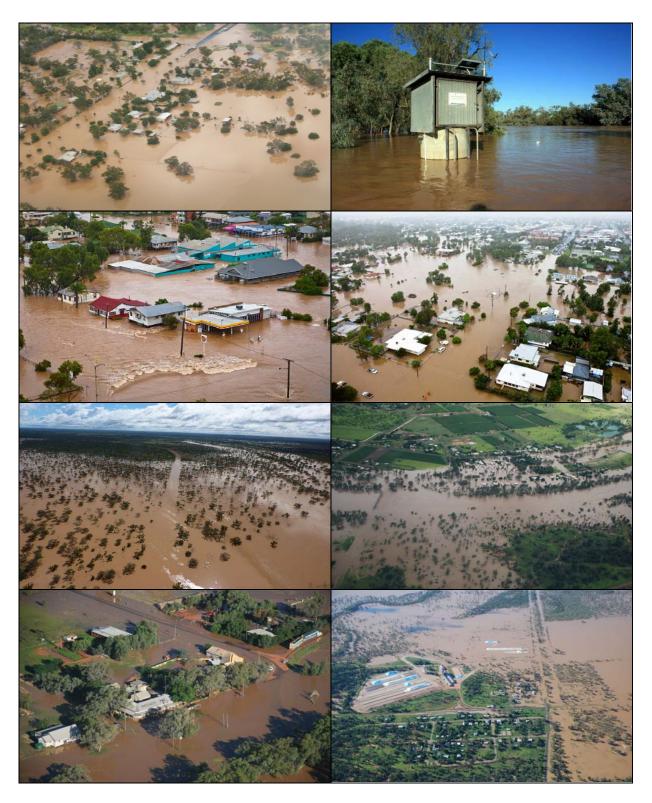




## South West Queensland Floods

March 2010



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- 1. Floodwaters inundate the township of Bollon. Photo supplied by Bill Speedy.
- 2. Floodwaters at the Autumnvale gauging station on the lower Bulloo River. Photo supplied by R.D. & C.B. Hughes.
- 3. Floodwaters from Bradley's Gully travel through Charleville.
- 4. Floodwaters from Bungil Creek inundate Roma. Photo supplied by the Maranoa Regional Council.
- 5. Floodwaters at the confluence of the Paroo River and Beechal Creek. Photo supplied by Cherry and John Gardiner.
- 6. Balonne River floodwaters inundate low lying areas of St. George. Photo supplied by Sally Nichol.
- 7. Floodwaters from the Moonie River inundate Nindigully. Photo supplied by Sally Nichol.
- 8. Floodwaters from the Moonie River inundate the township of Thallon. Photo supplied by Sally Nichol.

#### **Revision history**

Date	Version	Description
6 June 2010	1.0	Original
23 June 2010	1.1	Original version of this report contained an incorrect date for the main flood peak at Roma. Corrected to 8.1 metres on Tuesday 2 March 2010. See Table 3.1.1.
28 June 2010	1.2	An approximate peak height has been replaced for Bradley's Gully at Charleville. New peak height is 4.2 metres on Tuesday 2 March 2010 at 13:00. See Table 3.1.1.
01 July 2010	1.3	Peak height provided from flood mark at Teelba on Teelba Creek. See Table 3.1.1.
08 Spectember 2010	1.4	Peak height provided from flood mark at Garrabarra on Bungil Creek. See Table 3.1.1.

#### Note:

- 1. Data in this report has been operationally quality controlled but errors may still exist.
- 2. This product includes data made available to the Bureau by other agencies. Separate approval may be required to use the data for other purposes. See Appendix 1 for DERM Usage Agreement.
- 3. This report is not a complete set of all data that is available. It is a representation of some of the key information.

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#### South West Queensland Floods

March 2010

#### 1. Introduction

An exceptional rain event affected central Australia, Queensland and far northern New South Wales during the last week of February and first week of March. The event began on the 22nd February, when a strong low pressure system developed over the Top End within the monsoon trough. The low tracked south through central Australia then east across southwest and southern Queensland before turning south again to cross the southwest Queensland border into northern New South Wales. The system produced heavy rainfall along its path causing widespread, record breaking flooding.

The most remarkable aspect of this event was the area covered by the heavy rainfall and the total volume of rainfall that fell. Daily rainfall totals exceeded 100 mm over 1.7% of Australia on the 1<sup>st</sup> March and 1.9% on the 2<sup>nd</sup> March. The latter is the largest area of 100 mm-plus daily totals on a single day in the Australian meteorological record, breaking the previous record of 1.7% set on the 22<sup>nd</sup> December 1956. The 2<sup>nd</sup> of March was the wettest day on record for Queensland with a statewide average rainfall of 31.74mm, exceeding the previous record of 31.49mm set on the 21<sup>st</sup> of May 1981.

Over the 10-day period ending 3 March 2010 an estimated 403 cubic kilometres (403,000 gigalitres) of rainfall fell across the NT and QLD. This resulted in major flooding in most of the catchments of southern inland QLD. Compared with a notable previous flooding event in the region of comparable extent and severity (April 1990), peak rainfall amounts have been smaller but heavy rains (10-day totals exceeding 200 mm) have covered a much larger area. For more information please refer to the Special Climate Statement 20.

This report provides a summary and analysis of the meteorology and hydrology of the South West Queensland Floods in early March 2010. The following link provides a complete list of <a href="mapsofthe-relevant-river-catchments">maps of the relevant river catchments and flood warning stations</a> referred to in this report.

## 2. Meteorological Summary

Increased monsoonal westerly winds through the Arafura Sea during the 21<sup>st</sup> of February assisted to deepen the monsoon trough extending across the north of Australia and caused shower and thunderstorm activity to increase in the area. The trough deepened further during the next day or two, causing a low to develop over the Northern Territory by the 23<sup>rd</sup> of February. The tropical low remained near stationary until the 26<sup>th</sup> of February before drifting southwards and intensifying ahead of a deep layered trough system from the west. By the 1<sup>st</sup> of March the system had entered far southwest Queensland and tracked eastwards to be just west of Charleville by the afternoon of the 2<sup>nd</sup> of March. Widespread heavy rainfall across the Northern Territory and a large area of southern Queensland resulted causing record breaking, river flooding.

This chapter presents a discussion and analysis of the meteorological conditions that led to the development, intensification and movement of the tropical low and the subsequent flood producing rains the system brought to a large area of southern Queensland.

### 2.1 Meteorological Analysis

A sequence of Mean Sea Level Pressure Charts from the 23 of February to the 5th of March 2010, shown as Figure 2.1.1, describes the movement, intensification and subsequent weakening of the tropical low that caused record breaking river flooding over the Northern Territory and southern Queensland. The blue shaded region shows areas of rainfall.



Although diurnal thunderstorms continued to occur over Papua New Guinea and northern Australia during the 20<sup>th</sup> of February, the monsoon trough was generally in an inactive phase. However, increased monsoonal westerly winds through the Arafura Sea on the 21<sup>st</sup> of February, identified in satellite winds, caused increased convergence and a deepening of the monsoon trough. This resulted in increased convection and further heavy showers and thunderstorms over the Northern Territory and about the Gulf of Carpentaria.

Further increased convergence into the monsoon trough brought about by increased northwest winds on the equator-ward side, enhanced the atmospheric rotation about the trough and triggered the formation of a broad tropical low over the Northern Territory.

The low remained near stationary for several days as a firm ridge extended over the southeast of the continent. However, by the 27<sup>th</sup> of February, a middle to upper level trough approached the tropical low from the west. This trough system provided improved upper outflow over the low and caused it to deepen significantly and move slowly southward.

As the deep trough system from the west moved nearer to the tropical low, the low was steered on a more eastward track towards the western Queensland border. This movement led to increased low level convergence between the tropical low and the mean sea level ridge extending over western and southern Queensland, causing heavier rainfall on the eastern and southern side of the system centre. By 5am on the 1<sup>st</sup> of March, the low was located just inside the western Queensland border.

North to northeast wind flow across the state provided the atmosphere with a deep layer of moisture. This is evident in the vertical temperature sounding from Charleville at 9am on the 1<sup>st</sup> of March 2010, Figure 2.1.2.

An analysis of the wind profile up to 5500 metres at 9am on the 1<sup>st</sup> of March shows a deep atmospheric layer of warm air advection where winds from the east to northeast in the low levels back to the north to northwest in the upper levels. This is shown in Figure 2.1.3a, where the dashed line encircles the area of strong warm air advection. Such a wind profile typically signifies wide scale ascent of air and resulting very heavy rainfall. A comparison of the areas of warm air advection in Figure 2.1.3a and the rainfall totals in Figure 2.1.4a shows that the two areas are coincident. The heaviest rainfall in the 24 hours to 9am on the 1<sup>st</sup> of March occurred in southwest Queensland with the largest falls between 150mm and 190mm.

The low continued to move further east during the 1<sup>st</sup> of March to be positioned near Windorah early on the 2<sup>nd</sup> of March. Heavy rainfall continued overnight once again coincident with the area of strongest warm air advection, as shown by comparing 2.1.3b and 2.1.4b. The heaviest rainfall in the 24 hours to 9am on the 2<sup>nd</sup> of March occurred over the southern interior with the largest falls between 150mm and 170mm.

However, as the upper level divergence over the surface low moved eastwards towards the Fraser Island area during the day on the 2<sup>nd</sup>, the low weakened and the heavy rainfall eased.

The eastward shift of upper level divergence led to falls in surface pressures and the development of a secondary surface low off the southern Queensland coast, southeast of Fraser Island. The development of the low off the coast prevented the heaviest rainfall from reaching coastal parts and although there were some 24-hour rainfall totals in excess of 100mm typically the rain in this region was lighter than that which fell over southern Queensland associated with the original tropical low.

Although a weakened low remained over southern inland Queensland for several days, rainfall generally eased and only isolated showers and thunderstorms continued.

By 5am on the 5<sup>th</sup> of March, the low moved into northwest New South Wales, where it continued to produce showers and thunderstorms (severe in some locations) for the next two to three days.



Figure 2.1.1 MSLP Charts for Australia from the 23<sup>rd</sup> Feb to the 5<sup>th</sup> Mar 2010.

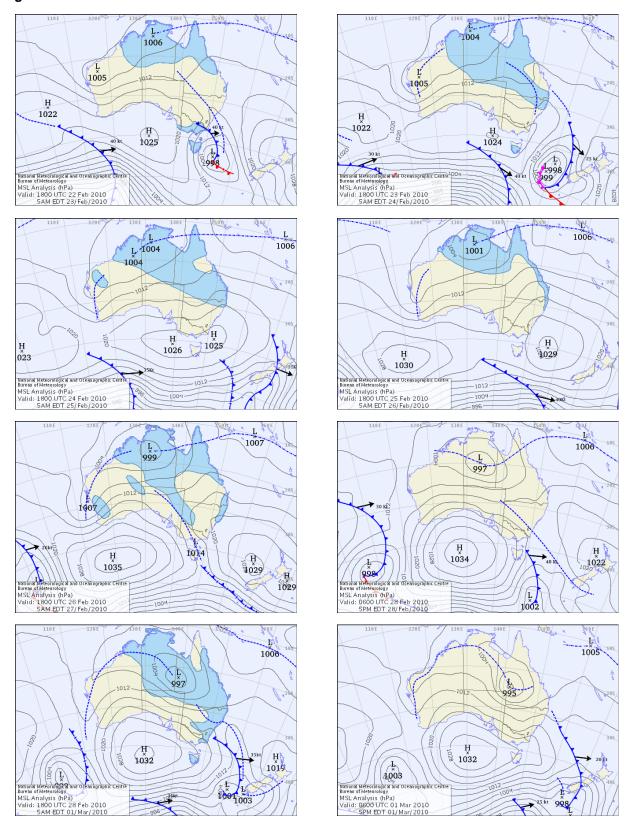




Figure 2.1.1 MSLP Charts for Australia from the 23<sup>rd</sup> Feb to the 5<sup>th</sup> Mar 2010 (continued).

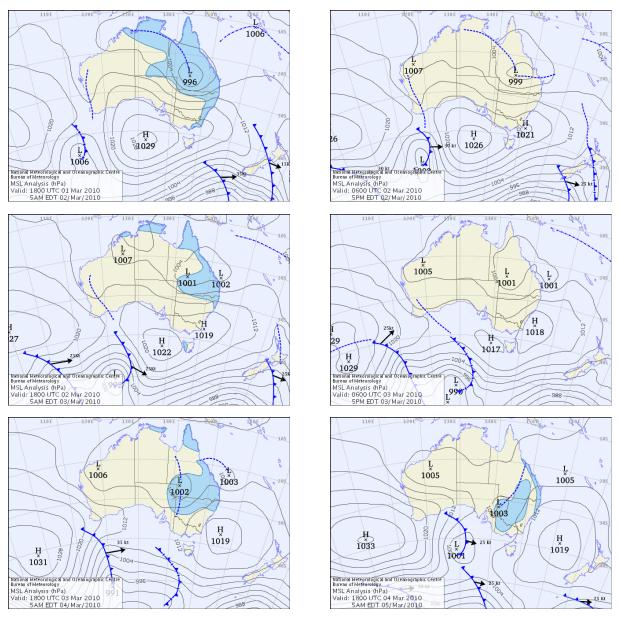




Figure 2.1.2 Charleville's Temp and Dewpoint Temp Profiles at 9am 1<sup>st</sup> March 2010.

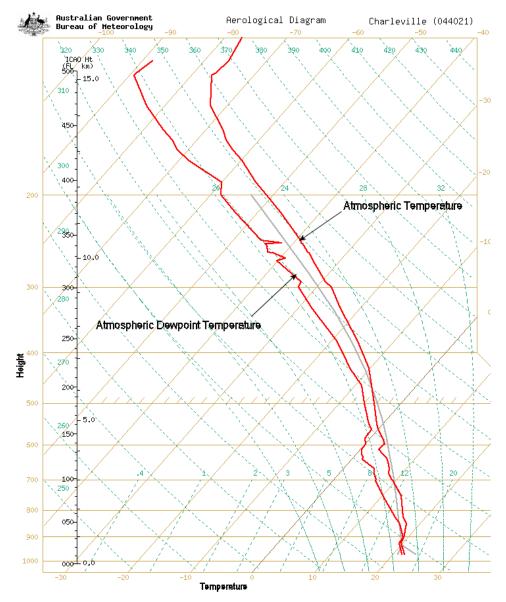




Figure 2.1.3 Winds and Warm Air Advection from 1500m to 5500m above Mean Sea Level.

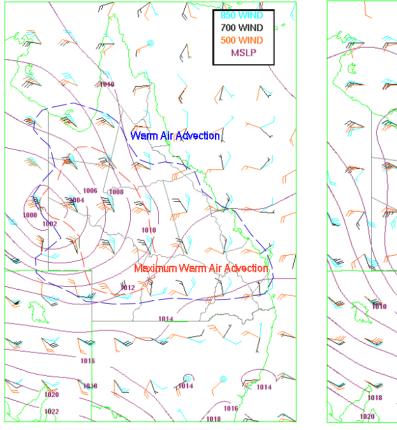
850 hectopascals is approximately 1500m above MSL.

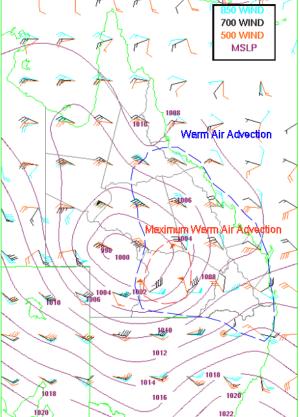
700 hectopascals is approximately 3000m above MSL.

500 hectopascals is approximately 5500m above MSL.

#### a. 10pm on the 28<sup>th</sup> of February 2010

#### b. 10pm on the 1st of March 2010







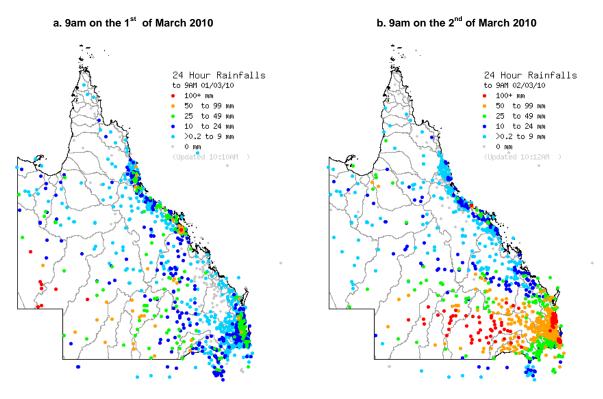


Figure 2.1.4 24-Hour rainfall to 9am on the 1st and 2nd of March 2010.

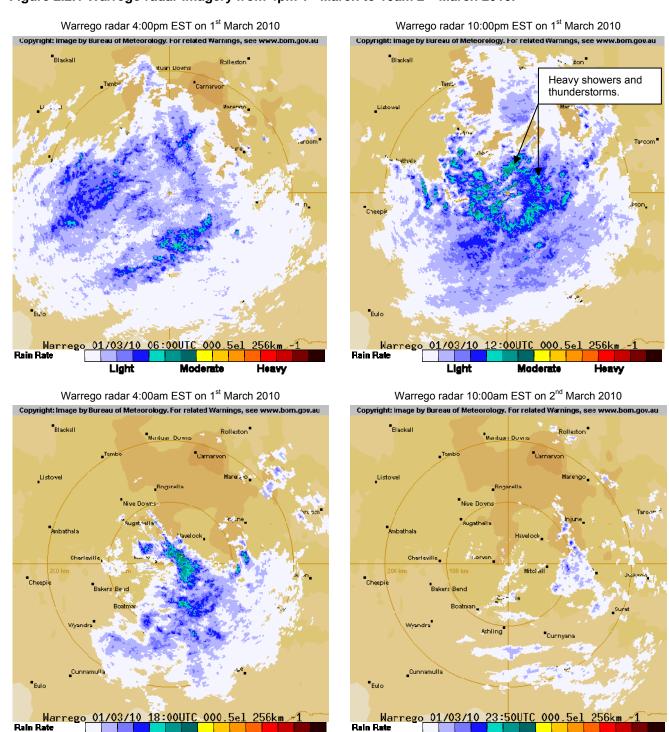
### 2.2 Radar Imagery Analysis

Volumetric radar imagery from various sites across Queensland was available to monitor this flood producing rainfall event including Longreach, Charleville (Warrego Radar), Emerald, Gladstone, Mt Kanigan and Mt Staplyton Radar.

2-Dimensional imagery from the Warrego Radar from 4pm on the 1<sup>st</sup> of March to 10am on the 2<sup>nd</sup> of March 2010 is shown in Figure 2.2.1. Analysis of imagery in this period shows that the most intense rainfall occurred between 10pm and midnight on the 1<sup>st</sup> of March. A comparison of the 4pm and 10pm images on the 1<sup>st</sup> of March clearly shows that heavy showers and thunderstorms were more widespread at 10pm than earlier in the afternoon. The weakening of the system is also evident with radar imagery at 4am and 10am on the 2<sup>nd</sup> of March showing a marked decrease in the amount and intensity of precipitation.



Figure 2.2.1 Warrego radar imagery from 4pm 1<sup>st</sup> March to 10am 2<sup>nd</sup> March 2010.



Moderate

Heavy

Heavy

Moderate



## 3. Hydrology

Heavy rainfall was recorded across a wide area of southern and south-western Queensland during the 1<sup>st</sup> and 2<sup>nd</sup> March leading to the development of widespread major flooding during the 2<sup>nd</sup> and 3<sup>rd</sup> March. Major flooding occurred in the following catchments:

- Diamantina
- Barcoo and Cooper Creek
- Bulloo
- Paroo
- Warrego
- · Wallam and Mungallala Creeks
- Maranoa
- Balonne
- Condamine
- Moonie
- Weir
- Dawson
- Comet
- Auburn

Record flood heights were recorded in a number of towns in the affected areas including on the Paroo River at Eulo, in Bradley's Gully at Charleville, on Wallam Creek at Bollon, on Bungil Creek at Roma, on the Moonie River at Nindigully and Thallon and on the Balonne River at St. George, Surat, Dirranbandi and Hebel. The Dawson River at Theodore and Moura reached its highest levels since 1956, with the Maranoa River at Mitchell and the Warrego River at Cunnamulla both reaching their highest levels since 1990.

### 3.1 Peak River Heights

A map displaying the peak river heights that occurred over Queensland between the 25<sup>th</sup> of February and the 19<sup>th</sup> of March 2010, following heavy rainfall from the tropical low is shown in Figure 3.1.1. As is evident, a large portion of southern Queensland experienced major river flooding during this period.

A comparison of the recorded peak heights resulting from heavy rainfall in early March, with historical peak heights for each location is shown in Table 3.1.1. The ranking of each recorded peak with historical peaks for that site have also been shown.



Figure 3.1.1 Peak Height Map

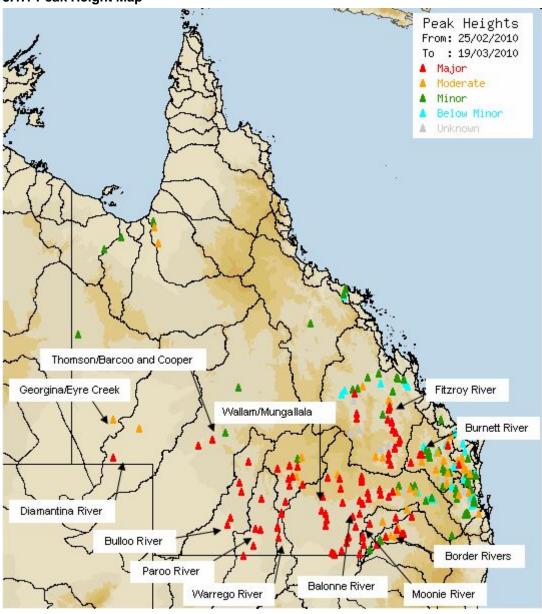




Table 3.1.1 Historical Peak Height Comparison.

