Australian Government

Bureau of Meteorology

South East Queensland Floods

January 2008

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3	

1. Roads flood in Jimboomba - Photo from ABC website. User submitted Ben Hansen
2. Roads flood in Rathdowney - Photo from ABC website.
3. The Logan River floods at Dulbolla Bridge, reaching its peak in the morning of January 5, 2008. The river's banks burst … isolating the town of Rathdowney. Photo from ABC website.

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 DNRW 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 East Queensland Floods
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1. Introduction

Intense rainfall occurred overnight on Friday 4th January in the headwaters of the Nerang, Coomera, Logan, Albert and Condamine Rivers. This caused flash flooding in the upper reaches of the Nerang and Coomera Rivers, Tallebudgera and Mudgeeraba Creek and in the Upper Condamine River at Killarney during Friday the night and then caused riverine flooding in the Albert, Logan, Condamine and Dumeresq rivers during the weekend (5-6 January).

The catchments involved all had significant rainfall in the week leading up to Friday 4 January and this reduced losses and saturated the soils. The onset of intense rainfall on to a saturated catchment caused very rapid runoff and fast river rises. Once the rainfall had stopped during Saturday morning, the flash flooding eased quickly. The rapid rises in the upper reaches of the Albert, Logan and Condamine rivers were routed significantly as the floods moved downstream and the severity of flooding reduced accordingly. This is most likely because the rainfall was much less significant in lower areas of the catchments and this was the first flood in many years.

There was significant damage to farming, bridges and low level crossings in the Logan and Albert Rivers and many areas were isolated for several days. Swift water rescues were required for many people in cars trapped in floodwaters from Mudgeeraba Creek but luckily no lives were lost during the event.

This report provides a summary and analysis of the meteorology and hydrology of the event.

Figure 1.0.1 Peak Flood Height Map for Queensland 1-10 January 2008

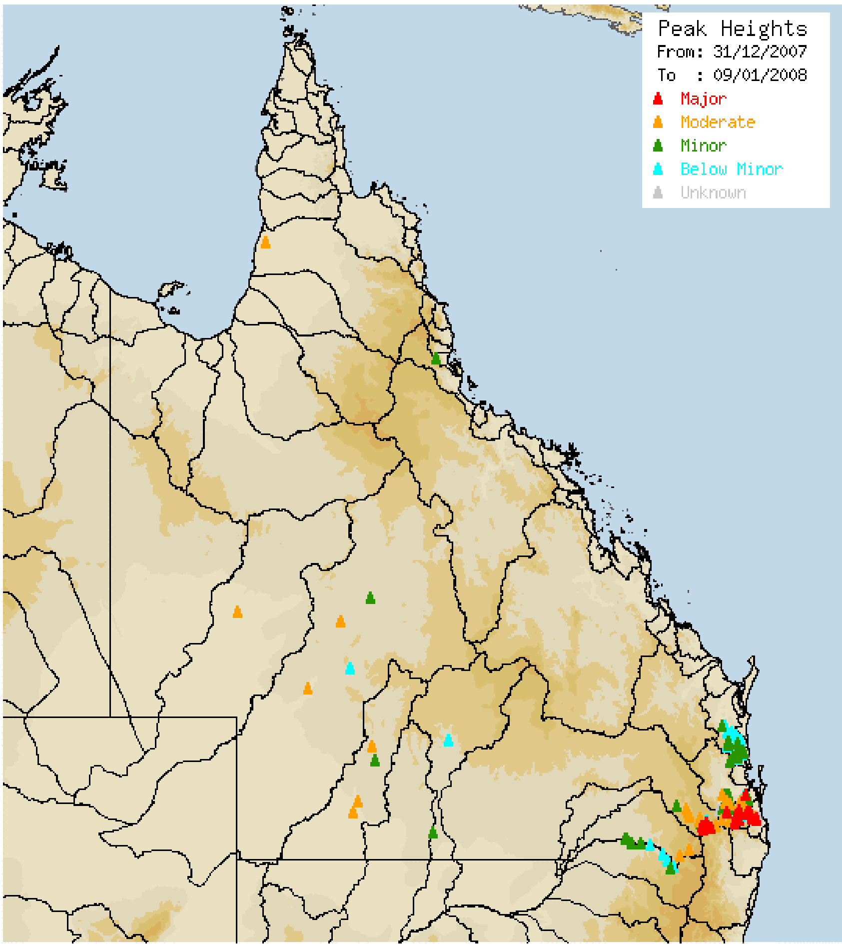


Figure 1.0.2 Peak flood Height Map for South East Queensland 1-10 January 2008

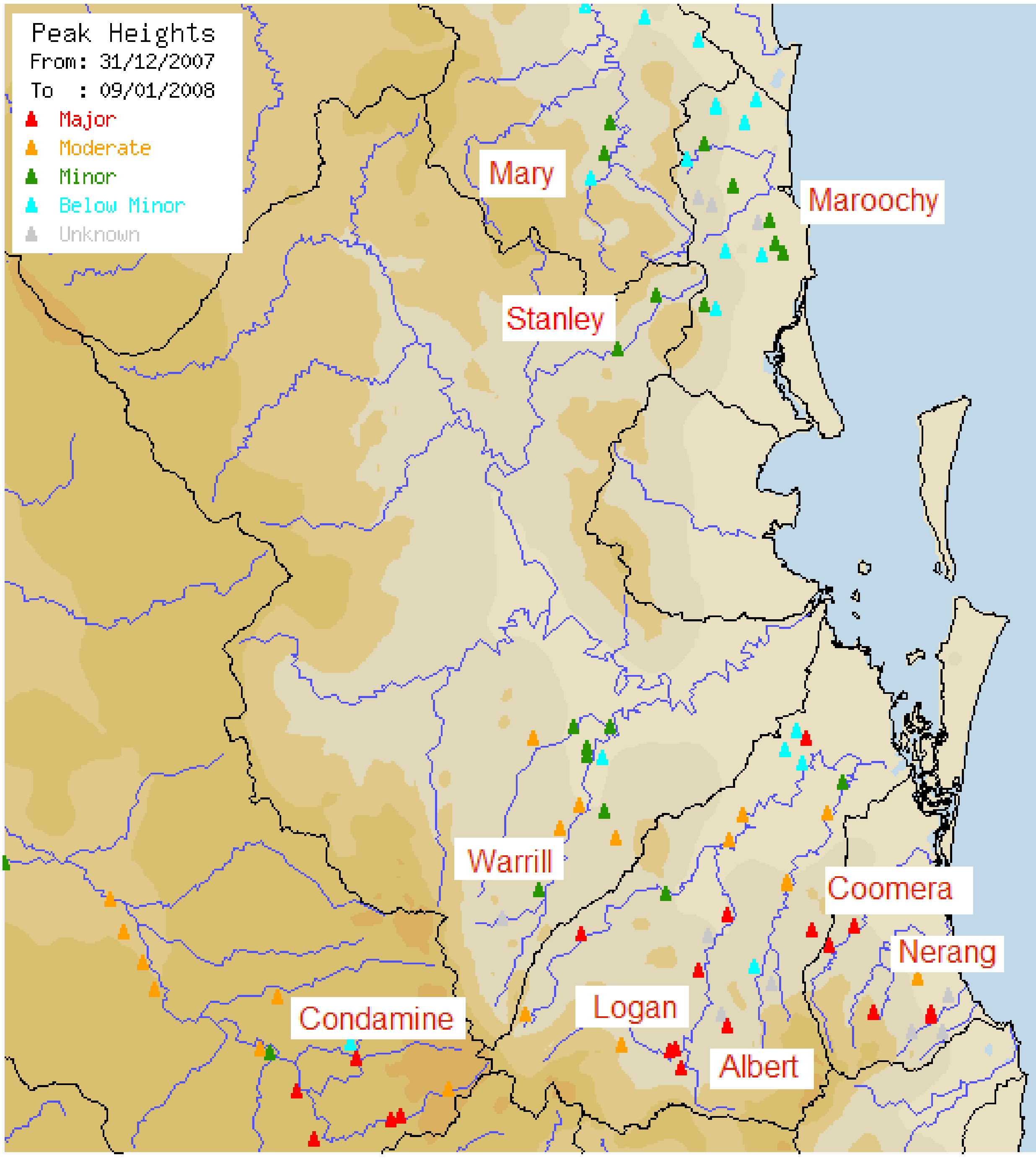
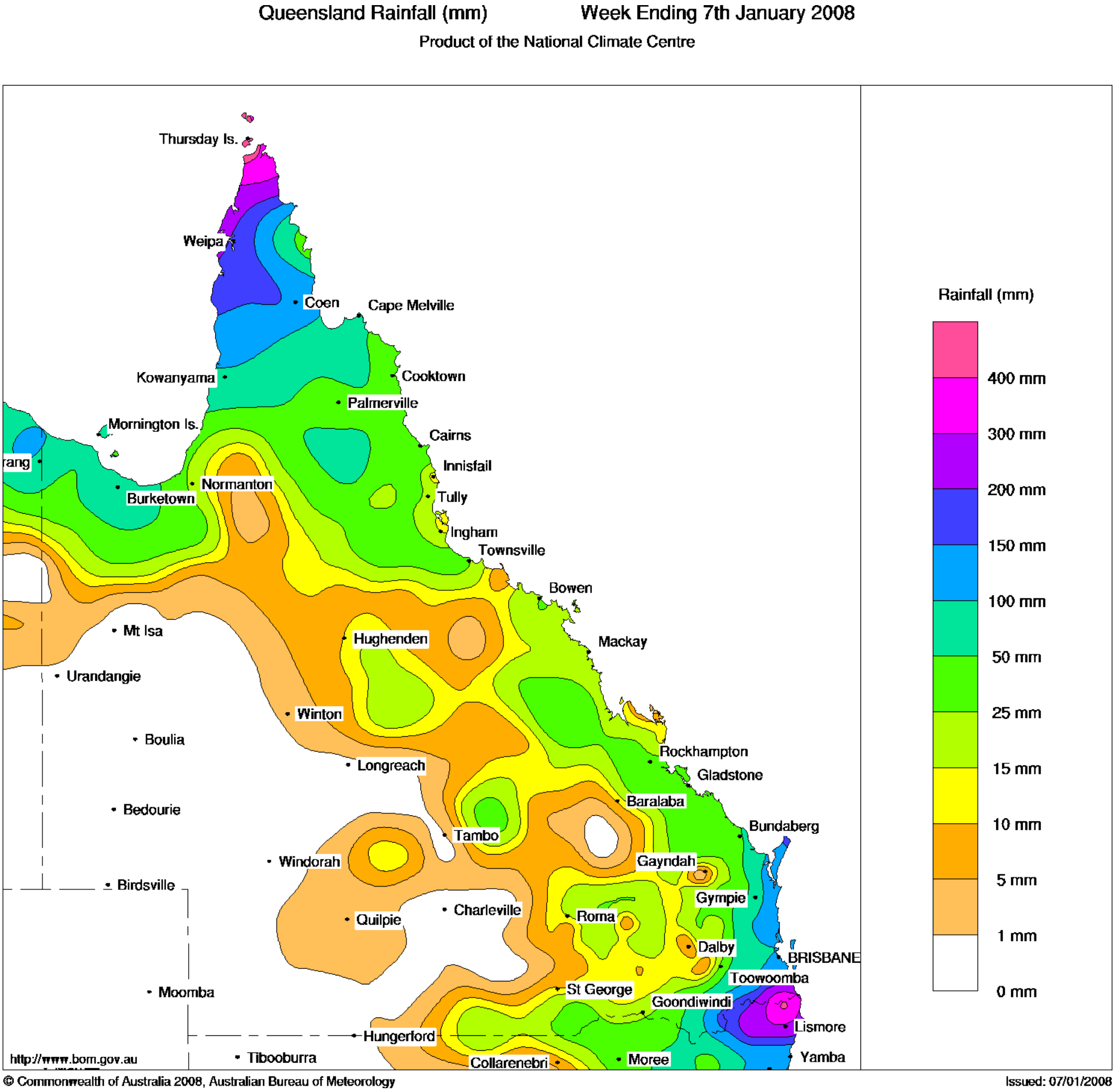


Figure 1.0.3 Rainfall Map of Queensland for the 7 Days to 7th January 2008



2. Meteorological Summary

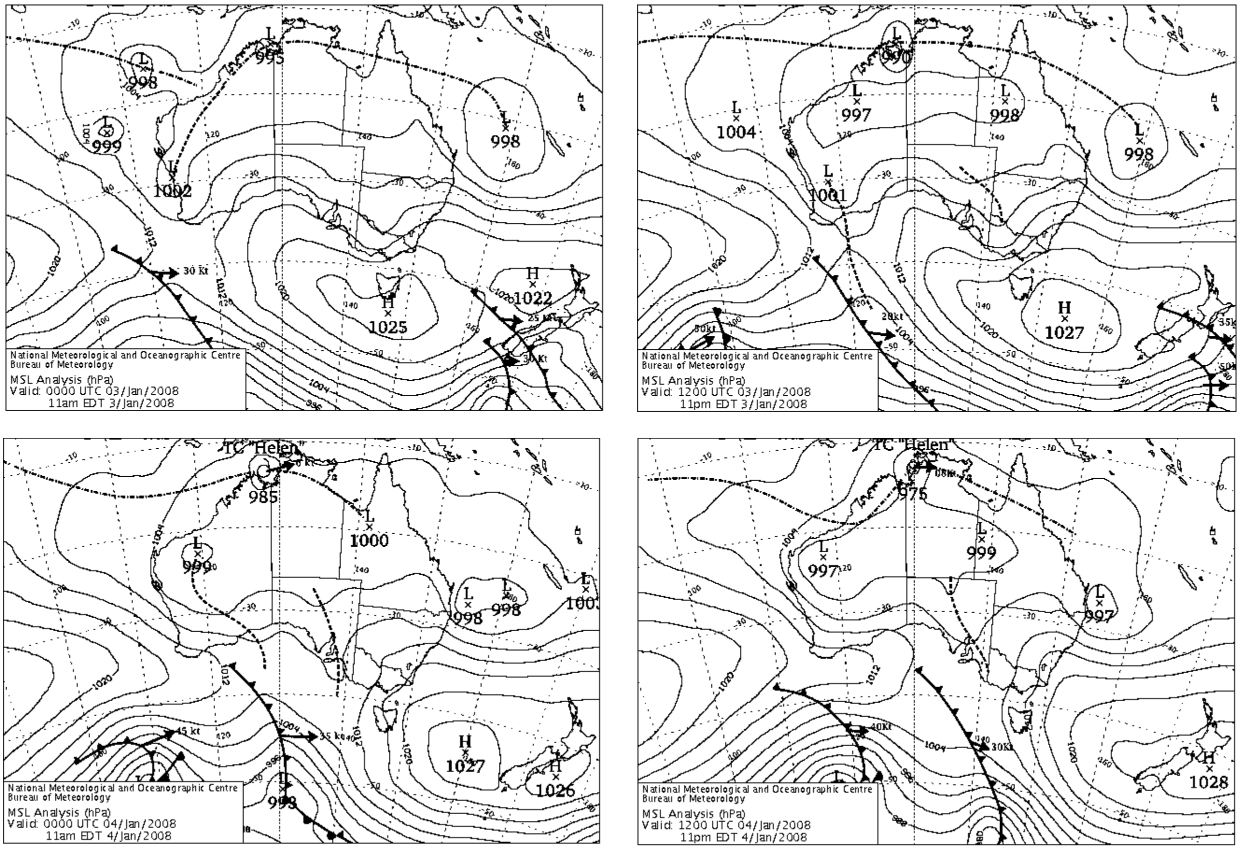
A low-pressure system that persisted over the Coral Sea since the 27th of December 2007 and brought strong winds, high seas and showery conditions to southeast Queensland, began to track south-southwest during the 3rd of January 2008. By 10am on the 4th of January the low was positioned adjacent to the south Queensland coast. At the same time an upper low moved over the region. The two systems interacted to produce flood rainfall over southeast Queensland and Northern New South Wales.

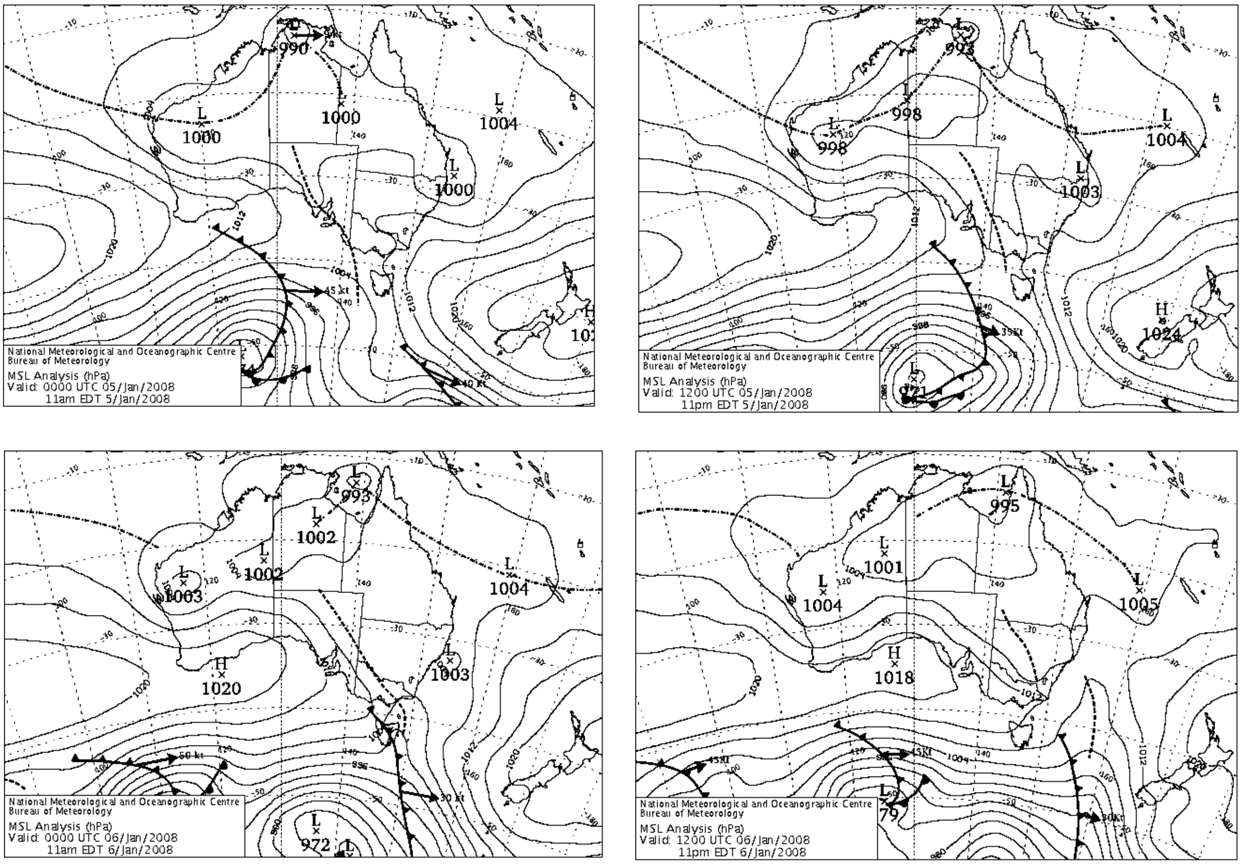
This chapter presents a discussion and analysis of the meteorological conditions that led to the intense rainfall.

2.1 Meteorological Analysis

Flood rains over the Gold Coast Hinterland and Northern New South Wales that occurred overnight on the 4th of January resulted from a surface low-pressure system interacting with a low at 5500 metres above the surface. The Mean Sea Level Pressure analysis for 10am EST on the 2nd of January, see Figure 2.1.1, shows the low-pressure system over the southern Coral Sea. This low had been a feature of the Mean Sea Level Pressure Chart since the 27th of December 2007 and brought strong to gale force winds, showery conditions and very rough seas to coastal parts of southern Queensland.

Figure 2.1.1 Weather Charts for Australia from the 3rd to 6th of January 2008.

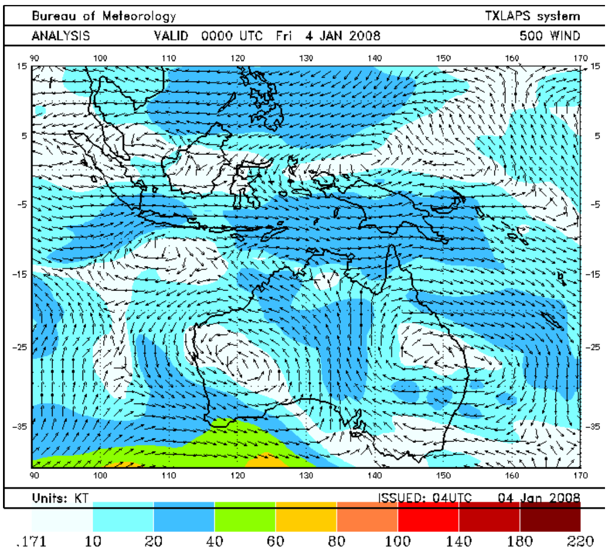




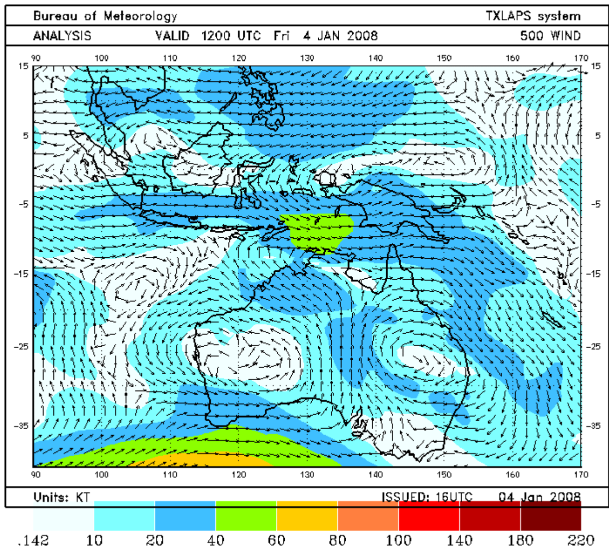
Over the following two days the low tracked south-southwest, to be located adjacent to the southern Queensland coast by 10am on the 4th of January. An intense pressure gradient between this low and the high pressure system located over the Tasman Sea produced strong to gale force onshore flow to the southern coast and adjacent inland areas.

The development of an upper low over land to the west of the Mean Sea Level low-pressure system was also occurring at a level 5,500 metres above the surface, as can be seen in the analysis at Figure 2.1.2. At 10am EST on the 4th of January this low was located west of the heavy rainfall area.

