGOWRIE BRIDGE ALERT	22/03/2006 08:37	10.04	Moderate

532067	0	TREBONNE AL	22/03/2006 11:37	10.68	Minor
032171	0	INGHAM PUMP STATION AL	22/03/2006 13:44	10.80	Minor
032094	0	GAIRLOCH	22/03/2006 15:00	10.20	Minor
032185	0	HALIFAX ALERT	22/03/2006 15:15	5.22	Major
TULLY					
<i>Tully R</i>					
531057	0	BOLINDA ESTATE ALERT	20/03/2006 12:57	5.50	Moderate
532059	0	EURAMO ALERT	22/03/2006 03:34	8.59	Moderate
532061	0	UPPER MURRAY ALERT	21/03/2006 20:36	9.36	Major
032109	0	UPPER MURRAY TM	21/03/2006 20:40	9.30	Major
532060	0	MURRAY FLATS ALERT	22/03/2006 12:41	8.08	Major
JOHNSTONE					
<i>Johnstone R</i>					
032165	0	NERADA ALERT	22/03/2006 04:40	6.08	Minor
032166	0	TUNG OIL ALERT	22/03/2006 04:29	7.03	Minor
032163	0	INNISFAIL WHARF ALERT	20/03/2006 07:40	4.03	Below Minor
MULGRAVE-RUSSELL					
<i>Mulgrave-Russell R</i>					
531046	0	THE FISHERIES TM	20/03/2006 10:40	8.40	Major
531052	0	PEETS BRIDGE ALERT	20/03/2006 12:32	9.00	Major
531051	0	GORDONVALE ALERT	20/03/2006 14:26	15.19	Major
531024	0	BUCKLANDS TM	20/03/2006 15:20	6.99	Minor
531024	0	BUCKLANDS TM	22/03/2006 08:50	7.85	Moderate
531022	0	THE BOULDERS TM	20/03/2006 08:25	5.87	Moderate
BARRON					
<i>Barron R</i>					
531033	0	MAREEBA ALERT	20/03/2006 14:48	6.73	Minor
531019	0	BILWON TM	20/03/2006 23:59	6.28	Minor
531036	0	BILWON ALERT	20/03/2006 23:42	6.28	Minor
NICHOLSON					
<i>Nicholson/Gregory R</i>					
029158	0	DOOMADGEE TOWNSHIP	19/03/2006 09:00	6.90	Major
029157	0	BURKETOWN AIRSTRIP	22/03/2006 15:00	5.90	Moderate
LEICHHARDT					
<i>Leichhardt R</i>					
529014	0	DOUGHBOY CK TM	22/03/2006 20:40	7.02	Minor
529013	0	GUNPOWDER TM	22/03/2006 07:10	10.63	Major
029032	0	LORRAINE	23/03/2006 18:00	16.90	Major
529010	0	FLORAVILLE TM	26/03/2006 14:43	9.93	Major

FLINDERS					
<i>Flinders R</i>					
529007	0	WALKERS BEND TM	28/03/2006 14:30	11.17	Moderate
NORMAN					
<i>Norman R</i>					
029154	0	YAPPAR RIVER	28/03/2006 06:00	2.45	Minor
529012	0	GLENORE WEIR TM	26/03/2006 08:40	9.44	Minor
029155	0	NORMANTON	28/03/2006 09:00	2.75	Minor
MITCHELL					
029038	0	KOWANYAMA AP	27/03/2006 15:30	2.78	Minor

FLOOD WARNINGS

Prior to the TC Larry crossing the coast, preliminary flood warnings were issued for the coastal rivers between Innisfail and Townsville. Following the onset of the heavy rain, a total of 36 specific flood warnings were issued for the event. The warnings were issued for the Tully, Murray, Herbert, Mulgrave and Russell Rivers.

The first flood warning for the Leichhardt River was issued at 10am Wednesday 22nd March. It advised of reports of very heavy rainfall, rapid river rises and major flooding. The warning issued at 10am on Thursday 23rd March advised of major flooding and near record levels in the Lorraine area. It also advised of major flooding extending downstream to Floraville over the next few days. The final warning for the Leichhardt River was issued on Thursday 30th March after the river level at Floraville had fallen below the minor flood level. In all, nine flood warnings were issued for the Leichhardt River, daily at about 10am.