Gauging Station	March 2010 Peak	Flood Classification	Start of Record	Ranking	Highest Since	Highest on Record				
	Georgina River/Eyre Creek									
Urandangi	3.50m on the 04/03/2010 at 15:00	Minor	1974	Equal 29th	April 2009	7.45m flood mark in 1974				
Roxborough Downs TM	6.47m on the 02/03/2010 at 05:00	Moderate	1968	33rd	January 2010	9.93m Feb 1977				
Roxborough Downs TW	6.53m on the 09/03/2010 at 20:00	Moderate	1968	31st	January 2010	9.93m Feb 1977				
Marion Downs	4.45m on the 03/03/2010 at 09:00	Moderate	1941	Equal 59th	January 2010	7.42m Jan 1974				
Marion Downs	5.21m on the 08/03/2010 at 06:15	Major	1941	28th	February 2009	7.42m Jan 1974				
Bedourie	5.08m on the 04/03/2010 at 15:00	Major	1999	5th	February 2009	5.40mJan 2007				
Cluny	4.25m on the 06/03/2010 at 18:00	Moderate	1961	16th	February 2009	6.40m Feb 1974				
Glengyle	3.80m on the 08/03/2010 at 06:00	Moderate	1982	12th	February 2009	5.65m Mar 1997				
		Diamantina	a River							
Diamantina Lakes TM	3.81m on the 04/03/2010 at 00:00	Minor	1967	69th	February 2010	7.71m Jan 1974				
Diamantina Lakes TW	3.77m on the 06/03/2010 at 18:00	Minor	1967	70th	February 2010	7.71m Jan 1974				
Monkira	4.10m on the 02/03/2010 at 06:00	Moderate	1949	19th	February 2009	6.12m flood mark in Feb 1974				
Durrie	3.25m on the 10/03/2010 at 09:00	Major	1974	5th	February 1991	5.30m flood mark in Feb 1974				
Roseberth	5.65m on the 01/03/2010 at 18:00	Major	1971	10th	February 2009	7.60m flood mark in Feb 1974				
Rosebertii	5.96m on the 13/03/2010 at 07:00	Major	1971	6th	February 1991	7.60m flood mark in Feb 1974				
Birdsville	7.90m on the 02/03/2010 at 18:00	Moderate	1949	9th	February 1991	9.45m March 1974				
Bilasville	7.75m on the 14/03/2010 at 09:00	Moderate	1949	11th	February 1991	9.45m March 1974				
	Thoms	son/Barcoo Rivers	s and Cooper Cree	k						
Jundah	3.60m on the 02/03/2010 at 09:00	Minor	1944	104th	February 2010	8.46m June 1955				
Blackall TM	3.97m on the 04/03/2010 at 04:00	Minor	1970	51st	February 2010	8.24m Apr 1990				
Diackali Tivi	3.80m on the 07/03/2010 at 22:00	Minor	1970	60th	February 2010	8.24m Apr 1990				
Coolagh	5.30m on the 06/03/2010 at 08:00	Moderate	1963	28th	February 2010	8.99m Apr 1963 and 1990				
Isisford	5.40m on the 07/03/2010 at 18:00	Moderate	1968	38th	February 2010	9.20m Apr 1990				



Gauging Station	March 2010 Peak	Flood Classification	Start of Record	Ranking	Highest Since	Highest on Record			
Thomson/Barcoo Rivers and Cooper Creek con't									
Wahroongah	3.65m on the 08/03/2010 at 06:00	Minor	1990	11th	February 2010	7.21 Apr 1990			
Glenlock	4.85m on the 02/03/2010 at 15:00	Minor	1989	13th	February 2010	7.86 Apr 1990			
Glefflock	4.60m on the 11/03/2010 at 05:30	Minor	1989	17th	February 2010	7.86 Apr 1990			
	8.33m on the 02/03/2010 at 12:00	Major	2006	4th	February 2010	11.05m Jan 2008			
Retreat TM	8.66m on the 04/03/2010 at 06:00	Major	2006	3rd	February 2010	11.05m Jan 2008			
	4.84m on the 12/03/2010 at 12:00	Moderate	2006	13th	February 2010	11.05m Jan 2008			
Windorah	5.50m on the 04/03/2010 at 06:20	Major	1971	34th	February 2010	8.48m Feb 1974			
Willdorall	4.45m on the 14/03/2010 at 06:00	Moderate	1971	71st	February 2010	8.48m Feb 1974			
Durham Downs	3.60m on the 05/03/2010 at 06:00	Major	1949	6th	March 2000	4.40m Feb 1974			
Dumam Downs	3.42m on the 14/03/2010 at 06:00	Major	1949	9th	March 2010	4.40m Feb 1974			
Noccundra Hotel	4.10m on the 04/03/2010 at 09:00	Major	1984	Equal 1st	New Record	New Record			
Nappa Merrie TM	4.67m on the 02/03/2010 at 18:00	Minor	2004	25th	February 2010	10.13m Feb 1974			
Nappa Meme 1M	8.33m on the 13/03/2010 at 12:00	Moderate	2004	5th	May 1990	10.13m Feb 1974			
		Bulloo R	River						
Adavale	5.25m on the 02/03/2010 at 17:50	Major	1949	5th	January 2008	6.07m Mar 1963			
Quilpie Man/TM	6.43m on the 04/03/2010 at 15:00	Major	1950	5th	January 1974	7.85m Apr 1963			
Autumnvale TM	8.22m on the 08/03/2010 at 16:30	Major	1968	1st	New Record	New Record			
Thargomindah	6.48m on the 09/03/2010 at 09:00	Major	1949	3rd	January 1974	6.78m Jan 1974			
		Paroo R	iver						
Quilpeta	≈ 6.0m on the 03/03/2010 at 06:00	Major	1968	1st	New Record	New Record			
Eulo	6.27m on the 05/03/2010 at 22:00	Major	1890	1st	New Record	New Record			
Carpet Springs	3.00m on the 02/03/2010 at 09:00	Major	1974	1st	New Record	New Record			
Caiwarro TM	4.99m on the 08/03/2010 at 10:00	Major	1967	1st	New Record	New Record			
Hungerford	2.87m on the 08/03/2010 at 18:30	Major	1974	3rd	April 1990	2.92m Apr 1990			
		Warrego	River			3			
Augathella TM	5.09m on the 04/03/2010 at 20:50	Moderate	1910	63rd	January 2008	7.30m Apr 1990			
Biddenham Manual/TM	3.42m on the 04/03/2010 at 00:01	Minor	1955	24th	January 2008	7.20m Apr 1990			
The 27 Mile Garden Manual/TM	4.57m on the 03/03/2010 at 02:20	Major	1956	11th	January 2008	6.98m Apr 1990			



Gauging Station	March 2010 Peak	Flood Classification	Start of Record	Ranking	Highest Since	Highest on Record
		Warrego Rive	er con't			
	2.36m on the 02/03/2010 at 05:00	Moderate	2000	2nd	January 2008	2.46m Jan 2008
Raceview TM	1.55m on the 04/03/2010 at 05:00	Minor	2000	5th	January 2008	2.46m Jan 2008
	0.92m on the 05/03/2010 at 03:00	Below Minor	2000	7th	January 2008	2.46m Jan 2008
	4.2m on the 02/03/2010 at 13:00	No Flood Classifications	2000	1st	New Record	New Record
Charleville (Bradley's Gully)	2.70m on the 04/03/2010 at 16:45	No Flood Classifications	2000	3rd	March 2010	4.2m Mar 2010
	1.90m on the 05/03/2010 at 12:00	No Flood Classifications	2000	5th	March 2010	4.2m Mar 2010
Charleville Manual/TM	6.65m on the 02/03/2010 at 17:00	Major	1910	8th	February 1997	8.54m Apr 1990
Charleville Maridal/ TW	5.58m on the 04/03/2010 at 00:30	Moderate	1910	32nd	March 2010	8.54m Apr 1990
Warilda	5.95m on the 03/03/2010 at 21:00	Major	1990	4th	January 2008	6.45m Jan 2008
Oak Park	5.50m on the 03/03/2010 at 07:30	Major	1990	6th	January 2008	8.00m Apr 1990
Binnowee Manual/TM	7.76m on the 04/03/2010 at 07:10	Major	1997	3rd	January 2008	8.80m Feb 1997
Authoringa -	8.60m on the 02/03/2010 at 12:00	Major	1990	3rd	April 1990	9.72m Apr 1990
Adthorniga	8.70m on the 03/03/2010 at 06:00	Major	1990	2nd	April 1990	9.72m Apr 1990
Bakers Bend Manual/TM	10.64m on the 04/03/2010 at 12:50	Major	1971	4th	February 1997	12.10m Apr 1990
Wyandra Manual/TM	9.68m on the 05/03/2010 at 23:00	Major	1967	3rd	February 1997	10.24m Apr 1990
Wallen	10.08m on the 07/03/2010 at 04:30	Major	1990	2nd	April 1990	10.36m Apr 1990
Wallen TM	6.83m on the 03/03/2010 at 03:40	Minor	2007	5th	February 2010	10.30m Mar 2010
vvallett Tivi	10.30m on the 07/03/2010 at 07:30	Major	2007	1st	New Record	New Record
Cunnamulla Bridge	10.00m on the 08/03/2010 at 06:30	Major	1890	5th	April 1990	11.07m flood mark in 1890
Cunnamulla Weir TM	8.75m on the 08/03/2010 at 08:10	Major	1992	1st	New Record	New Record
Rocky	5.52m on the 11/03/2010 at 15:00	Major	1945	1st	New Record	New Record
		Wallam/Mungalla	ala Creeks			
Homeboin	4.70m on the 03/03/2010 at 09:00	Major	1950	1st	New Record	New Record
Homebolli	4.30m on the 06/03/2010 at 10:20	Major	1950	2nd	March 2010	4.70m Mar 2010
Cardiff Tm	7.63m on the 04/03/2010 at 06:00	Major	2000	1st	New Record	New Record
Gardin Till	7.24m on the 07/03/2010 at 02:40	Major	2000	2nd	March 2010	7.63m Mar 2010



Gauging Station	March 2010 Peak	Flood Classification	Start of Record	Ranking	Highest Since	Highest on Record
	W	/allam/Mungallala	a Creeks con't			
Bollon	1.76m on the 05/03/2010 at 15:00	Major	1977	Equal 1st	New Record	New Record
Bollott	1.76m on the 07/03/2010 at 21:00	Major	1977	Equal 1st	New Record	New Record
Mungallala	4.50m on the 02/03/2010 at 07:00	Major	2002	1st	New Record	New Record
Tomoo	>8.30m on the 02/03/2010 at 22:00	Major	1950	1st	New Record	New Record
Deelamon	6.70m on the 04/03/2010 at 07:00	Major	1985	1st	New Record	New Record
Roseleigh Crossing TM	1.94m on the 12/03/2010 at 19:50	Major	2008	1st	New Record	New Record
		Condamine/Bal	onne Rivers			
Elbow Valley AL/TM	3.04m on the 03/03/2010 at 13:34	Minor	1973	43rd	January 2008	6.68m Feb 1976
Loudoun Bridge TM	3.39m on the 08/03/2010 at 09:00	Minor	1970	46th	November 2008	7.43m Feb 1976
Loudoun Bridge	6.50m on the 08/03/2010 at 15:50	Minor	1956	70th	January 2004	10.89m Feb 1976
Moffatt AL	3.25m on the 06/03/2010 at 14:40	Minor	1995	1st	New Record	New Record
Brigalow Bridge TM	7.71m on the 04/03/2010 at 06:00	Minor	1972	38th	November 2008	13.99m Feb 1976
Brigatow Bridge TW	10.05m on the 07/03/2010 at 18:20	Moderate	1972	12th	March 1999	13.99m Feb 1976
Chinchilla Weir Tw	6.84m on the 05/03/2010 at 03:50	Minor	1956	88th	November 2008	14.20m Apr 1988
Manual/TM	9.14m on the 08/03/2010 at 23:00	Moderate	1956	47th	March 1999	14.20m Apr 1988
Seven Oaks TM	5.37m on the 08/03/2010 at 05:00	Minor	1999	1st	New Record	New Record
Chinchilla	4.05m on the 09/03/2010 at 16:00	Minor	1970	13th	February 1999	6.60 Mary 1983
Chinchilla TM	6.26m on the 10/03/2010 at 03:00	No Flood Classifications	2006	1st	Only Peak	Only Peak
Bedarra TM	10.58m on the 10/03/2010 at 03:00	No Flood Classifications	2008	1st	New Record	New Record
Condamine	7.50m on the 10/03/2010 at 12:00	Moderate	1924	35th	March 1999	14.25m Feb 1942
Cotswold TM	12.34m on the 04/03/2010 at 02:20	Major	1967	13th	August 1998	16.13m May 1983
Gilweir TM	10.53m on the 03/03/2010 at 23:00	Minor	1950	16th	August 1998	14.02m Jan 1956
Pine Hill Crossing	8.25m on the 06/03/2010 at 06:00	Major	1956	5th	August 1998	11.30 Jan 1956
Warkon	11.62m on the 03/03/2010 at 21:00	Major	1941	5th	January 1996	11.88m Jan 1996
Yuleba Forrestry TM	8.99m on the 04/03/2010 at 07:20	Major	1973	3rd	January 2004	9.91m Jan 1996
Surat	12.40m on the 03/03/2010 at 22:00	Major	1910	1st	New Record	New Record
Surat TM	12.02m on the 04/03/2010 at 02:50	Major	2004	1st	New Record	New Record



Gauging Station	March 2010 Peak	Flood Classification	Start of Record	Ranking	Highest Since	Highest on Record					
	Condamine/Balonne Rivers con't										
Tabers Tm	7.34m on the 02/03/2010 at 09:00	Major	1970	2nd	March 1997	7.83m Mar 1997					
Tabels IIII	5.00m on the 06/03/2010 at 17:10	Minor	1970	13th	March 2010	7.83m Mar 1997					
Tindarra TM	7.97m on the 02/03/2010 at 15:20	Major	2000	1st	New Record	New Record					
Tillualia Tivi	5.49m on the 06/03/2010 at 21:40	Minor	2000	6th	March 2010	7.97m Mar 2010					
Roma	8.10m on the <b>02/03/2010</b> at 13:00	Major	1982	1st	New Record	New Record					
Roma	6.42m on the 07/03/2010 at 09:30	Minor	1982	13th	March 2010	8.10m Mar 2010					
Garrabarra	10.40m - surveyed from flood mark	Major	1950	1st	New Record	New Record					
Karoola Park	8.85m on the 03/03/2010 at 21:00	Major	1950	1st	New Record	New Record					
Naioola Faik	5.50m on the 06/03/2010 at 18:00	Minor	1950	33rd	March 2010	8.85m Mar 2010					
Weribone TM	13.71m on the 03/03/2010 at 03:20	Major	1969	1st	New Record	New Record					
Warroo	14.37m on the 07/03/2010at 06:00	Major	1890	2nd	1890	16.61m 1890					
Currawong	5.60m on the 02/03/2010 at 09:00	Moderate	1956	3rd	April 1990	10.66m flood mark in 1956					
Mitchell	7.50m on the 02/03/2010 at 10:30	Major	1864	4th	April 1990	9.56m flood mark in 1864					
Mitchell TM	8.14m on the 02/03/2010 at 10:00	Major	1924	2nd	April 1990	8.60m Apr 1990					
Springfield	10.92m on the 02/03/2010 at 20:30	Major	1950	1st	New Record	New Record					
Woodlands	7.40m on the 03/03/2010 at 18:00	Major	1950	2nd	July 1950	7.62m July 1950					
Old Cashmere TM	8.86m on the 05/03/2010 at 19:30	Major	1969	2nd	March 2010	9.72m Apr 1990					
St George	13.39m on the 07/03/2010 at 06:00	Major	1968	1st	New Record	New Record					
St George TM	12.94m on the 07/03/2010 at 08:30	Major	1972	1st	New Record	New Record					
Whyenbah	8.05m on the 09/03/2010 at 09:00	Major	1950	3rd	April 1990	8.18m Aug 1950					
Whyenbah TM	6.54m on the 09/03/2010 at 00:00	Major	1965	1st	New Record	New Record					
Briarie Creek TM	5.58m on the 15/03/2010 at 20:00	Major	1968	1st	New Record	New Record					
Dirranbandi	5.28m on the 10/03/2010 at 20:00	Major	1917	1st	New Record	New Record					
Narran River TM	5.23m on the 15/03/2010 at 02:00	Major	1965	1st	New Record	New Record					
Ballandool River TM	4.60m on the 16/03/2010 at 19:00	Major	1965	1st	New Record	New Record					
Hebel Manual/TM	2.34m on the 16/03/2010 at 12:00	Major	1968	1st	New Record	New Record					



Gauging Station	March 2010 Peak	Flood Classification	Start of Record	Ranking	Highest Since	Highest on Record
		Border Ri	vers			
O'Connor TM	10.49m on the 03/03/2010 at 04:50	Major	1956	8th	December 2003	14.54m Jan 1956
O COIIIOI TWI	10.54m on the 06/03/2010 at 17:20	Major	1956	7th	December 2003	14.54m Jan 1956
Ballymena Tm	9.21m on the 05/03/2010 at 06:10	Moderate	1956	8th	March 1999	11.08m Jan 1956
Gunn Bridge TM	7.21m on the 05/03/2010 at 06:10	Major	2001	3rd	January 2004	7.34m Dec 2003
Kilbronae TM	3.82m on the 03/03/2010 at 20:00	Major	2004	1st	New Record	New Record
Medpark Bridge TM	5.69m on the 03/03/2010 at 23:30	Major	1956	4th	August 1998	5.91m Jan 1956
Giddi Giddi South Manual/TM	5.63m on the 07/03/2010 at 16:20	Moderate	1971	12th	January 2004	6.48m Feb 1976
Hartmann Bridge TM	5.14m on the 08/03/2010 at 17:00	Moderate	1984	9th	January 2004	5.78m Aug 1998
Surrey TM	5.64m on the 03/03/2010 at 22:50	Major	1988	9th	January 2004	6.04m May 1996
Suitey Tivi	5.58m on the 09/03/2010 at 20:40	Major	1988	10th	March 2010	6.04m May 1996
Talwood	3.80m on the 05/03/2010 at 21:00	Minor	1972	16th	January 2004	4.85m Apr 1988
Taiwood	3.75m on the 13/03/2010 at 09:00	Minor	1972	17th	March 2010	4.85m Apr 1988
Talwood TM	4.45m on the 05/03/2010 at 20:00	Minor	1950	24th	January 2004	5.40m Feb 1976
Talwood Tivi	4.41m on the 14/03/2010 at 12:00	Minor	1950	25th	March 2010	5.40m Feb 1976
Jericho TM	2.99m on the 08/03/2010 at 05:20	Moderate	2004	2nd	March 2010	3.02m Mar 2010
Jeneno TW	3.02m on the 17/03/2010 at 07:00	Major	2004	1st	New Record	New Record
Mascot TM	2.26m on the 09/03/2010 at 21:20	Minor	2007	2nd	March 2010	2.27m Mar 2010
Mascot TW	2.27m on the 19/03/2010 at 15:00	Minor	2007	1st	New Record	New Record
		Moonie R	iver			
The Deep Crossing	4.05m on the 03/03/2010 at 09:00	Moderate	1970	5th	January 1996	4.45m Jan 1996
Southwood	5.90m on the 05/03/2010 at 21:00	Major	1983	6th	January 2008	6.35m Jan 1996
Flinton	5.00m on the 03/03/2010 at 09:00	Major	1973	3rd	August 1998	5.06m Aug 1998
Flinton TM	7.52m on the 03/03/2010 at 04:00	No Flood Classifications	2006	1st	New Record	New Record
Teelba	7.72m - surveyed from flood mark	Major	1890	1st	New Record	New Record
Mt Driven	8.25m on the 04/03/2010 at 12:00	Major	1954	1st	New Record	New Record



Gauging Station	March 2010 Peak	Flood Classification	Start of Record	Ranking	Highest Since	Highest on Record		
		Moonie Rive	er con't					
Nindigully	4.65m on the 06/03/2010 at 06;00	Major	1970	1st	New Record	New Record		
Nindigully TM	6.23m on the 06/03/2010 at 09:00	Major	1969	1st	New Record	New Record		
Thallon	5.50m on the 07/03/2010 at 10:30	Major	1950	1st	New Record	New Record		
Fenton TM	5.48m on the 10/03/2010 at 09:00	Major	1972	3rd	February 1976	5.90m Jan 1974		
		Mary Riv	ver					
Bellbird Creek AL/TM	5.18m on the 06/03/2010 at 23:15	Minor	1963	24th	February 1999	11.00m Apr 1989		
Kenilworth H/S AL	5.37m on the 02/03/2010 at 23:00	Minor	2004	3rd	June 2008	6.17m Mar 2010		
Remiworth 173 AL	6.17m on the 07/03/2010 at 00:45	Minor	2004	1st	New Record	New Record		
Moy Pocket AL/TM	10.30m on the 02/03/2010 at 02:40	Minor	1957	27th	February 1999	16.80m Feb 1999		
Woy Focket AL/TW	10.60m on the 07/03/2010 at 05:20	Minor	1957	22nd	February 1999	16.80m Feb 1999		
Dagun Pocket TM	12.66m on the 03/03/2010 at 11:45	Minor	1963	Equal 18th	February 1999	18.43m Feb 1999		
Daguil Focket TW	12.21m on the 07/03/2010 at 17:45	Minor	1963	23rd	March 2010	18.43m Feb 1999		
Lake Macdonald Drive AL	4.20m on the 02/03/2010 at 16:50	Minor	2002	6th	April 2009	5.70m Jun 2008		
Cooran AL/TM	8.52m on the 03/03/2010 at 02:30	Moderate	1981	29th	April 2009	11.94m Feb 1992		
Cooran AL/ Tivi	7.87m on the 07/03/2010 at 03:50	Minor	1981	31st	April 2009	11.94m Feb 1992		
Gympie Manual/AL	13.55m on the 04/03/2010 at 01:00	Moderate	1870	47th	April 1999	25.45m Feb 1893		
Gympie Manual/AL	13.25m on the 08/03/2010 at 02:15	Moderate	1870	55th	March 2010	25.45m Feb 1893		
Fishermans Pocket TM	14.44m on the 04/03/2010 at 02:40	Moderate	1970	13th	February 1999	23.68m Feb 1999		
FISHEITIANS FOCKEL TWI	14.30m on the 08/03/2010 at 05:00	Moderate	1970	15th	March 2010	23.68m Feb 1999		
Miva Manual/TM	12.21m on the 04/03/2010 at 18:00	Moderate	1893	65th	February 1999	23.08m Feb 1893		
Marodian TM	9.09m on the 07/03/2010 at 17:00	Moderate	1974	4th	January 1996	16.08m Mar 1955		
Home Park TM	9.62m on the 05/03/2010 at 04:00	Moderate	1982	13th	February 1999	20.57m Feb 1992		
Home Fark TWI	12.35m on the 08/03/2010 at 10:20	Moderate	1982	8th	February 1999	20.57m Feb 1992		
Bauple East TM	9.23m on the 08/03/2010 at 18:00	Minor	1982	8th	April 2009	14.37m Feb 1992		
Burnett River								
Marriages TM	4.38m on the 03/03/2010 at 08:00	Minor	1985	3rd	January 1996	9.88m Jan 1996		
Auburn	8.70m on the 03/03/2010 at 03:00	Major	1971	2nd	February 1971	9.11m Feb 1971		
Glenwood	12.85m on the 04/03/2010 at 09:00	Major	1971	2nd	February 1971	13.11m Feb 1971		



Gauging Station	March 2010 Peak	Flood Classification	Start of Record	Ranking	Highest Since	Highest on Record
		Burnett Rive	r con't			
Glenwood TM	11.07m on the 04/ 03/2010 at 06:10	Major	1968	2nd	February 1971	11.45m Feb 1971
Brovinia TM	7.82m on the 03/03/2010 at 03:00	Moderate	1971	5th	November 1995	14.65m Feb 1971
Proston TM	6.30m on the 06/03/2010 at 20:00	Moderate	1968	2nd	February 1971	7.19m Feb 1971
Cooranga TM	5.61m on the 02/03/2010 at 23:00	Minor	1995	4th	May 1998	10.30m May 1998
Cooranga Twi	4.46m on the 06/03/2010 at 17:00	Minor	1995	11th	March 2010	10.30m May 1998
Derra TM	4.30m on the 03/03/2010 at 12:00	Minor	1992	6th	May 1998	7.95m May 1998
Dena TW	3.08m on the 06/03/2010 at 03:00	Minor	1992	14th	March 2010	7.95m May 1998
Mundubbera Tw TM	9.31m on the 04/03/2010 at 16:30	Minor	1981	4th	February 2003	10.42m May 1983
Mundubbera	9.75m on the 04/03/2010 at 18:00	Minor	1942	19th	February 2003	23.62m Feb 1942
Gayndah Flume TM	8.86m on the 04/03/2010 at 22:30	Moderate	1971	5th	February 2003	14.20m Feb 1971
Brooklands TM	6.16m on the 06/03/2010 at 07:20	Minor	1974	12th	February 2001	8.23m Feb 1942
Embreys Bridge	6.85m on the 06/03/2010 at 21:00	Moderate	1975	13th	February 2001	6.95m Jun 1983
Litzows TM	8.13m on the 07/03/2010 at 05:00	Minor	1965	15th	February 1999	11.13m Feb 1999
Joe Sippel Weir Hw TM	2.59m on the 07/03/2010 at 06:00	Moderate	1996	2nd	February 1999	3.22m Feb 1999
Joe Sippel Weir Tw TM	8.65m on the 07/03/2010 at 06:00	Moderate	1996	2nd	February 1999	9.30m Feb 1999
Ficks Crossing TM	6.72m on the 08/03/2010 at 08:00	Minor	1976	9th	February 1999	9.44m Feb 1999
Silverleaf Weir Hw TM	3.38m on the 08/03/2010 at 08:15	Minor	1995	2nd	February 1999	4.43m Feb 1999
Silverleaf Weir Tw TM	8.60m on the 08/03/2010 at 08:45	Minor	1995	3rd	February 1999	9.68m Feb 1999
Ettiewyn TM	8.14m on the 07/03/2010 at 05:00	Moderate	1970	14th	March 1992	10.00m Feb 1971
Mt Lawless TM	5.21m on the 05/03/2010 at 02:00	Minor	1942	22nd	February 2003	17.18m Feb 1942
Coringa TM	8.00m on the 06/03/2010 at 11:40	Major	1986	4th	March 1992	8.47m Mar 1992
Paradise Dam	1.85m on the 05/03/2010 at 23:30	Minor	2006	1st	New Record	New Record
Fig Tree Tm	8.39m on the 06/03/2010 at 02:30	Moderate	1997	3rd	February 2003	May-98
Walla Weir Hw TM	22.12m on the 06/03/2010 at 06:00	Moderate	2001	1st	New Record	New Record
Walla Weir Tw TM	11.16m on the 06/03/2010 at 07:30	No Flood Classifications	2006	1st	New Record	New Record



Gauging Station	March 2010 Peak	Flood Classification	Start of Record	Ranking	Highest Since	Highest on Record					
	Fitzroy River con't										
Utopia Downs TM	10.98m on the 04/03/2010 at 10:00	Moderate	1970	8th	January 2008	12.82m Apr 1989					
Tarana Crossing	11.50m on the 04/03/2010 at 09:00	Moderate	1983	3rd	April 1989	12.09m May 1983					
Windamere TM	9.43m on the 03/03/2010 at 06:00	Major	1975	3rd	February 1991	10.28m May 1983					
Chilgerrie Hill	10.00m on the 03/03/2010 at 15:00	Major	1983	3rd	August 1998	10.60m Aug 1998					
Taroom Manual/TM	7.26m on the 03/03/2010 at 05:00	Major	1890	32nd	May 1983	14.78m Mar 1890					
Broadmere TM	12.06m on the 03/03/2010 at 01:20	No Flood Classifications	2006	1st	New Record	New Record					
La Palma TM	5.94m on the 04/03/2010 at 01:00	No Flood Classifications	1956	2nd	February 1971	7.39m Feb 1971					
The Glebe	5.95m on the 06/03/2010 at 15:00	Major	1906	8th	May 1983	8.69 Feb 1956					
Glebe Weir Hw TM	5.53m on the 06/03/2010 at 14:00	Major	1983	2nd	May 1983	6.15m May 1983					
Glebe Weir Tw TM	14.50m on the 06/03/2010 at 16:00	Major	1983	2nd	May 1983	15.19m May 1983					
Gyranda Weir TM	3.94m on the 07/03/2010 at 06:00	Major	1988	1st	New Record	New Record					
Isla-Delusion Crossing TM	10.57m on the 07/03/2010 at 06:00	Major	1993	1st	New Record	New Record					
Theodore	13.45m on the 08/03/2010 at 06:00	Major	1924	3rd	February 1956	14.07m Feb 1956					
Woodleigh TM	15.99m on the 09/03/2010 at 11:00	Major	1986	1st	New Record	New Record					
Moura Weir TM	9.75m on the 10/03/2010 at 01:15	Major	1998	1st	New Record	New Record					
Moura	12.23m on the 10/03/2010 at 00:00	Major	1956	2nd	February 1956	12.90m Feb 1956					
Bindaree TM	14.22m on the 10/03/2010 at 18:50	No Flood Classifications	2005	1st	New Record	New Record					
Baralaba Hw TM	3.96m on the 12/03/2010 at 03:30	Major	1998	1st	New Record	New Record					
Baralaba	12.50m on the 10/03/2010 at 21:00	Major	1978	5th	May 1983	13.60m May 1983					
Beckers TM	14.19m on the 12/03/2010 at 02:00	Major	1965	6th	May 1983	15.75m May 1983					
Newlands	14.70m on the 13/03/2010 at 06:00	Moderate	1954	9th	February 2003	18.16m feb 1954					
Knebworth TM	13.94m on the 12/03/2010 at 20:30	Moderate	1998	1st	New Record	New Record					
Lake Brown TM	7.26m on the 06/03/2010 at 21:00	No Flood Classifications	1984	8th	April 1990	11.24m Apr 1990					
Rolleston	5.55m on the 04/03/2010 at 06:00	Major	1958	Equal 2nd	February 2010	5.87m Feb 2010					
The Lake TM	13.79m on the 04/03/2010 at 11:20	Major	1972	3rd	February 2010	14.37m Feb 2010					



Gauging Station	March 2010 Peak	Flood Classification	Start of Record	Ranking	Highest Since	Highest on Record
		Fitzroy Rive	r con't			
Springsure Creek Junction TM	10.57m on the 06/03/2010 at 11:00	No Flood Classifications	2007	2nd	February 2010	10.92m Feb 2010
Comet Weir TM	9.93m on the 08/03/2010 at 02:00	Major	1922	13th	February 2010	13.19m Feb 1954
Craigmore TM	10.34m on the 04/03/2010 at 14:00	Minor	1972	9th	January 2008	16.25m Jan 2008
Duckponds TM	9.41m on the 08/03/2010 at 08:20	Minor	1994	11th	January 2008	14.52m Jan 2008
Riley's Crossing TM	15.79m on the 08/03/2010 at 19:00	No Flood Classifications	2006	3rd	February 2010	20.44m Jan 2008
Yakcam	15.80m on the 09/03/2010 at 09:00	Minor	1978	7th	February 2010	23.15m Feb 1978
Bedford Weir Hw TM	125.74m on the 09/03/2010 at 14:45	No Flood Classifications	2000	3rd	February 2010	130.59m Jan 2008
Bedford Weir Tw TM	14.66m on the 09/03/2010 at 18:15	Moderate	1998	3rd	February 2010	20.05m Jan 2008
Bingegang Weir Hw TM	4.23m on the 10/03/2010 at 17:15	Minor	1998	3rd	February 2010	8.70m Jan 2008
Riverslea TM	15.17m on the 14/03/2010 at 07:50	Minor	1918	50th	February 2010	31.48m Jan 1918
The Gap TM	10.36m on the 15/03/2010 at 16:00	Minor	1918	24th	Early March 2010	23.51m Jan 1918
Wattelbank TM	13.03m on the 15/03/2010 at 15:00	Minor	1921	31st	Early March 2010	24.60m Feb 1954
Yaamba	10.73m on the 15/03/2010 at 18:00	Moderate	1889	77th	Early March 2010	17.32m Jan 1918



### 3.2 Rainfall Maps

Figure 3.2.1 shows weekly rainfall totals across Australia for the week ending the 2<sup>nd</sup> of March 2010 and covers the period that the tropical low affected large areas of inland Northern Territory and Queensland. As is evident from this rainfall map, a large area of southern Queensland received in excess of 200mm. In a two day period, namely the 1<sup>st</sup> and 2<sup>nd</sup> of March, the tropical low caused more than 17% of Queensland to experience its wettest March day on record.