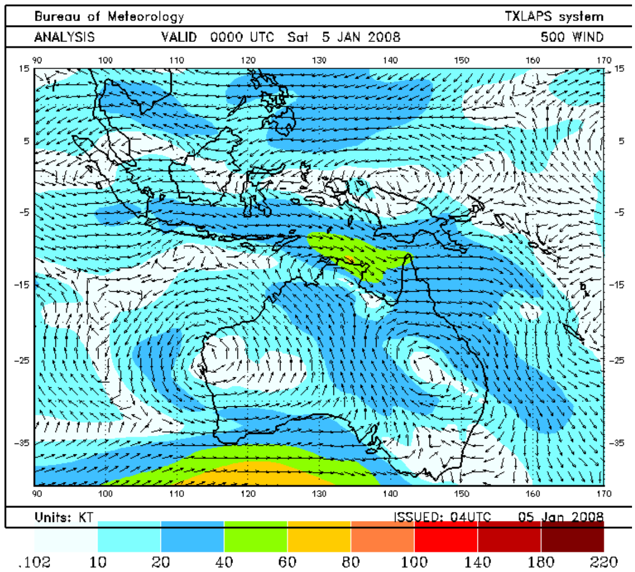
Figure 2.1.2 Upper wind charts (5500 metres) for Australia from the 4th to the 5th of January 2008.



10am on Friday 4th of January.



10pm on Friday 4th of January.



10am on Saturday 5th of January.

The low became more organised over the following 12 hours and enhanced the vertical wind profile that saw winds turning anti-clockwise with height. Such a profile depicts Warm Air Advection (WAA) characteristic of the ascent of air and the formation of rainbands. Studies by Bonell, Callaghan and Connor (2005) have revealed that intense rainfall in southeast Queensland is typically associated with a vertical wind profile that sees winds turning anti-clockwise with height, namely WAA, with the highest rainfalls recorded from events where winds were mostly in the north-east quadrant.

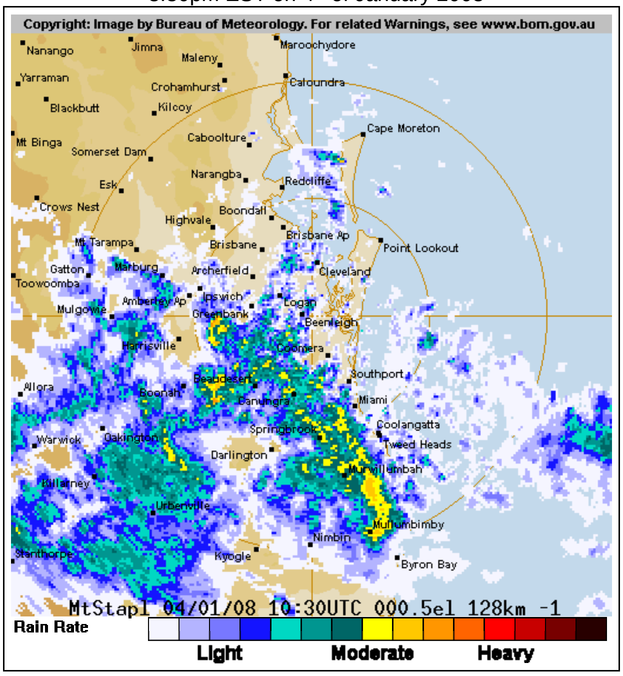
Winds over the area earlier on the 4th were typically southeast to east as deduced from the 9am Upper Wind observations at Brisbane Airport and the wind analysis output by computer models. The resulting rain throughout the early part of the day on the 4th of January was persistent but only of light to moderate intensity. However, upper air observations (again from Brisbane Airport) at 9pm EST on the 4th of January, along with computer model analysis indicated a vertical wind profile of winds turning anti-clockwise with height with winds mostly in the east to northeast quadrant. This was coincident with the most intense rainfalls over the area, occurring between 8:30pm and 11:30pm EST on the 4th of January. The 9am upper wind observations from Brisbane Airport on the morning of the 5th of January showed winds turning clockwise with height indicative of more stable conditions and consequently the rain over southeast Queensland eased.

2.2 Radar Imagery Analysis

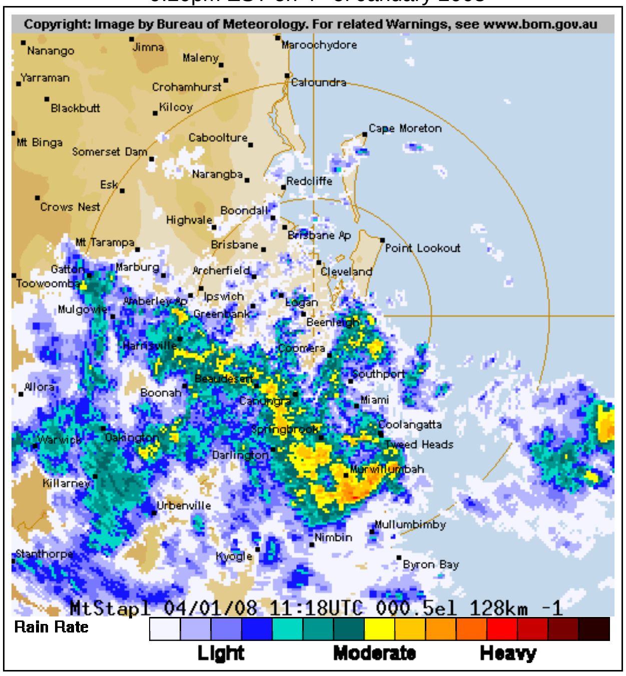
Mt Stapylton 3-dimensional volumetric radar imagery was available throughout the event. An analysis of this data shows light to moderate rainfall persisting over Southeast Queensland throughout the 3rd and early on the 4th of January 2008, with some isolated higher intensity signals. The intensity then increased over the coast and hinterland areas later on the 4th of January with radar signatures indicating embedded thunderstorms in rainbands from about 7pm EST. Thunderstorm embedded rain bands then persisted about these parts for the next 4 – 5 hours with maximum intensities occurring between 8:30pm and 11:30pm EST. Figure 2.2.1 shows radar imagery from the Mt Stapylton radar for selected times between 8:30 pm and 10:30 pm on the 4th of January 2008. Highest short-term rainfall intensities coincide with larger areas of persistent thunderstorm activity within the rain bands. By midnight on the 4th of January, persistent thunderstorm activity moved further westward to areas just east of Warwick, consistent with higher intensity rainfalls at Killarney Alert and Carrs Lookout Alert. See figure 3.2.6 for rainfall analysis for Carrs Lookout and Killarney.

Figure 2.2.1 Radar Pictures from the Mt Stapylton Radar for selected times between 8:30pm and 10:30pm on the 4th of January 2008.

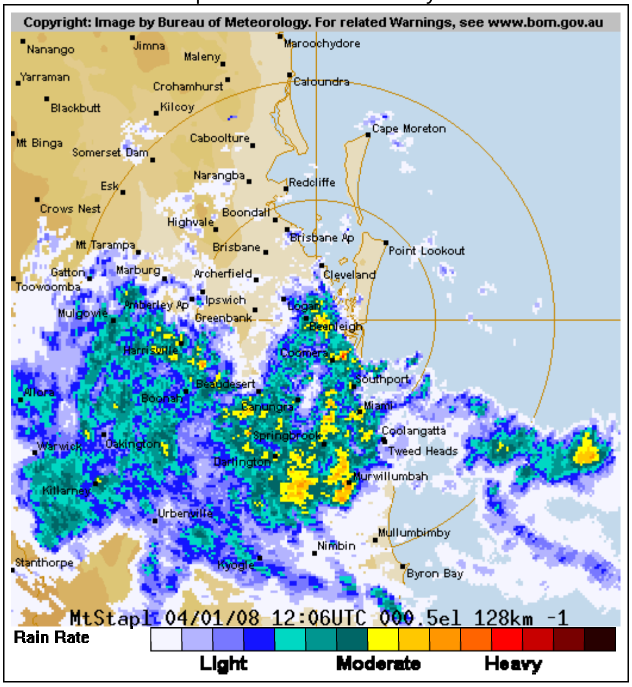
8:30pm EST on 4th of January 2008



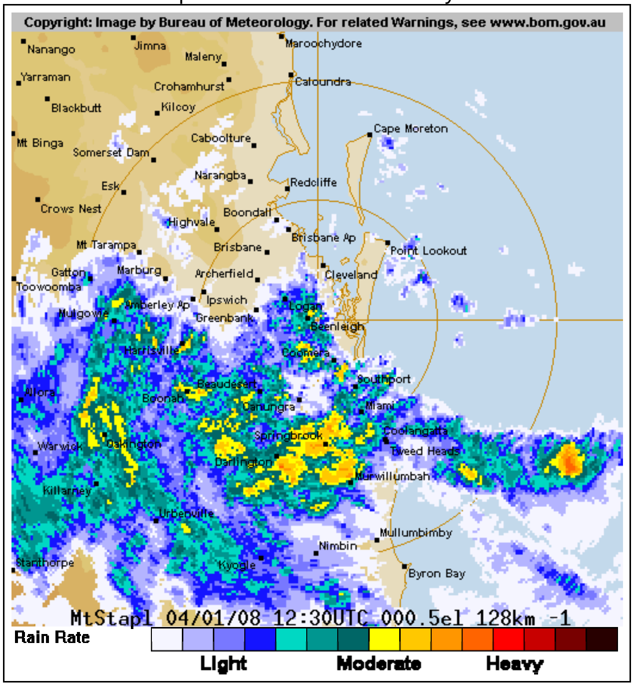
9:20pm EST on 4th of January 2008



10:06pm EST on 4th of January 2008



10:30pm EST on the 4th of January 2008



3. Hydrology

The flooding in the Nerang, Logan and Albert Rivers during the 5th to 8th January caused considerable damage and was the most significant flooding in the region since at least 1996 and some cases 1991. As can be seen from Table 3.0.1, several locations had their highest flood on record and others were the highest for many years.

In the Upper Logan River catchment, major flooding in Running Creek at Diekmans Bridge reached its highest level on record with Bureau records starting in 1967.

In the upper reaches of the Logan River, major flooding was the highest since 1991 at Round Mountain and the highest on record at Beaudesert but the records for this site only go back to 1996. Further downstream at Waterford levels were the highest since 1996 but only reached minor flood level.

Major flood levels in the Albert River at Bromfleet were the highest since 1989 and the 8th highest on record with records going back 1928. Further downstream, moderate flood levels at Wolfdene were the highest since 1990 and minor flooding at Beenleigh was the highest since 1989 but records are limited.

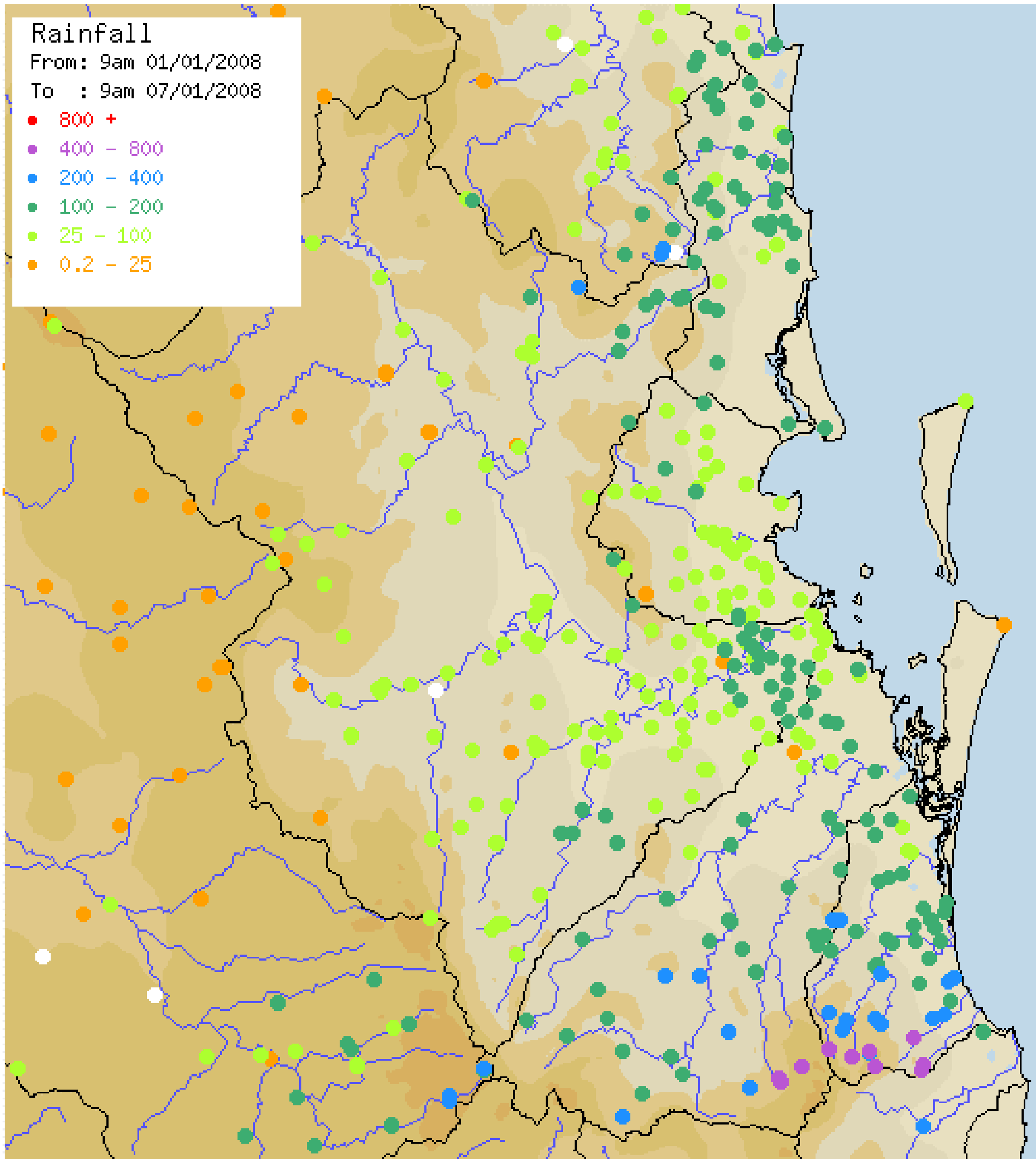
In the Condamine River, Major Flood Levels at Brosnans Barn were the highest on record with records going back to 1979. Further downstream the major flood levels at Killarney were the highest since 1968 and the 7th highest on record with records going back to 1911. This caused moderate flooding downstream at Warwick with levels being the highest since 1996.

Table 3.0.1 Peak Height Comparison to Records

Gauging Station	Jan 2008 Peak (metres)	Start of Record	Ranking	Highest Since	Highest on Record
Logan River at Rathdowney	12.38m	1947	4th	Feb 1991 (17 years)	14.50m Jan 1947
Running Creek at Diekmans Bridge	8.25m	1967	1st	New Record (41 years)	New Record
Christmas Creek at Rudds lane	6.85m	1989	2nd	April 1989 (19 years)	6.95m 26/04/1989
Logan River at Dulbolla	12.90m	1963	6th	Feb 1992 (16 years)	15.24m Jan 1893
Logan River at Round Mountain	15.60m	1959	4th	Feb 1991 (17 years)	18.98m 11/02/1976
Logan River at Beaudesert	13.20m	1996	1st	New Record (11 years)	New Record
Logan River at Maclean Bridge	15.02m	1959	6th	Feb 1991 (17 years)	21.22m 19/02/1974
Logan River at Waterford	6.00m	1887	17th	May 1996 (11 years)	13.70m 25/1/1887
Albert River at Bromfleet	15.23m	1928	8th	April 1989 (19 years)	16.31m 20/02/1954
Albert River at Wolfdene	8.00m	1970	13th	May 1996 (11 years)	13.70m 26/01/1974
Condamine River at Brosnans Barn	6.24m	1979	1st	New Record (29 years)	New Record
Condamine River at Killarney	6.60m	1911	7th	Jan 1968 (40 years)	8.05m 18/02/1959
Condamine River at Elbow Valley	6.24m	1973	2nd	Feb 1976 (31 years)	6.68m 11/02/1976
Condamine River at Murray Bridge	7.55m	1995	2nd	May 1996 (11 years)	7.85m 06/05/1996
Condamine River at Warwick	6.04m	1887	29th	May 1996 (11 years)	9.10m 11/02/1976
Nerang River at Little Nerang Dam	3.30m	1996	1st	New Record (11 years)	New Record
Mudgeeraba Ck at Mudgeeraba Ck AL	4.42m	1996	1st	New Record (11 years)	New Record
Tallebudgera Ck at Tallebudgera Ck Rd	6.55m	1971	1st	New record (37 years)	New Record

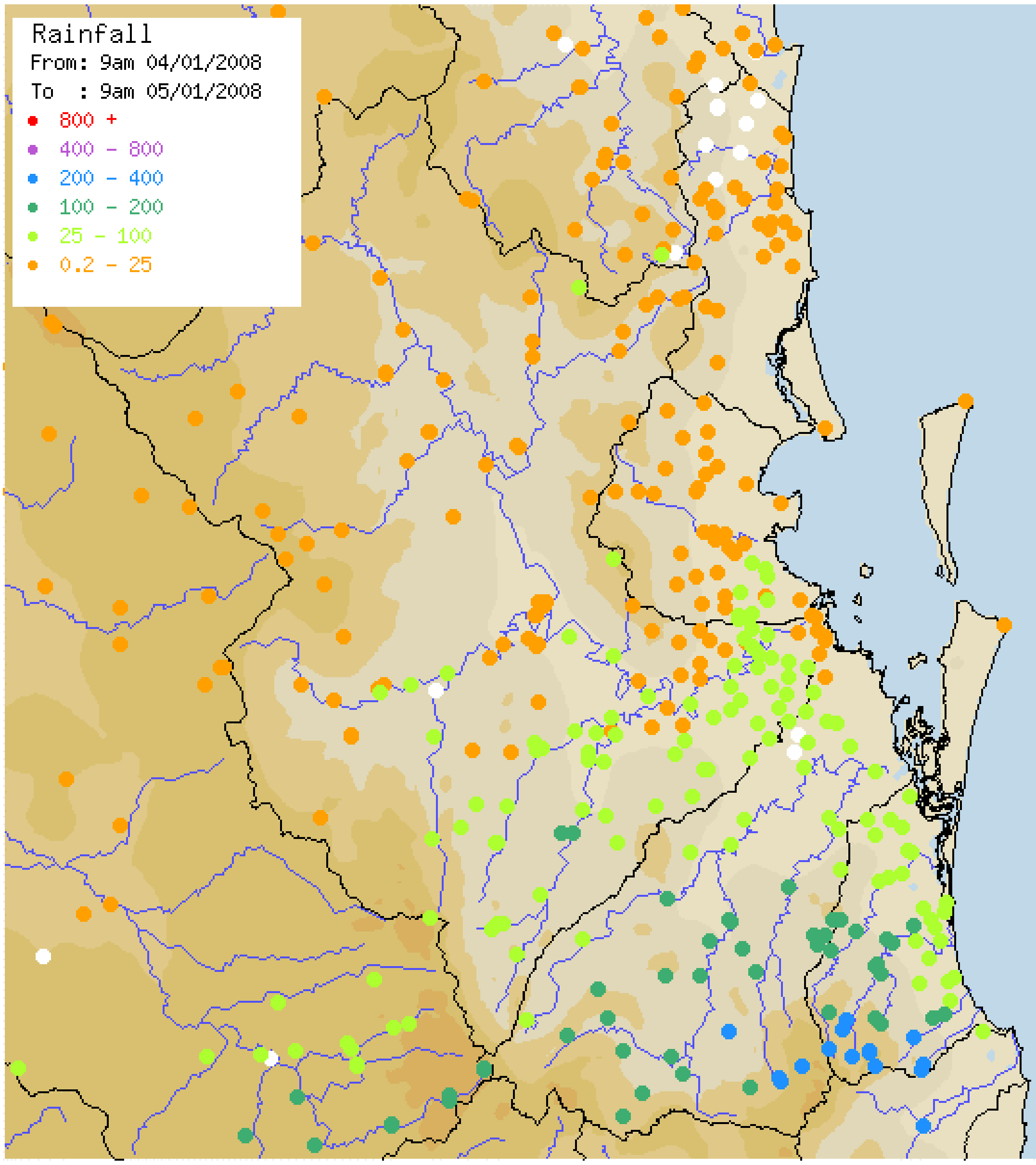
3.1 Rainfall Maps

Figure 3.1.1 Rainfall Map of South East Queensland for the 7 Days to 7th January 2008



This maps shows the good rainfall recorded during the 7 days to 7th January along the South East Coast and especially in the border ranges. Most catchments were saturated before the heavy rainfall that occurred on the night of the 4th January.

Figure 3.1.2 Rainfall Map of South East Queensland for the 24 hours to 9am 5th January 2008



This map shows the significant gradient of rainfall across the catchments. The rainfall in the headwaters was up to 5 times higher than in the flood plains.

Figure 3.1.3 Rainfall Maps for Logan/Albert and South Coast for 96 hrs to 09:00 05 January 2008

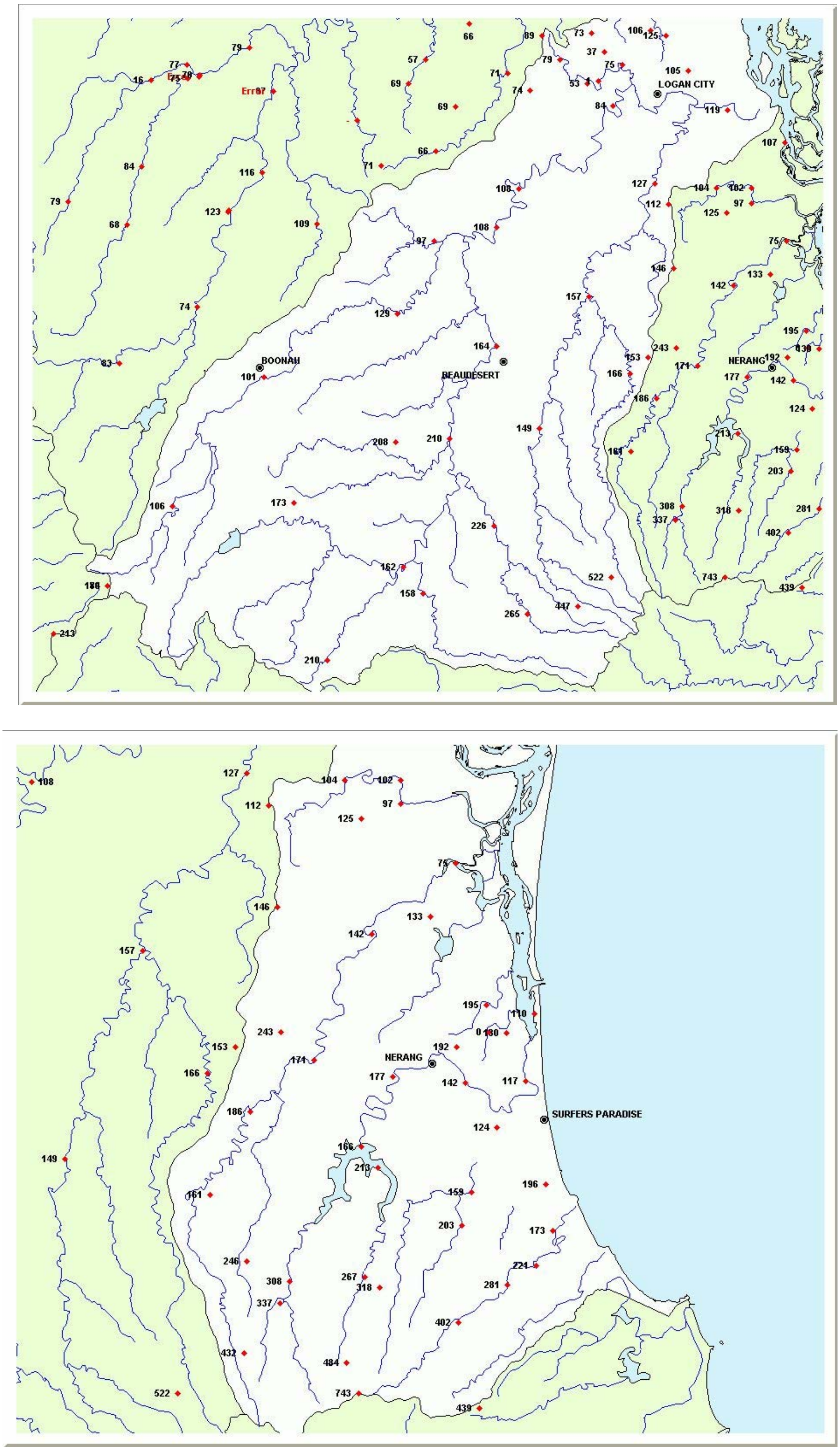
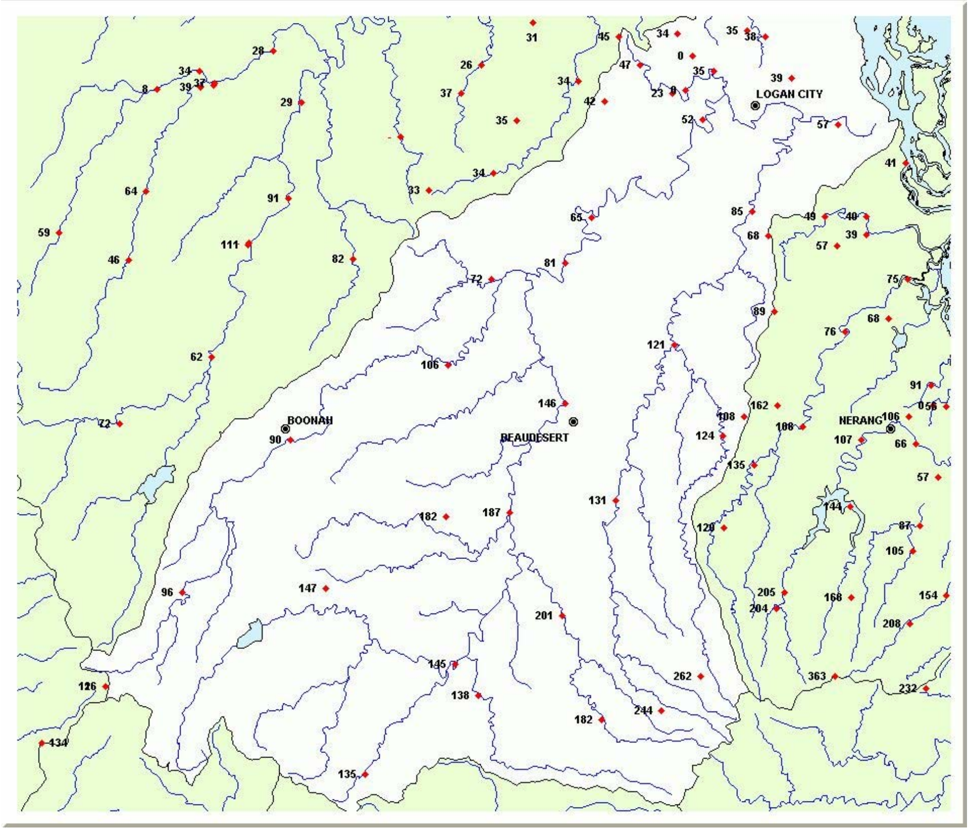


Figure 3.1.4 Rainfall Maps for Logan/Albert and South Coast for 24 hrs to 09:00 05 January 2008



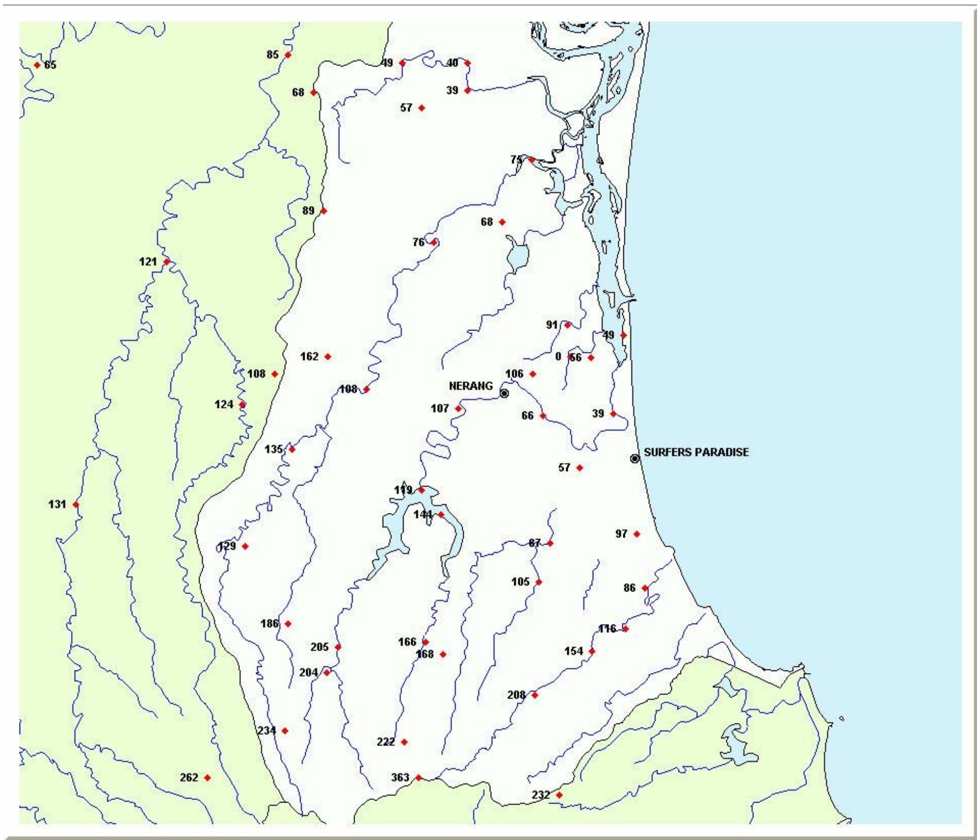
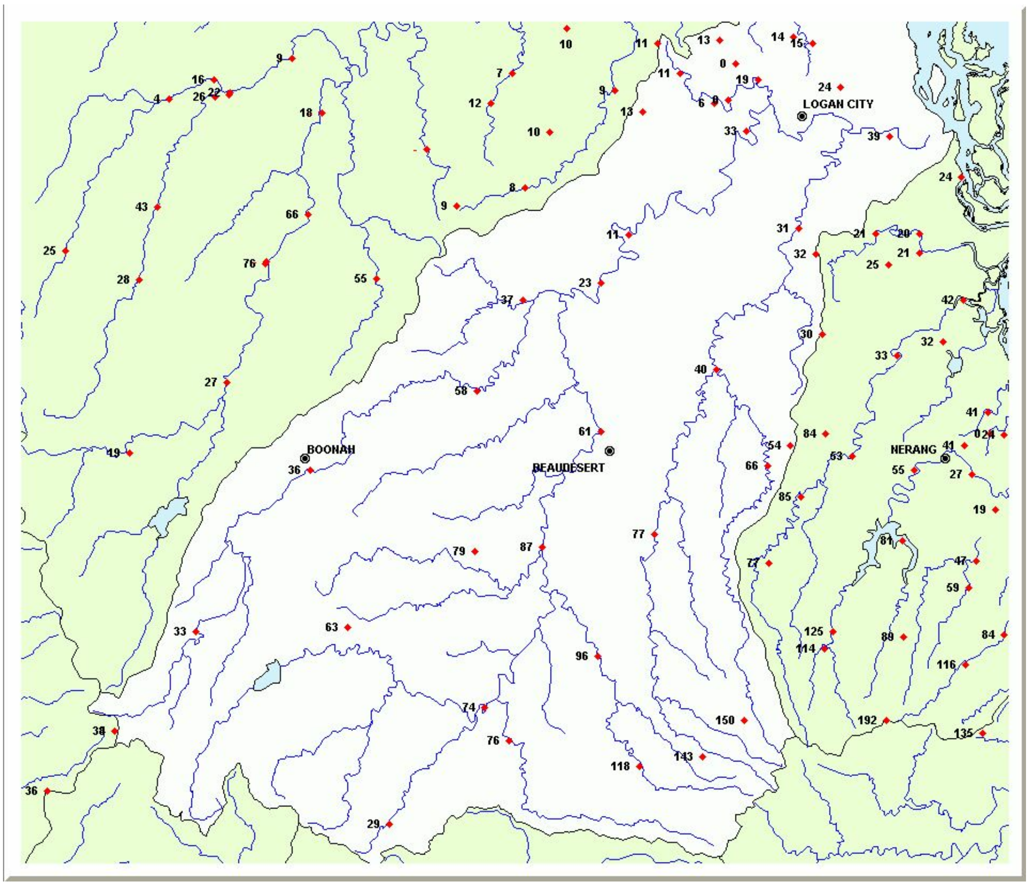


Figure 3.1.5 Rainfall Maps for Logan/Albert and South Coast for 3 hrs to 00:00 05 January 2008



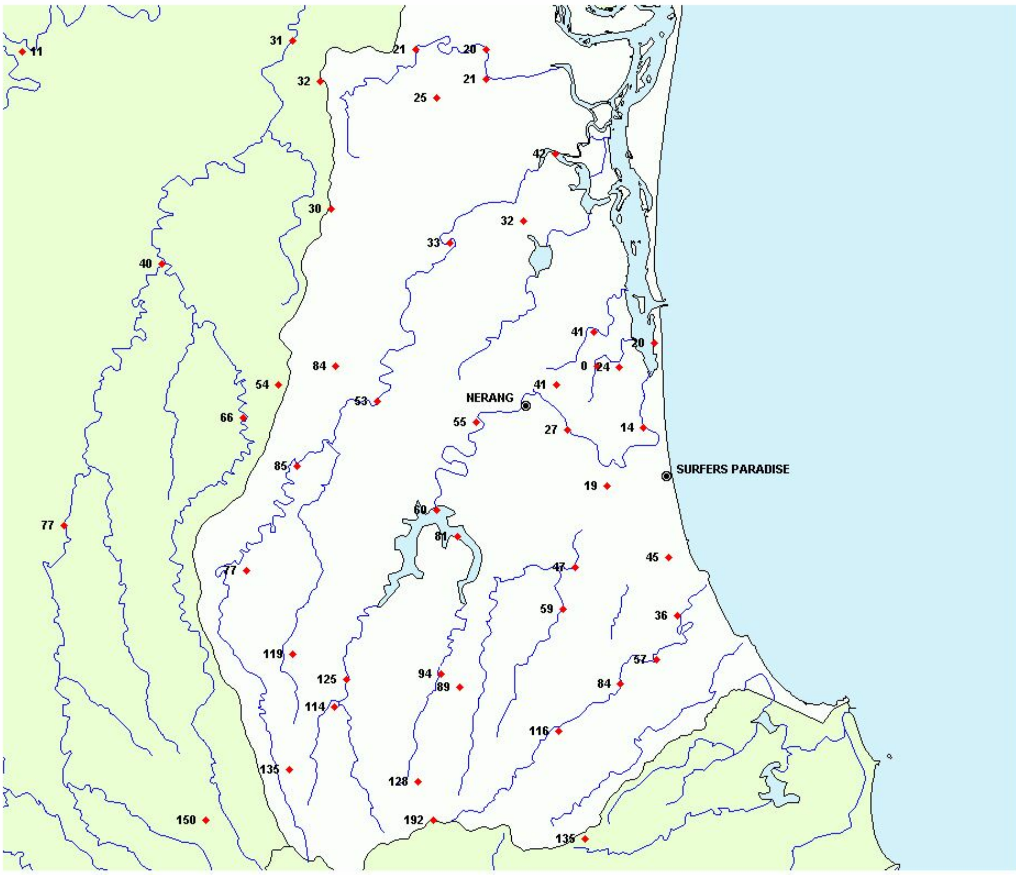


Figure 3.1.6 Rainfall Maps for Condamine for 96 hrs to 09:00 05 January 2008

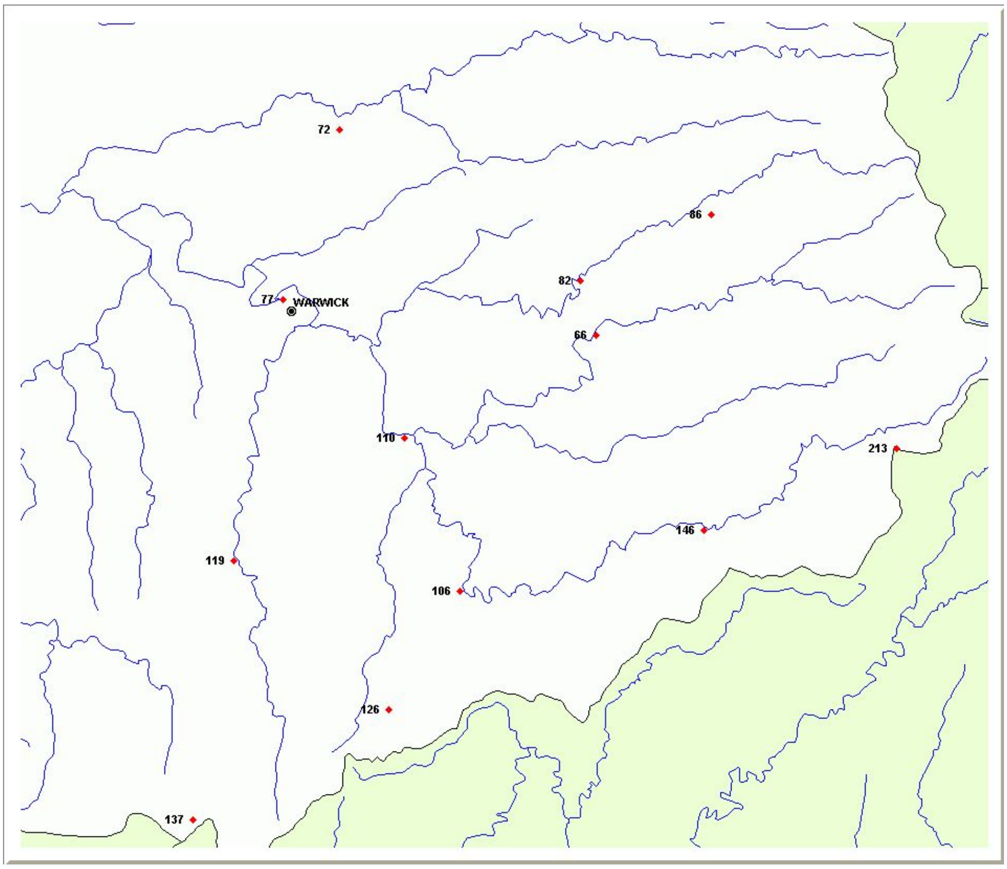


Figure 3.1.7 Rainfall Maps for Condamine for 24 hrs to 00:00 05 January 2008

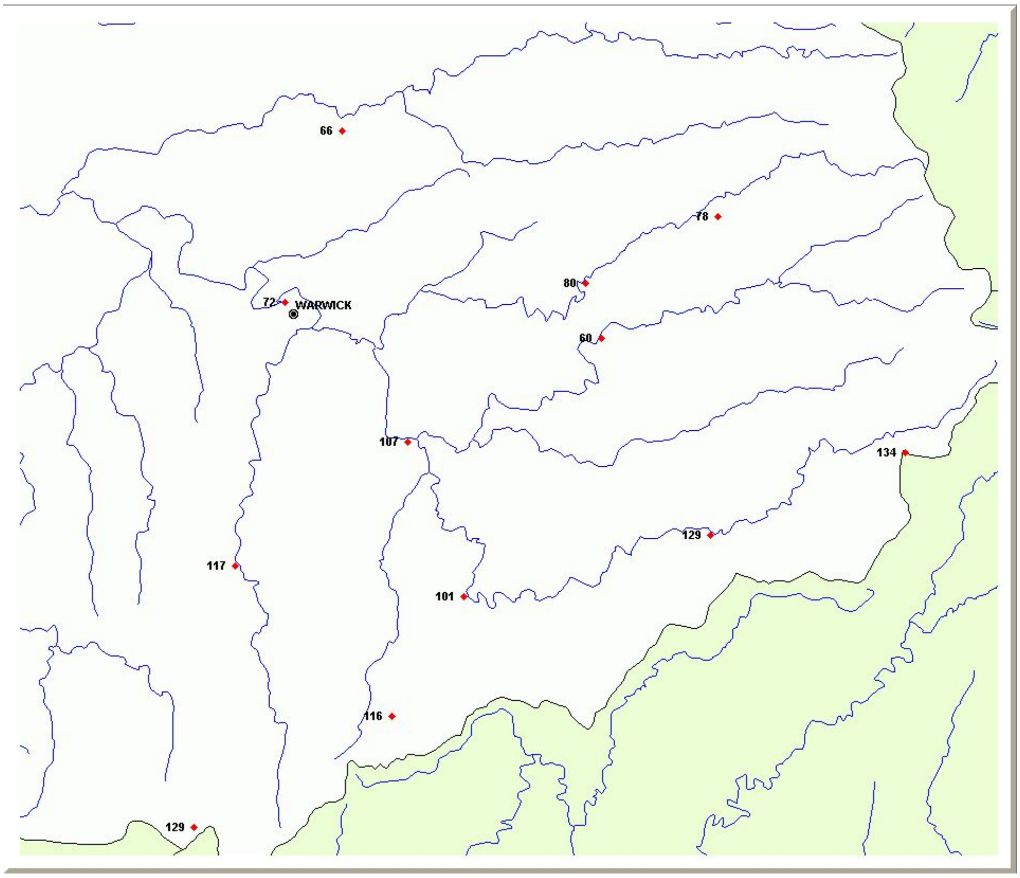
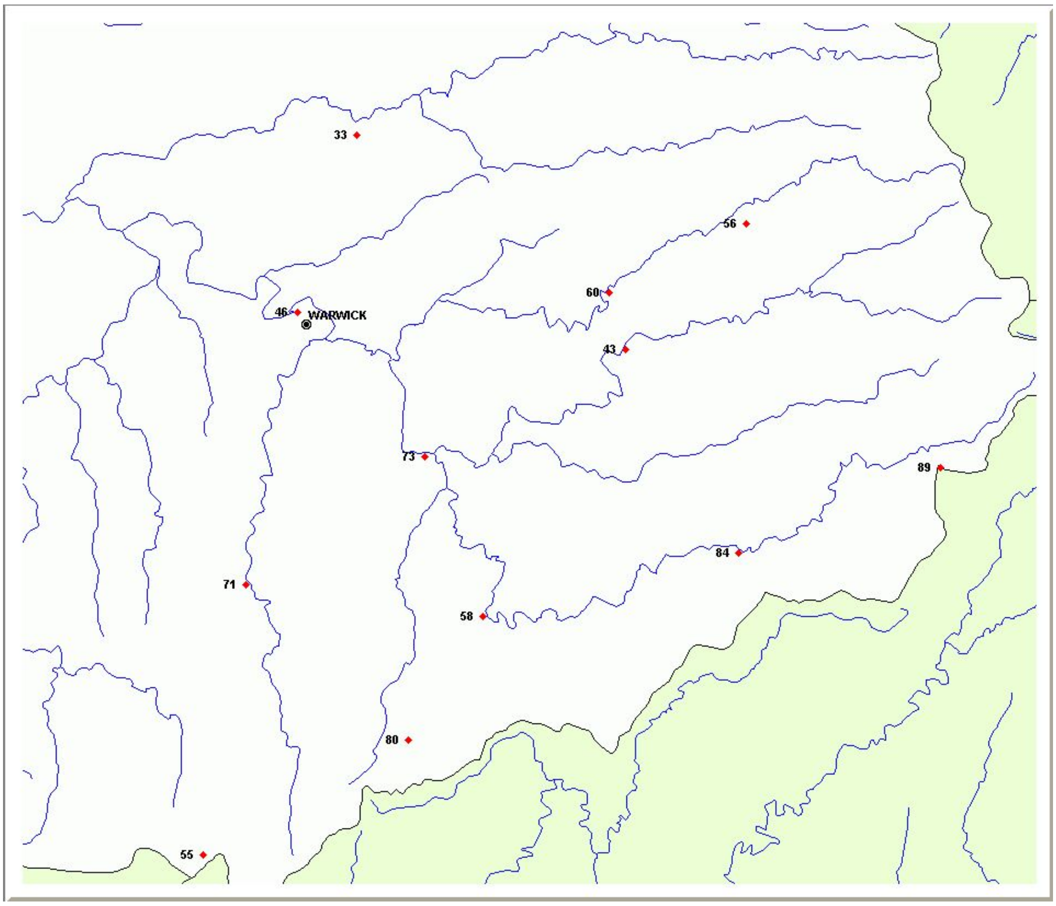


Figure 3.1.8 Rainfall Maps for Condamine for 6 hrs to 03:00 05 January 2008



3.2 Rainfall Intensity

The most intense rainfall during the 1-7 January 2008 was in the headwaters of the Nerang, Logan, Albert and Condamine Rivers. Some key stations from these catchments have been chosen for Intensity Frequency Duration (IFD) analysis and the results can be found in Figures 3.2.1 to 3.2.6.