The heaviest 24-hour rainfall to 9am on the 1st March, as shown in Figure 3.2.2, occurred over the lower Channel Country where falls between 150 and 190 mm recorded. Similar falls were recorded in the following 24 hours to 9am on the 2<sup>nd</sup> of March over the southern interior of Queensland, particularly the Warrego and Maranoa districts. See Figure 3.2.3.

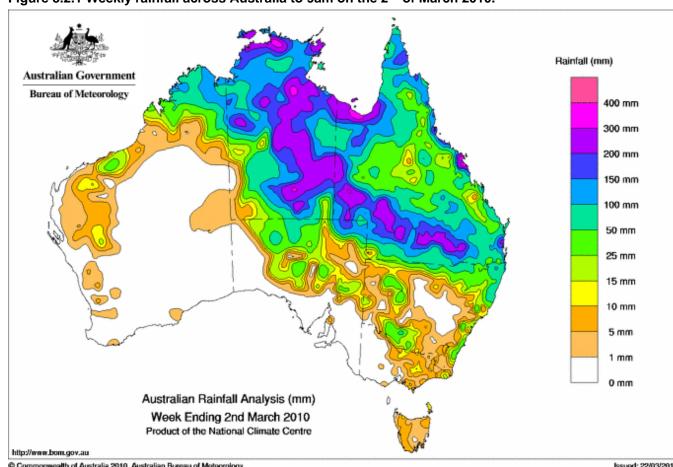


Figure 3.2.1 Weekly rainfall across Australia to 9am on the 2<sup>nd</sup> of March 2010.

Commonwealth of Australia 2010, Australian Bureau of Meteorology

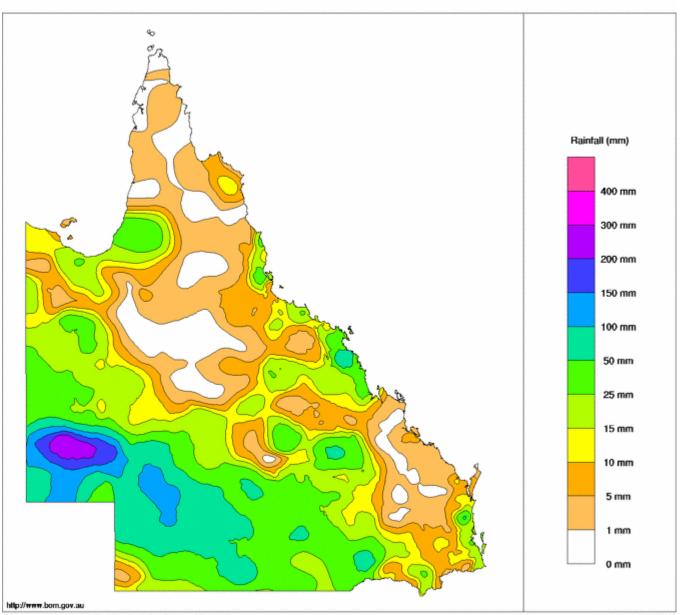
Issued: 22/03/2010



Figure 3.2.2 Queensland rainfall in the 24 hours to 9am on the 1<sup>st</sup> of March 2010.

Queensland Rainfall Totals (mm) 1st March 2010

Product of the National Climate Centre



Commonwealth of Australia 2010, Australian Bureau of Meleorology

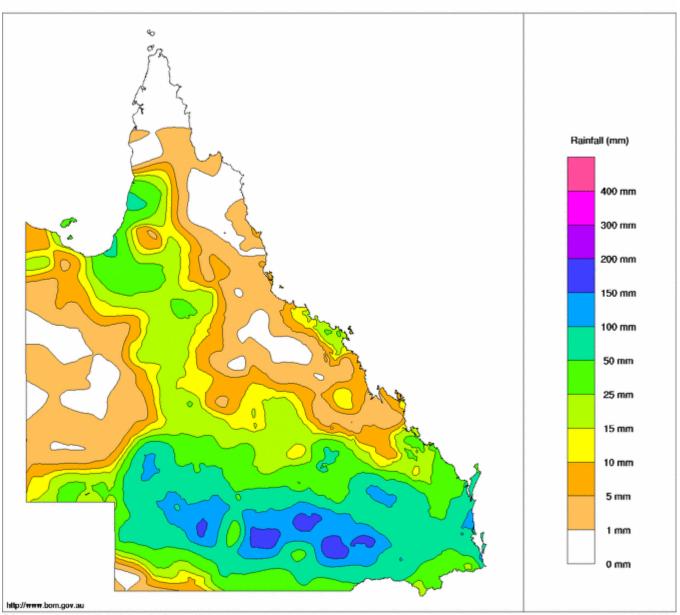
Issued: 21/03/2010



Figure 3.2.3 Queensland rainfall in the 24 hours to 9am on the 2<sup>nd</sup> of March 2010.

Queensland Rainfall Totals (mm) 2nd March 2010

Product of the National Climate Centre



Commonwealth of Australia 2010, Australian Bureau of Meleorology

Issued: 22/03/2010



### 3.3 Rainfall Intensity

The most intense rainfall associated with the tropical low was recorded between the 1<sup>st</sup> and 2<sup>nd</sup> March. Intense rainfall was first recorded in the southern parts of the Diamantina River at Birdsville. Heavy rainfall spread westwards to the Cooper, Bulloo, Paroo, Warrego, Wallam/Mungallala, Maranoa, Balonne, Moonie and Weir catchments.

The hourly hyetographs for the Birdsville Airport (Diamantina River), Quilpie TM (Bulloo River), Raceview TM (Bradley's Gully), Charleville AWS (Warrego River), Cardiff TM (Mungallala Creek) and Old Cashmere TM (Maranoa River) are shown in figures 3.3.1, 3.3.3 and 3.3.5. These diagrams show the period of heaviest and most intense rainfall at these locations.

Intensity Frequency Duration data, for the stations above are show in Figures 3.3.2, 3.3.4 and 3.3.6. The most statistically significant short duration rainfall occurred at the Birdsville Airport, where the observed totals for the 24 and 48 hour durations in the 96 hours to 9am on the 4<sup>th</sup> March were assessed as being greater than 1% AEP (100 year Average Recurrence Interval (ARI)) intensity. Similarly the 24 hour duration rainfall at Quilpie TM to 7pm on the 1<sup>st</sup> of March and the 48 hour duration rainfall at Cardiff TM to 9am on the 3<sup>rd</sup> of March were also assessed as being greater than 1% AEP.

Note: A flood frequency analysis would be required to assess the probability of flood levels reached at each location. The frequency analysis in this report is for rainfall only.



Figure 3.3.1 Hourly hyetographs for Birdsville Airport and Quilpie TM.

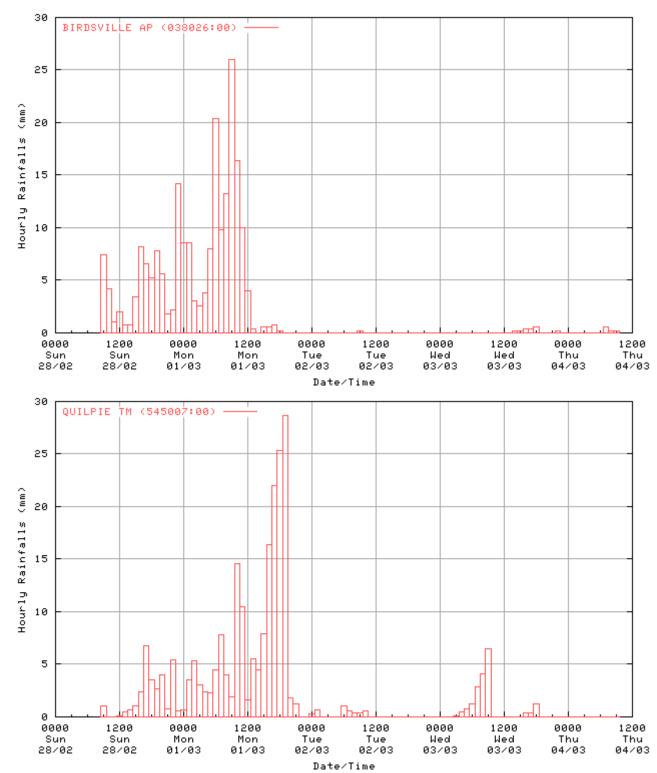




Figure 3.3.2 IFD rainfall analysis for Birdsville Airport and Quilpie TM.

# RAINFALL INTENSITY FREQUENCY DURATION ANALYSIS LOCATION: 038026 BIRDSVILLE AP

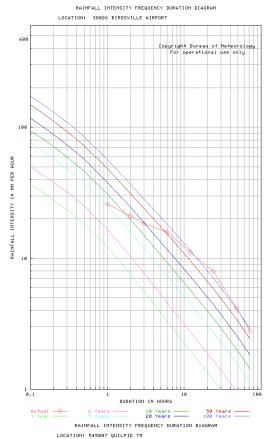
Analysis of the rainfall for the 96 hours to Thu Mar 4 09:00:00 2010

Rainfall (mm)	Period Ending	ARI (years)
26	60 mins ending at 09:00:00 01/03/2010	5-10
42	2 hours ending at 10:00:00 01/03/2010	10-20
55	3 hours ending at 10:00:00 01/03/2010	10-20
95	6 hours ending at 11:00:00 01/03/2010	50-100
134	12 hours ending at 10:00:00 01/03/2010	50-100
191	24 hours ending at 12:00:00 01/03/2010	> 100
201	48 hours ending at 09:00:00 02/03/2010	> 100
201	72 hours ending at 09:00:00 03/03/2010	50-100

## RAINFALL INTENSITY FREQUENCY DURATION ANALYSIS LOCATION: 545007 QUILPIE TM

Analysis of the rainfall for the 96 hours to Thu Mar 4 09:00:00 2010

Rainfall (mm)	Period Ending	ARI (years)
10	5 mins ending at 18:45:00 01/03/2010	5-10
10	6 mins ending at 18:46:00 01/03/2010	5
14	10 mins ending at 18:50:00 01/03/2010	5
18	20 mins ending at 18:50:00 01/03/2010	2-5
20	30 mins ending at 18:50:00 01/03/2010	2-5
34	60 mins ending at 18:50:00 01/03/2010	2-5
57	2 hours ending at 18:50:00 01/03/2010	10-20
78	3 hours ending at 18:50:00 01/03/2010	20-50
104	6 hours ending at 19:00:00 01/03/2010	50
145	12 hours ending at 18:50:00 01/03/2010	50-100
183	24 hours ending at 19:00:00 01/03/2010	> 100
207	48 hours ending at 09:45:00 02/03/2010	50-100
223	72 hours ending at 09:00:00 03/03/2010	50-100



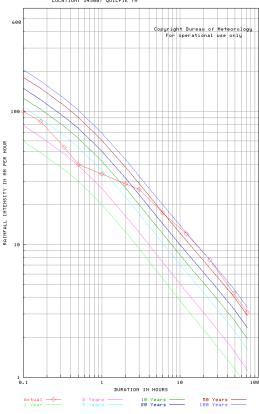




Figure 3.3.3 Hourly hyetographs for Raceview TM and Charleville.

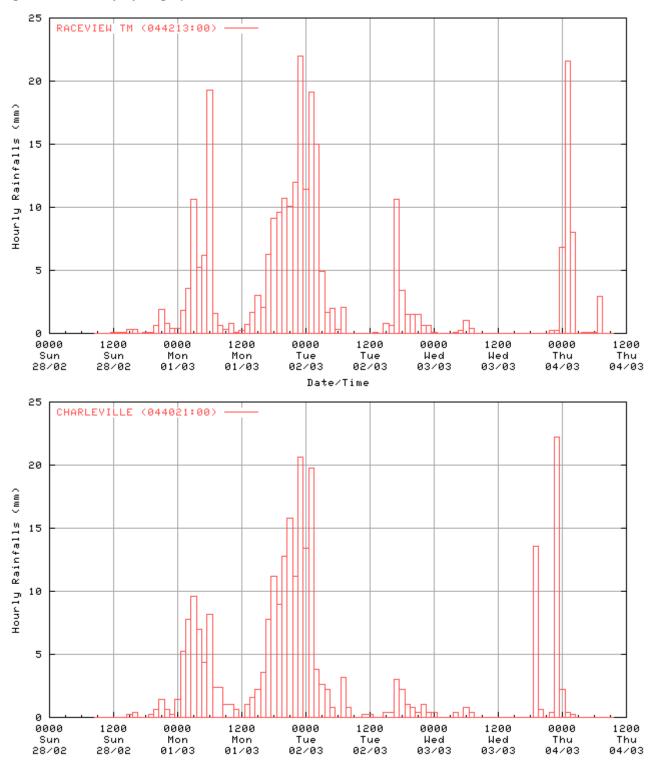




Figure 3.3.4 IFD rainfall analysis for Raceview TM and Charleville.

## RAINFALL INTENSITY FREQUENCY DURATION ANALYSIS LOCATION: 044213 RACEVIEW TM

Analysis of the rainfall for the 96 hours to Thu Mar 4 09:00:00 2010

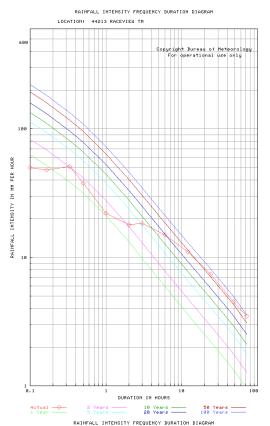
Rainfall (mm)	Period Ending	ARI (years)
4	5 mins ending at 22:35:00 01/03/2010	< 1
5	6 mins ending at 22:36:00 01/03/2010	< 1
8	10 mins ending at 22:40:00 01/03/2010	1
17	20 mins ending at 22:40:00 01/03/2010	2-5
19	30 mins ending at 22:40:00 01/03/2010	1-2
22	60 mins ending at 22:50:00 01/03/2010	1-2
36	2 hours ending at 22:40:00 01/03/2010	2-5
55	3 hours ending at 01:10:00 02/03/2010	5-10
90	6 hours ending at 01:50:00 02/03/2010	20
132	12 hours ending at 02:50:00 02/03/2010	20-50
177	24 hours ending at 02:05:00 02/03/2010	50-100
216	48 hours ending at 20:00:00 02/03/2010	50-100
250	72 hours ending at 01:50:00 04/03/2010	50-100

#### RAINFALL INTENSITY FREQUENCY DURATION ANALYSIS

LOCATION: 044021 CHARLEVILLE

Analysis of the rainfall for the 96 hours to Thu Mar 4  $09{:}00{:}00\ 2010$ 

Rainfall (mm)	Period Ending	ARI (years)
22	60 mins ending at 23:00:00 03/03/2010	1-2
34	2 hours ending at 00:00:00 02/03/2010	2
53	3 hours ending at 01:00:00 02/03/2010	5
93	6 hours ending at 01:00:00 02/03/2010	20-50
131	12 hours ending at 03:00:00 02/03/2010	20-50
171	24 hours ending at 01:00:00 02/03/2010	50-100
200	48 hours ending at 20:00:00 02/03/2010	20-50
239	72 hours ending at 00:00:00 04/03/2010	50-100



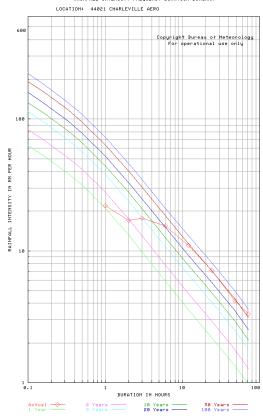




Figure 3.3.5 Hourly hyetographs for Cardiff TM and Old Cashmere TM.

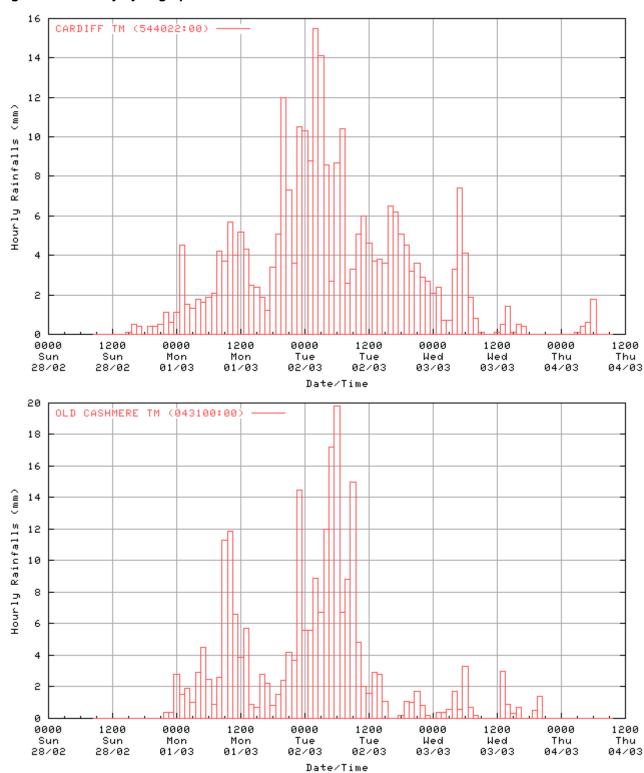




Figure 3.3.6 IFD rainfall analysis for Cardiff TM and Old Cashmere TM.

## RAINFALL INTENSITY FREQUENCY DURATION ANALYSIS LOCATION: 544022 CARDIFF TM

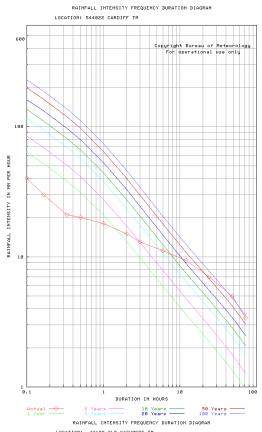
Analysis of the rainfall for the 96 hours to Fri Mar 5 09:00:00 2010

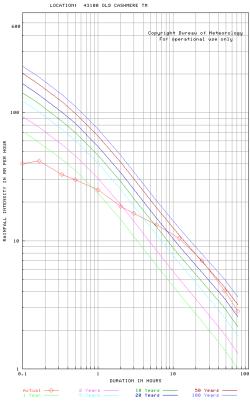
Period Ending	ARI (years)
5 mins ending at 23:10:00 04/03/2010	< 1
6 mins ending at 23:11:00 04/03/2010	< 1
10 mins ending at 23:10:00 04/03/2010	< 1
20 mins ending at 23:15:00 04/03/2010	< 1
30 mins ending at 01:50:00 02/03/2010	< 1
60 mins ending at 02:20:00 02/03/2010	< 1
2 hours ending at 03:15:00 02/03/2010	1-2
3 hours ending at 03:35:00 02/03/2010	2-5
6 hours ending at 04:00:00 02/03/2010	5-10
12 hours ending at 06:55:00 02/03/2010	20-50
24 hours ending at 17:50:00 02/03/2010	50-100
48 hours ending at 09:00:00 03/03/2010	> 100
72 hours ending at 09:00:00 04/03/2010	50-100
	5 mins ending at 23:10:00 04/03/2010 6 mins ending at 23:11:00 04/03/2010 10 mins ending at 23:10:00 04/03/2010 20 mins ending at 23:15:00 04/03/2010 30 mins ending at 01:50:00 02/03/2010 60 mins ending at 02:20:00 02/03/2010 2 hours ending at 03:15:00 02/03/2010 3 hours ending at 03:35:00 02/03/2010 6 hours ending at 04:00:00 02/03/2010 12 hours ending at 06:55:00 02/03/2010 24 hours ending at 17:50:00 02/03/2010 48 hours ending at 09:00:00 03/03/2010

## RAINFALL INTENSITY FREQUENCY DURATION ANALYSIS LOCATION: 043100 OLD CASHMERE TM

Analysis of the rainfall for the 96 hours to Fri Mar 5 09:00:00 2010

Rainfall (mm)	Period Ending	ARI (years)
4	5 mins ending at 05:45:00 02/03/2010	< 1
4	6 mins ending at 05:46:00 02/03/2010	< 1
7	10 mins ending at 05:50:00 02/03/2010	< 1
11	20 mins ending at 06:00:00 02/03/2010	< 1
15	30 mins ending at 03:30:00 05/03/2010	< 1
25	60 mins ending at 03:55:00 05/03/2010	1-2
37	2 hours ending at 04:50:00 05/03/2010	1-2
49	3 hours ending at 06:10:00 02/03/2010	2-5
80	6 hours ending at 08:50:00 02/03/2010	10-20
125	12 hours ending at 10:00:00 02/03/2010	20-50
168	24 hours ending at 09:00:00 02/03/2010	50-100
196	48 hours ending at 09:00:00 03/03/2010	20-50
203	72 hours ending at 09:00:00 04/03/2010	20-50







#### 3.4 Rainfall Totals

More than 17% of Queensland experienced its wettest March day on record during the heavy rainfall event on the 1<sup>st</sup> and 2<sup>nd</sup> of March. Table 3.4.1 lists the rainfall records that were broken. In the 24 hours to 9am on the 1<sup>st</sup> of March, the highest daily rainfall total recorded in Queensland was 188mm at Bedourie Police Station on the Georgina River, followed by 168mm at Birdsville Airport on the Diamantina River, followed by 163mm at Glengyle on the Georgina River. These totals were all new annual extreme daily rainfall totals for these stations. The daily rainfall totals at Bedourie and Birdsville were near the long term annual average rainfall totals.

In the 24 hours to 9am on the 2<sup>nd</sup> of March, the highest daily rainfall total in Queensland was 168mm at Old Cashmere and 165mm at Mitchell, both on the Maranoa River.

Significant rainfall totals for each river catchment have been collated and presented in Tables 3.4.2 to 3.4.9.

The abbreviations used in the following tables include:

- AL ALERT Radio Telemetry
- TM Telephone Telemetry
- AWS Automatic Weather Station
- SYN Bureau Synoptic Station

Note: \* signifies automatic station, N/A signifies missing data. Multiple day totals are shaded and the highest daily rainfall and total rainfall for the catchment in the period is displayed in red.

Refer to the complete list of <u>maps of the relevant river catchments and flood warning stations</u> referred to in Table 3.4.1 - 3.4.9.

Table 3.4.1 Record highest daily rainfall from early March 2010.

Station name	New Record Old Record		Years of Record
Surat	154.0 on the 2nd March	118.9 on the 1st in 1947	124
Taroom Post Office	124.8 on the 2nd March	119.4 on the 24th in 1890	124
Windorah Post Office	106.2 on the 1st March	102.9 on the 9th in 1887	123
Mitchell Post Office	165.0 on the 2nd March	123.2 on the 4th in 1908	122
Morven Post Office	152.4 on the 2nd March	125.2 on the 27th in 1890	122
South Comongin	158.0 on the 2nd March	91.0 on the 20th in 1983	111
Glenormiston	115.0 on the 1st March	78.0 on the 27th in 1973	105
Eromanga - Webber St	103.0 on the 2nd March	101.9 on the 23 <sup>rd</sup> in 1926	98
Roseberth Station	135.2 on the 1st March	130.3 on the 16th in 1950	97
Lowan Hills	182.6 on the 2nd March	125.7 on the 6th in 1924	94
Quilpie Airport	111.3 on he 1st March	102.6 on the 1st in 1956	93
Mungallala	150.4 on the 2nd March	121.9 on the 7th in 1924	91
Glengyle	163.0 on the 1st March	86.4 on the 11th in 1918	89
Woodlands	159.6 on the 2nd March	144.0 on the 7th in 1924	86
Glenorie	147.0 on the 2nd March	140.0 on the 11th in 1977	79
Glenmorgan Post Office	159.0 on the 2nd March	127.0 on the 8th in 1941	77
Hannaford Post Office	122.6 on the 2nd March	98.0 on the 11th in 1977	71
Meandarra Post Office	152.0 on the 2nd March	109.5 on the 15th in 1937	68
Cheepie Post Office	110.0 on the 2nd March	75.2 on the 15th in 1936	66
Bedourie Police Station	188.4 on the 1st March	74.0 on the 19th in 1983	63



Dillalah	146.0 on the 2nd March	97.0 on the 3rd in 1999	61
Pingine	149.0 on the 2nd March	78.0 on the 7 <sup>th</sup> in 1977	60
Waverley Downs	181.6 on the 2nd March	77.7 on the 23rd in 1963	58
Bawnduggie	83.4 on the 2nd March	80.0 on the 31st in 1975	54
Hereward	115.0 on the 2nd March	70.0 on the 26th in 1989	52
Aurburn	112.0 on the 2nd March	111.8 on the 18th in 1959	51
Victory Downs	72.0 on the 2nd March	58.4 on the 16th in 1979	51
Boothulla	131.0 on the 2nd March	73.2 on the 2nd in 1936	45
Trinidad	77.0 on the 2nd March	75.0 on the 2nd in 1999	41
Oakey Aero	65.4 on the 2nd March	54.0 on the 11th in 1977	40
Macalister	69.0 on the 2nd March	60.4 on the 6 <sup>th</sup> in 2007	39
Namarah	160.4 on the 2nd March	90.2 on the 11th in 1977	39
Kandimulla	125.2 on the 2nd March	95.3 on the 10th in 1977	38
Wallen	133.0 on the 2nd March	53.2 on the 20th in 1983	36
Mt Stanley Station	85.4 on the 2nd March	81.6 on the 16th in 1992	33
Bungaban TM	93.2 on the 2nd March	88.4 on the 15th in 1926	31
Warida	167.4 on the 2nd March	95.0 on the 11th in 1977	30
"Home" Monogorilby	69.0 on the 3 <sup>rd</sup> March	47.2 on the 6 <sup>th</sup> in 2004	28
Tantallon	112.8 on the 2nd March	76.4 on the 16th in 1989	28
Cheery Park	89.0 on the 2nd March	69.0 on the 28th in 2003	26
Roma Airport	132.8 on the 2nd March	88.8 on the 9 <sup>th</sup> in 1994	25
Traighli	89.0 on the 1st March	82.0 on the 8 <sup>th</sup> in 2000	23
Aubigny Purrawunda	84.8 on the 2nd March	66.3 on the 8 <sup>th</sup> in 1964	22
Mt Driven	132.0 on the 2nd March	63.6 on the 1st in 1999	21
Adavale	117.0 on the 2nd March	41.0 on the 16th in 1996	20

Table 3.4.2 Significant Rainfall Totals - Georgina, Diamantina, Thomson.

	24 hour rainfa	24 hour rainfall to 9am on			
	Feb	Mar	Total (mm)		
Station Name	28	1	(11111)		
Georgina					
Camooweal	10	15	25		
Urandangi *	26	37	63		
Roxborough Downs TM *	7	111	118		
The Monument AWS *	13	16	29		
Boulia TM *	8	17	25		
Boulia SYN	13	21	34		
Marion Downs	23	93	116		
Trepell AWS *	23	20	43		
Bedourie	14	188	202		
Cluny		160	160		
Glengyle	32	163	195		
Maximum Rainfall	32	188	202		
Numerical Average	17	76	92		

24 hour rainfall to 9am on			Total	
	Feb	Mar		Total (mm)
Station Name	28	1	2	(111111)
Diamantina				
Winton AWS *	5	2	22	30
Mackunda Downs	43	16	2	61



Diamantina Lakes TM *	9	28	2	39
Monkira	10	101	44	155
Durrie		108		108
Roseberth	17	135		152
Birdsville AWS *	26	168	33	227
Maximum Rainfall	43	168	44	227
Numerical Average	18	80	21	110

	9am on	Total							
	Feb	Feb Mar							
Station Name	28	1	2	(mm)					
Thomson/Barcoo/Cooper									
Longreach TM *	3	19	17	39					
Longreach AWS *	3	26	27	56					
Darr TM *	5	3	24	32					
Stonehenge West TM *	11	21	28	60					
Tambo TM *	0	4	25	29					
Tambo SYN	0	5	26	31					
Blackall TM *	1	5	27	33					
Blackall AWS *	2	8	35	45					
Barcaldine SYN	Tr	6	17	23					
Barcaldine Weir TM *	0	6	14	20					
Isisford	5	20	26	51					
Wahroongha	12	12	45	69					
Navarra	14	33	49	96					
Retreat TM *	17	36	55	108					
Windorah SYN	37	106	94	237					
Trinidad		60	77	137					
Eromanga		93	103	196					
Durham Downs	6	82	58	146					
Ballera AWS *	3	50		53					
Noccundra Hotel		48	35	83					
Nappa Merrie TM *	1	35	11	47					
Maximum Rainfall	37	106	103	237					
Numerical Average	7	32	40	76					

Table 3.4.3 Significant Rainfall Totals - Warrego, Paroo, Bulloo.

	24 hour rainfall to 9am on March					Total			
Station Name	1	2	3	4	5	(mm)			
Warrego									
Carnarvon	26	54	3	16	4	103			
Babbiloora	22	30	6			58			
Bogarella	25	25	10	6	10	76			
Chesterton TM *	29	27	8	11	7	81			
Derbyshire Downs	25	24	6	15	10	80			
Augathella	49	58	12	1	16	136			
Augathella TM *	47	54	12	0	16	129			
Drensmaine TM *	15	34	0	0	8	58			
Biddenham TM *	46	72	15	7	20	160			
The 27 Mile Garden TM *	40	104	19	29	26	218			
Dunvegan TM *	28	73	4	1	31	137			
Raceview TM *	54	145	23	40	20	282			



Charleville AWS *	51	145	18	40	8	262
Bayswater	61	43	25		2	131
Warilda	62	155	6	11	2	236
Wansey Downs	49	58	14		22	143
Oakpark		*142				142
Binnowee TM *	52	133	15	12	10	222
Morven	36	152	5	6	21	220
Bakers Bend TM *	34	128	8	18	35	223
Dillalah	44	146	14	18		222
Wyandra TM *	32	130	19	10	11	202
Wallen	41	133	21	16		211
Cunnamulla SYN	53	86	21	20	2	182
Rocky	58	45	14	26	6	149
Maximum Rainfall	62	155	25	40	35	282
Numerical Average	41	88	12	14	14	163

<sup>\*</sup> denotes a 48-hour rainfall total.

	24 hour	24 hour rainfall to 9am on March				
Station Name	1	2	3	(mm)		
Paroo						
Cowley	153	24	22	199		
Boothulla	52	131	2	185		
Quilpeta		*135		135		
Eulo	48	92	2	142		
Maximum Rainfall	153	153 131 22				
Numerical Average	84	96	9	165		

<sup>\*</sup> denotes a 48-hour rainfall total

	24 hour	24 hour rainfall to 9am on March		
Station Name	1	2	3	(mm)
Bulloo				
Listowel Downs	51	36	3	90
Adavale		117	8	125
Quilpie TM *	64	143	17	224
Quilpie SYN	73	148	23	244
South Comongin	63	158	14	235
Thargomindah AWS *	62	49	1	112
Maximum Rainfall	73	244		
Numerical Average	63	109	11	172

Table 3.4.4 Significant Rainfall Totals - Condamine, Balonne and Maranoa River Catchments including Myall, Wallam and Mungallala Creeks.

	24 hour rainfall to	Total	
Station Name	2	(mm)	
Upper Condamine			
Carrs Lookout AL *	50	27	77
The Head	51	25	76
Killarney AL *	21	13	34
Elbow Valley TM *	33	21	54



Elbow Valley AL *	34	21	55
Cherrabah AL *	37	28	65
Emu Vale AL *	24	13	37
Murrays Bridge AL *	26	16	42
Oakington	31	15	46
Mosely's AL *	28	15	43
Yangan AL *	27	14	41
Yangan	35	17	52
Warwick Hermitage AWS *	30	19	49
Dalveen AL *	41	24	65
Dalveen	55	30	85
Connolly Dam AL *	22	11	33
Warwick (Scots Col.) TM *	32	17	49
Warwick AL *	30	15	45
Glengallan Creek AL *	25	12	37
Allora TM *	37	16	53
Victoria Hill TM *	32	12	44
Millbrook TM *	45	11	56
Ellangowan	53	18	71
Cambooya TM *	68	18	86
Pittsworth	87	22	109
Felton	59	12	71
Warahgai TM *	33	19	52
Warahgai AL *	34	17	51
Leyburn TM *	42	14	56
Tosari	63	16	79
Millmerran	74	24	98
Dunmore	84	22	106
Pechey	74	26	100
Mt Pechey AL *	49	8	57
Cooby Creek Dam	55	11	66
Haden	76	13	89
Toowoomba AWS *	37	20	57
Mt Kynoch	90	45	135
Cooby Creek Dam AL *	57	13	70
Oakey AWS *	65	13	78
Jondaryan	53	21	74
Maximum Rainfall	90	45	135
Numerical Average	46	18	64

	24 hour rainfall to	Total	
Station Name	2	3	(mm)
Condamine			
Waronga	69	28	97
Warra-kogan Rd Br	66	32	98
Jandowae	74	27	101
Brigalow Bridge TM *	70	20	90
Ballon TM *	72	34	106
Darr Creek TM *	50	19	69
Seven Oaks TM *	76	21	97
Horse Creek TM *	65	24	89



Chinchilla	76	34	110
Bedarra TM *	50	18	68
Condamine	72	22	94
Hannaford	123	28	151
Meandarra	152	41	193
Namarah	160	27	187
Max Rainfall	160	41	193
Catchment Average	84	27	111

	24 hour ra	24 hour rainfall to 9am on March			
Station Name	1	2	3	(mm)	
Balonne					
Barakula	1	92	38	131	
Possum Park	3	85	34	122	
Miles AWS *	1	59	30	90	
Drillham	4	62	12	78	
Dulacca	23	77	25	125	
Pine Hill Crossing	11	73	38	122	
Glenmorgan	39	159	28	226	
Warkon	13	116	9	138	
Yuleba	20	80	17	117	
Yuleba Forestry TM *	10	122	19	151	
Wallumbilla	16	94	14	124	
Surat SYN	18	154	17	189	
Springdale TM *	15	53	9	77	
Tabers TM *	16	131	12	159	
Mooga Hills TM *	15	81	24	120	
Fairfield	13	104	55	172	
Roma AWS *	17	133	15	165	
Garrabarra	20	143		163	
Karoola Park	36	142	24	202	
Weribone TM *	25	122	18	165	
Warroo	37	135	29	201	
Maximum Rainfall	39	159	55	226	
Numerical Average	17	106	23	145	

	24 hour r	Total		
Station Name	1	2	3	(mm)
Lower Balonne				
St George AWS *	32	127	46	205
Whyenbah	30	62	30	122
Dirranbandi	22	50	16	88
Maximum Rainfall	32	127	46	205
Numerical Average	28	80	31	138

	24 hour r	Total				
Station Name	1	1 2 3				
Maranoa						
Havelock	28	79	10	117		
Mitchell SYN	25	165	20	210		
Mitchell TM *	24	154	19	197		
Springfield	44	127	20	191		



Woodlands	40	160	15	215
Old Cashmere TM *	33	168	28	229
Maximum Rainfall	44	168	28	229
Numerical Average	34	146	20	198

	2	24 hour rainfall to 9am on March				Total
Station Name	2	3	4	5	6	(mm)
Myall Creek						
Mt Mowbullan AL *	47	62	3	2	149	263
Mt Brigalow AL *	70	12	1	0	54	137
Cooringa AL *	53	21	0	0	68	142
Clydesdale AL *	59	14	0	0	49	122
Belgrae Park AL *	62	21	0	0	81	164
Moffatt AL *	57	10	0	0	41	108
Dalby SYN	84	23	0	0	40	147
Dalby AL *	71	20	0	0	38	129
Maximum Rainfall	84	62	3	2	149	263
Numerical Average	63	23	1	0	65	152

	24 hour r	ainfall to 9am	on March	Total
Station Name	1	2	3	(mm)
Wallam/Mungallala Creeks				
Cunnyana	46	158	18	222
Cardiff TM *	28	154	85	267
Rosehill	23	153	66	242
Bollon	24	104	70	198
Mungallala	36	150	10	196
Tomoo	52	144		196
Glenorie	54	147		201
South Plains	35	58	12	105
Mulga Downs	54	48	7	109
Roseleigh Crossing TM *	43	19	2	64
Maximum Rainfall	54	158	85	267
Numerical Average	40	114	34	180

Table 3.4.5 Significant Rainfall Totals - Weir and Moonie River Catchments.

		24 ho	ur rainfall t	to 9am on	March		Total
Station Name	1	2	3	4	5	6	Total
Weir							
Dunmore Exchange TM *	18	89	29	1	0	60	197
Langley TM *	13	95	26	0	0	65	199
O'connor TM *	23	107	26	0	0	33	189
Avoca TM *	9	100	32	0	0	27	168
Ballymena TM *	12	111	39	0	2	16	180
Gunn Bridge (Dnr) TM *	16	73	31	0	4	14	138
Wyaga TM *	7	90	28	0	0	37	162
Kilbronae TM *	8	74	36	0	1	27	146
Medpark Bridge TM *	11	60	31	0	1	21	124
Bybera TM *	10	110	22	0	0	36	178
Kerimbilla TM *	11	61	31	0	1	36	140
Giddi Giddi South TM *	9	63	29	0	3	17	121
Hartmann Bridge TM *	13	73	40	0	10	10	146



Lundavra TM *	11	79	29	0	9	10	137
Surrey TM *	19	73	36	0	14	3	145
Arden Downs TM *	56	96	39	0	14	3	208
Talwood	57	68	34		21	1	181
Mungindi SYN	35	36	2	0	22	2	97
Maximum Rainfall	57	111	40	1	22	65	208
Numerical Average	19	81	30	0	6	23	159

	24 hour ra	24 hour rainfall to 9am on Marc						
Station Name	1	2	3	Total				
Moonie								
Cherry Park	80	89	26	195				
The Deep Crossing		94	29	123				
Traighli		89	25	114				
Southwood		70	57	127				
Caithness	31	121		152				
Mt Driven	49	132	37	218				
Nindigully	38	70	43	151				
Maximum Rainfall	80	132	57	218				
Numerical Average	50	95	36	154				

Table 3.4.6 Significant Rainfall Totals - Dawson and Mackenzie River Catchments and Baffle Creek.

		fall to 9am on arch	
Station Name	2	3	Total (mm)
Dawson			
Westgrove TM *	38	11	49
Boxvale TM *	46	7	53
Waddy Brae TM *	39	22	61
Bendoba TM *	36	42	78
Injune SYN	47	16	63
Injune TM *	43	19	62
Utopia Downs TM *	86	42	128
Pine Hills TM *	72	12	84
Peekadoo TM *	56	20	76
Giligulgul TM *	85	25	110
Woleebee	95	19	114
Wandoan	76	27	103
Windamere TM *	94	29	123
Chilgerrie Hill		74	74
Bungaban TM *	93	76	169
The Sandstone	68	44	112
Taroom SYN	125	68	193
Taroom TM *	121	65	186
Broadmere TM *	77	54	131
La Palma TM *	82	14	96
Cockatoo Ck TM *	118	78	196
Woodleigh TM *	17	7	24
Moura	15	10	25
Blackboy Creek TM *	17	15	32
Bauhinia Downs	22	13	35



Redcliffe TM *	26	7	33
Karamea	13	20	33
Brigalow SYN	22	12	34
Roundstone Creek TM *	11	30	41
Bindaree TM *	16	49	65
Banana	9	16	25
Baralaba SYN	7	17	24
Beckers TM *	5	25	30
Blue Hills TM *	4	21	25
Thangool SYN	12	54	66
Biloela	10	33	43
Folding Hills TM *	10	33	43
Red Hill TM *	13	51	64
Besch's Hill TM *	16	33	49
Kingsborough TM *	6	29	35
Craiglands TM *	6	17	23
Goovigen TM *	4	6	10
Mundic Gully TM *	10	7	17
Mt Morgan	11	10	21
Number 7 Dam TM *	9	7	16
Dairy Ck TM *	10	9	19
Kenbula TM *	12	5	17
Wura TM *	8	23	31
Rannes TM *	4	30	34
Maximum Rainfall	125	78	196
Numerical Average	38	28	65

	2	4 hour rai	nfall to 9aı	m on Marc	h	Total
Station Name	1	2	3	4	5	(mm)
Mackenzie						
Rewan	16	41	16	18	24	115
Rewan TM *	18	41	9	12	28	108
Wyseby	17	55	22	10	45	149
Lake Brown TM *	26	55	5	9	31	126
Rolleston SYN	58	48	17	8	29	160
Katrina Downs TM *	20	12	7	14	10	63
Somerby	34	17	4	10	22	87
Red Rock TM *	14	17	6	5	25	67
Orion	77	59	16		21	173
Helen Downs TM *	70	18	3	1	13	105
Springsure SYN	35	43	8	29	18	133
Roddas Lookout AL *	42	68	8	18	18	154
Springsure TM *	31	39	6	24	17	117
Cowley TM *	20	29	1	0	19	69
Springsure Ck Jnction TM *	22	10	0	1	19	52
Glenora Road TM *	24	25	2	7	23	81
Blackdown Tableland TM *	35	27	7	64	48	181
Comet Weir TM *	12	5	0	0	24	41
Comet	10	6	0	1	27	45
Mantuan Downs TM *	9	18	0	2	14	43
Wharton Creek	13	15		10	3	41
Bogantungan TM *	20	12	0	2	11	45
Craigmore TM *	16	67	0	0	32	115
Fairbairn Dam TM *	9	10	0	3	19	41
Emerald AWS *	12	8	6	1	13	39



Emerald AL *	13	7	9	0	14	43
Emerald TM *	13	6	9	0	5	33
Emerald Radar AL *	11	6	4	0	19	39
Clermont TM *	5	2	2	11	23	43
Clermont SYN	5	3	1	0	21	30
Florence Vale AL *	14	10	0	0	25	49
Valeria AL *	8	6	0	0	18	32
Valeria TM *	9	5	0	0	17	31
Capella	7	2			10	19
Anakie	8	17	3	3	26	57
Middle Ridge TM *	6	11			26	43
Rubyvale TM *	8	9			28	45
Rubyvale AL *	9	10	0	0	29	47
Duckponds TM *	15	6	0	0	25	46
Riley's Crossing TM *	8	4	0	1	30	43
Middlemount TM *	16	4	9	0	3	32
Bingegang Weir Hw TM *	12	4	24	0	5	45
Sarina	27	10	5	7	0	50
Doraville	38	1	11			50
Blue Mountain	24	2	5		1	32
Funnel Creek TM *	10	0	40	0	0	50
Braeside TM *	12	4	28	0	0	44
Nebo TM *	16	6	48			70
Cockenzie TM *	11	7	23	1	0	42
St Lawrence SYN	28	5	15	0	3	52
St Lawrence AWS *	30	4	18	1	2	54
Yatton TM *	17	6	17	0	1	41
Coolmaringa TM *	1	1	22	0	4	28
Maximum Rainfall	77	68	48	64	48	181
Numerical Average	20	17	9	6	17	67

		24 hour rainfall to 9am on March							
Station Name	2	3	4	5	6	7	8	(mm)	
Baffle Creek									
Miriam Vale TM *	21	72	13	6	15	12	5	144	
Makowata	22	70	3	7	29	0	19	151	
Mimdale TM *	24	48	2	9	16	0	33	132	
Rosedale	29	46	3	8	19	94	57	256	
Seventeen Seventy	30	44	19	21	18	0	11	143	
Maximum Rainfall	30	72	19	21	29	94	57	256	
Numerical Average	25	56	8	10	19	21	25	165	

Table 3.4.7 Significant Rainfall Totals - Nerang and Coomera Rivers.

		24 hours to 9am on								
	Feb		March							
Station Name	28	1	2	3	4	5	6	(mm)		
Nerang										
Numinbah AL *	1	10	25	14	22	1	8	81		
Upper Springbrook AL *	19	43	86	44	44	4	34	274		
Springbrook	6	38	39	23	34	3	24	167		
Lower Springbrook AL *	8	38	42	27	47	3	33	197		
Mt Nimmel AL *	3	28	40	16	14	1	17	119		
Bonogin AL *	6	5	46	15	15	2	10	99		



Little Nerang Dam AL *	3	25	35	14	11	1	18	107
Numinbah Valley TM *	1	16	23	12	12	0	9	73
Numinbah Valley AL *	1	17	26	13	13	1	9	80
Hinze Dam		13	40	15	9	0		77
Tallai AL *	9	12	45	15	9	1	14	105
Nerang	17	9	53	29	12		14	134
Carrara AL *	13	20	117	21	4	0	4	179
Molendinar AL *	20	14	144	23	5	0	9	215
Neranwood AL *	3	9	42	17	10	0	15	96
Mudgeeraba AL *	7	4	36	15	6	0	8	76
Evandale AL *	21	8	147	20	1	0	4	201
Biggera Ck Dam AL *	44	34	132	27	6	0	6	249
Loder Ck Dam AL *	32	13	134	23	2	0	6	210
Loder Creek AL *	29	22	114	18	3	0	4	190
Southport	29		136	24	2			191
Air Sea Rescue AL *	35	25	104	18	2	0	6	190
Gold Coast Seaway AWS *	33	13	107	13	2	0	4	172
Burleigh Waters AL *	13	13	56	17	5	0	4	108
Tallebudgera Ck Rd AL *	6	3	47	19	13	1	10	99
Coplicks Bridge AL *	6	5	39	17	11	1	4	83
Oyster Creek AL *	5	8	39	16	6	0	2	76
Tomewin AL *	10	13	57	28	13	2	10	133
Tallowood	17	9	68	35	12	2	11	154
Coolangatta AWS *	9	5	36	15	6	1	0	72
Murwillumbah SYN	4	5	57	17	10	Tr	2	95
Maximum Rainfall	44	43	147	44	47	4	34	274
Numerical Average	14	16	68	20	12	1	10	139

	24 hours to 9am on							
	Feb			Ма	rch			Total (mm)
Station Name	28	1	2	3	4	5	6	(!!!!!)
Coomera								
Binna Burra AL *	2	18	29	20	26	1	16	112
Tyungun AL *	2	19	28	12	8	0	4	73
Canungra Army AL *	6	43	33	14	14	0	15	125
Mt Tamborine	12	27	49	22	12	1	36	159
Mt Tamborine AL *	14	27	58	22	12	0	31	164
Clagiraba Road AL *	13	22	53	19	11	0	26	144
Wongawallan AL *	17	13	96	22	6	0	27	181
Oxenford Weir AL *	39	19	117	21	7	0	18	221
Coomera	20	18	161	25	5			229
Monterey Keys AL *	45	24	97	21	2	0	16	205
Coomera Shores AL *	26	23	125	25	5	0	14	218
Maximum Rainfall	45	43	161	25	26	1	36	229
Numerical Average	18	23	77	20	10	0	20	166



Table 3.4.8 Significant Rainfall Totals - Stanley, Brisbane, Pine and Caboolture Rivers.