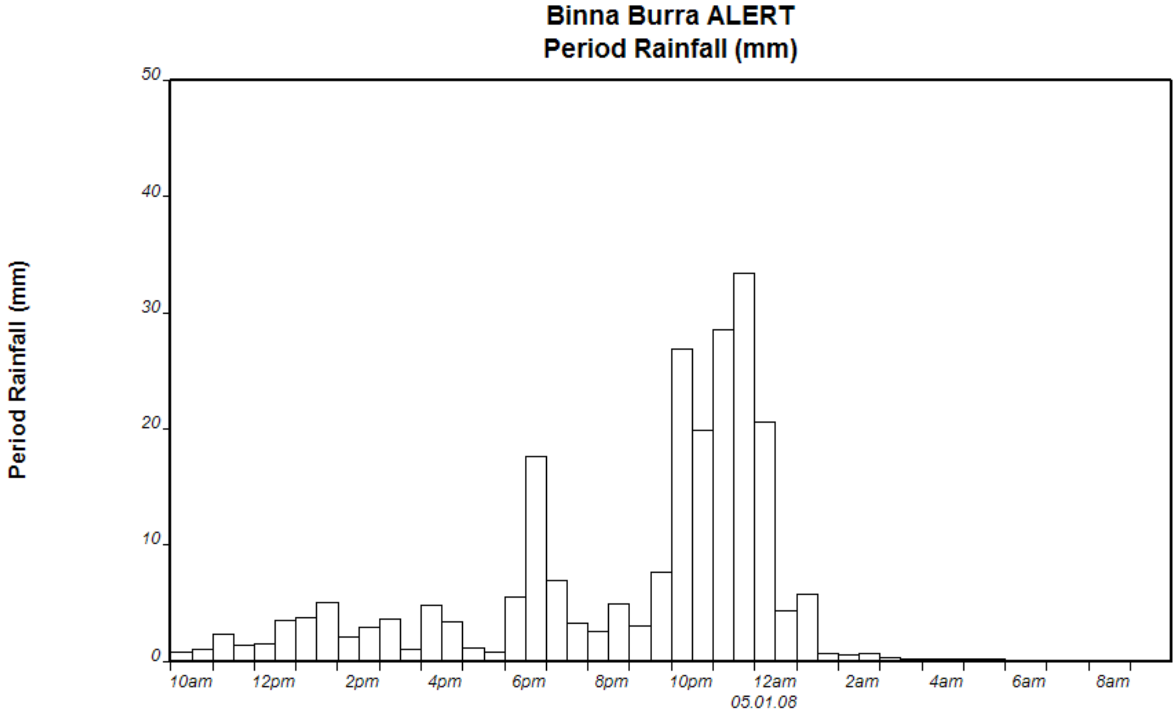
The most statistically significant rainfall was in the headwaters of the Albert River at O'Reillys ALERT where 793 millimetres was recorded in the 7 days to 9am 6th January 2008. The observed rainfall intensities during the night of the 4th January have been assessed as exceeding 1% AEP (100 year Average Recurrence Interval (ARI) intensities for durations between 2 and 6 hours. (Figure 3.2.4)

The highest rainfall total was in the headwaters of the Nerang River at Upper Springbrook where 1027 millimetres was recorded in the 7 days to 9am 6th January 2008. A comparison of observed intensities to IFD intensities for the rainfall at Upper Springbrook can be found in Figure 3.2.2 and shows that the maximum observed 3 hour intensity during the event exceeded the 1% AEP (100 year ARI) intensity.

The rainfall in the Upper Condamine was less significant statistically. The IFD analysis of observed data for Carr's Lookout and Killarney indicates the rainfall intensities were at most 5% AEP (20 year ARI). These intensities on a saturated catchment caused a very significant flash flood at Killarney and the highest flood on record at Brosnan's Barn.

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 3.2.1 Half Hourly Hyetographs for Binna Burra and Upper Springbrook



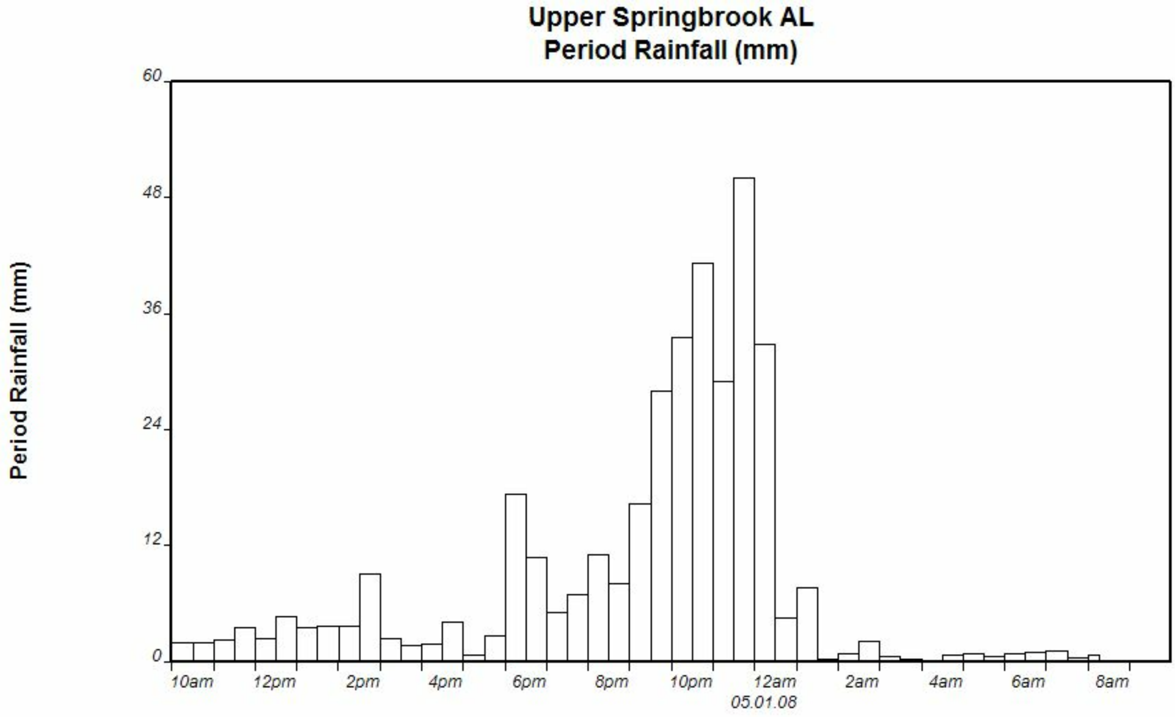


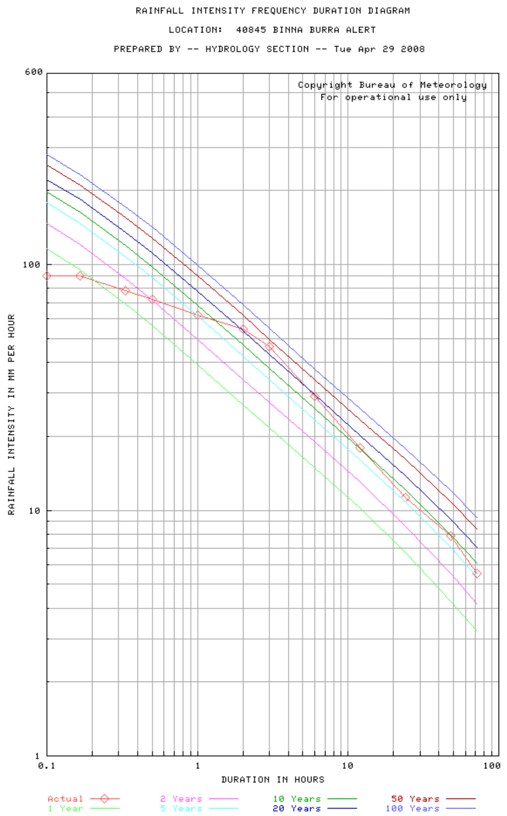
Figure 3.2.2 Intensity Frequency Duration Rainfall Analysis for Binna Burra and Upper Springbrook

RAINFALL INTENSITY FREQUENCY DURATION ANALYSIS

LOCATION: 40845 BINNA BURRA ALERT

Analysis of the rainfall for the 2861 hours to Tue Apr 29 14:24:44 2008

Rain (mm)	Period Ending	ARI (years)
8	5 mins ending at 21:22:31 04/01/2008	< 1
9	6 mins ending at 21:22:31 04/01/2008	< 1
15	10 mins ending at 22:44:16 04/01/2008	1
26	20 mins ending at 22:45:56 04/01/2008	1-2
36	30 mins ending at 22:47:28 04/01/2008	2-5
62	60 mins ending at 22:56:25 04/01/2008	5-10
109	2 hours ending at 23:07:58 04/01/2008	20-50
139	3 hours ending at 23:40:51 04/01/2008	20-50
175	6 hours ending at 23:29:31 04/01/2008	10-20
216	12 hours ending at 00:19:43 05/01/2008	10-20
270	24 hours ending at 00:17:54 05/01/2008	5-10
377	48 hours ending at 02:32:33 05/01/2008	5-10
399	72 hours ending at 01:15:06 05/01/2008	5-10



RAINFALL INTENSITY FREQUENCY DURATION ANALYSIS

LOCATION: 540400 UPPER SPRINGBROOK ALERT

Analysis of the rainfall for the 167 hours to Sun Jan 6 12:50:31 2008

Rain (mm)	Period Ending	ARI (years)
12	5 mins ending at 22:54:16 04/01/2008	1-2
14	6 mins ending at 22:55:03 04/01/2008	1-2
21	10 mins ending at 22:55:54 04/01/2008	2-5
37	20 mins ending at 22:58:11 04/01/2008	5
52	30 mins ending at 23:08:11 04/01/2008	10
88	60 mins ending at 23:10:05 04/01/2008	20-50
155	2 hours ending at 23:20:26 04/01/2008	50-100
214	3 hours ending at 23:30:25 04/01/2008	> 100
274	6 hours ending at 23:20:26 04/01/2008	50-100
333	12 hours ending at 00:24:25 05/01/2008	20-50
435	24 hours ending at 23:34:49 04/01/2008	10-20
642	48 hours ending at 00:24:25 05/01/2008	10-20
694	72 hours ending at 00:24:25 05/01/2008	5-10

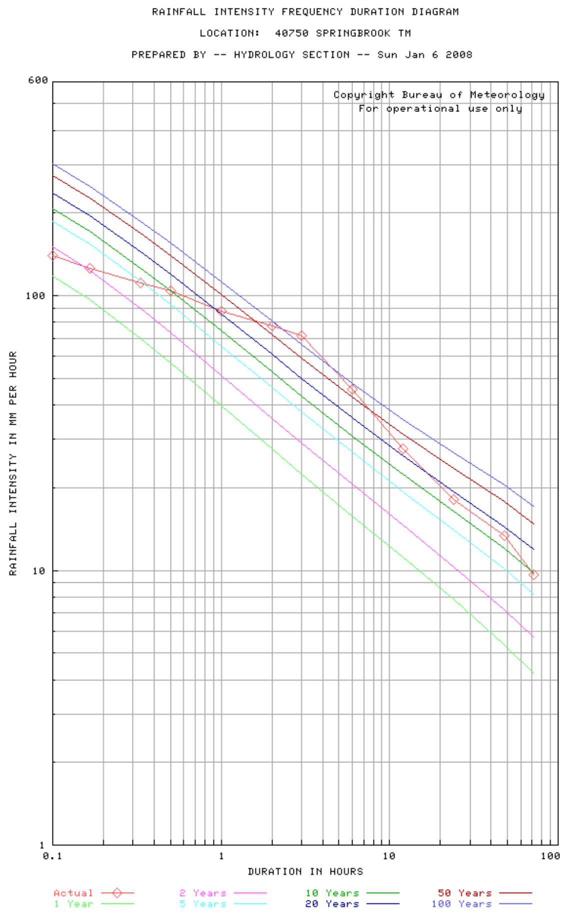
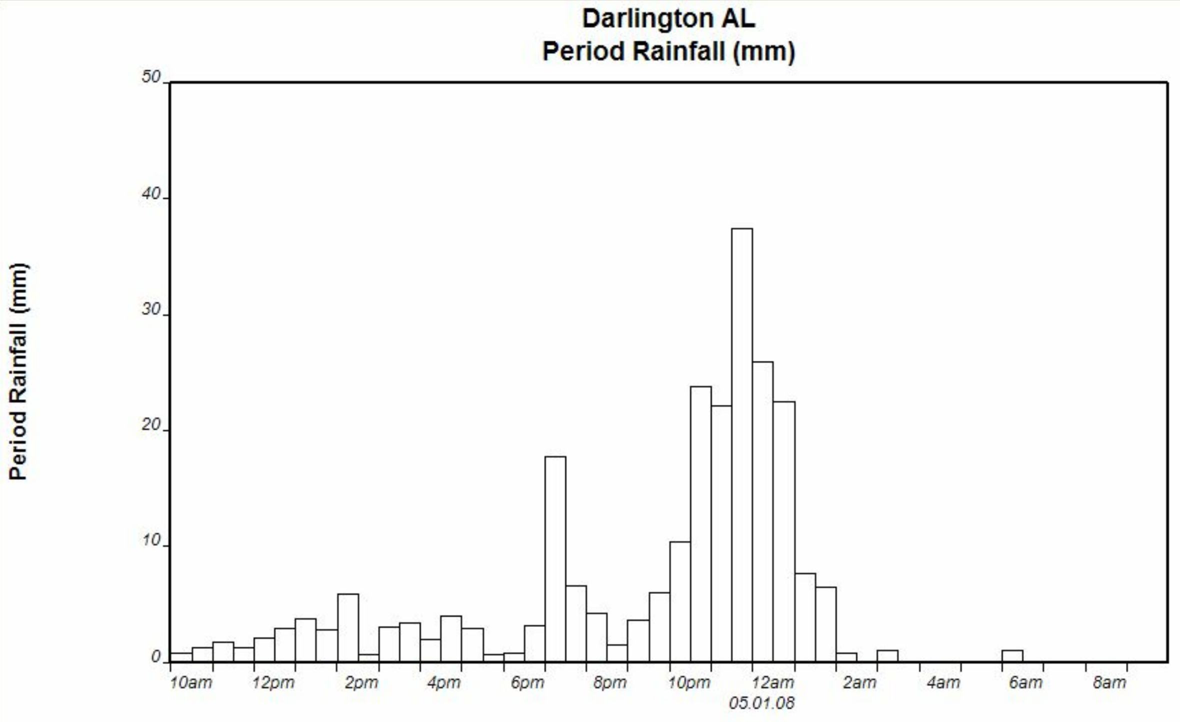


Figure 3.2.3 Half Hourly Hyetographs for Darlington and O'Reilleys



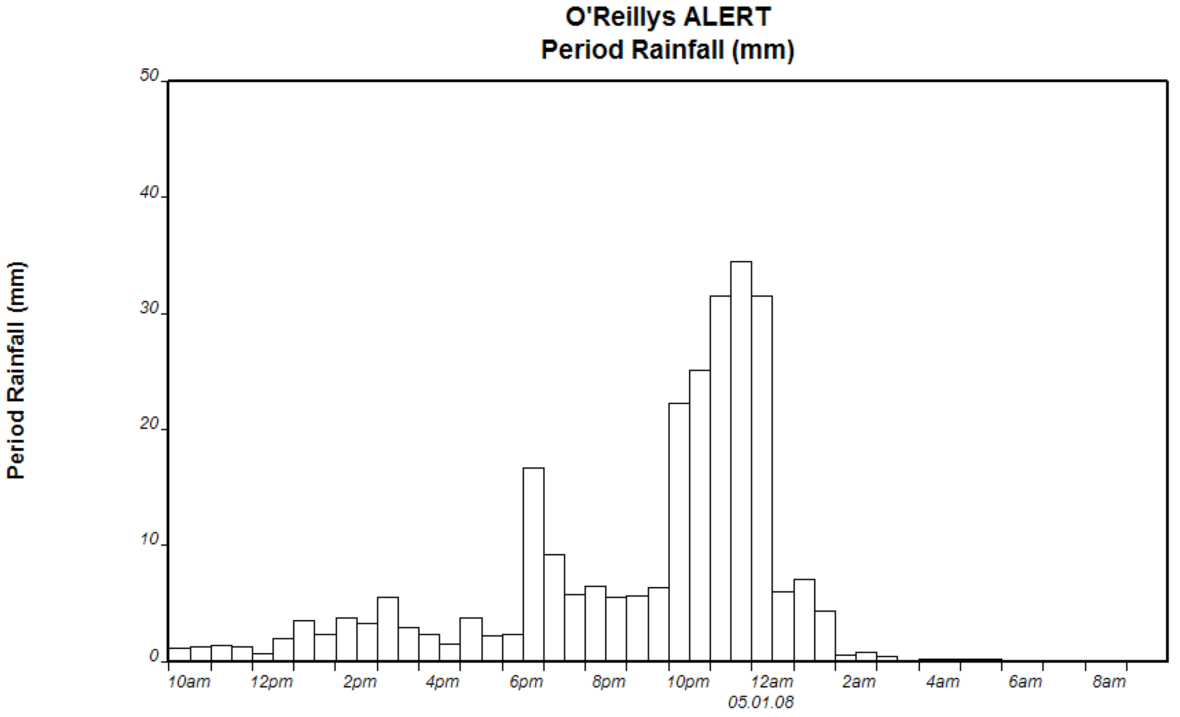


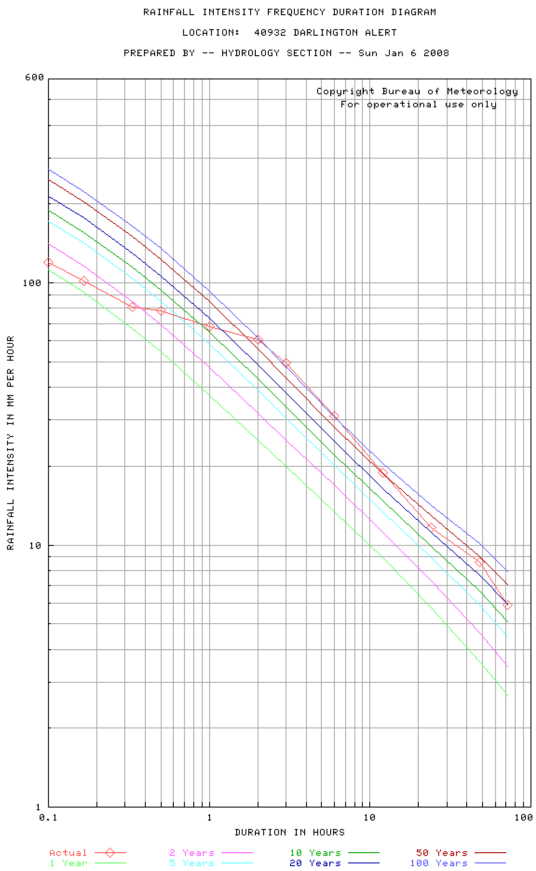
Figure 3.2.4 Intensity Frequency Duration Rainfall Analysis for Darlington and O'Reilleys

RAINFALL INTENSITY FREQUENCY DURATION ANALYSIS

LOCATION: 40932 DARLINGTON ALERT

Analysis of the rainfall for the 165 hours to Sun Jan 6 11:02:09 2008

Rain (mm)	Period Ending	ARI (years)
11	5 mins ending at 22:41:02 04/01/2008	1-2
12	6 mins ending at 22:41:02 04/01/2008	1-2
17	10 mins ending at 22:41:02 04/01/2008	1-2
27	20 mins ending at 22:48:17 04/01/2008	1-2
39	30 mins ending at 22:58:17 04/01/2008	2-5
68	60 mins ending at 23:28:17 04/01/2008	10-20
121	2 hours ending at 23:49:37 04/01/2008	50-100
149	3 hours ending at 00:14:24 05/01/2008	> 100
186	6 hours ending at 23:56:42 04/01/2008	> 100
227	12 hours ending at 00:50:38 05/01/2008	50-100
279	24 hours ending at 00:50:38 05/01/2008	20-50
411	48 hours ending at 02:04:28 05/01/2008	20-50
424	72 hours ending at 11:39:07 05/01/2008	10-20



RAINFALL INTENSITY FREQUENCY DURATION ANALYSIS

LOCATION: 40931 O'REILLYS ALERT

Analysis of the rainfall for the 143 hours to Mon Jan 7 08:45:33 2008

Rain (mm)	Period Ending	ARI (years)
12	5 mins ending at 22:52:43 04/01/2008	2
14	6 mins ending at 22:52:43 04/01/2008	2
20	10 mins ending at 22:53:30 04/01/2008	2-5
34	20 mins ending at 22:53:30 04/01/2008	2-5
53	30 mins ending at 22:52:43 04/01/2008	10-20
79	60 mins ending at 22:59:12 04/01/2008	20-50
134	2 hours ending at 23:31:45 04/01/2008	> 100
164	3 hours ending at 23:49:46 04/01/2008	> 100
212	6 hours ending at 23:36:00 04/01/2008	> 100
257	12 hours ending at 00:42:33 05/01/2008	50-100
315	24 hours ending at 00:42:33 05/01/2008	20-50
444	48 hours ending at 02:12:24 05/01/2008	20-50
479	72 hours ending at 00:42:33 05/01/2008	20-50

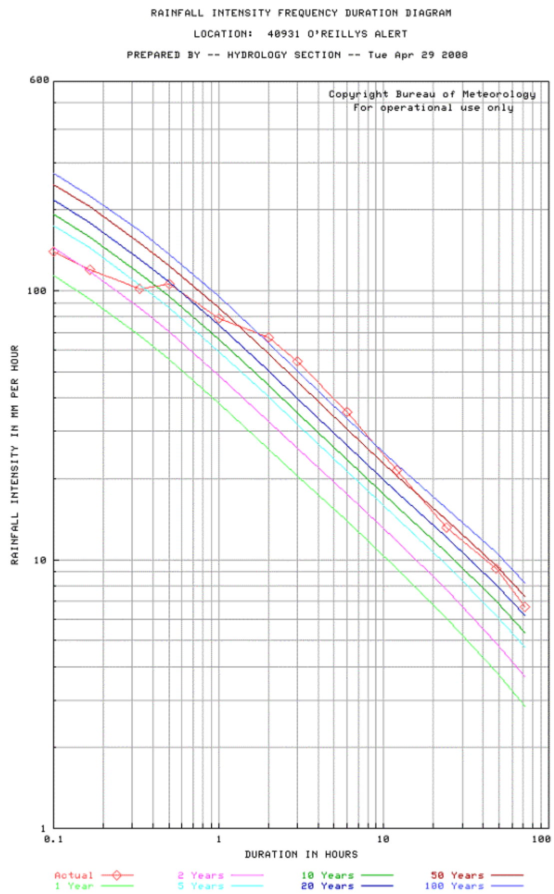
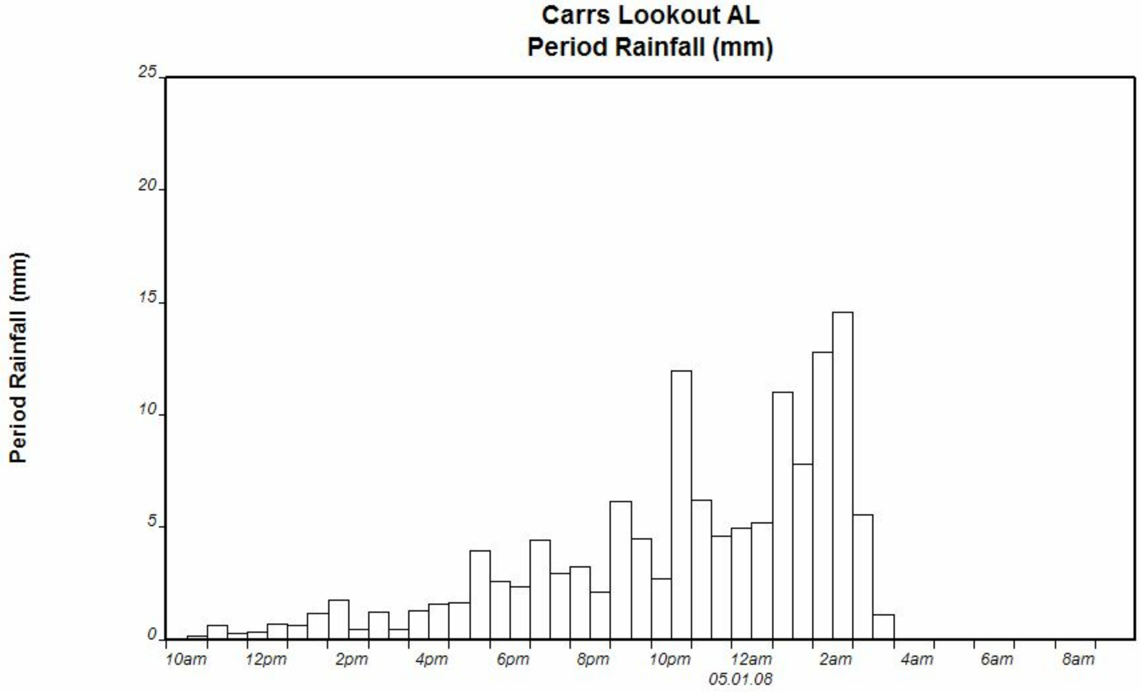