	24 hours to 9am on								
	Feb			Ма	rch			Total (mm)	
Station Name	28	1	2	3	4	5	6	(111111)	
Stanley/Upper Brisbane									
Peachester	54	12	131	62	22	41	25	347	
Ferris Knob AL *	2	0	6	31	17	16	9	81	
Woodford AL-P *	24	17	74	37	11	17	18	198	
Woodford AL-B *	24	17	74	37	11	17	19	199	
Lindfield	64	2	83	43	8	5	7	212	
Mt Kilcoy Weir TM *	21	4	75	36	8	9	5	158	
Kilcoy AL *	9	21	70	30	5	6	6	147	
Somerset Dam	12	14	77	66	12	1	5	187	
Somerset Dam Hw AL-P *	8	13	74	51	11	1	6	164	
Somerset Dam Hw AL-B *	8	13	75	49	11	1	6	163	
Top Of Brisbane AL *	4	6	49	26	0	1	34	120	
Blackbutt	6	3	69	48	9	2		137	
Yarraman AL *	2	4	59	27	2	0	43	137	
Cooyar Creek TM *	6	5	68	35	0	1	12	127	
Cooyar Creek AL *	4	4	58	29	1	0	22	118	
Linville TM *	12	2	66	27	2	0	15	124	
Devon Hills AL *	19	18	71	34	4	2	11	159	
St Aubyns AL *	5	1	58	30	0	3	56	153	
Mt Binga	8		97	37	1	5		149	
Nukinenda AL *	10	3	63	30	1	1	41	149	
Boat Mountain TM *		_	72	45	5	4	20	146	
Boat Mountain AL *	12	6	69	42	6	4	21	160	
Glendale TM *	17	8	77	45	5	2	19	173	
Pohlman Range AL *	13		81	39	12	3	9	157	
Gregor Ck AL-P *	11	5	58	33	9	3	6	125	
Gregor Ck AL-B *	12	5	61	36	9	3	8	134	
Crows Nest	6	8	70	22	2	2	47	158	
Crows Nest AL *	4	4	50	14	5	1	35	113	
Perseverance AL *	4	6	47	14	2	0	30	103	
Cressbrook Dam AL *	4	5	50	17	5	0	16	97	
Rosentreters Bridge TM *	4	5	77	41	2	1	16	146	
Rosentreters Bridge AL *	4	4	71	35	0	2	15	131	
Toogoolawah	4	5	69	46	4	3		131	
Toogoolawah AL *	4	5	72	48	4	2	9	144	
Caboonbah AL *	11	4	66	52	3	1	4	141	
Esk		18	86	37	5	3		149	
Hays Landing AL *	4	10	70	27	5	1	3	120	
Wivenhoe Dam	2	8	58	16	4	1	5	95	
Wivenhoe Dam Hw AL-B *	1	8	55	14	2	1	4	85	
Wivenhoe Dam Tw AL-B *	2	7	60	16	2	1	4	92	
Maximum Rainfall	64	21	131	66	22	41	56	347	
Numerical Average	11	8	68	35	6	4	17	146	



	24 hours to 9am on								
	Feb March								
Station Name	28	1	2	3	4	5	6	(mm)	
Pine/Caboolture									
Mt Glorious AL-P *	35	20	111	47	30	16	38	297	
Mt Nebo	21	23	81	20	44	9	43	241	
Highvale	17	20	74	28		17	25	181	
Cedar Ck Rd AL *	21	22	86	54	10	7	25	225	
Samford AL *	23	16	68	29	12	5	28	181	
Samford Village AL *	27	25	58	28	13	6	26	183	
Clear Mountain AL *	11	26	58	59	11	7	13	185	
Drapers Crossing AL *	30	23	73	49	9	7	20	211	
Cash's Crossing AL *	34	19	62	50	16	6	21	208	
Normanby Way AL *	31	20	60	56	9	4	9	189	
Kluvers Lookout AL *	13	14	83	41	7	6	18	182	
Laceys Creek AL *	19	17	92	68	7	7	14	224	
Baxters Creek AL *	17	24	86	75	9	9	13	233	
Dayboro AL *	22	27	87	92	12	6	15	261	
North Pine Dam AL *	18	35	52	46	4	4	9	168	
Mt Samson Rd AL *	17	15	84	79	8	6	17	226	
North Pine Dam AL-B *	18	34	52	46	4	4	9	167	
Narangba	34	18	83	70	18			223	
Browns Creek AL *	28	24	78	53	0	0	0	183	
Lake Kurwongbah AL *	25	26	69	82	6	3	14	225	
Youngs Crossing AL *	29	28	76	76	7	4	15	235	
Strathpine	29	23	77	70	20	5	19	243	
Petrie AL *	27	16	64	70	4	4	18	203	
Lawnton AL *	39	15	67	74	4	6	20	225	
John Bray Park AL *	33	17	64	59	11	6	15	205	
Murrumba Downs AL *	53	19	71	86	8	4	11	252	
Lipscombe Rd AL *	25	21	83	66	12	6	6	219	
Redcliffe AWS *	26	29	93	62	11	2	8	232	
Mt Mee AL-P *	38	39	99	52	25	16	25	294	
Mt Mee AL-B *	38	39	99	52	25	17	23	293	
Moorina AL *	39	43	96	59	23	10	15	285	
Burpengary(Rowley Rd) AL *	31	16	83	55	22	8	6	221	
Burpengary (Dale St) AL *	24	20	95	50	24	7	7	227	
Deception Bay AL *	26	16	52	22	5	3	1	125	
Round Mt Reservoir AL *	27	26	82	33	6	13	8	195	
Wamuran AL *	29	21	108	51	25	15	20	269	
Upper Caboolture TM *	33	46	97	48	12	11	8	255	
Upper Caboolture AL *	30	43	86	44	12	11	8	234	
Caboolture Wtp AL *	38	26	97	54	20	9	10	254	
Morayfield AL *	44	20	100	48	19	10	7	248	
Bribie Island AL *	26	30	97	31	9	6	4	203	
Beerburrum AWS *	39	20	86	39	11	16	7	218	
Maximum Rainfall	53	46	111	92	44	17	43	297	
Numerical Average	28	24	80	54	13	8	15	222	



Table 3.4.9 Significant Rainfall Totals - Mooloolah, Maroochy, Noosa and Mary Rivers.

	24 hours to 9am on							
	Feb	eb March						Total (mm)
Station Name	28	1	2	3	4	5	6	(111111)
Mooloolah								
Bald Knob AL *	40	20	124	66	27	54	24	355
Ewen Maddock Dam AL *	55	34	137	80	26	52	18	402
Jordan St AL *	20	20	128	74	19	37	7	305
Sippy Downs AL *	22	15	152	67	15	51	4	326
Sugarbag Rd AL *	24	22	135	63	8	27	2	281
Palmview AL *	15	37	79	29	4	20	8	192
Meridan Way AL *	15	38	145	68	5	31	7	309
Parrearra Weir U/s AL *	10	21	149	69	11	27	5	292
Tanawha AL *	29	18	167	79	18	58	4	373
Bundilla AL *	12	39	145	49	6	31	3	285
Mountain Creek AL *	16	12	150	68	11	44	5	306
Golden Beach AL *	20	22	91	43	5	21	0	202
Landsborough AL *	36	23	125	71	28	33	26	342
Hume Lane AL *	52	13	119	51	16	26	24	301
Old Gympie Road AL *	46	28	123	56	22	26	19	320
Beerwah AL *	44	20	125	53	22	22	9	295
Maximum Rainfall	55	39	167	80	28	58	26	402
Numerical Average	29	24	131	62	15	35	10	305

	24 hours to 9am on							T - ( - 1
	Feb			Ma	rch			Total
Station Name	28	1	2	3	4	5	6	(mm)
Maroochy								
Eerwah Vale AL *	30	26	88	55	24	27	12	262
Eerwah Vale		98	52	25	30	12		217
Ball Lookout AL *	40	21	110	61	35	41	11	319
Eumundi	21	22	105	65	30	41	16	300
Eumundi AL *	30	15	102	68	25	35	8	283
Eumundi TM *	31	16	99	65	23	33	9	276
Mapleton AL *	58	18	113	74	27	45	25	360
Cooloolabin Dam AL *	47	26	125	78	32	42	41	391
Poona Dam AL *	32	17	133	84	30	38	18	352
Wappa Dam AL *	26	11	74			0	15	126
Yandina TM *	33	18	128	69	24	27	11	310
Yandina AL *	30	18	119	58	22	23	9	279
Dunethin Rock AL *	23	10	170	69	21	31	0	324
Yandina Creek AL *	12	9	120	72	13	30	3	259
Upper Doonan AL *	30	18	88	36	16	23	2	213
Doonan Creek AL *	26	12	105	58	14	31	1	247
Coolum AL *	2	5	102	37	5	10	0	161
Stoney Wharf Road AL *	16	10	106	36	10	28	1	207
West Woombye AL *	36	16	148	88	17	46	19	370
Nambour AWS *	36	15	160	78	16	43	12	360
Nambour AL *	30	20	157	81	27	37	8	360
Palmwoods		14	110	98	18	37		277



Palmwoods AL *	33	17	124	80	12	38	7	311
Palmwoods Sportsground A AL	39	16	146	89	18	38	16	362
Diddillibah AL *	33	17	174	78	24	36	3	365
Eudlo AL *	74	16	111	103	15	43	7	369
Eudlo Flats Rd AL *	23	17	146	76	18	40	2	322
Maroochydore Depot AL *	21	20	170	78	18	42	0	349
Picnic Point AL *	24	15	174	71	16	33	0	333
Maroochydore AWS *	14	7	144	64	10	24	0	263
Maximum Rainfall	74	98	174	103	35	46	41	391
Numerical Average	30	19	123	69	20	32	9	298

	24 hours to 9am on								
	Feb	Feb March						Total	
Station Name	28	1	2	3	4	5	6	(mm)	
Noosa									
Rainbow Beach SYN	0	2	52	50	26	8		138	
Coops Corner TM *	15	21	48	69	30	36	12	231	
Mount Elliot AL *	2	9	45	33	12	18	49	168	
Mount Wolvi AL *	11	1	90	68	20	25	16	231	
Black Pinch Road AL *	61	37	102	55	20	29	11	315	
Boreen Point AL *	21	15	101	66	18	33	4	258	
Lake Cooroibah AL *	10	10	109	61	26	28	1	245	
Lake Cooroibah	13	13	105	66	28	31		256	
Mount Tinbeerwah AL *	44	13	111	75	30	42	11	326	
Tewantin AWS *	9	8	103	66	21	45	4	257	
Tewantin AL *	10	7	88	50	17	34	3	209	
Noosa Heads AL *	3	6	182	73	24	41	3	332	
Maximum Rainfall	61	37	182	75	30	45	49	332	
Numerical Average	17	12	95	61	23	31	11	247	

	24 hours to 9am on								
	Feb	Feb March							
Station Name	28	1	2	3	4	5	6	(mm)	
Mary									
Maleny AL *	51	15	119	64	32	49	28	358	
Maleny	42	13	110	63	31	45	28	332	
Baroon Boat Ramp AL *	64	25	122	93	25	46	30	405	
Baroon Dam Tw AL *	68	17	115	86	21	44	36	387	
Obi Lookout AL *	54	31	87	75	25	29	22	323	
West Bellthorpe AL *	73	22	91	41	20	22	19	288	
Harper Creek AL *	52	15	69	42	18	14	9	219	
Grigor Road AL *	22	9	86	46	7	6	6	182	
Bellbird Creek AL *	32	32	75	72	7	5	13	236	
Bellbird Creek TM *			75	73	8	5	13	174	
Kenilworth	50	58	66	68	10	6	11	269	
Kenilworth H/s AL *	20	42	65	59	5	4	11	206	
Moy Pocket AL *	22	56	64	56	6	6	14	224	
Moy Pocket TM *	21	54	59	50	5	5	9	203	
Jimna AWS *	13	4	74	43	4	3	17	157	
Jimna AL *	12	4	69	40	2	2	14	143	
Imbil	34	47	86	54	4	9	16	250	
Oakwood TM *	4	8	108	74	4	6	29	233	



Kandanga		112	69	56		23	12	272
Kandanga TM *	76	19	61	49	12	12	10	239
Zachariah TM *	36	14	67	59	10	10	14	210
Cooroy	30	41	98	58	28	36	14	305
Cooroy AL *	28	28	97	58	25	37	13	286
Pomona AL *	65	33	97	53	10	21	19	298
Lake Macdonald Dam AL *	51	25	97	61	23	33	16	306
Cooran TM *	88	15	86	48	10	18	12	277
Cooran AL *	96	16	95	56	12	21	15	311
Cedar Pocket Dam AL *	10	5	63	30	6	11	21	146
Gympie AWS *	7	7	60	42	4	6	43	168
Gympie AL *	7	8	49	33	3	6	40	146
Fishermans Pocket TM *	6	7	73	43	4	6	57	196
Woolooga	7	5	69	25			67	174
Miva	2	25	63	15	1	3	42	152
Brooweena TM *	0	2	43	18	4	13	63	142
Mount Joseph	0	1	37	19				57
Mt Joseph TM *	0	1	35	19	1	5	75	135
Marodian TM *	1	2	50	17	2	5	77	154
Mt Kanigan TM *		0	63	18	3	4	64	152
Home Park TM *	0	13	40	13	3	6	45	120
Tiaro Po		9	32	17	4	10		72
Goomboorian	2	10	62	44	4	6	21	149
Goomboorian TM *	1	12	66	28	6	6	49	169
Toolara AWS *	3	24	46	27	8	16	36	159
Tinana Barrage Hw TM *	0	1	5	20	22	27	21	96
Maryborough AWS	0	1	54	23	16	20	27	141
Ghost Hill AL *			58	27	5	7	24	121
Booral Road AL *	0	1	52	26	5	11	21	116
Black Swamp Ck AL *	0	57	66	21	8	10	32	194
Maximum Rainfall	96	112	122	93	32	49	77	405
Numerical Average	27	21	71	44	10	15	28	209

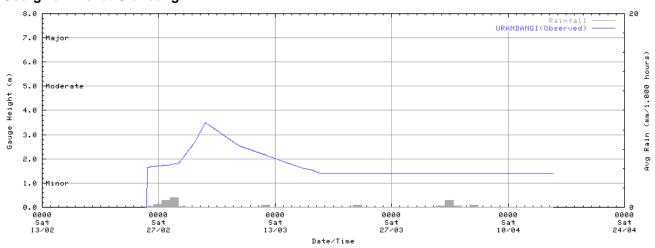


# 3.5 Flood Hydrographs recorded during March 2010.

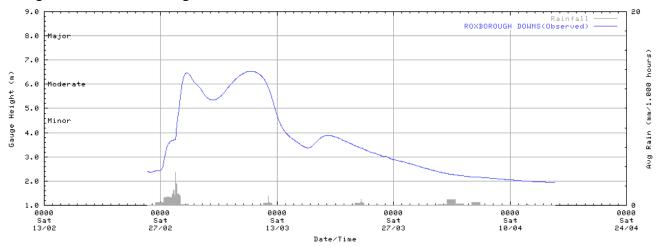
Figures 3.5.1 through to 3.5.13 shows a series of hydrographs that were recorded throughout the border areas of Queensland in early March 2010.

Figure 3.5.1 Flood hydrographs - Georgina River and Eyre Creek

### Georgina River at Urandangi

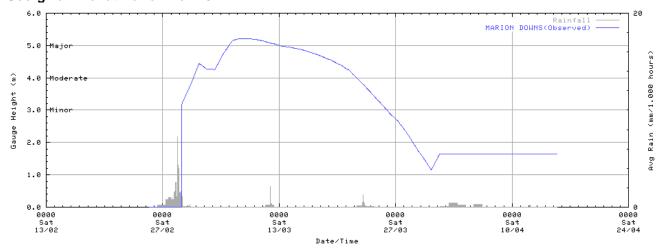


### Georgina River at Roxborough Downs TM

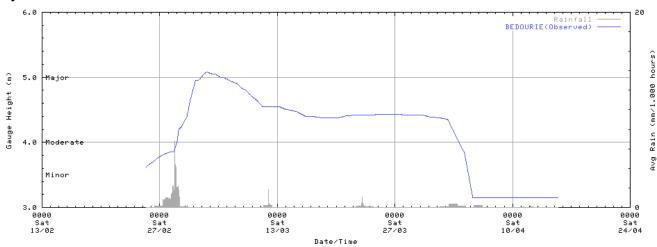




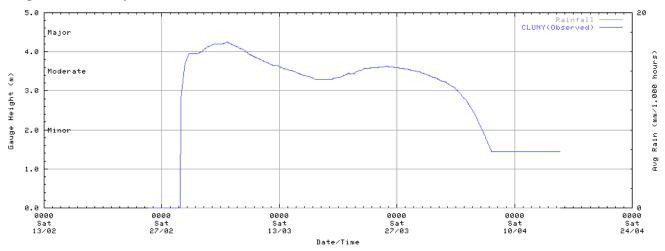
### **Georgina River at Marion Downs**



### Eyre Creek at Bedourie



# King Creek at Cluny





### Eyre Creek at Glengyle

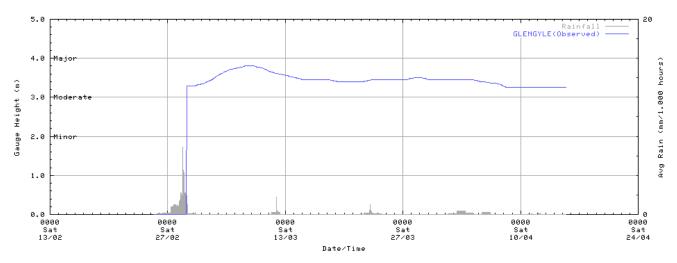
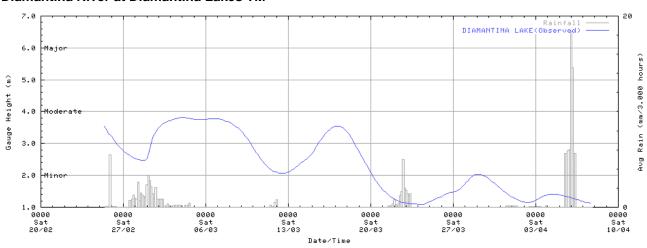
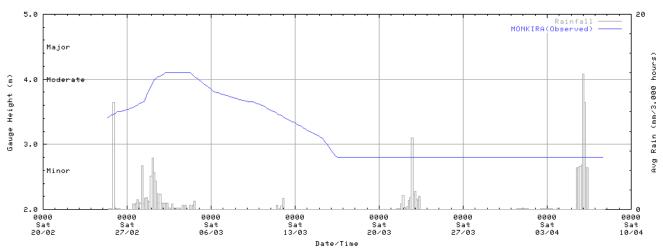


Figure 3.5.2 Flood hydrographs - Lower Diamantina River

#### **Diamantina River at Diamantina Lakes TM**

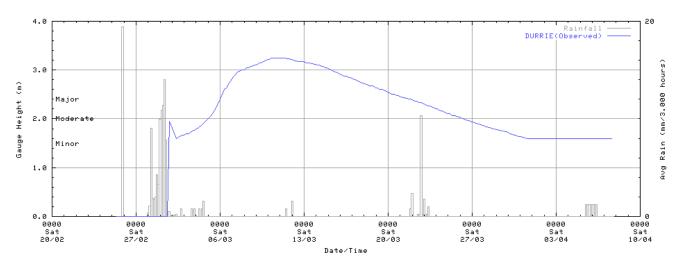


#### **Diamantina River at Monkira**

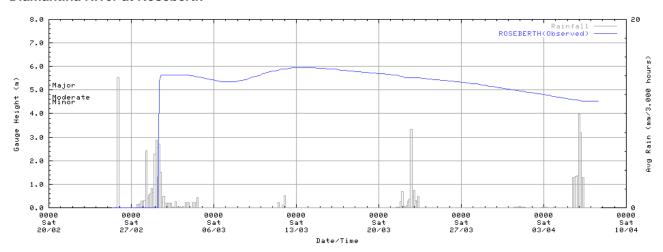




### **Diamantina River at Durrie**



### **Diamantina River at Roseberth**



# **Diamantina River at Birdsville**

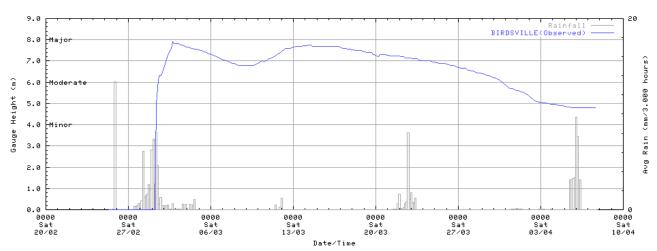
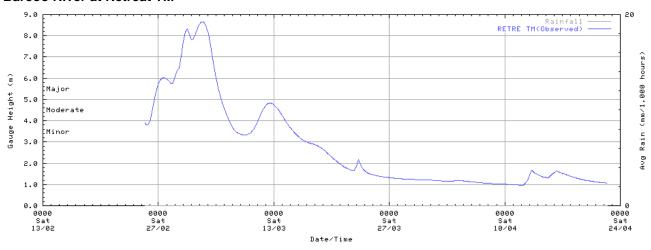


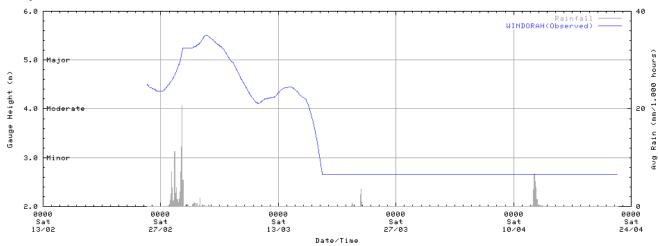


Figure 3.5.3 Flood hydrographs - Thomson and Barcoo Rivers and Cooper Creek

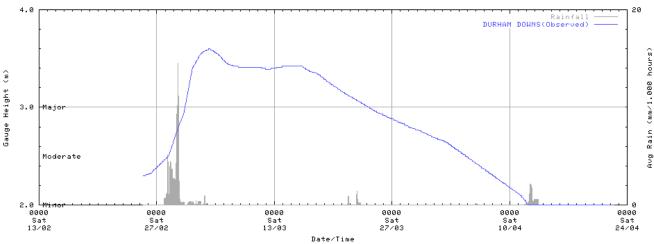
#### **Barcoo River at Retreat TM**



### **Cooper Creek at Windorah**

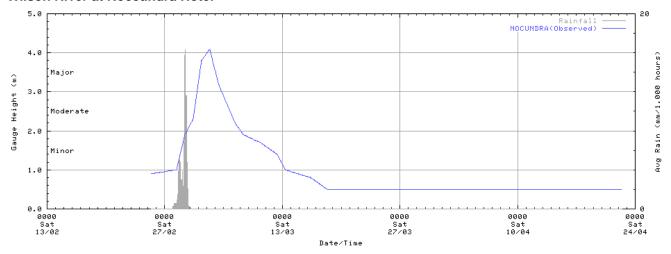


# **Cooper Creek at Durham Downs**





#### Wilson River at Noccundra Hotel



#### Cooper Creek at Nappa Merrie TM

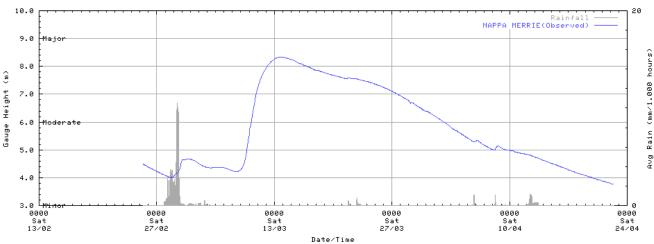
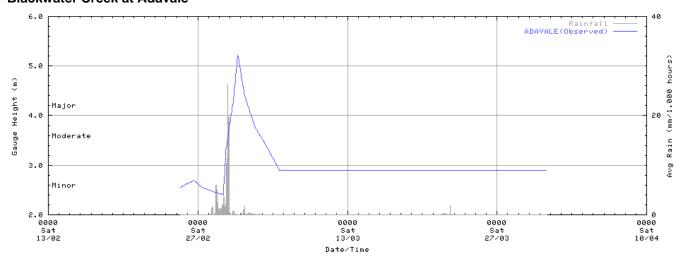


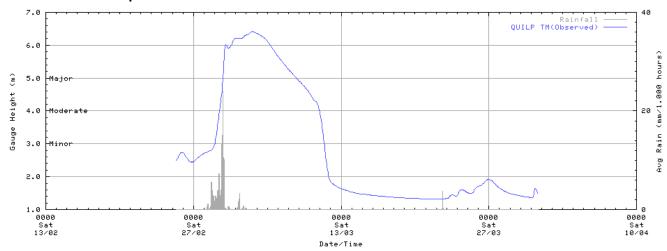
Figure 3.5.4 Flood hydrographs - Bulloo River