Figure 3.2.5 Half Hourly Hyetographs for Carrs Lookout and Killarney



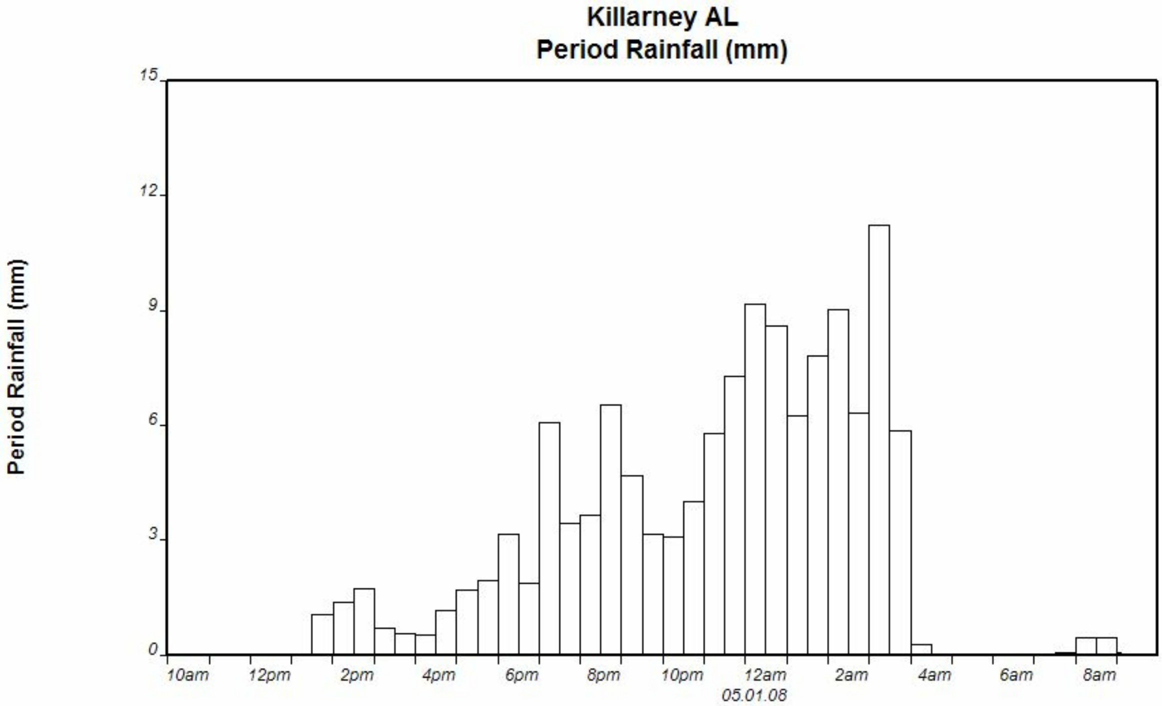


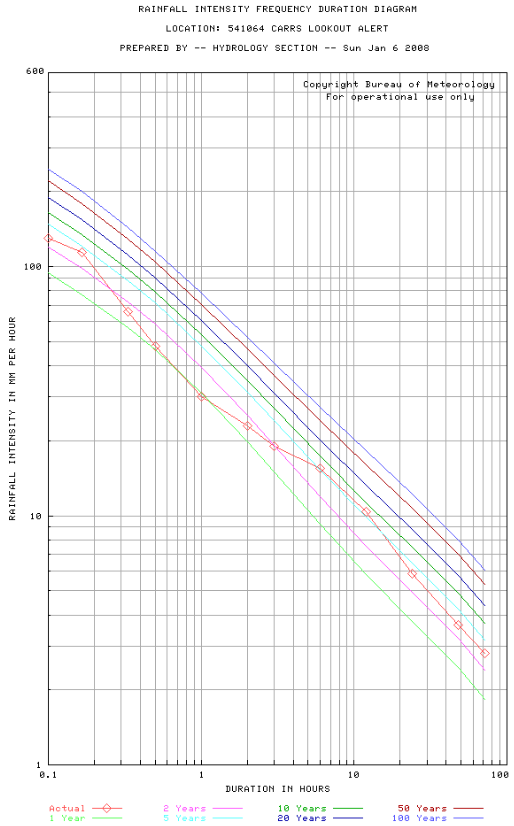
Figure 3.2.6 Intensity Frequency Duration Analysis for Carrs Lookout and Killarney

RAINFALL INTENSITY FREQUENCY DURATION ANALYSIS

LOCATION: 541064 CARRS LOOKOUT ALERT

Analysis of the rainfall for the 165 hours to Sun Jan 6 11:36:16 2008

Rainfall (mm)	Period Ending	ARI (years)
11	5 mins ending at 11:14:54 06/01/2008	2-5
13	6 mins ending at 11:16:28 06/01/2008	2-5
19	10 mins ending at 11:17:58 06/01/2008	2-5
22	20 mins ending at 11:28:36 06/01/2008	1-2
24	30 mins ending at 11:34:52 06/01/2008	1-2
30	60 mins ending at 11:29:14 06/01/2008	< 1
46	2 hours ending at 01:56:44 05/01/2008	1-2
57	3 hours ending at 02:14:06 05/01/2008	2
93	6 hours ending at 02:17:06 05/01/2008	5-10
125	12 hours ending at 02:51:32 05/01/2008	5-10
141	24 hours ending at 12:33:20 05/01/2008	2-5
175	48 hours ending at 11:34:52 06/01/2008	2-5
201	72 hours ending at 11:34:52 06/01/2008	2-5

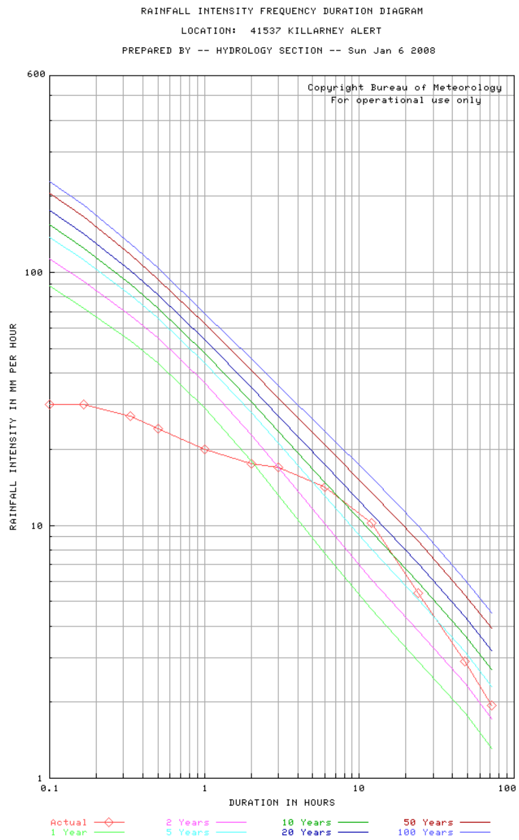


RAINFALL INTENSITY FREQUENCY DURATION ANALYSIS

LOCATION: 41537 KILLARNEY ALERT

Analysis of the rainfall for the 165 hours to Sun Jan 6 12:56:56 2008

Rainfall (mm)	Period Ending	ARI (years)
3	5 mins ending at 01:23:05 05/01/2008	< 1
3	6 mins ending at 02:34:35 05/01/2008	< 1
5	10 mins ending at 02:38:35 05/01/2008	< 1
9	20 mins ending at 02:40:05 05/01/2008	< 1
12	30 mins ending at 02:39:40 05/01/2008	< 1
20	60 mins ending at 02:39:50 05/01/2008	< 1
35	2 hours ending at 02:39:30 05/01/2008	1
51	3 hours ending at 02:40:50 05/01/2008	2-5
85	6 hours ending at 02:47:10 05/01/2008	5-10
122	12 hours ending at 03:03:50 05/01/2008	10-20
129	24 hours ending at 03:03:50 05/01/2008	5-10
139	48 hours ending at 08:03:40 05/01/2008	2-5
140	72 hours ending at 03:03:50 05/01/2008	2-5



3.3 Rainfall Totals

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.

Table 3.3.1 Rainfall Totals for The Nerang River 31/12/2007 to 6/1/2008

Station Name	24 hours to 9am							Total mm
	31	1	2	3	4	5	6	
Nerang								
Natural Bridge	85	150	63	61	242			
Numinbah AL *	41	50	20	19	94	204	1	**429**
Upper Springbrook AL *	94	180	66	62	253	364	8	**1027**
Springbrook	86	115	50		232	265	6	**754**
Lower Springbrook AL *					4	221	6	
Mt Nimmel AL *	49	52	32	30	88	167	5	**423**
Bonogin Creek AL *	32	37	13	20	65	104	0	**271**
Little Nerang Dam AL *	36	43	27	19	55	166	4	**350**
Numinbah Valley AL *			17	14	72	205	0	**308**
Hinze Dam AL *	11	19	7	6	34	118	0	**195**
Tallai AL *	24	29	10	12	47	144	0	**266**
Nerang	21		19	12	59	105		**216**
Clearview TM *	23	25	10	12	55	114	0	**239**
Clearview AL *	21	24	10	10	49	107	0	**221**
Carrara AL *	28	18	10	14	52	66	0	**188**
Molendinar AL *	30	27	10	14	61	106	2	**250**
Mudgeeraba AL *	30	23	10	12	50	87	3	**215**
Evandale AL *	9	5	6	11	61	39	0	**131**
Biggera Ck Dam AL *	37	33	13	17	74	91	1	**266**
Loder Creek AL *	20	16	8	11	54	56	0	**165**
Southport	25	16	13	14	67	66		**201**
Air Sea Rescue AL *	21	14	7	9	45	49	0	**145**
Gold Coast Seaway AWS *	22	11	6.2	16	47	48	0	**150**
Burleigh Waters AL *	28	27	13	24	62	98	1	**253**
Miami	32	25	13	23	71	88		**252**
Tallebudgera Ck Dam AL *	56	56	27	37	130	209	1	**516**
Tallebudgera Ck Rd AL *	39	42	19	25	82	154	3	**364**
Coplicks Bridge AL *	39	29	14	23	68	115	3	**291**
Oyster Creek AL *	33	23	11	15	60	86	2	**230**
Tomewin AL *	38	49	29	34	144	232	21	**547**
Tallowood	58	75	29	48	187	257	21	**675**
Coolangatta AWS *	29	13	7	20	89	57	2.4	**217**
Murwillumbah SYN	23	55	19	14	101	200	22	**434**
Numerical Average	**36**	**43**	**19**	**21**	**86**	**137**	**4**	**329**
Maximum	**94**	**180**	**66**	**62**	**253**	**364**	**22**	**1027**

Table 3.3.2 Rainfall Totals for the Coomera River 31/12/2007 to 6/1/2008

Station Name	24 hours to 9am							Total mm
	31	1	2	3	4	5	6	
Coomera								
Binna Burra AL *	63	100	38	28	132	233	3	**597**
Canungra Army AL *	17	23	14	3	34	135	0	**226**
Beechmont AL *	22	32	12	8	41	189	1	**305**
Mt Tamborine	22	32	21	6	51	149	2.8	**284**
Mt Tamborine AL *	29	34	26	6	48	162	5	**310**
Clagiraba Road AL *	22	20	17	5	40	108	8	**220**
Wongawallan AL *	19	20	10	6	41	89	2	**187**
Oxenford	26	31	8.2	11	54	83	4	**217**
Oxenford Weir AL *	27	23	9	8	49	78	1	**195**
Coomera	20	23	6.5		48	64		**162**
Monterey Keys AL *	20	17	10	8	47	68	1	**171**
Numerical Average	**26**	**32**	**16**	**9**	**53**	**123**	**3**	**261**
Maximum	**63**	**100**	**38**	**28**	**132**	**233**	**8**	**597**

Table 3.3.4 Rainfall Totals for the Pimpama River 31/12/2007 to 6/1/2008

Station Name	24 hours to 9am							Total mm
	31	1	2	3	4	5	6	
Pimpama								
Luscombe AL *	12	28	10	6	27	68	3	**154**
Hotham Creek AL *	20	20	9	8	51	57	4	**169**
Stewarts Road AL *	23	22	8	7	40	50	2	**152**
Norwell AL *	24	21	7	11	46	40	3	**152**
Kerkin Road AL *	21	14	4	11	43	39	0	**132**
Steiglitz Wharf AL *	17	15	5	19	42	40	3	**141**
Numerical Average	**20**	**20**	**7**	**10**	**42**	**49**	**3**	**150**
Maximum	**24**	**28**	**10**	**19**	**51**	**68**	**4**	**169**

Table 3.3.5 Rainfall Totals for the Logan and Albert Rivers 31/12/2007 to 6/1/2008

Station Name	24 hours to 9am							Total mm
	31	1	2	3	4	5	6	
Logan-Albert								
Darlington TM *	62	54	0	18	141	227	6.8	**509**
Darlington AL *	67	94	27	19	158	243	7	**615**
Darlington	53	80	15	21	129	239	5.4	**542**
O'reillys AL *	88	161	61	40	159	273	11	**793**
Lumeah AL *	0	2	0	1	17	135	0	**155**
Benobble AL *	12	17	9	2	30	124	0	**194**
Laheys Lookout AL *	13	21	9	2	33	108	0	**186**
Bromfleet AL *	4	5	4	1	30	121	1	**166**
Wolffdene AL *	13	29	9	5	29	84	1	**170**
Canungra	10	17	8	2	28	109	3.8	**178**
Forest Home TM *	0	1	2	5	14	161	0	**183**
Maroon Dam		0.8	1	1	13	106	0.8	**123**
Palen Creek TM *	12	16	0	13	47	147	5.6	**241**
Palen Creek AL *	11	23	18	13	44	149	5	**263**
Rathdowney AL *	1	3	3	2	12	145	0	**166**
Rathdowney TM *	0	4	2	1	11	137	0	**155**

Dieckmans Bridge AL *	1	3	5	3	14	141	1	**168**
Dieckmans Bridge TM *	1	3	3	2	14	136	19	**178**
Foxley TM *	9.8	15	0	5	58	183	5.6	**276**
Foxley AL *	14	30	15	5	63	184	5	**316**
Rudds Lane AL *	2	4	2	1	22	204	0	**235**
Knapps Peak AL *	0	2	6	2	18	147	0	**175**
Cannon Cove TM *	0	3.6	0	1.6	11	131		**147**
Kooralbyn AL *	0	2	5	2	19	182	0	**210**
Round Mountain TM *	0	0	2	3	14	172	0	**191**
Round Mountain AL *	0	1	3	3	17	192	0	**216**
Bromelton Weir Hw TM *		1	7	0	15	137	0	**160**
Beaudesert		1	1.2		15	143		**160**
Beaudesert AL *	0	0	4	0	14	147	0	**165**
Wilsons Peak AL *	5	23	15	17	28	126	1	**215**
Wilsons Peak AL-P *	6	27	15	17	26	115	2	**208**
Croftby TM *	0	0	1	0	6	93	0	**100**
Croftby AL *	0	1	1	0	9	96	0	**107**
Boonah AL *	0	5	2	0	9	90	0	**106**
The Overflow AL *	0	5	8	3	12	106	1	**135**
Romani TM *	0	1.8	0	1.4	14	60	0	**77**
Romani AL *	0	2	7	1	17	72	0	**99**
Yarrahappini TM *	1	0	6	0	19	75	0	**101**
Yarrahappini AL *	1	0	7	0	21	80	0	**109**
Maclean Bridge	2.4	1.8	7.4	2	31	60		**105**
Maclean Bridge AL *	2	3	7	2	33	65	0	**112**
Waterford AL *	9	9	2	1	29	52	0	**102**
Stretton(Gowan Rd) AL *	4	3	4	0	28	47	0	**86**
Underwood(Millers Rd) AL *	7	10	7	3	29	34	0	**90**
Slacks Ck(Reserve Pk) AL *	11	14	8	3	25	0	1	**62**
Logan City SYN	13	20	6.2		28	18	1.6	**105**
Hillcrest(Wine Glass) AL *	4	3	6	0	25	42	0	**80**
Slacks Ck(Loganlea Rd AL *	9	12	6	1	32	35	1	**96**
Carbrook AL *	18	29	8	11	46	39	0	**151**
Carbrook(Riedel Road) AL *	19	23	7	14	40	58	3	**164**
Priestdale AL *	18	26	7	10	53	35	0	**149**
Burbank AL *	16	20	5	7	49	28	1	**126**
Mt Cotton West AL *	24	34	10	11	65	38	0	**182**
Rochedale South AL *	16	23	7	9	47	41	0	**143**
Leslie Harrison Dam AL *	7	10	5	3	38	19	0	**82**
Numerical Average	**11**	**16**	**7**	**5**	**35**	**111**	**2**	**188**
Maximum	**88**	**161**	**61**	**40**	**159**	**273**	**19**	**793**

Table 3.3.6 Rainfall Totals for the Border Rivers 31/12/2007 to 6/1/2008

Station Name	24 hours to 9am							Total mm
	31	1	2	3	4	5	6	
Border Rivers								
Swan Vale TM *	0	0	0	0	0.4	3.2	6.6	**10**
Danthonia TM *	0	0	0	0	0.6	5.4	20	**26**
Little Valley TM *						7	20	**27**
Elsmore TM *	0	0	0	0	0.2	9	39	**48**
Tingha TM *	0	0	0	0	0	8.4	45	**53**
Stannifer TM *	0	0	0	0	0.2	6.2	42	**48**
Ferndale TM *						8	86	**94**
Inverell TM *	0	0	0	0	0	7.2	54	**61**
Inverell SYN	0	0	0	0	0.4	9	40	**49**
Glen Innes SYN	0	0	0	0	0.6	5	17	**23**
Glen Innes TM *	0	0	0	0	0.8	4.6	14	**19**
Kings Plains TM *	0	0	0	0	0.4	5	11	**16**
Silverdale TM *	0	0	0	0	0.6	3.2	5	**9**
Bukkulla TM *	0	0	0	0	0.6	8.4	32	**41**
Westholme TM *	0	0	0	0	0.6	11	22	**34**
Yetman Bridge TM *	0	0	0	0	0	16	16	**32**
Stanthorpe SYN	1	1.7	0.1	0.9	3.2	130	18	**155**
Applethorpe AWS *	2.4	4.6	0.4	2.2	4	122	24	**160**
Wallangarra TM *	1	2.8	0	1.2	2.6	121	42	**171**
Ballandean					2.6	91	62	**156**
Farnbro TM *	0	0	0	0	3	50	29	**82**
Bolivia TM *	0	0	0	0	1.2	14	9.2	**24**
Broadwater Creek TM *		1		1	4	120	34	**160**
Glenlyon Dam					6	43	40	**89**
Glenlyon Dam Tw TM *	0	0	0	0	2	45	38	**85**
Tenterfield SYN	0.8	5	0.5	0.7	2	71	21	**101**
Emmaville TM *	0	0	0	0	1.2	7.8	11	**20**
Haystack TM *	0	0	0	0	1	28	46	**75**
Beardy Junction					1.8	36	22	**60**
Texas SYN	0	0	0	0	2.2	29	3.4	**35**
Texas TM *	0	0	0	0	1	28	3	**32**
Limevale TM *	0	0	0	0	1.2	37	2.4	**41**
Glenarbon Weir TM *	0	0	0	0	0	22	21	**43**
Glenelg					4.8	54	6.8	**66**
Barongarook TM *	0	0	0	0	5	58	2	**65**
Terraine TM *		0	0	0	2	40	0	**42**
Coolmunda Dam Hw TM *	0		0	0	1	31	0	**32**
Coolmunda Dam					2	34	0.4	**36**
Inglewood Bridge TM *	0	0	0	0	1	24	0	**25**
Woodspring						25		**25**
Yelarbon					0.4	27	0.2	**28**
Bengalla TM *	0	0	0	0	0.2	21	0.2	**21**
Coolatai TM *	0	0	0	0	0	14	20	**34**
New Kildonan TM *	0	0	0	0	0.6	20	0.2	**21**
Goondiwindi SYN	0	0	0	0	1.6	23	0	**25**
Boomi (Offtake) TM *	0	0	0	0	2	14	0	**16**
Numerical Average	**0**	**0**	**0**	**0**	**1**	**32**	**20**	**53**
Maximum	**2**	**5**	**1**	**2**	**6**	**130**	**86**	**171**

Table 3.3.7 Rainfall Totals for the Upper Condamine River 4/1/2008 to 10/1/2008

Station Name	24 hours to 9am							Total mm
	4	5	6	7	8	9	10	
Upper Condamine								
Carrs Lookout AL *	27	134	11	51	3	8	10	**244**
The Head	34	136	7	33	1	3	7	**221**
Killarney	14	147		27	1	0.4	2.2	**192**
Killarney AL *	10	129	0	21	1	0	1	**162**
Elbow Valley TM *	4	108	0	13	0	0	0	**125**
Elbow Valley AL *	3	101	1	12	0	0	0	**117**
Cherrabah AL *	7	116	5	14	0	1	0	**143**
Emu Vale AL *	3	60	0	9	25	1	0	**98**
Emu Vale TM *	4	58	0	10	23	0	0	**95**
Murrays Bridge AL *	2	107	0	18	0	0	0	**127**
Oakington	7	93		14			0.2	**114**
Mosely's AL *	5	78	0	9	0	0	0	**92**
Yangan AL *	2	80	0	20	18	0	0	**120**
Yangan	4.6	93		19	14		1.2	**132**
Warwick Hermitage AWS *	5.8	75	0	11	1.6	0	0.2	**94**
Dalveen AL *	7	130	8	9	0	0	1	**155**
Dalveen	8.5			150			1.5	**160**
Connolly Dam AL *	2	117	0	2	0	0	0	**121**
Scots College TM *	0	0	1	11	0	0	0	**12**
Warwick AL *	4	72	0	15	0	0	0	**91**
Leslie Dam	7	75		14			0.6	**97**
Maryvale	2.4	82	0.1	20			0.4	**105**
Glengallan Creek AL *	6	66	0	32	1	0	0	**105**
Numerical Average	**7**	**94**	**2**	**23**	**5**	**1**	**1**	**127**
Maximum	**34**	**147**	**11**	**150**	**25**	**8**	**10**	**244**