### **Blackwater Creek at Adavale**

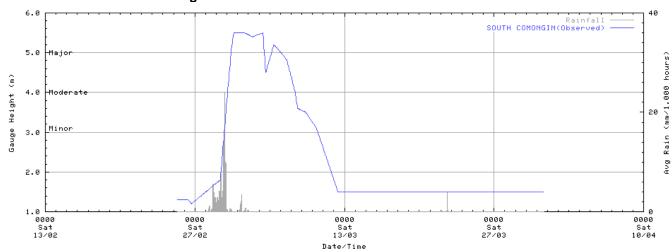




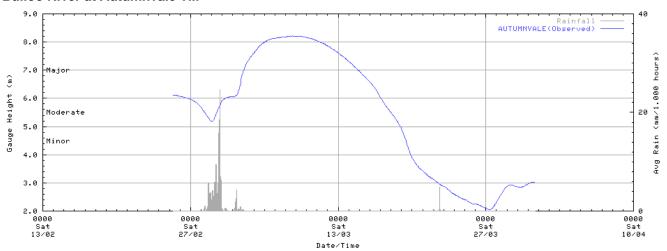
### **Bulloo River at Quilpie TM**



### **Bulloo River at South Comongin**



#### **Bulloo River at Autumnvale TM**





### **Bulloo River at Thargomindah**

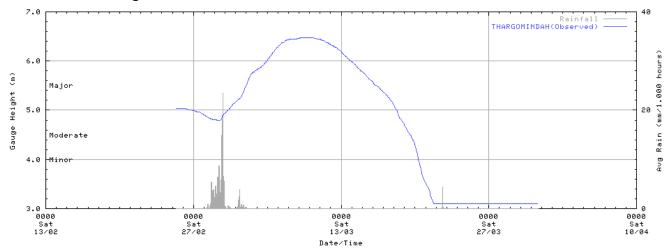
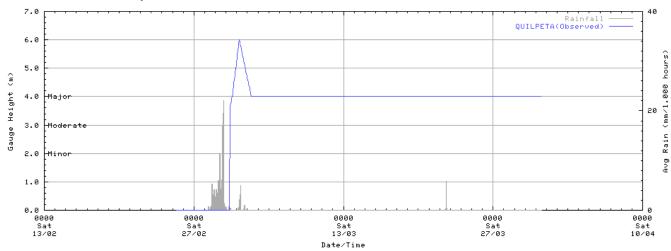
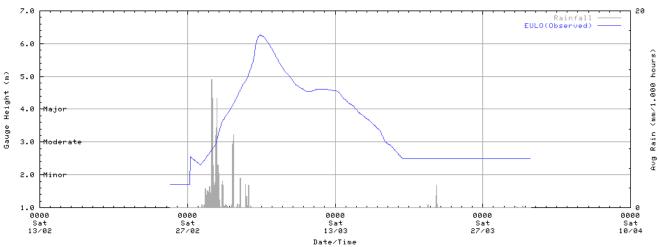


Figure 3.5.5 Flood hydrographs - Paroo River

### **Beechal Creek at Quilpeta**

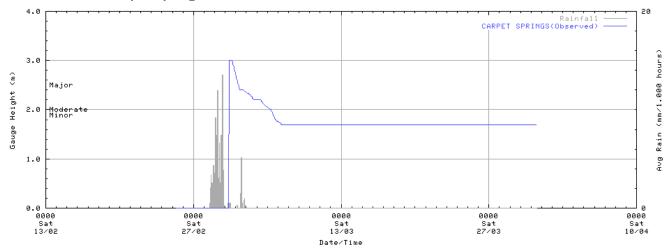


### Paroo River at Eulo

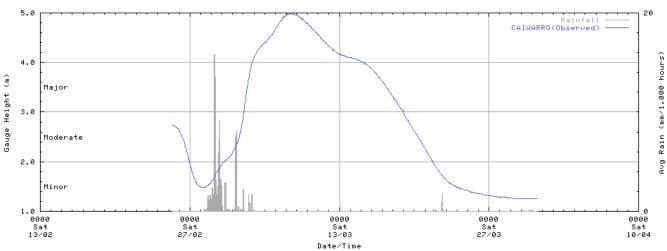




# Yowah Creek at Carpet Springs



#### **Paroo River at Caiwarro TM**



### Paroo River at Hungerford

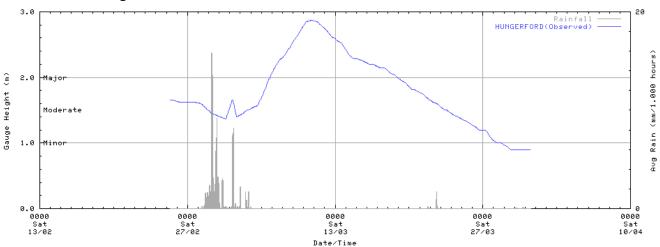
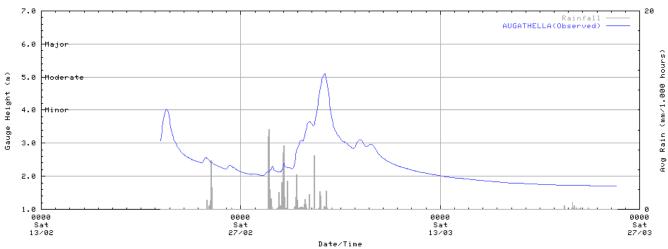


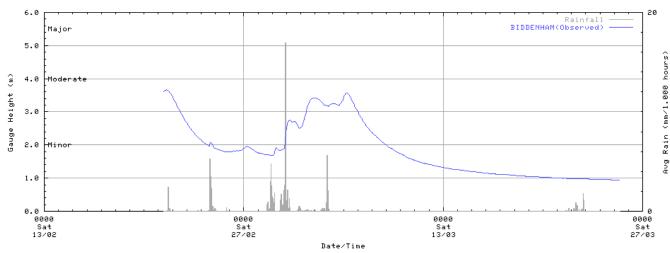


Figure 3.5.6 Flood hydrographs - Warrego River

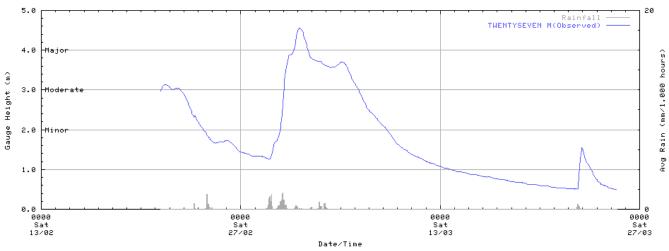
### Warrego River at Augathella TM



#### Nive River at Biddenham

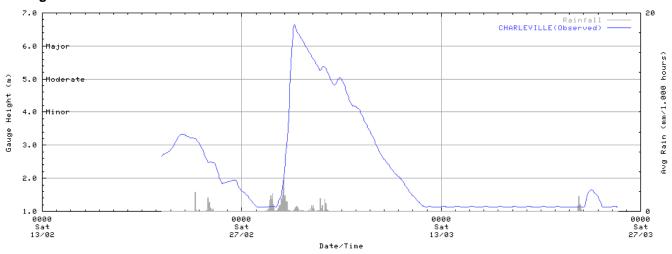


# Warrego River at The 27 Mile Garden

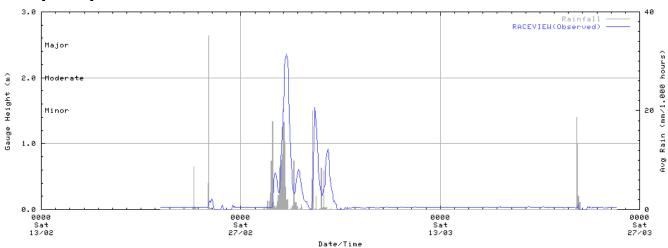




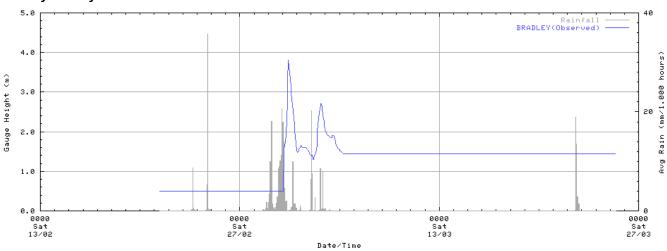
### Warrego River at Charleville



### **Bradley's Gully at Raceview**

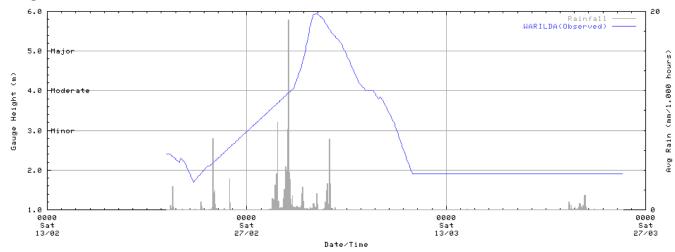


# Bradley's Gully at Charleville

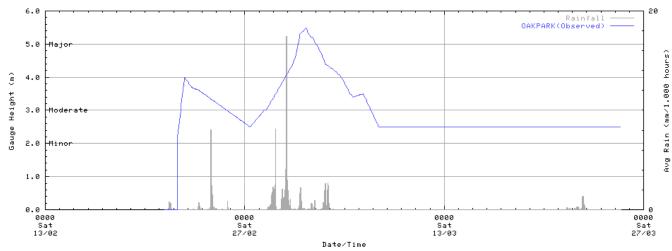




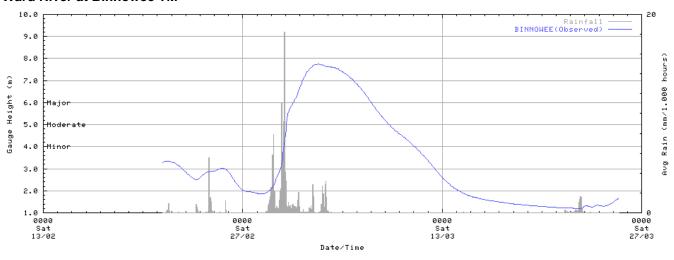
### Langlo River at Warilda



### Ward River at Oakpark

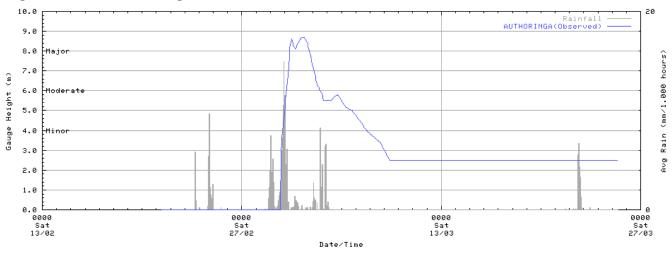


### **Ward River at Binnowee TM**

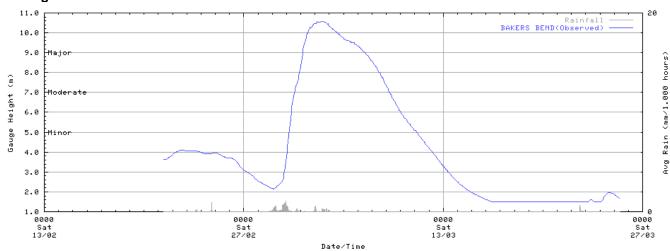




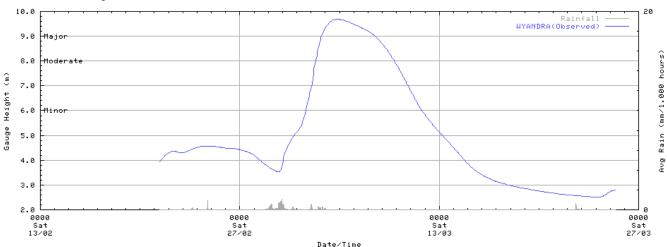
### Angellala Creek at Authoringa



### Warrego River at Bakers Bend TM

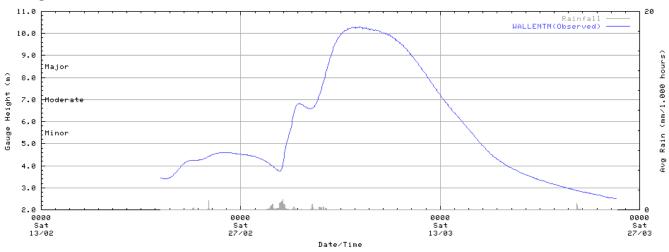


# Ward River at Wyandra TM

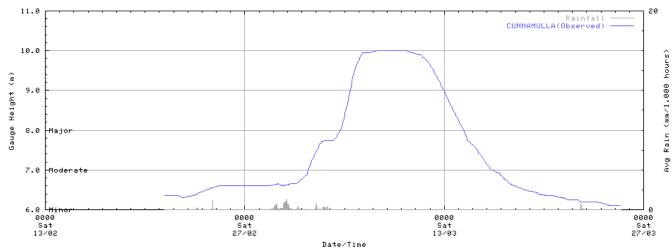




### Warrego River at Wallen TM



### Warrego River at Cunnamulla Bridge



## **Ward River at Rocky**

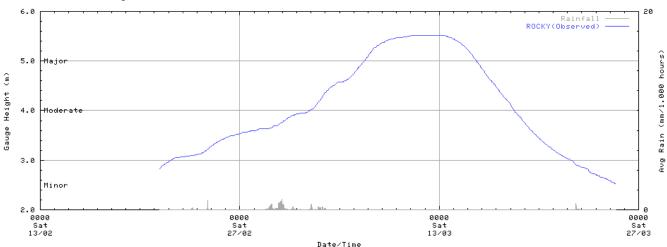
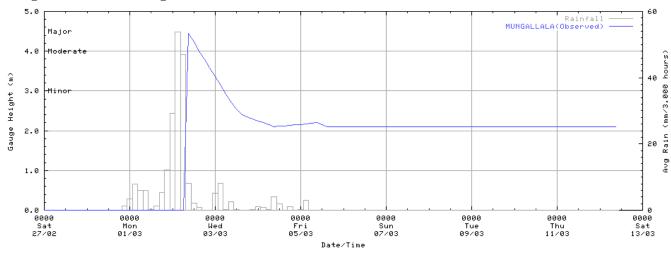


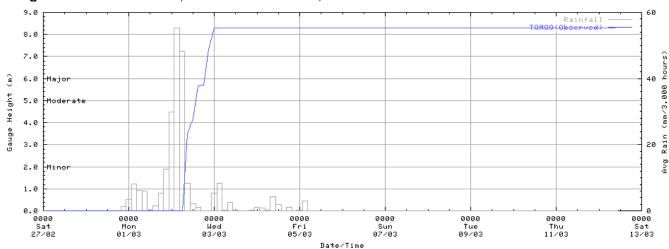


Figure 3.5.7 Flood hydrographs - Wallam and Mungallala Creeks

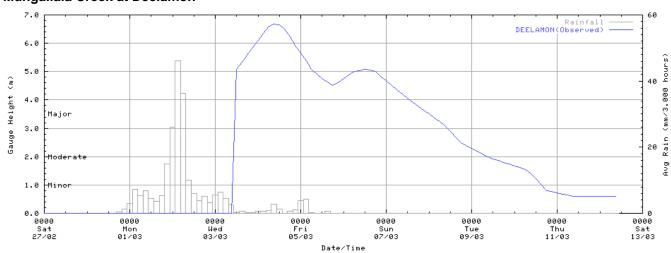
### Mungallala Creek at Mungallala



# Mungallala Creek at Tomoo (Evacuated above 8.0 metres)

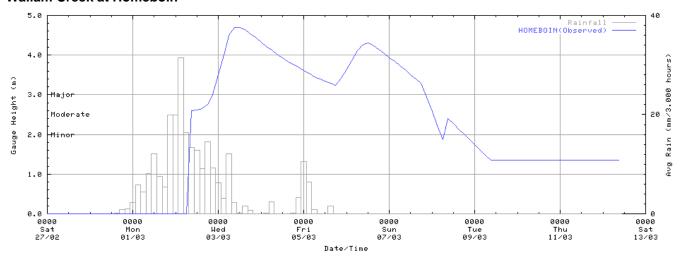


### Mungallala Creek at Deelamon

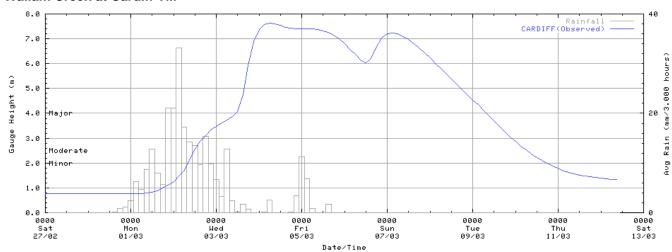




### **Wallam Creek at Homeboin**



#### **Wallam Creek at Cardiff TM**



# Wallam Creek at Bollon

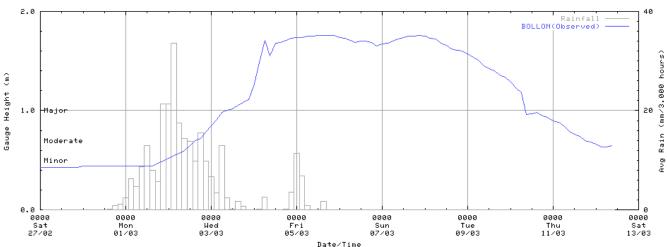
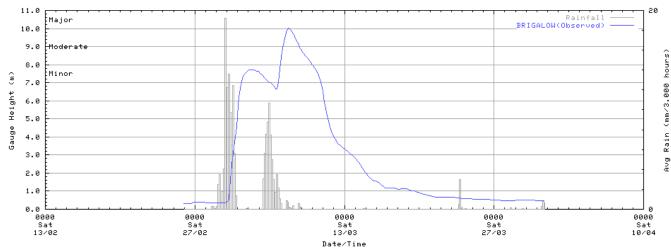


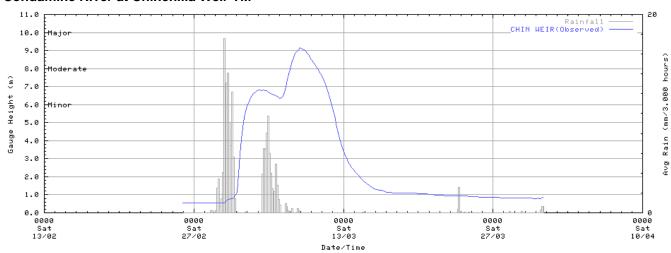


Figure 3.5.8 Flood hydrographs - Condamine, Maranoa and Balonne Rivers

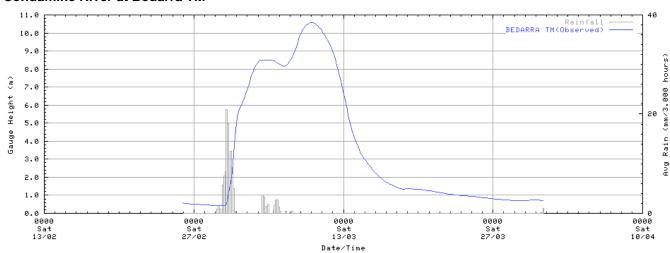
### Condamine River at Brigalow Bridge TM



### Condamine River at Chinchilla Weir TM

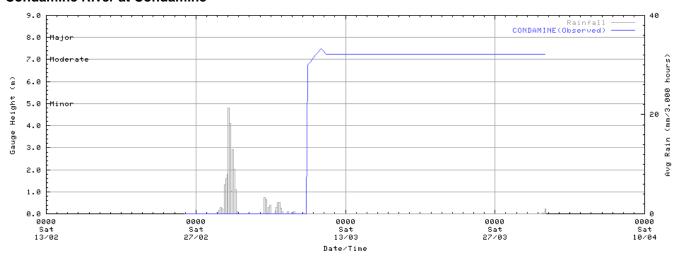


### **Condamine River at Bedarra TM**

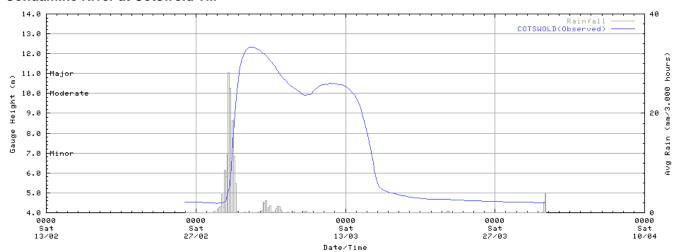




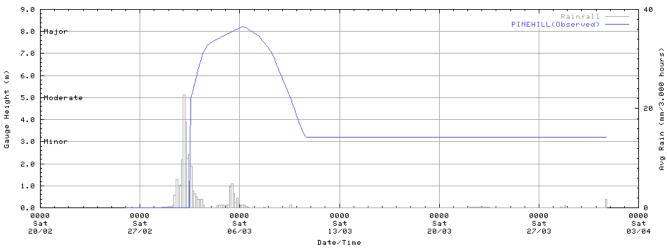
### **Condamine River at Condamine**



#### **Condamine River at Cotswold TM**

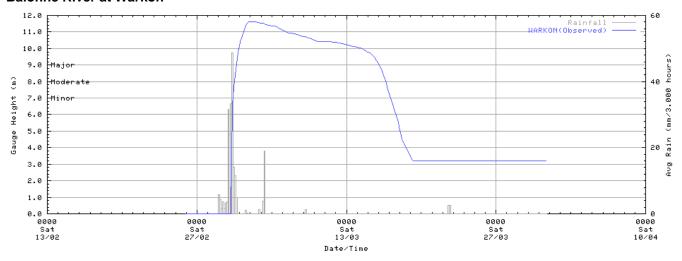


# **Dogwood Creek at Pine Hill Crossing TM**

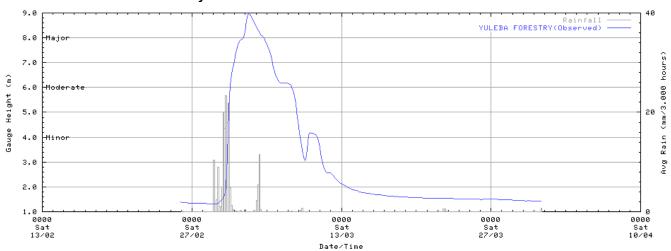




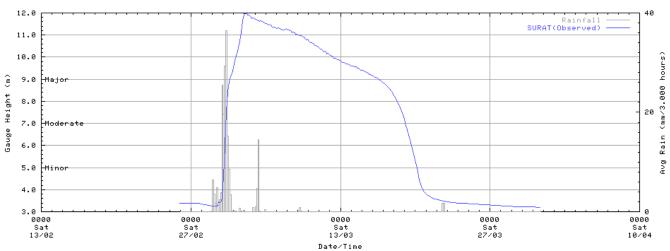
### **Balonne River at Warkon**



### Yuleba Creek at Yuleba Forestry TM

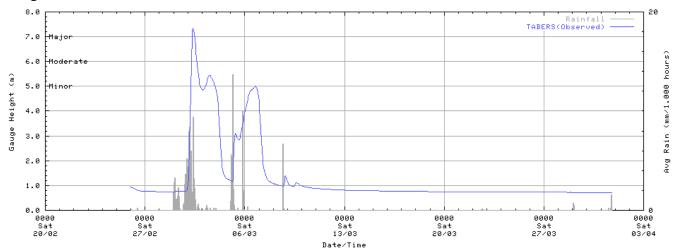


#### **Balonne River at Surat**

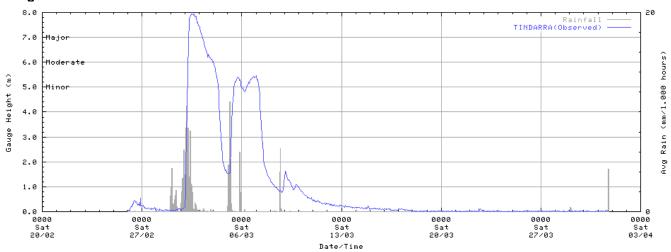




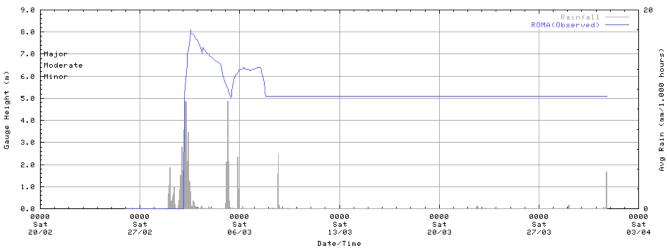
# **Bungil Creek at Tabers TM**



### **Bungil Creek at Tindarra TM**

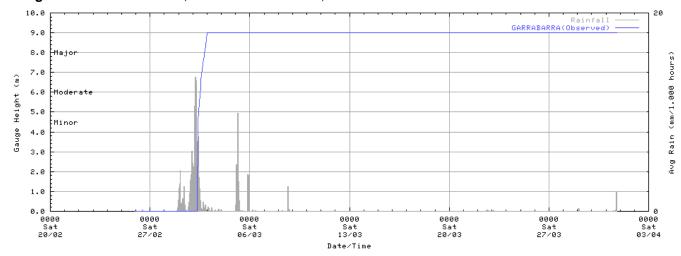


## **Bungil Creek at Roma**

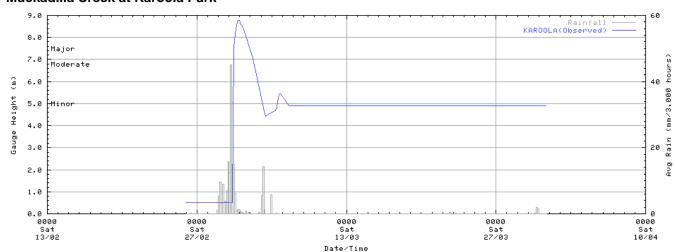




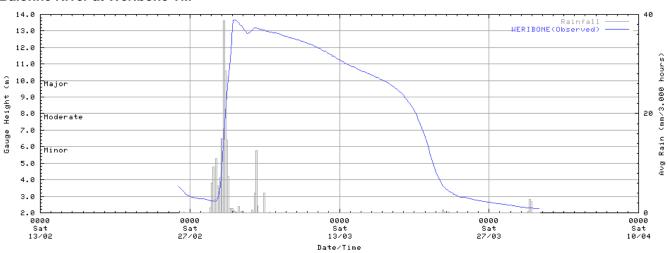
### Bungil Creek at Garrabarra (evacuated above 9.0 metres)