3.4 Peak Flood Heights

Figure 3.4.1 Peak Flood Height Map for South East QLD

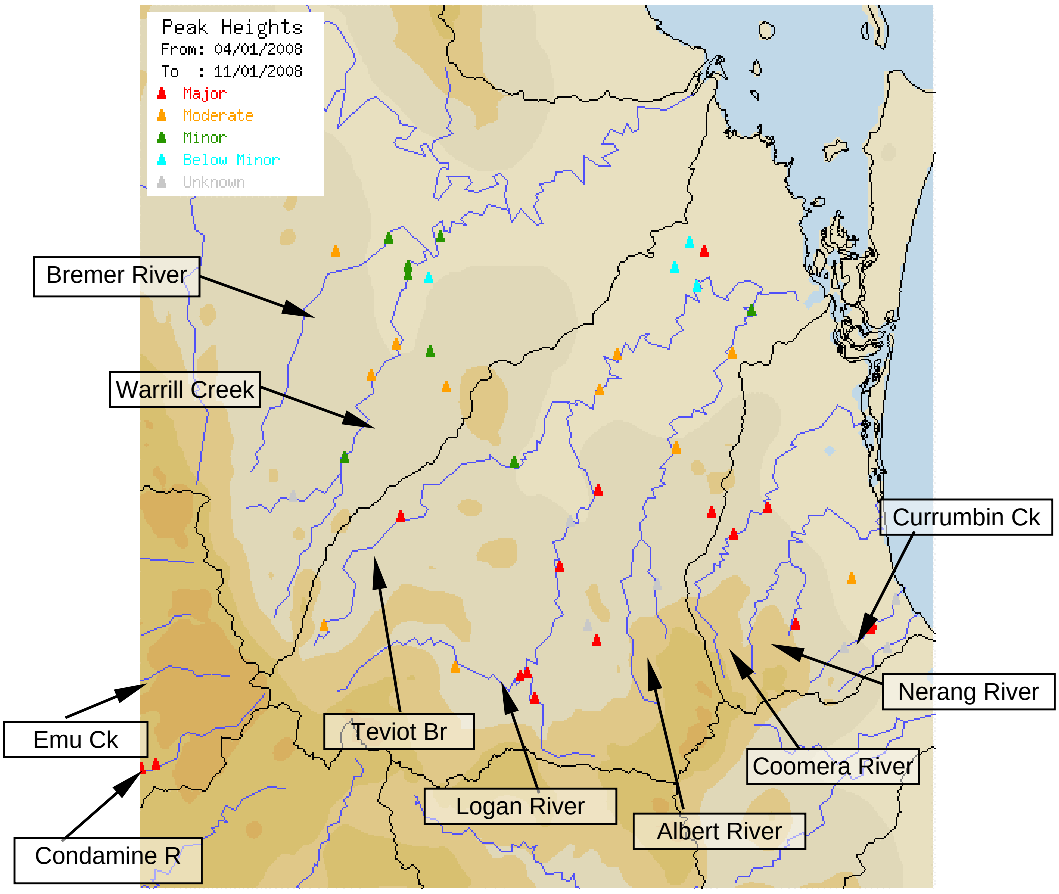


Table 3.4.1 Peak Flood Heights for the South Coast Rivers between 01/01/2008 and 7/01/2008

Station No.	Station Name	Date	Height	Flood Class
SOUTH COAST				
Nerang R				
540054	LITTLE NERANG DAM ALERT	4/01/2008 23:45	3.3	Major
540254	MUDGEERABA ALERT	5/01/2008 01:00	4.42	Moderate
540366	TALLEBUDGERA CK DAM ALERT	4/01/2008 23:25	3.06	Unknown
540355	TALLEBUDGERA CK RD TM	4/01/2008 23:50	6.55	Major
540356	TALLEBUDGERA CK RD AL	4/01/2008 23:50	6.51	Major
540252	OYSTER CREEK ALERT	5/01/2008 01:50	1.9	Unknown
540070	NICOLLS BRIDGE ALERT	5/01/2008 00:02	4.75	Unknown
Coomera R				
540290	CANUNGRA ARMY ALERT	5/01/2008 00:03	8.6	Major
540291	CLAGIRABA ROAD ALERT	5/01/2008 01:25	2.98	Major

Table 3.4.2 Peak Flood Heights for the Logan-Albert Rivers between 01/01/2008 and 7/01/2008

Station No.	Station Name	Date	Height	Flood Class
LOGAN-ALBERT				
Albert R				
40936	LUMEAH ALERT	4/01/2008 02:19	4.47	Below Minor
540303	LUMEAH TM	4/01/2008 02:30	4.56	Below Minor
540375	CAINBABLE CREEK TM	5/01/2008 00:01	5.98	Unknown
40937	BENOBBLE ALERT	4/01/2008 07:28	2.5	Below Minor
40937	BENOBBLE ALERT	5/01/2008 02:40	8.05	Major
540073	BENOBBLE TM	4/01/2008 07:50	2.59	Below Minor
540073	BENOBBLE TM	5/01/2008 02:40	8.09	Major
40938	BROMFLEET ALERT	5/01/2008 09:37	15.23	Moderate
40738	BROMFLEET TM	5/01/2008 09:50	15.21	Moderate
40761	WOLFFDENE ALERT	5/01/2008 23:50	8	Moderate
40723	BEENLEIGH	6/01/2008 03:00	3.55	Minor
Upper Logan R				
40832	FOREST HOME TM	5/01/2008 02:50	5.32	Moderate
40946	RATHDOWNEY ALERT	5/01/2008 05:16	12.1	Major
40754	RATHDOWNEY TM	5/01/2008 05:20	12.38	Major
40943	DIECKMANS BRIDGE ALERT	4/01/2008 06:54	3.11	Minor
40943	DIECKMANS BRIDGE ALERT	5/01/2008 01:00	8.26	Major
540074	DIECKMANS BRIDGE TM	4/01/2008 07:00	3.07	Minor
540074	DIECKMANS BRIDGE TM	5/01/2008 01:10	8.25	Major
40539	DULBOLLA	4/01/2008 12:00	5.2	Below Minor
40539	DULBOLLA	5/01/2008 06:00	12.9	Major
40944	RUDDS LANE ALERT	4/01/2008 06:07	5	Minor
40944	RUDDS LANE ALERT	5/01/2008 00:05	6.85	Major
40799	RUDDS LANE TM	4/01/2008 05:41	4.98	Minor
40799	RUDDS LANE TM	4/01/2008 05:41	4.98	Minor
540402	TRAMWAY LANE TM	5/01/2008 02:00	6.62	Unknown
40714	ROUND MOUNTAIN TM	5/01/2008 09:50	15.6	Major
40945	ROUND MOUNTAIN ALERT	5/01/2008 09:00	15.37	Major
540270	BROMELTON WEIR HW TM	5/01/2008 11:45	11.2	Unknown
540271	BROMELTON WEIR TW TM	5/01/2008 11:20	13	Unknown
40939	BEAUDESERT ALERT	5/01/2008 14:00	13.2	Major
Teviot Bk				
40841	CROFTBY TM	5/01/2008 03:40	5.52	Moderate
40947	CROFTBY ALERT	5/01/2008 03:40	5.54	Moderate
40729	BOONAH	5/01/2008 11:00	7.1	Major
40949	BOONAH ALERT	5/01/2008 11:00	7.1	Major
40739	THE OVERFLOW TM	6/01/2008 01:00	8.02	Minor
40950	THE OVERFLOW ALERT	6/01/2008 00:06	8.04	Minor
Logan R d/s Yarrahappini				
40762	YARRAHAPPINI TM	6/01/2008 03:10	15.4	Moderate
40940	YARRAHAPPINI ALERT	6/01/2008 03:00	15.11	Moderate
540078	MARSDEN (FIRST AVE) AL	5/01/2008 11:18	8.6	Below Minor

Table 3.4.3 Peak Flood Heights for the Brisbane River Basin between 01/01/2008 and 7/01/2008

Station No.	Station Name	Date	Height	Flood Class
BRISBANE				
Stanley R to Somerset Dam				
540046	PEACHESTER WRC TM	5/01/2008 08:40	6.78	Minor
540059	PEACHESTER ALERT	4/01/2008 08:43	6.38	Minor
540337	WOODFORD ALERT-P	5/01/2008 10:00	5.05	Minor
540338	WOODFORD ALERT-B	5/01/2008 10:29	5.05	Minor
Bremer R to Ipswich				
540313	ROSEWOOD WWTP ALERT	5/01/2008 11:21	5.25	Moderate
540196	WALLOON ALERT-B	5/01/2008 17:30	3.76	Minor
540365	TOOHILLS CROSSING TM	5/01/2008 03:20	3.91	Unknown
540151	KALBAR WEIR ALERT	5/01/2008 06:00	2.95	Minor
540154	HARRISVILLE ALERT	5/01/2008 13:03	4.13	Moderate
540217	CHURCHBANK WEIR TM	5/01/2008 07:15	2.06	Moderate
540217	CHURCHBANK WEIR TM	5/01/2008 17:30	2.13	Moderate
540180	AMBERLEY ALERT-P	5/01/2008 11:52	5	Minor
40816	AMBERLEY (DNR) TM	5/01/2008 13:00	5.87	Minor
540195	WASHPOOL ALERT	5/01/2008 06:00	3.55	Moderate
540065	PEAK CROSSING ALERT	5/01/2008 08:45	3.05	Minor
540062	LOAMSIDE ALERT	5/01/2008 16:01	3.81	Below Minor
40836	ONE MILE BRIDGE ALERT	6/01/2008 01:00	10.43	Minor

Table 3.4.4 Peak Flood Heights for the Sunshine Coast Rivers between 01/01/2008 and 7/01/2008

Station No.	Station Name	Date	Height	Flood Class
MAROOCHY				
Maroochy/Mooloolah R				
540300	MOOLOOLAH TM	4/01/2008 05:40	4.42	Below Minor
540344	JORDAN ST AL	4/01/2008 20:19	2.94	Below Minor
540350	PALMVIEW AL	4/01/2008 23:17	2.94	Minor
540351	MERIDAN WAY AL	4/01/2008 02:48	1.91	Minor
540421	TANAWHA ALERT	4/01/2008 03:41	1.45	Unknown
540220	MOUNTAIN CREEK ALERT	4/01/2008 05:40	2.85	Minor
540342	OLD GYMPIE RD AL	4/01/2008 03:42	2.5	Minor
540343	BEERWAH AL	4/01/2008 05:55	2.65	Below Minor
540093	EUMUNDI ALERT	4/01/2008 07:45	3.26	Below Minor
540052	EUMUNDI TM	4/01/2008 08:40	3.18	Below Minor
540263	KIAMBA TM	4/01/2008 03:50	2.51	Below Minor
540265	YANDINA TM	4/01/2008 05:00	2.39	Minor
540092	YANDINA ALERT	4/01/2008 04:56	2.43	Minor
540223	YANDINA CREEK ALERT	4/01/2008 11:08	4.56	Below Minor
540218	DOONAN CREEK ALERT	2/01/2008 21:07	3.8	Below Minor
540218	DOONAN CREEK ALERT	4/01/2008 08:52	3.75	Below Minor
540419	WEST WOOMBYE ALERT	4/01/2008 01:36	1.95	Unknown
540420	PALMWOODS SPORTSGROUND AL	4/01/2008 06:18	3.5	Unknown
540083	DIDDILLIBAH ALERT	4/01/2008 23:26	3.01	Minor

Table 3.4.5 Peak Flood Heights for the Mary River between 01/01/2008 and 7/01/2008

Station No.	Station Name	Date	Height	Flood Class
MARY				
Mary R u/s Gympie				
540332	BELLBIRD CREEK ALERT	4/01/2008 06:42	4.3	Below Minor
40830	BELLBIRD CREEK TM	4/01/2008 06:50	4.31	Below Minor
540331	KENILWORTH H/S ALERT	4/01/2008 08:16	4.12	Minor
540330	MOY POCKET ALERT	4/01/2008 13:50	7.77	Minor
40814	MOY POCKET TM	4/01/2008 13:50	7.66	Minor
40781	DAGUN POCKET TM	5/01/2008 03:15	6.65	Below Minor
540327	LAKE MACDONALD DRIVE AL	2/01/2008 14:50	3.85	Below Minor
540327	LAKE MACDONALD DRIVE AL	4/01/2008 12:00	3.2	Below Minor
40782	COORAN TM	4/01/2008 02:30	6.17	Below Minor
540326	COORAN ALERT	4/01/2008 02:29	6.12	Below Minor
540215	GYMPIE WEIR TM	5/01/2008 11:30	6.19	Below Minor
Mary R d/s Gympie				
40824	FISHERMANS POCKET TM	5/01/2008 13:10	7.17	Minor

Figure 3.4.2 Peak Flood Height Map for the Condamine, Dumaresq/Macintyre Rivers

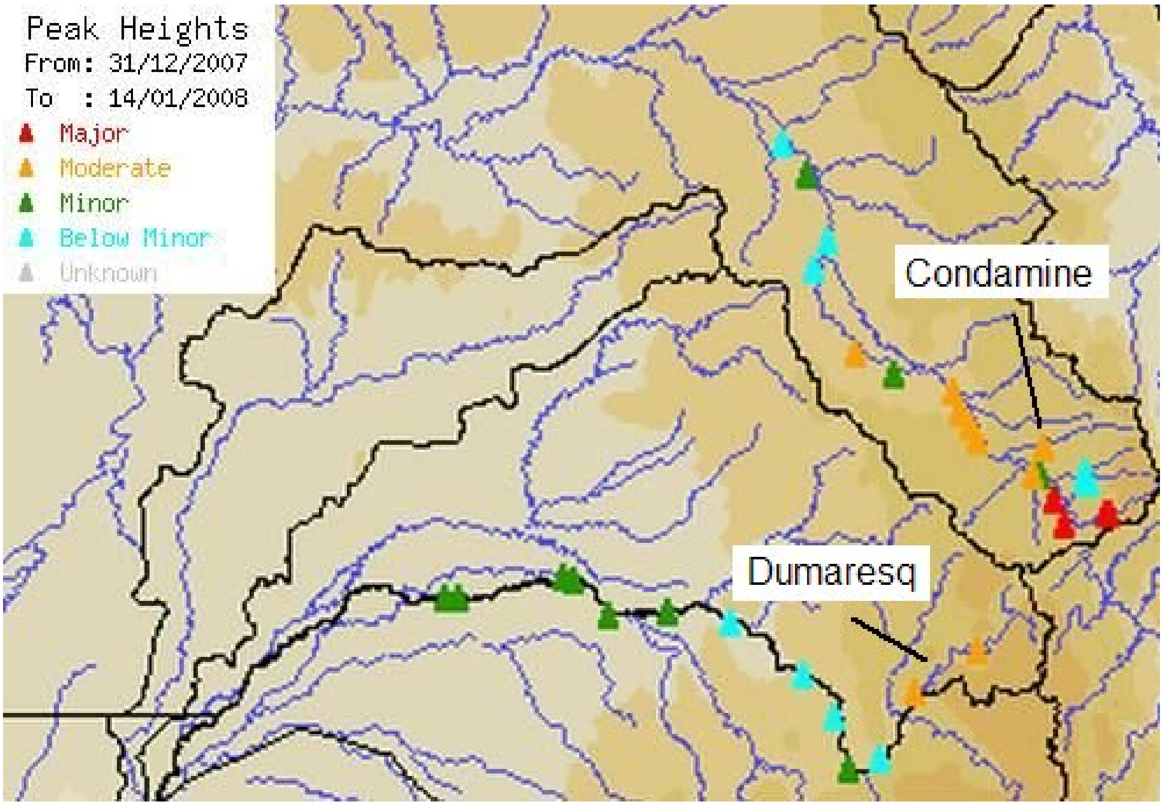


Table 3.4.6 Peak Flood Heights for the Condamine River between 01/01/2008 and 7/01/2008

Station No.	Station Name	Date	Height	Flood Class
CONDAMINE-BALONNE				
Condamine R u/s Warwick				
41046	THE HEAD	5/01/2008 03:00	4.8	Moderate
541039	BROSNANS BARN TM	5/01/2008 03:50	6.24	Major
41537	KILLARNEY ALERT	5/01/2008 04:00	6.6	Major
41494	ELBOW VALLEY TM	5/01/2008 03:50	6.24	Major
41535	ELBOW VALLEY ALERT	5/01/2008 11:35	6.13	Major
41533	EMU VALE ALERT	5/01/2008 00:00	7.03	Major
41536	MURRAYS BRIDGE ALERT	5/01/2008 09:30	7.45	Major
41536	MURRAYS BRIDGE ALERT	5/01/2008 15:04	7.55	Major
41530	YANGAN ALERT	5/01/2008 04:55	5.05	Below Minor
41503	SCOTS COLLEGE TM	5/01/2008 20:40	4.74	Minor
41534	WARWICK ALERT	5/01/2008 20:45	6.04	Moderate
Condamine R..Warwick to Loudoun Br				
41531	GLENGALLAN CREEK ALERT	5/01/2008 11:00	4.55	Moderate

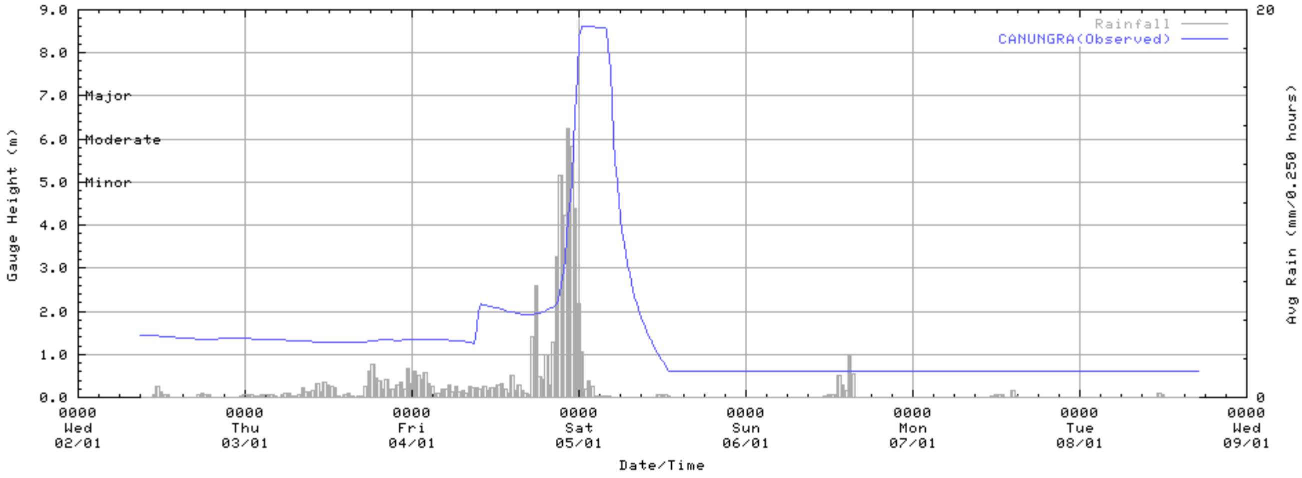
Table 3.4.7 Peak Flood Heights the Western and Gulf Rivers between 01/01/2008 and 7/01/2008

Station No.	Station Name	Date	Height	Flood Class
BORDER RIVERS				
Dumaresq R				
541032	BALLANDEAN TM	6/01/2008 00:10	3.31	Moderate
541053	FARNBRO TM	5/01/2008 21:20	3.73	Moderate
56158	ROSENEATH	6/01/2008 07:30	4.74	Below Minor
WARREGO				
Warrego R d/s Charleville				
544021	BINNOWEE TM	2/01/2008 01:00	3.3	Below Minor
BULLOO				
Bulloo R				
45044	QUILPIE	31/12/2007 15:00	4.5	Moderate
545007	QUILPIE TM	31/12/2007 20:00	4.55	Moderate
45003	SOUTH COMONGIN	2/01/2008 15:00	3.2	Minor
545001	AUTUMNVALE TM	31/12/2007 20:00	5.81	Moderate
45045	THARGOMINDAH	2/01/2008 06:00	4.77	Moderate
COOPER CREEK				
Thomson R				
36107	LONGREACH	3/01/2008 06:00	2.65	Minor
36161	LONGREACH TM	3/01/2008 00:50	4.01	Minor
Barcoo R				
38034	GLENLOCK	3/01/2008 11:30	3.95	Below Minor
Cooper Ck				
38038	WINDORAH	31/12/2007 15:00	4.47	Moderate
DIAMANTINA				
Diamantina R				
538003	DIAMANTINA LAKES TM	3/01/2008 20:00	4.41	Moderate
MITCHELL				
29038	KOWANYAMA AP	4/01/2008 15:00	3.15	Moderate