### Muckadilla Creek at Karoola Park

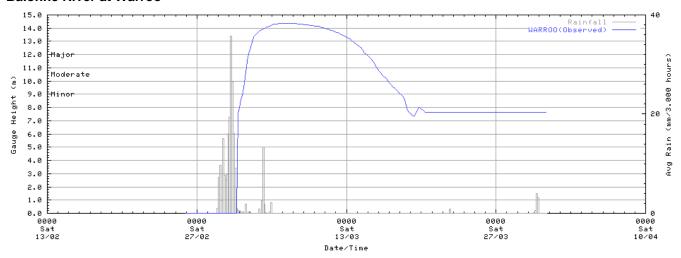


#### **Balonne River at Weribone TM**

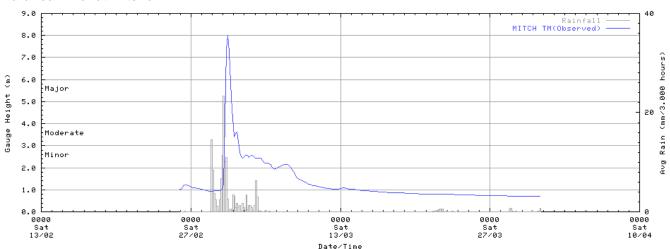




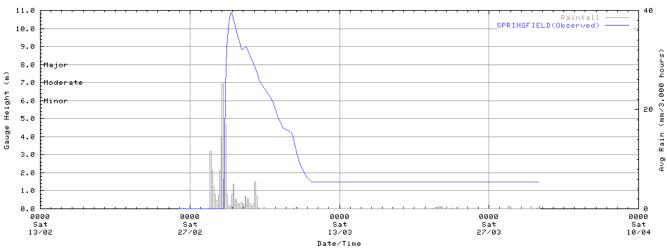
#### **Balonne River at Warroo**



### **Maranoa River at Mitchell TM**

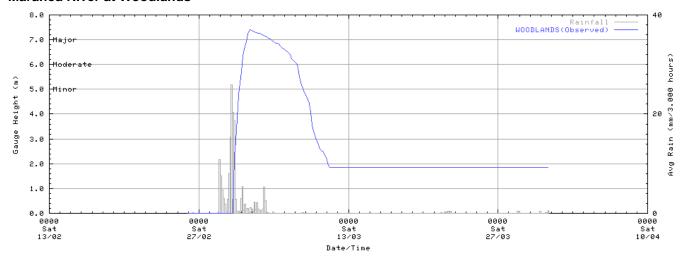


# Maranoa River at Springfield

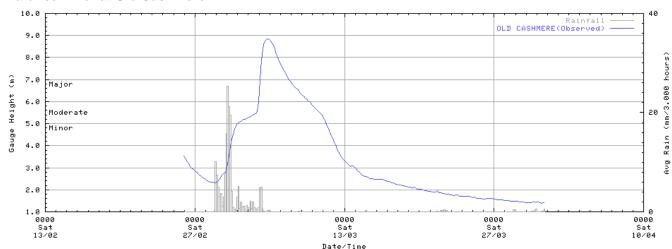




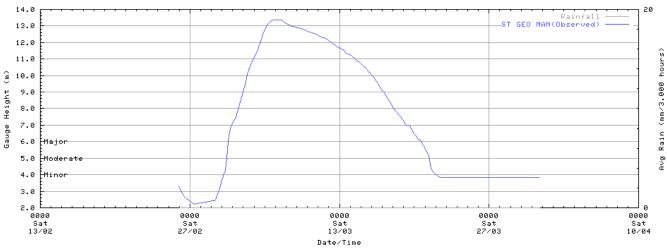
#### Maranoa River at Woodlands



### **Maranoa River at Old Cashmere TM**

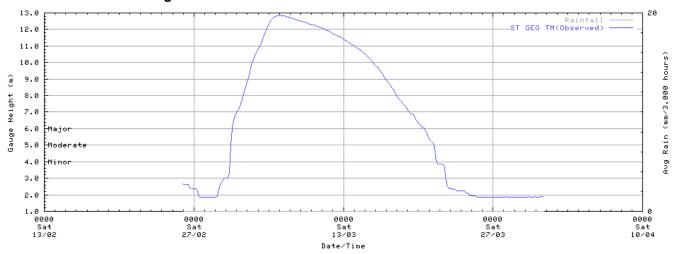


# Balonne River at St. George

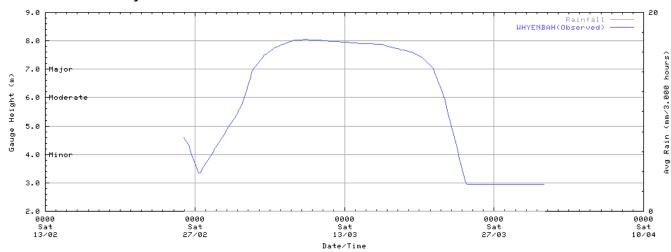




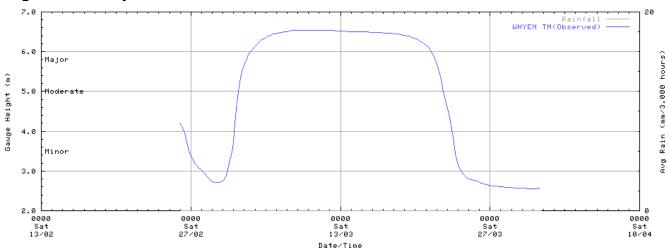
# Balonne River at St. George TM



# **Balonne River at Whyenbah**

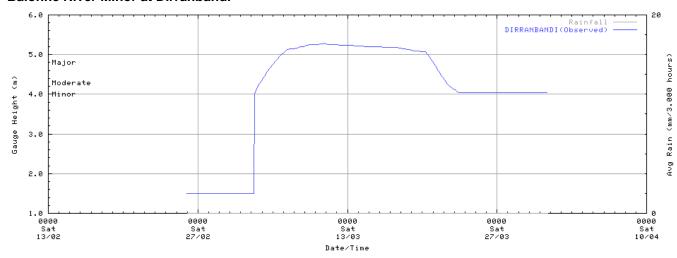


# **Culgoa River at Whyenbah TM**

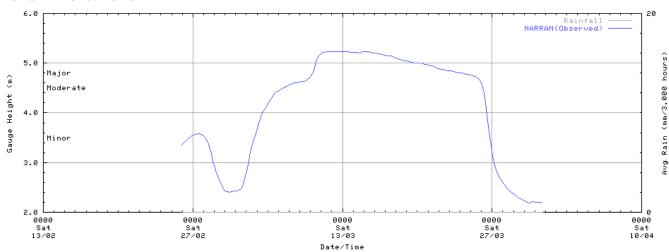




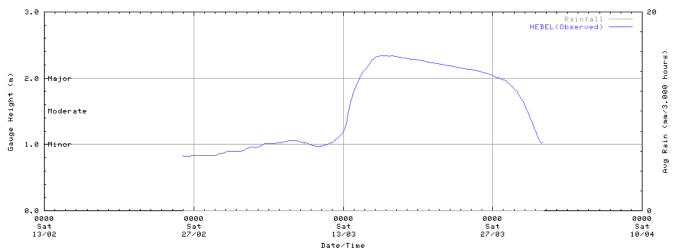
#### **Balonne River Minor at Dirranbandi**



#### Narran River at Narran TM

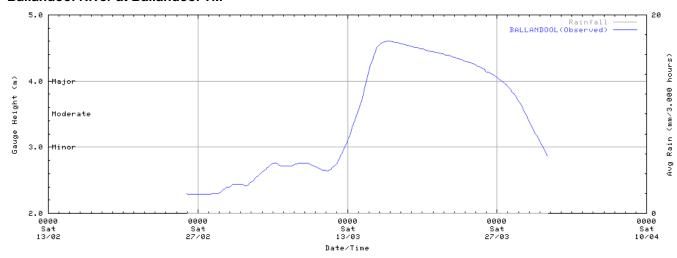


#### **Bokhara River at Hebel TM**





#### **Ballandool River at Ballandool TM**



#### **Briarie Creek at Briarie Creek TM**

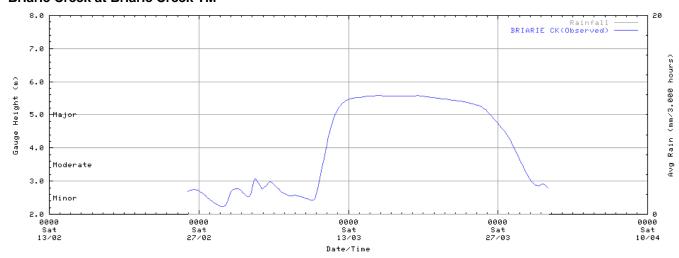
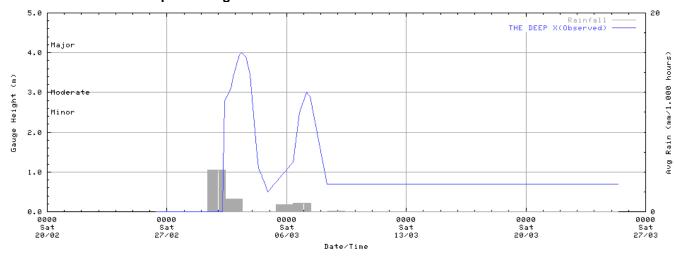


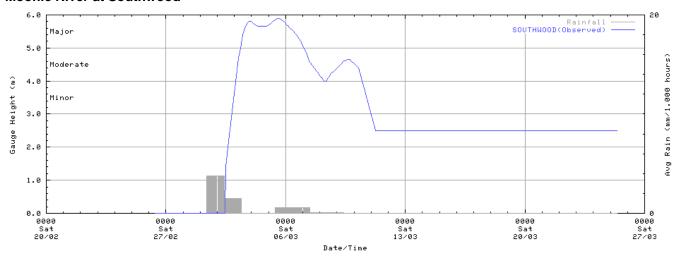
Figure 3.5.9 Flood hydrographs - Moonie River

#### Moonie River at The Deep Crossing

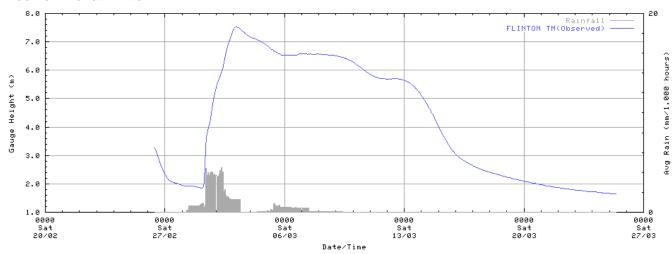




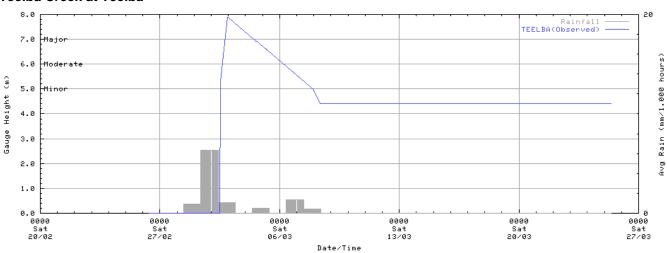
#### Moonie River at Southwood



#### Moonie River at Flinton TM

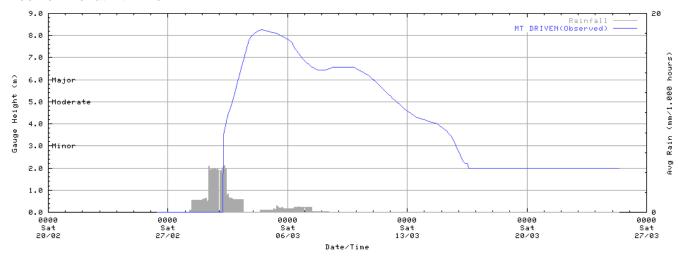


## Teelba Creek at Teelba

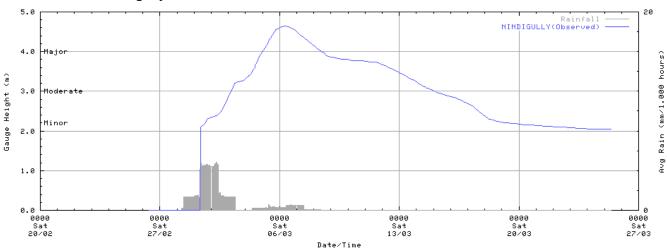




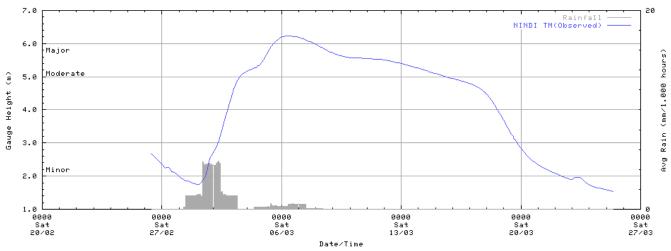
#### Moonie River at Mt Driven



# Moonie River at Nindigully

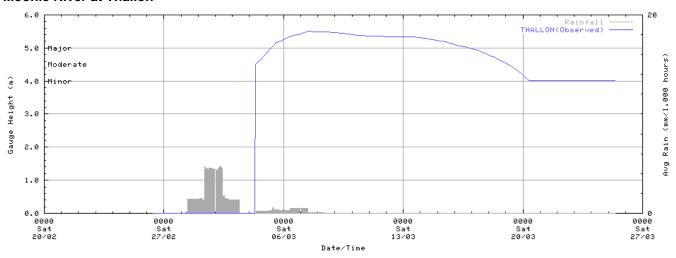


# Moonie River at Nindigully TM





#### Moonie River at Thallon



#### Moonie River at Fenton TM

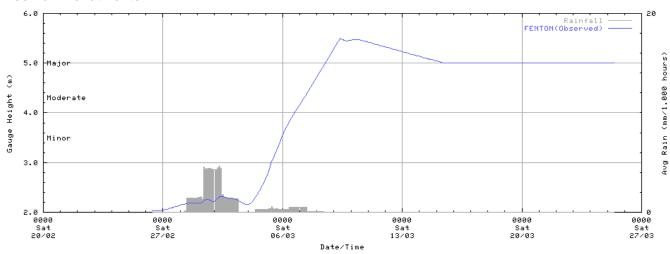
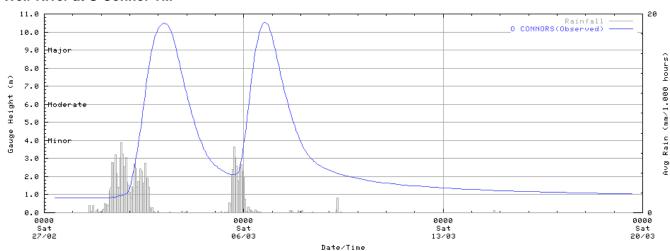


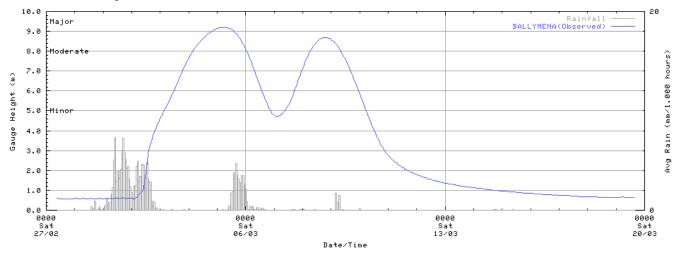
Figure 3.5.10 Flood hydrographs - Weir River

#### Weir River at O'Connor TM

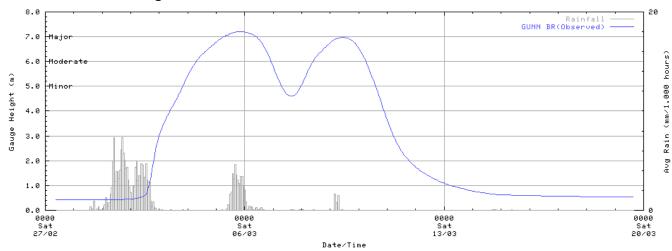




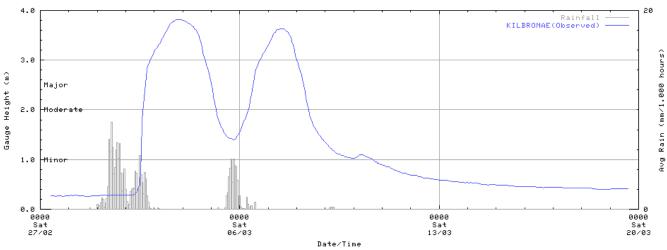
#### Weir River at Ballymena TM



# Weir River at Gunn Bridge TM

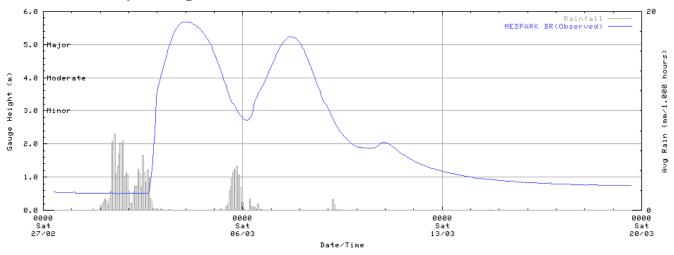


# Wyaga Creek at Kilbronae TM

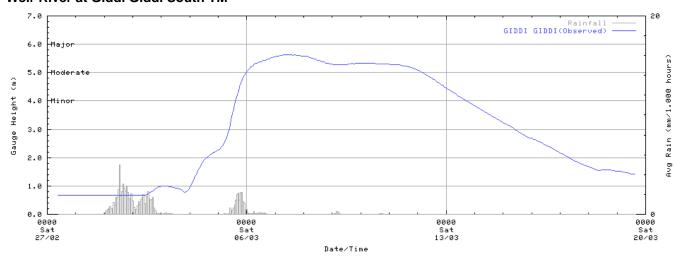




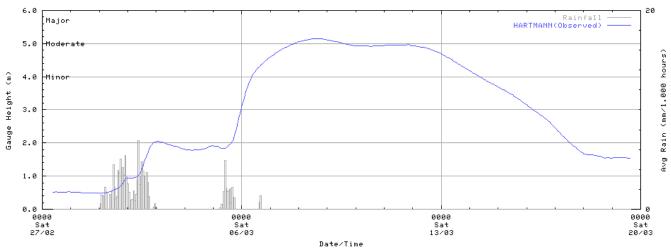
# Yarrill Creek at Medpark Bridge TM



# Weir River at Giddi Giddi South TM

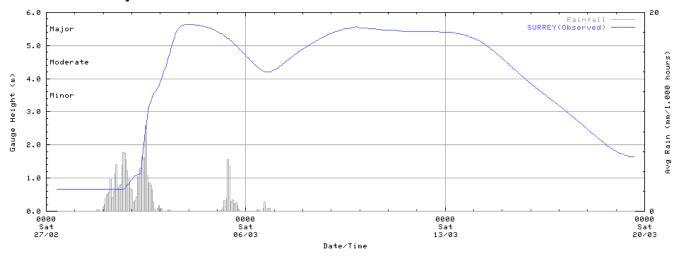


## Weir River at Hartmann Bridge TM

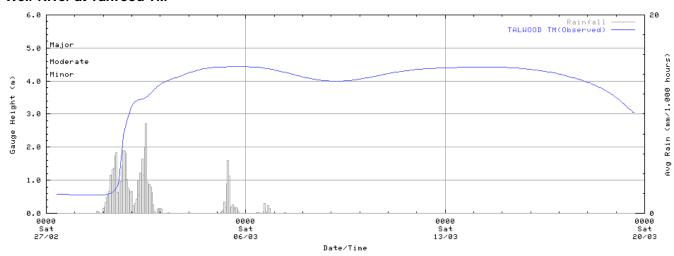




#### Weir River at Surrey TM



# Weir River at Talwood TM



# Weir River at Jericho TM

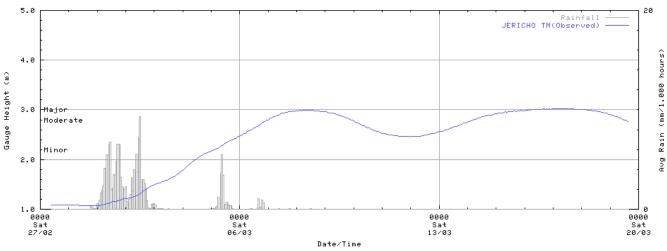
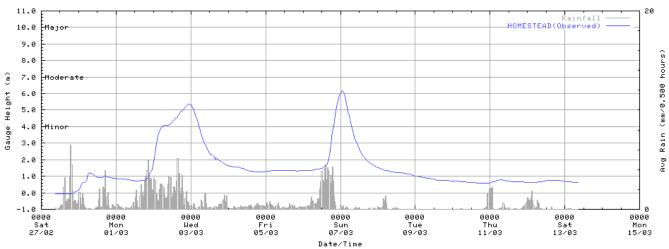


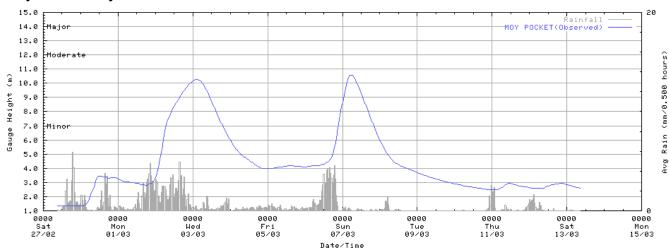


Figure 3.5.11 Flood hydrographs - Mary River

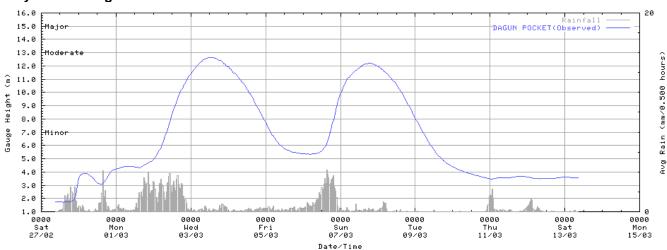
# Mary River at Kenilworth Homestead AL



# Mary River at Moy Pocket AL

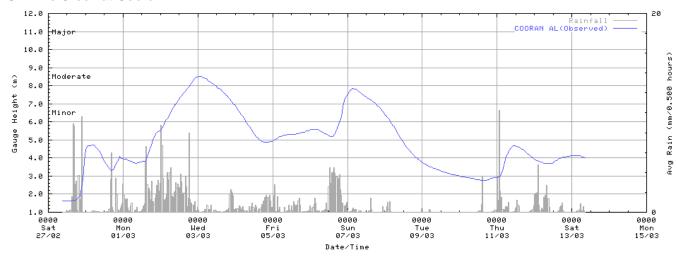


## Mary River at Dagun Pocket AL

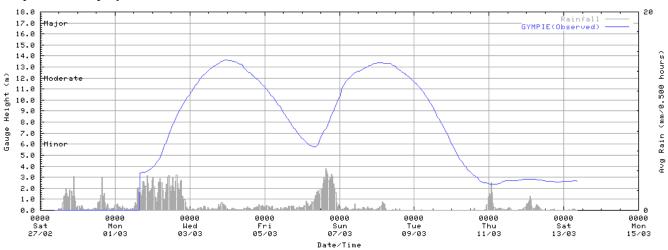




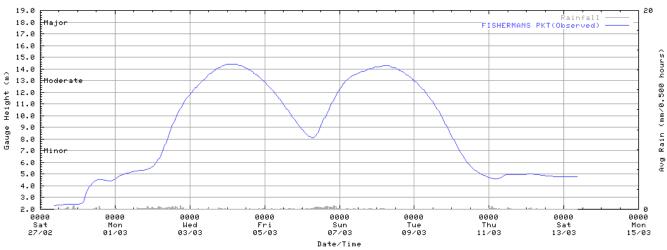
# Six Mile Creek at Cooran AL



# Mary River at Gympie TM

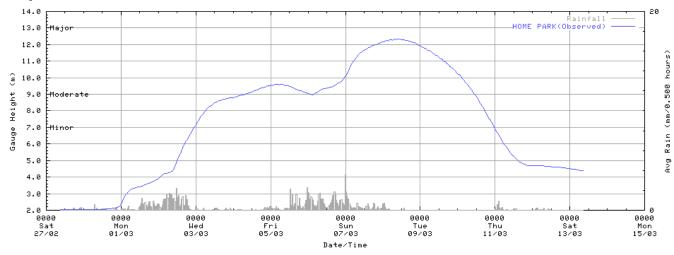


## Mary River at Fishermans Pocket TM

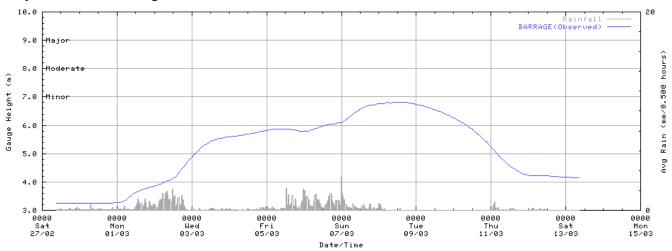




#### Mary River at Home Park TM



## Mary River at The Barrage TM



## **Tinana Creek at Bauple East TM**

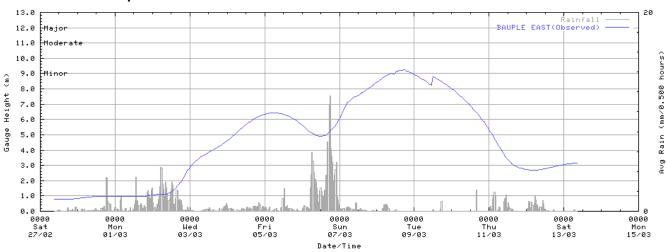
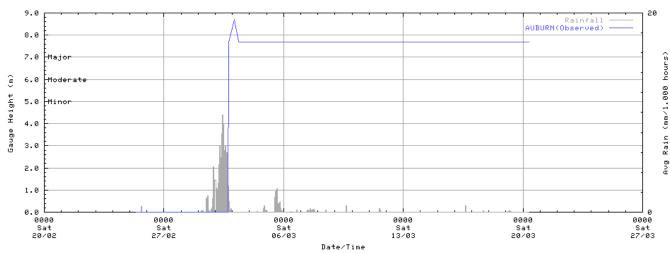