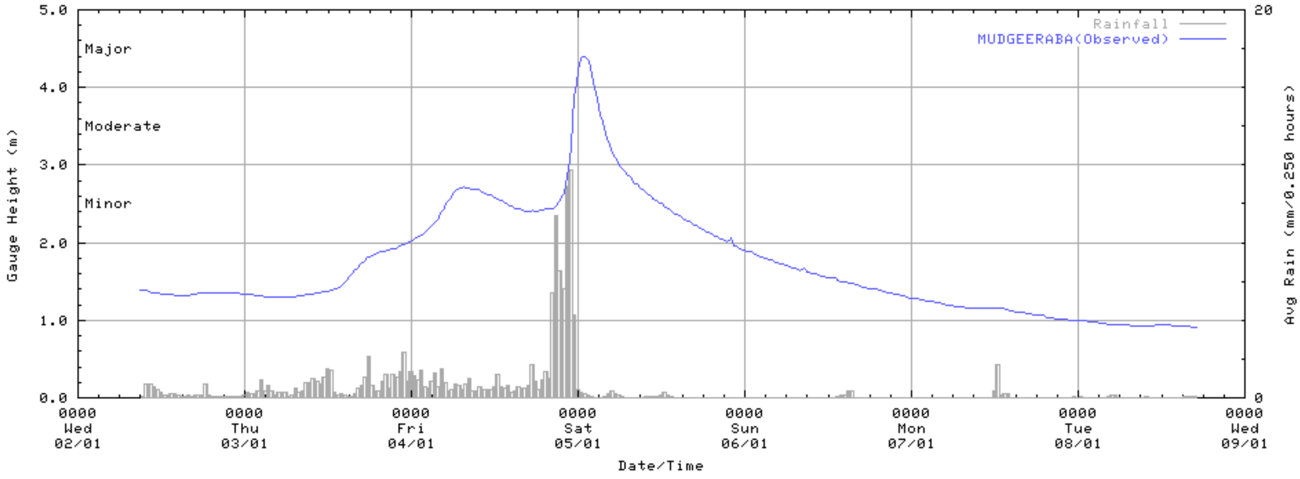
3.5 Flood Hydrographs

Figure 3.5.1 River Heights - South Coast Rivers

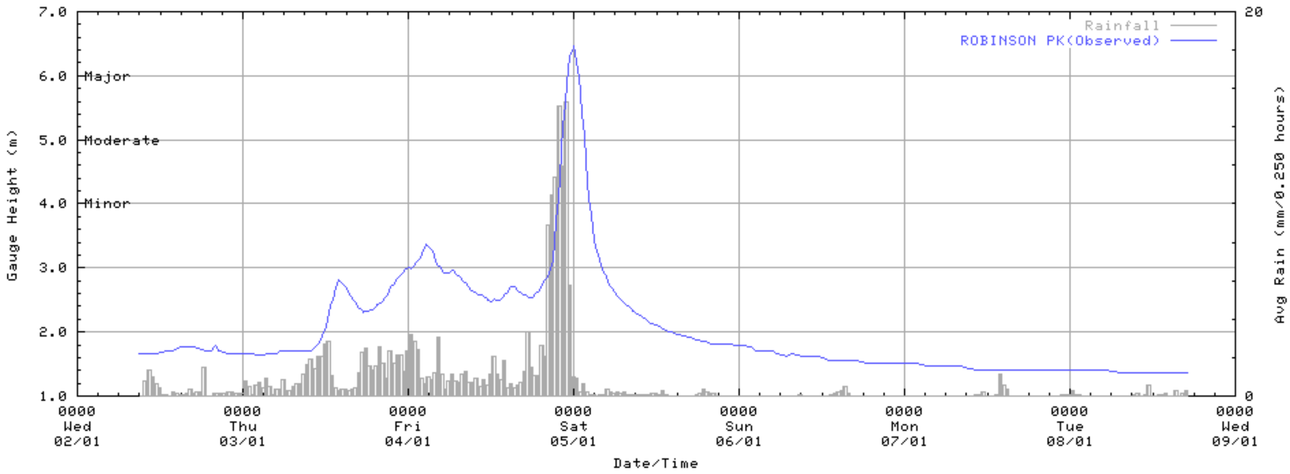
Canungra- Coomera River



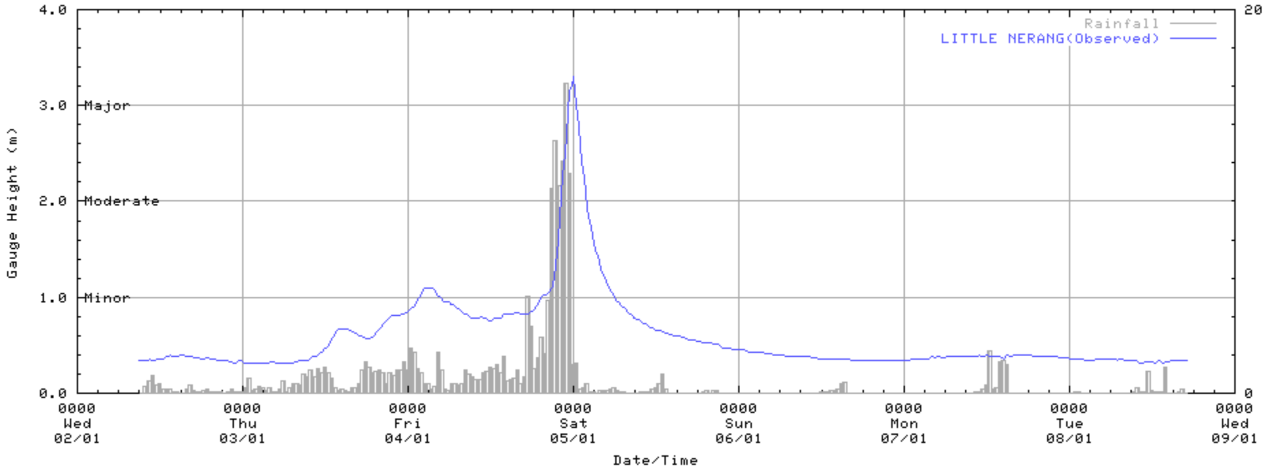
Mudgeeraba – Mudgeeraba Creek



Robinson Pk – Tallebudgera Creek



Little Nerang Dam – Nerang River



Hinze Dam – Nerang River

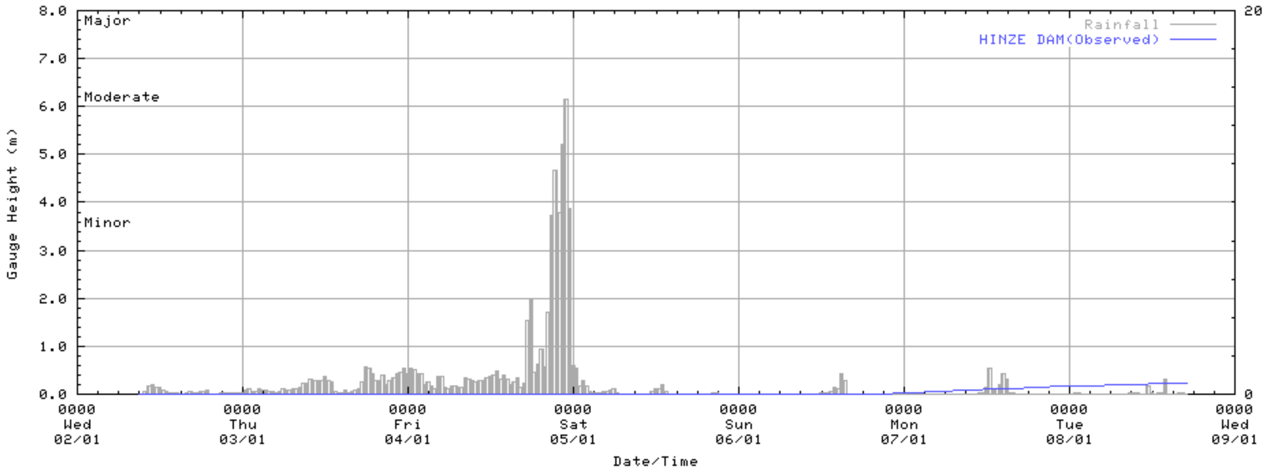
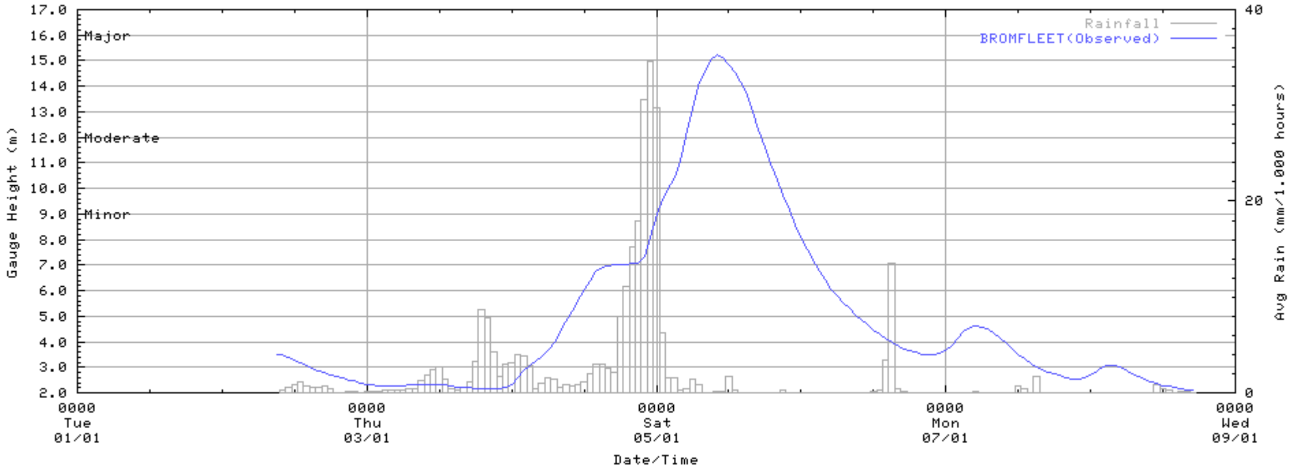
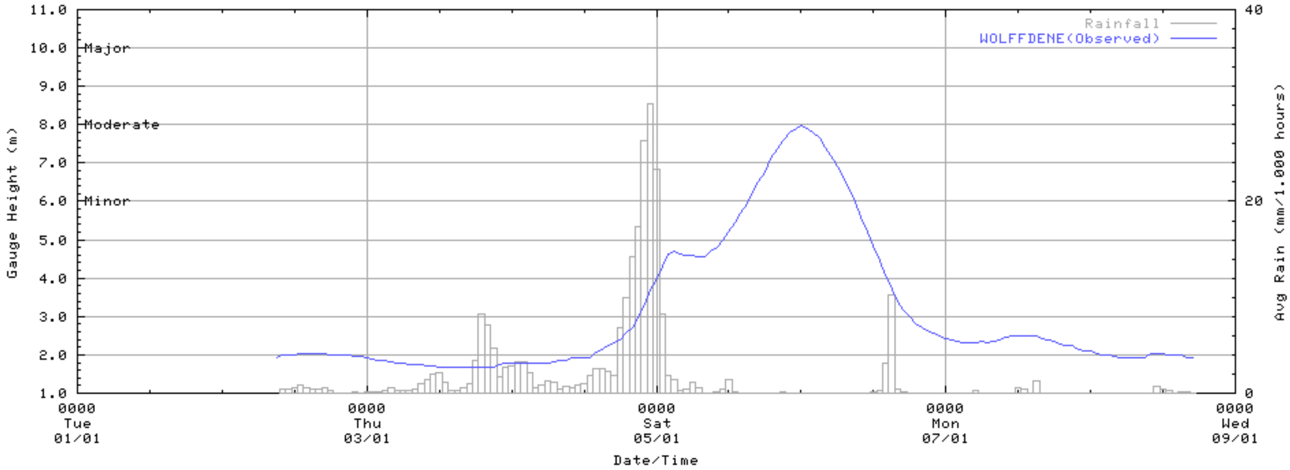


Figure 3.5.2 River Heights - Albert River

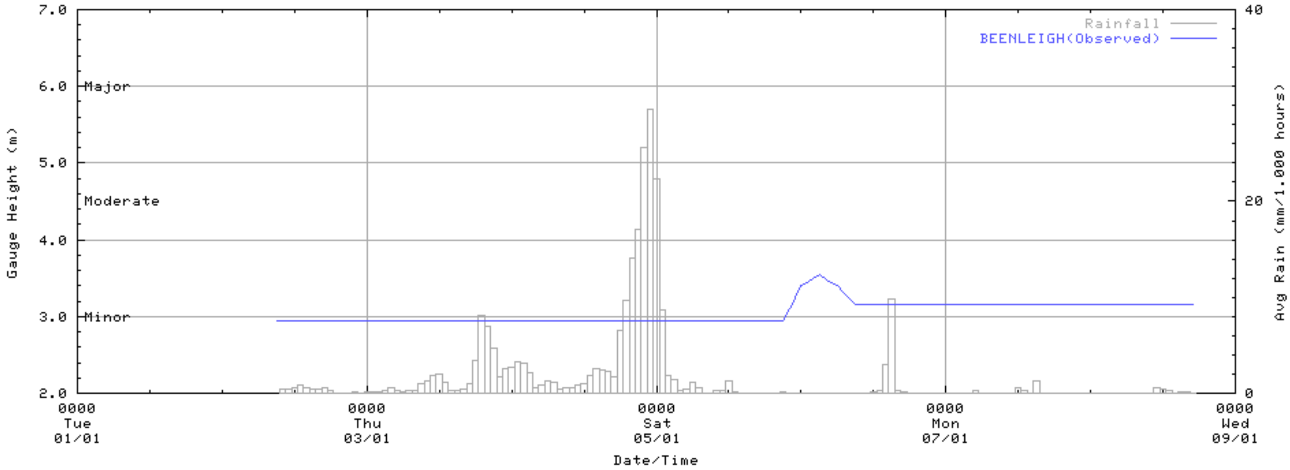
Bromfleet – Albert River



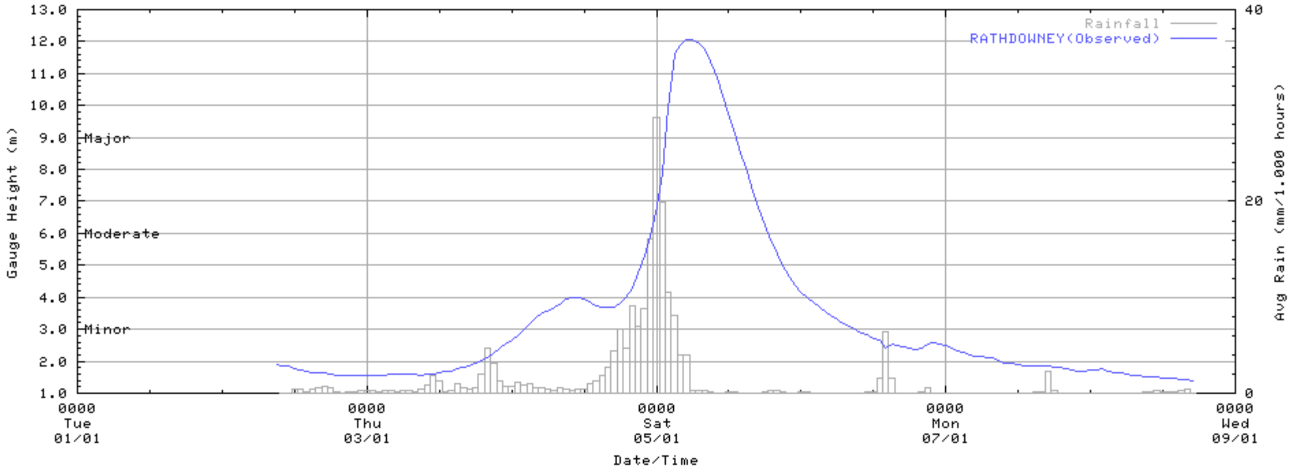
Wolfdene – Albert River



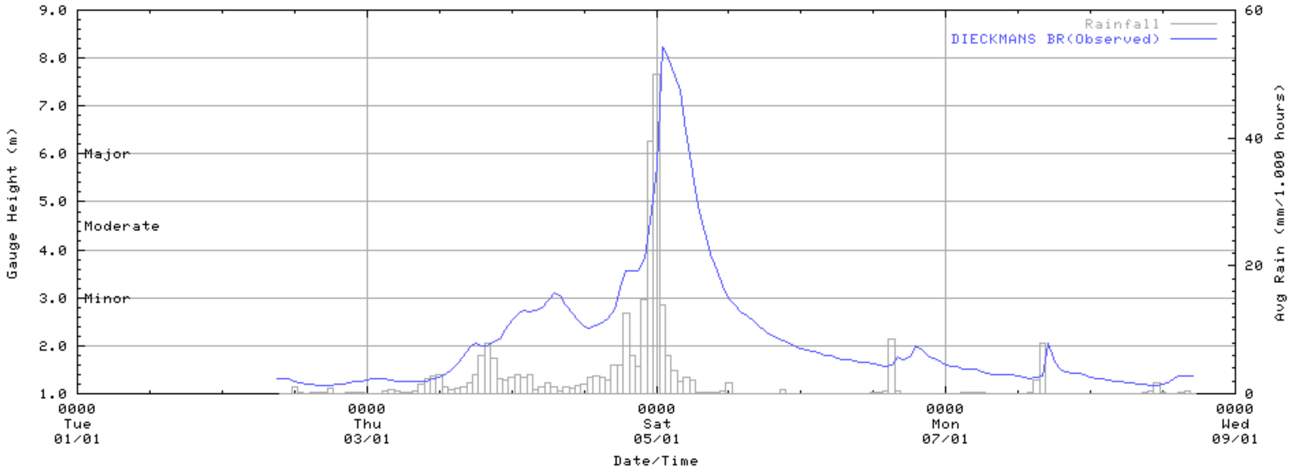
Beenleigh – Albert River



Rathdowney – Logan River



Diekmans Bridge – Running Creek



Rudds Lane – Christmas Creek

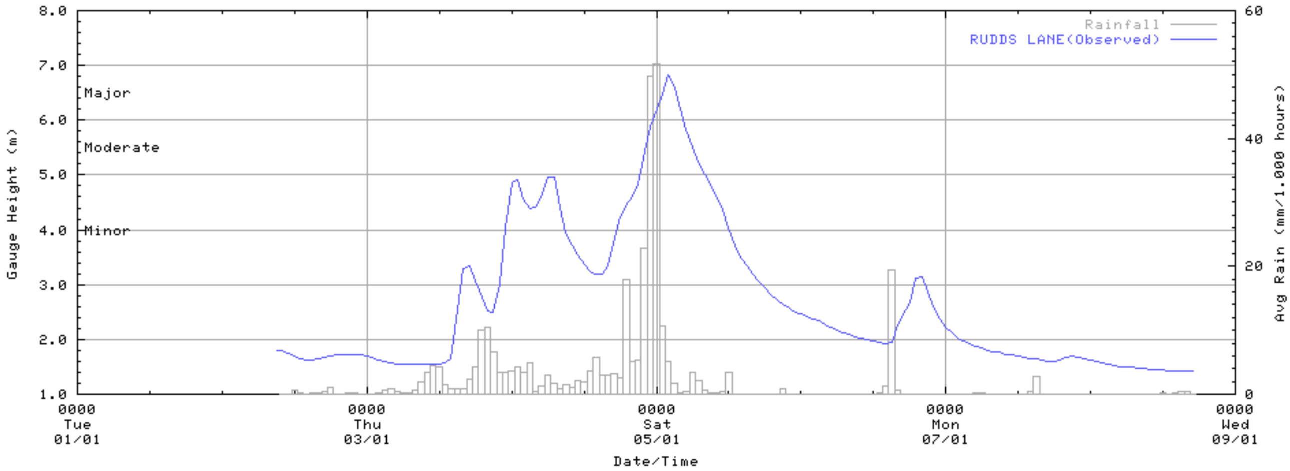
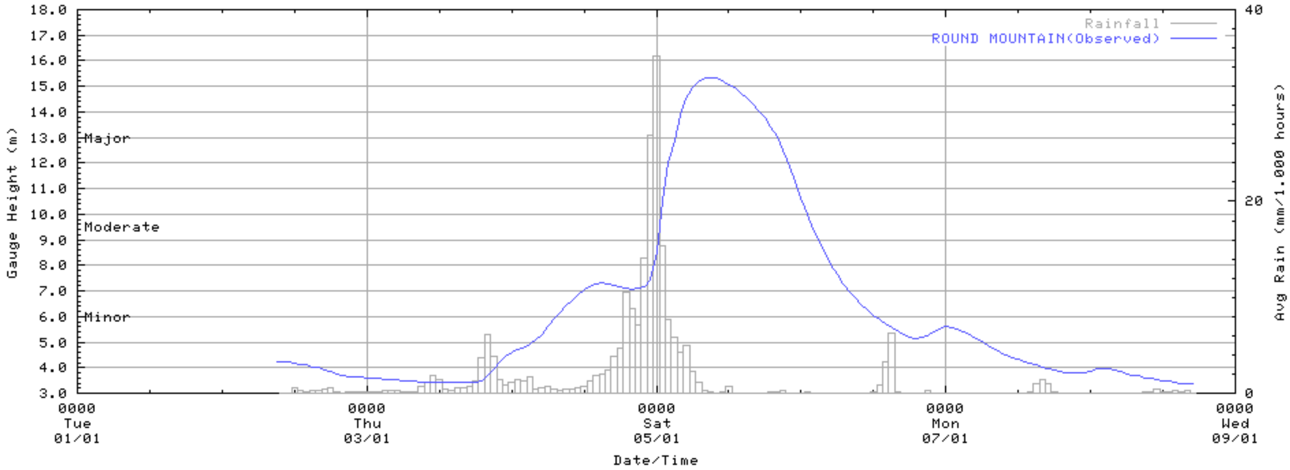
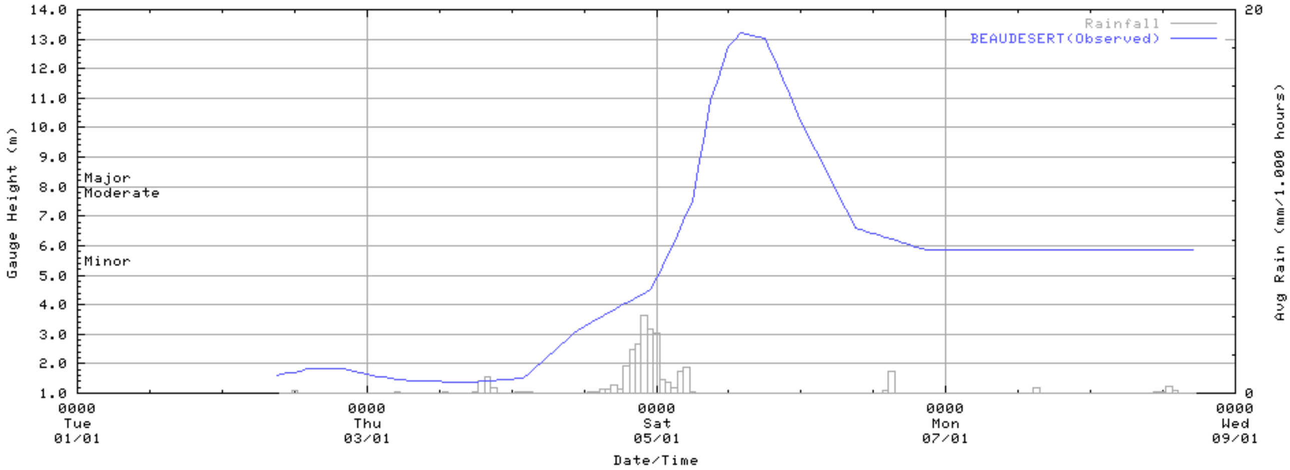