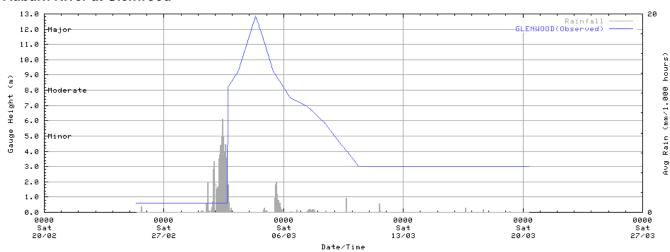


Figure 3.5.12 Flood hydrographs - Burnett River

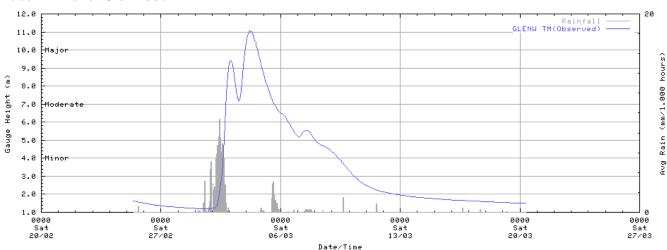
#### **Auburn River at Auburn Homestead**



#### **Auburn River at Glenwood**

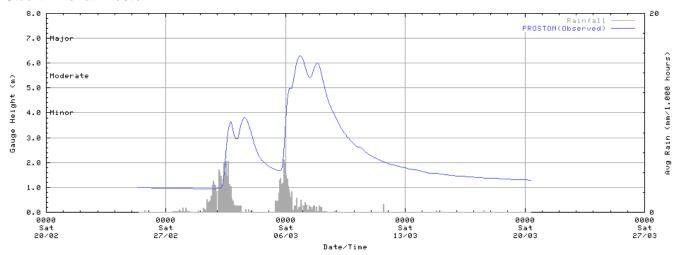


## **Auburn River at Glenwood**

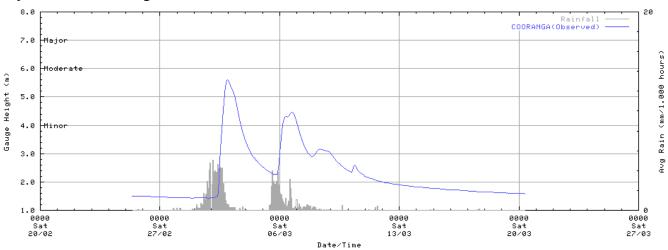




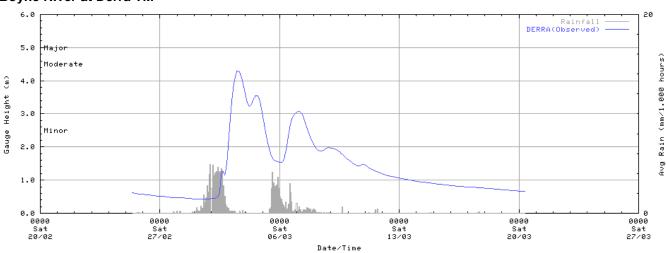
#### Stuart River at Proston TM



# **Boyne River at Cooranga TM**

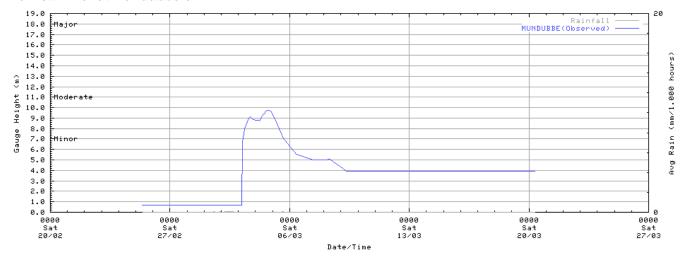


# Boyne River at Derra TM

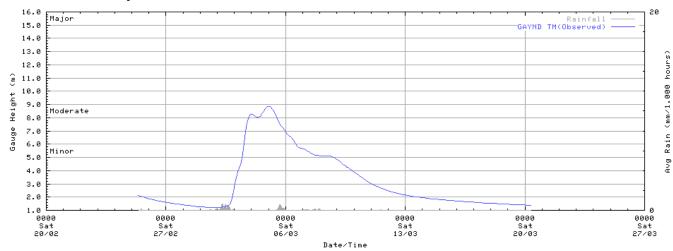




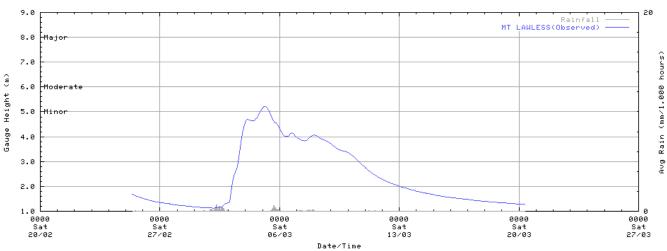
#### **Burnett River at Mundubbera**



# **Burnett River at Gayndah TM**

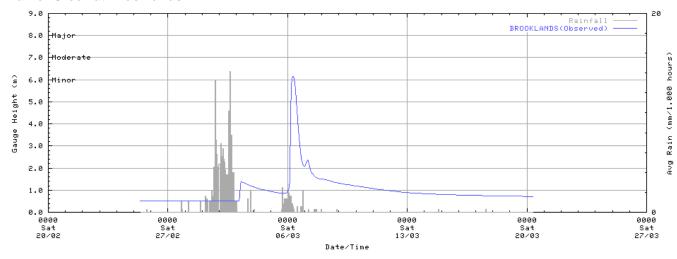


# **Burnett River at Mt Lawless TM**

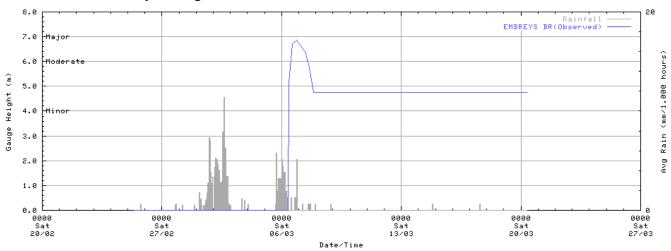




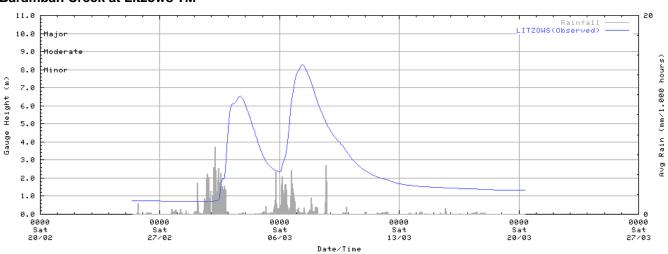
#### **Barker Creek at Brooklands TM**



# Barker Creek at Embrey's Bridge

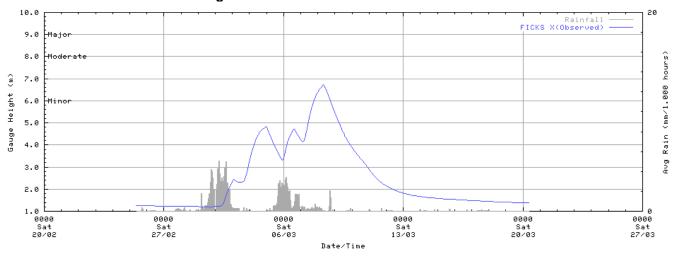


## **Barambah Creek at Litzows TM**

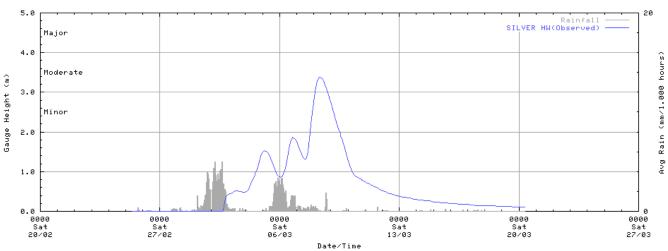




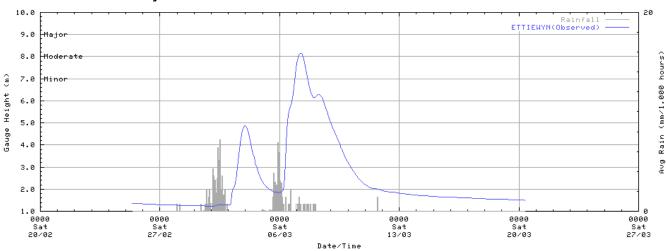
#### **Barambah Creek at Ficks Crossing TM**



# **Barambah Creek at Silverleaf Weir TM**

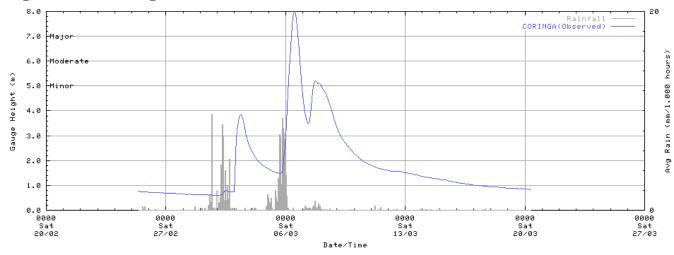


## **Boonara Creek at Ettiewyn TM**

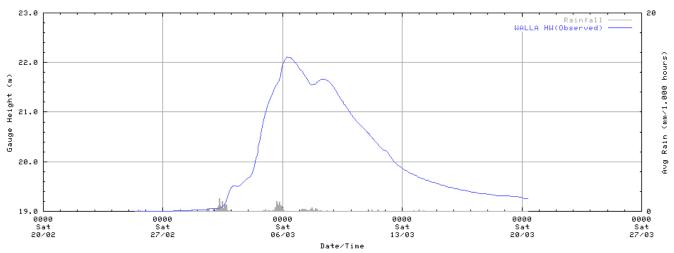




# Degilbo Creek at Coringa TM



# **Burnett River at Walla Weir HW TM**



# **Burnett River at Walla Weir TW TM**

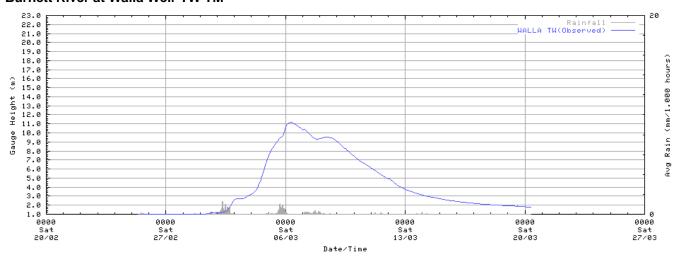
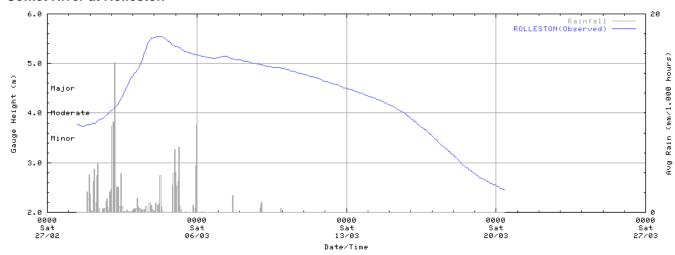


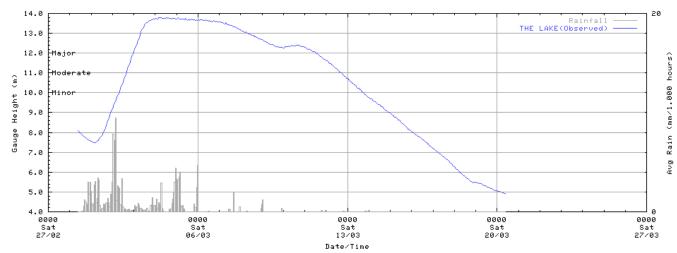


Figure 3.5.13 Flood hydrographs - Fitzroy River

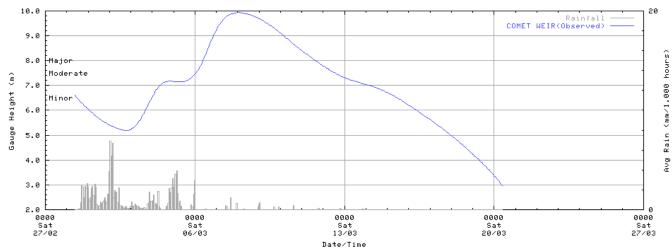
#### **Comet River at Rolleston**



#### Comet River at The Lake TM

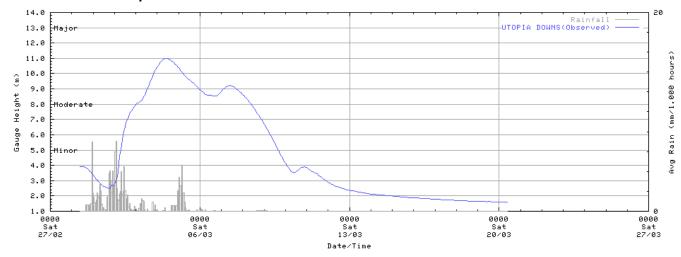


## **Comet River at Comet Weir TM**

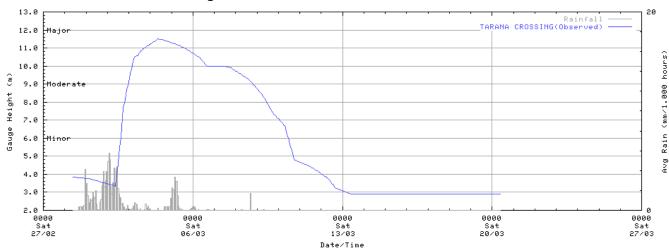




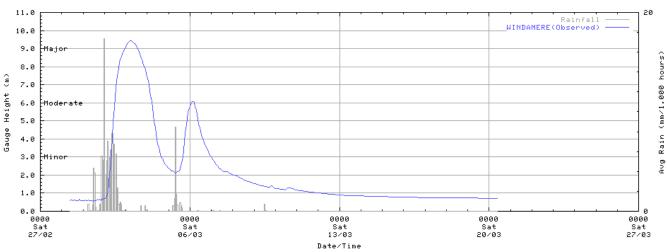
#### **Dawson River at Utopia Downs TM**



# **Dawson River at Tarana Crossing TM**

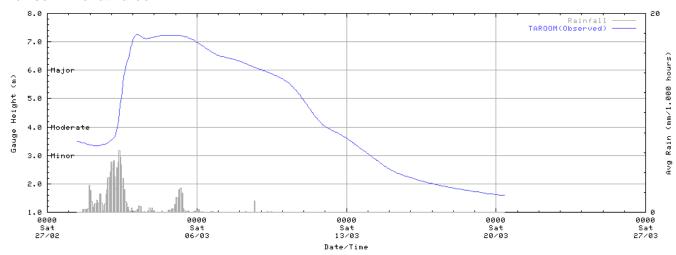


# Juandah Creek at Windamere TM

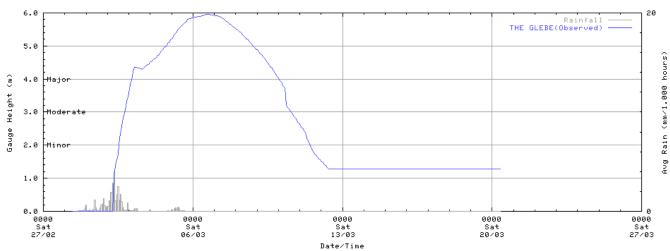




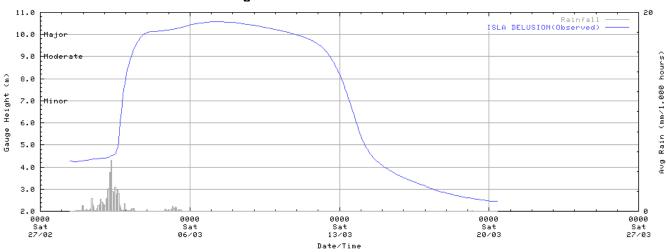
#### **Dawson River at Taroom TM**



#### **Dawson River at The Glebe**

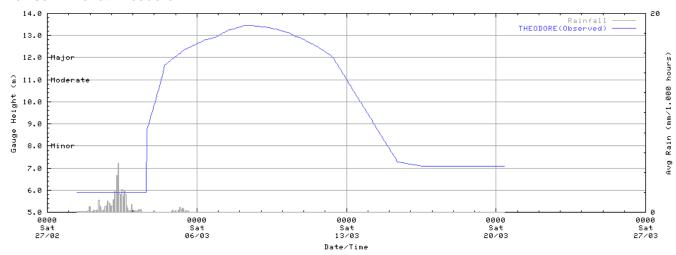


## **Dawson River at Isla-Delusion Crossing TM**

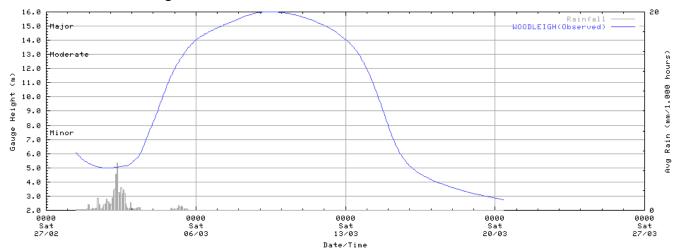




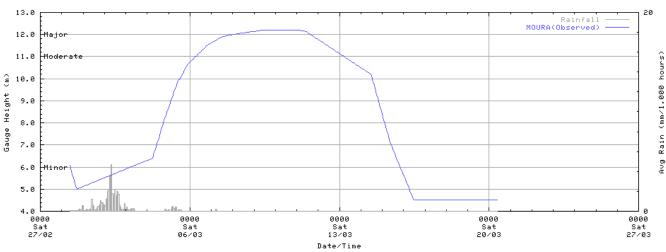
#### **Dawson River at Theodore**



# **Dawson River at Woodleigh TM**

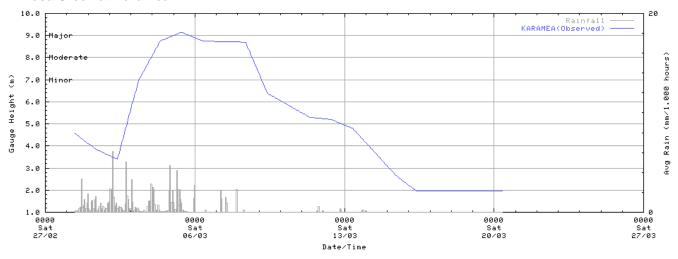


## **Dawson River at Moura**

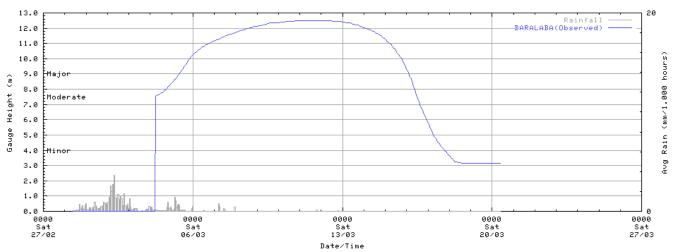




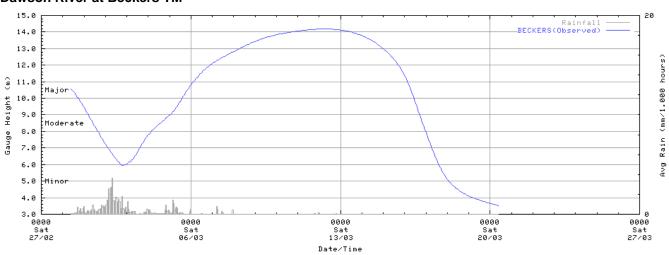
#### Mimosa Creek at Karamea



#### **Dawson River at Baralaba**



## **Dawson River at Beckers TM**





# 4. Warning Services

The weak monsoon trough, on which the tropical low developed, had been active since the middle of February causing isolated heavy rainfall across northern parts of Australia from the Gulf of Carpentaria to the Kimberley Range in Western Australia. This rainfall produced river flooding which caused flood warnings to begin for the Gulf Rivers on the 17<sup>th</sup> of February prior to the development of the Monsoon Low. A discrete monsoon low first became evident on the 23<sup>rd</sup> of February and produced sufficient rainfall over Gulf Rivers to cause further flooding, firstly in the Flinders, Gilbert and Norman Rivers then later developing in the Nicholson River.

The tropical low remained stationary over the Northern Territory for several days and continued to produce showers and thunderstorms over the Gulf Country causing flood warnings for Gulf Rivers to continue. As the low moved south then southeast through the Northern Territory rainfall eased around the Gulf but developed about western Queensland particularly by the morning of the 1<sup>st</sup> of March, when the low was located inside the western Queensland border. Flood warnings commenced in the Georgina River early on the 1<sup>st</sup> of March and were re-issued for the Diamantina, Thomson, Barcoo, Cooper, Bulloo and Paroo Rivers following renewed rises. Late on the 1<sup>st</sup> of March, as the low and heavy rainfall moved eastward, flood warnings started in the Condamine-Balonne, Maranoa and Moonie Rivers. Rainfall then continued over southern Queensland overnight on the 1<sup>st</sup> and during the morning of the 2<sup>nd</sup> of March causing further river flooding, namely the Weir River, Wallam and Mungallala Creeks and along the Bremer River and Warrill and Ipswich Creeks. Further flood warnings in these creeks and rivers were required at this time.

Also during the 1<sup>st</sup> and 2<sup>nd</sup> of March heavy rainfall and river flooding occurred over the Dawson and Mackenzie Rivers in the Fitzroy River Catchment and over the Burnett and Mary Rivers. Warning were required for these rivers between the 1<sup>st</sup> and 2<sup>nd</sup> of March.

A summary of the Warnings issued, including the number and location of predictions issued is shown in table 4.1

Table 4.1 Flood warnings and predictions between the 17<sup>th</sup> February and 26<sup>th</sup> March 2010.

The following table refers to the warnings and predictions issued for the Gulf Rivers and the catchments across southern Queensland that flooded as a result of rainfalls associated with the tropical low.

River Basin	Number of Warnings	Number of Major Warnings	Number of Predictions	Prediction Location	First Warning	Last Warning
GEORGINA	26	8	-		7:11am Mon 01/03/2010	9:12am Thur 25/03/2010
DIAMANTINA	26	25	-		*11:13am Mon 01/03/2010	9:38am Fri 26/03/2010
THOMSON, BARCOO, COOPER	28	26	3 7	Windorah Nappa Merrie	*11:44am Mon 01/03/2010	9:12am Thur 25/03/2010
BULLOO	21	18	13	Thargomindah	*10:30am Mon 01/03/2010	8:46am Thur 18/03/2010
PAROO	28	22	4 7 11	Eulo Caiwarro Hungerford	*10:52am Mon 01/03/2010	9:23am Tues 23/03/2010
WARREGO	29	27	15 21 6 1	Charleville Cunnamulla Baker's Bend Bradley's Gully	11:27am Mon 01/03/2010	8:42am Wed 17/03/2010
WALLAM AND MUNGALLALA CREEKS	14	13	6	Bollon	12:42pm Wed 03/03/2010	9:25am Thur 11/03/2010
MOONIE	23	22	9 2	Fenton Thallon	9:10pm Mon 01/03/2010	8:52am Thur 18/03/2010



BORDER RIVERS	25	17			1:45pm Tues 02/03/2010	8:52am Fri 19/03/2010
CONDAMINE MARANOA BALONNE	45	44	6 3 17 31 21	Roma Surat St George Dirranbandi Hebel	10:30pm Mon 01/03/2010	9:44am Fri 26/03/2010
LOWER BRISBANE AND BREMER	5	0	0		12:53pm Tues 02/03/2010	3:38pm Wed 03/03/2010
MARY	18	0	6 4 6 7	Gympie Miva Tiaro Maryborough	11:10am Tues 02/03/2010	2:56 pm Tues 09/03/2010
BURNETT	10		3 1 5 5	Munduberra Gayndah Walla Bundaberg	10:41pm Tues 02/03/2010	9:22am Tues 09/03/2010
FITZROY	25	23	3 16 15 17 3	Taroom Theodore Moura Baralaba Comet Weir	*11:33am Mon 01/03/2010	9:05am Wed 17/03/2010
GULF	21	13			11:28am Wed 17/02/2010	8:49am Mon 08/03/2010
TOTALS	344	258	274	31 Locations		

<sup>\*</sup> indicates flood warnings from previous river flooding event were renewed.



# Appendix 1. DERM Usage Agreement

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Last updated: 16 March 2009