Figure 3.5.3 River Heights - Lower Logan River

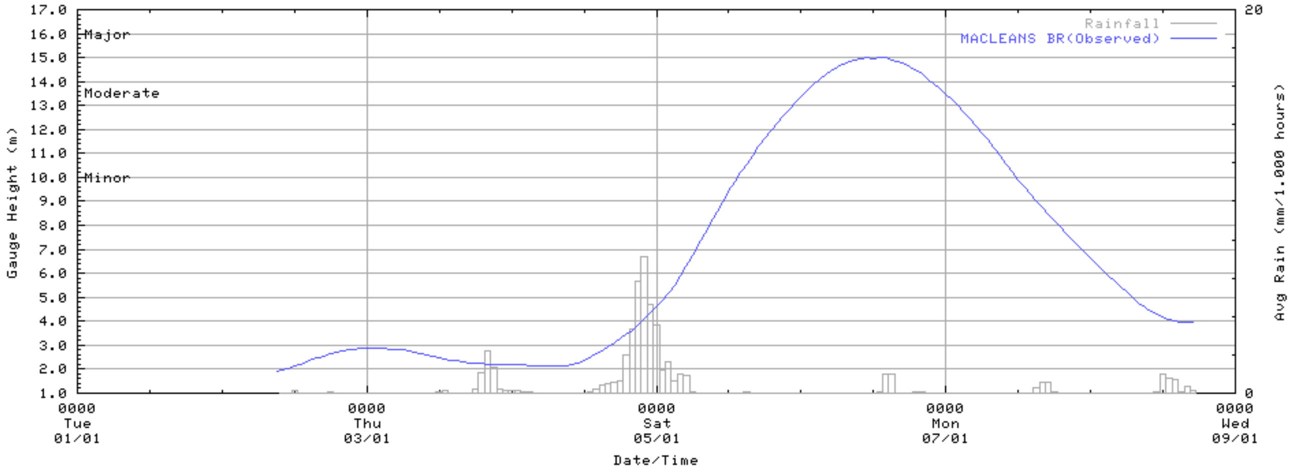
Round Mointain – Logan River



Beaudesert – Logan River



Maclean Bridge– Logan River



Waterford – Logan River

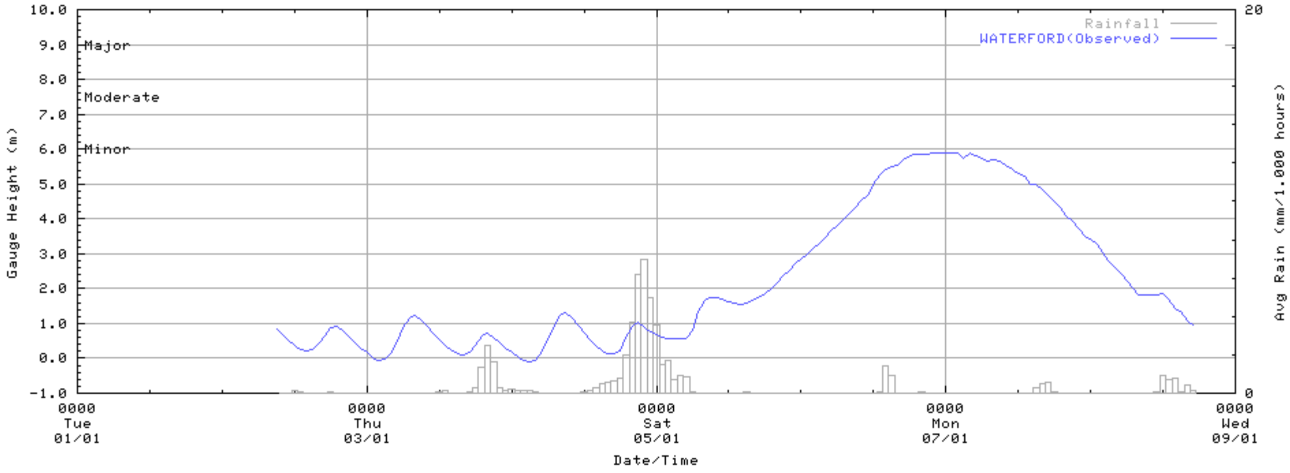
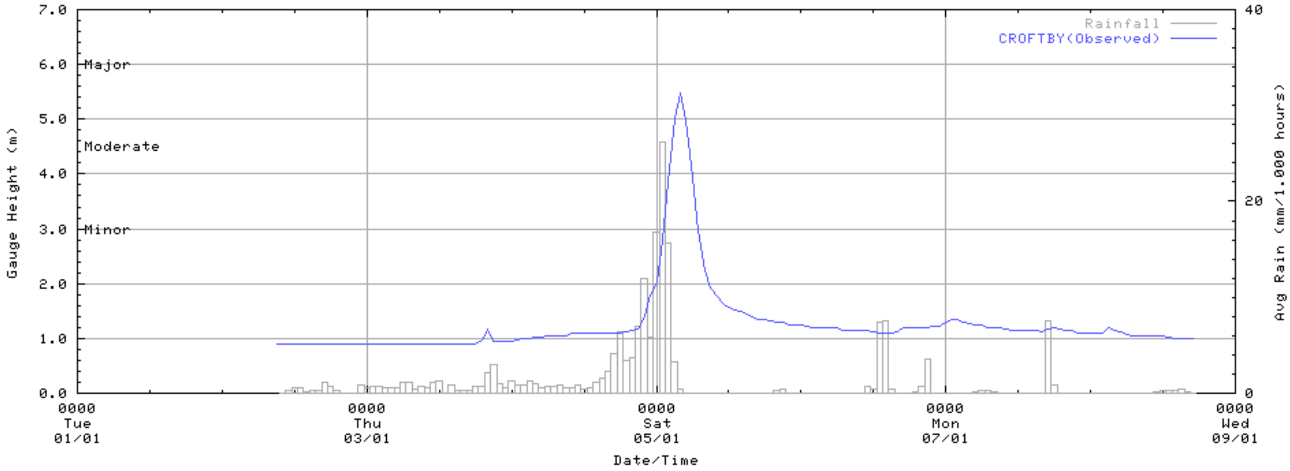
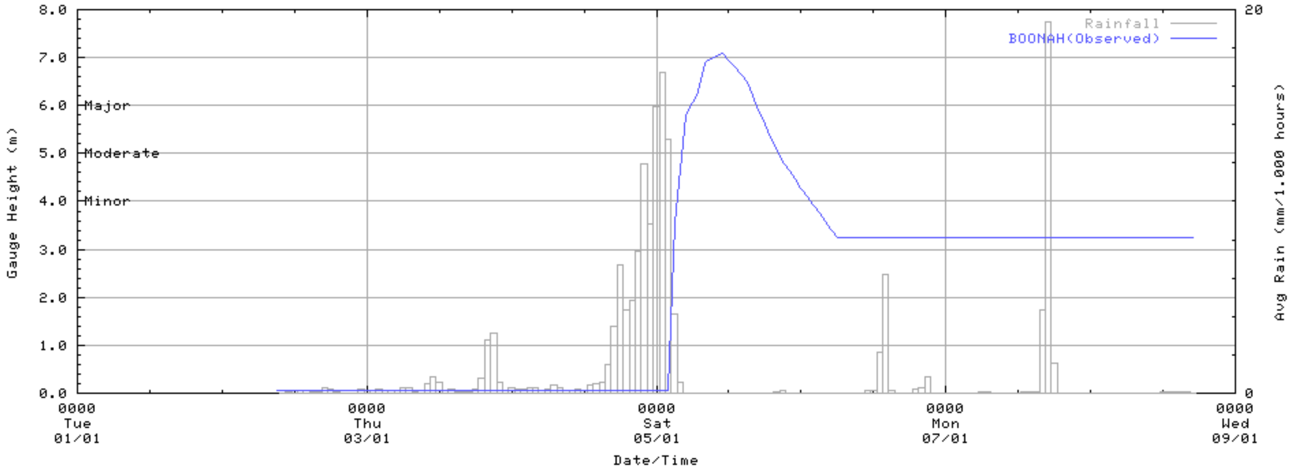


Figure 3.5.4 River Heights - Teviot Brook

Croftby – Teviot Brook



Boonah – Teviot Brook



The Overflow – Teviot Brook

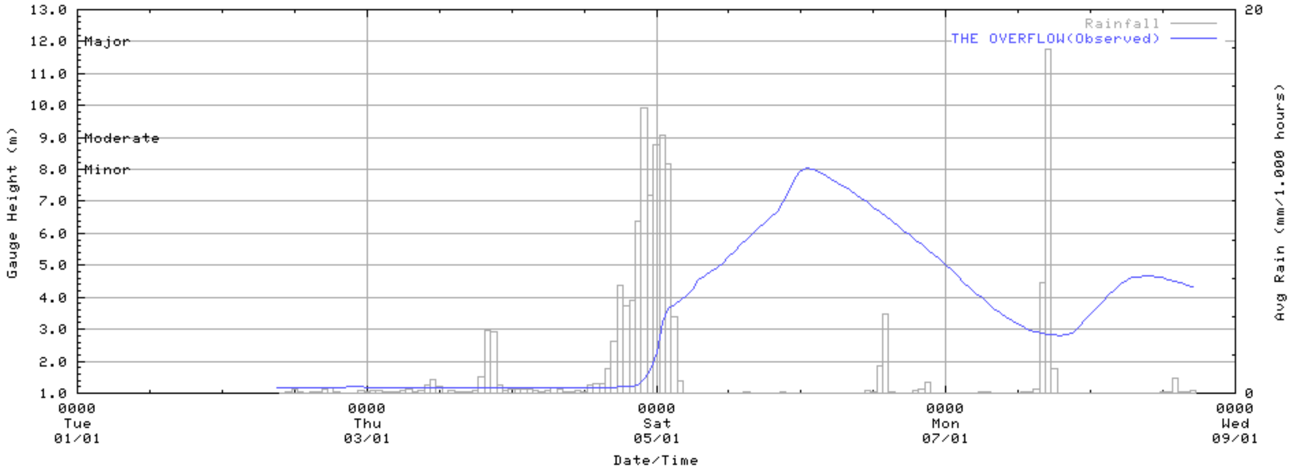
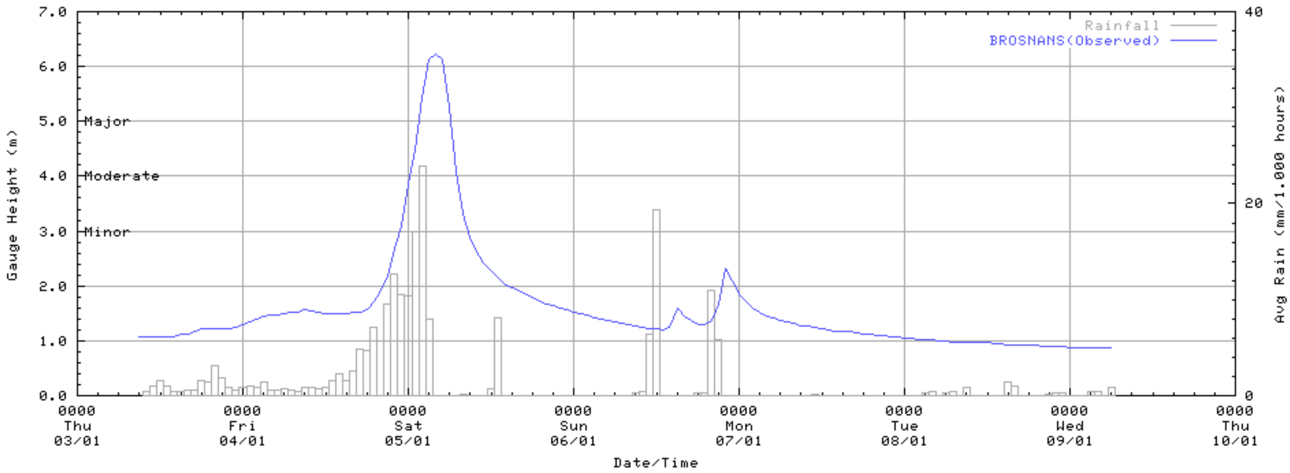
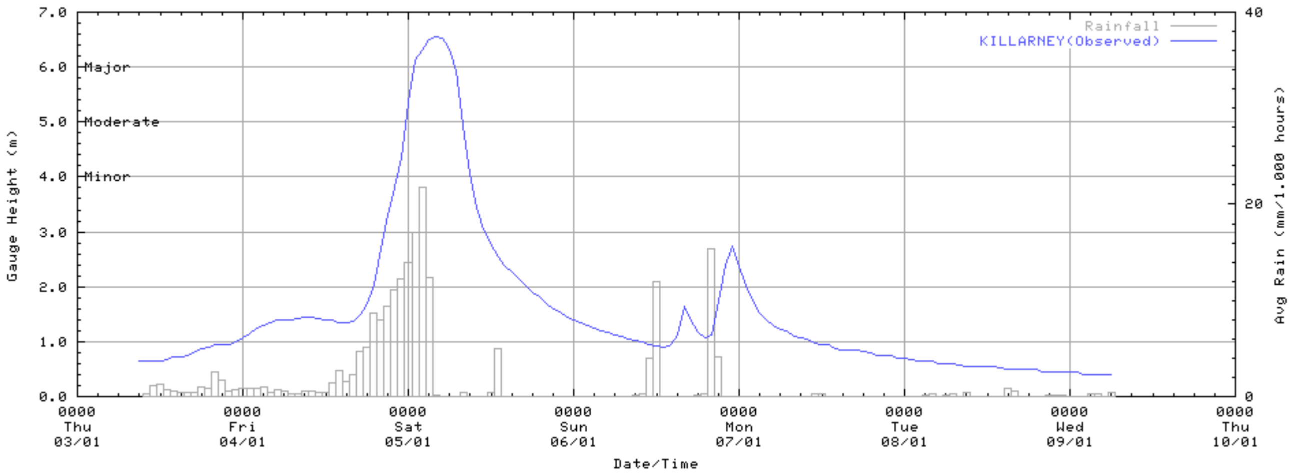


Figure 3.5.5 River Heights - Condamine River

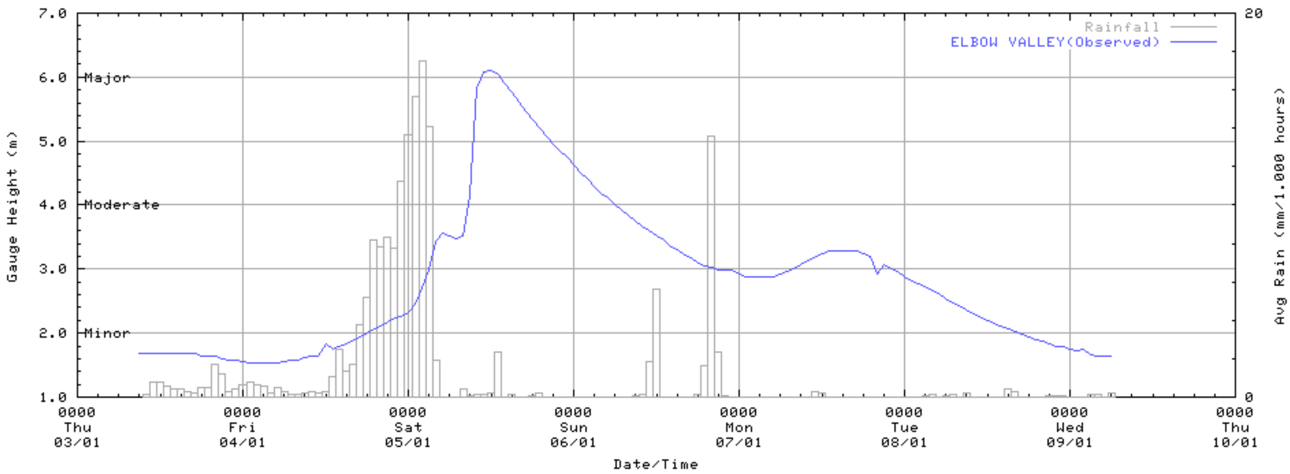
Brosnans Barn – Condamine River



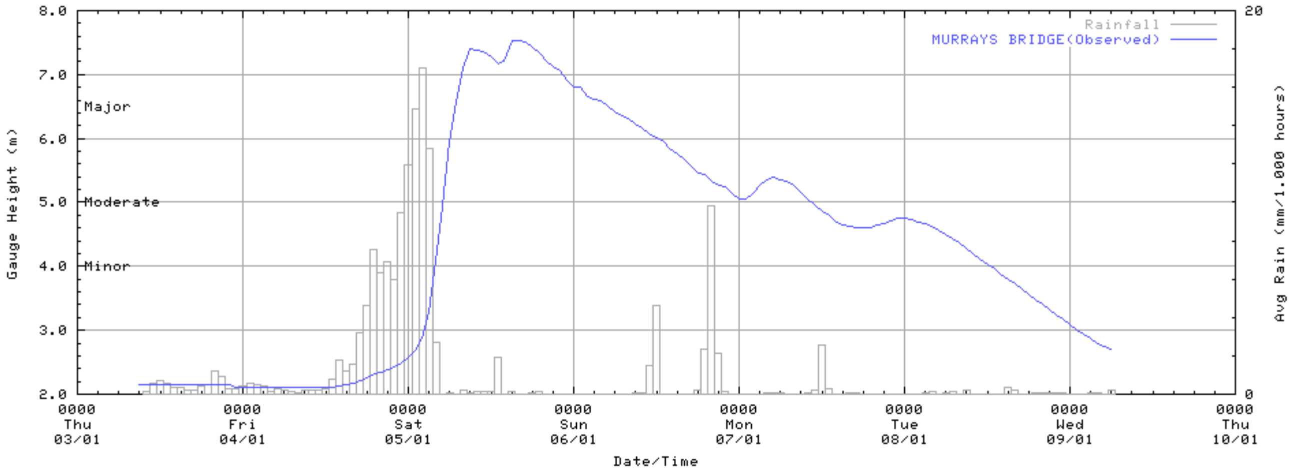
Killarney – Condamine River



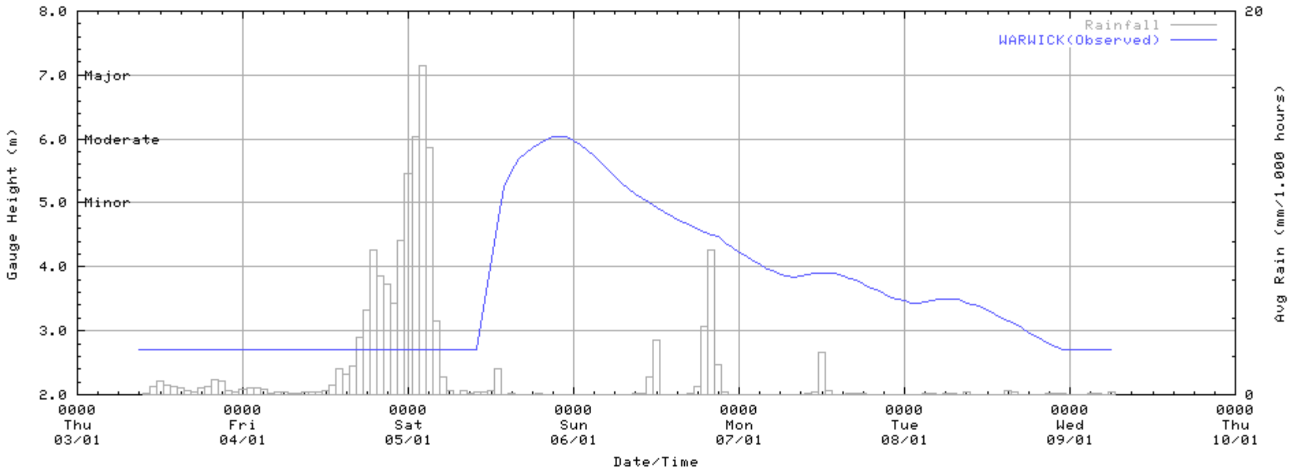
Elbow Valley – Condamine River



Murrays Bridge – Condamine River



Warwick – Condamine River



4. Warning Services

Lead-Up

- During the first week of January, a Severe Weather Warning was updated at 6-hourly intervals for damaging winds and dangerous surf along the southern Queensland coast caused by an offshore low pressure system.
- The warning issued 11-10am Thursday 3 identified the situation of the low moving closer to the SEQld coast and warned for flash flooding:
    - "Increasing rainfall overnight Thursday and into early Friday could lead to flash flooding about the Southeast Coast District in smaller streams about the coast and west towards the Dividing Range."
- This warning was renewed at 5-25pm and 11-20pm Thursday.
- The next issue at 4-20am Friday 4 Jan removed the warning for "flash flooding" as rain had eased but maintained the warning for "small stream flooding" with a statement that:
    - "very heavy rainfall has fallen in the Gold Coast Hinterland and stream and creek flooding will be occurring in this region".
    - The warning was based on the forecast that the low pressure system now offshore from Caloundra would move towards the NSW border areas to be located near Byron Bay at 4am Saturday 5.
    - This warning for coastal areas south from Cape Moreton (essentially Brisbane area south) was updated at 10-55am and 4-30pm with the expectation and mention that stream and creek flooding would be easing on Saturday.
    - Weather forecast, issued 4-10pm, was for "scattered showers, tending to rain at times over southern parts".

Critical Period

- At approx 8pm Friday, it was identified from radar and ALERT systems that torrential rain was commencing, or about to commence, in the Gold Coast hinterland and possibly also moving towards the Qld-NSW border ranges to the west.
- At 9-34pm, a Flood Warning was issued for the Albert River, Upper Logan River and tributaries and consultations with the Department of Emergency Services (DES) Duty Officer commenced and other DES area managers, and Gold Coast City Council and Beaudesert Shire Council officers, in the ensuing hours.
- At 11pm, a Top Priority Severe Weather Warning for Flash Flooding in the Gold Coast Hinterland was issued with the Standard Emergency warning Signal (SEWS) authorised. The flood statement advised that:

    "Very heavy rainfall has fallen in the Gold Coast Hinterland, where flash flooding is occurring. Significant stream and creek flooding, including flooding of low lying areas will be occurring in this region overnight and early Saturday."
- At 11-43 pm Friday, a PRIORITY Flood Warning for the Upper Nerang and Coomera Rivers and Gold Coast Creeks was issued.
- At 1-39am Saturday 5th, the Flood Warning for the Albert River, Logan River and Tributaries was renewed as a PRIORITY Warning.
- Severe Weather Warnings and Flood Warnings continued to be updated during Saturday and the weekend.

The tables below document the issue of flood warnings for the South East Queensland rivers during the period 4th January to 9th January 2008. A total of 46 warnings were issued for the event.

Table 4.0.1 Summary of Flood Warnings Issued

Warning No	Rivers	First Warning	Last Warning	Total
IDQ20820	Upper Nerang and Coomera	11.43pm Fri 4/1/2008	11.03am Sat 5/1/2008	3
IDQ20815	Albert and Logan	9.34pm Fri 4/1/2008	3.47pm Mon 7/1/2008	14
IDQ20825	Upper Condamine to Warwick	7.36am Sat 5/1/2008	10.48am Tue 8/1/2008	8
IDQ20835	Dumaresq and Macintyre	7.08am Sun 6/1/2008	9.05am Wed 9/1/2008	5
IDQ20885	Flood Summary	9.48pm Fri 4/1/2008	7.19am Wed 9/1/2008	16

Table 4.0.2 Time of First Warning Compared to Peak Heights

River	First Warning		Peak at Key Forecast Location		
	Time	Class of flooding at Key Forecast Location at time of first warning	Time	Height & Class	Time Difference First Warning to Peak
Logan/ Albert	9.34pm Friday 4/1/2008	Below Minor at Waterford	Midnight Sun 6/1/2008	6m Minor	~52 Hrs
Upper Condamine	7.36am Saturday 5/1/2008	Below Minor at Warwick	9pm - 12pm Sat 5/1/2008	6.04m Moderate	13 – 16 Hrs
Macintyre	7.08am Sunday 6/1/2008	Below Minor at Goondiwindi	11pm Tue 8/1/2008	4.67m Minor	64 Hrs

Table 4.0.3 Quantitative Predictions

Forecast Location	Time of first Height Forecast	Forecast Peak / Time	Actual Peak	Lead Time
Waterford	1:39am Sat 5/1/2008	7.5m Late Sunday	6.0 m	46 Hrs
Macleans Br	4.50pm Sat 5/1/2008	16.0m 8am 6/1/2008	15.0m 2pm 6/1/2008	21 Hrs
Warwick	7.36am Sat 5/1/2008	~7m Saturday, Late Afternoon or Evening	6.04m 9pm – 12pm 5/1/2008	13 – 16 Hrs
Goondiwindi	7.08am Sun 6/1/2008	5.0-6.0m during Tuesday	4.67m 11pm 8/1/2008	64 Hrs

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Natural Resources and Water

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