



HEAVY RAINFALL GOLD COAST

30th June 2005

Introduction

Intense rainfall and flash flooding on the Gold Coast overnight on the 29th and early on the 30th occurred in association with an upper trough system and east coast low. The event resulted in June rainfall totals that were typically four to five times the average, and produced the heaviest June daily rainfalls seen in Queensland since 1967, when Springbrook set a Queensland June record with 621mm.

This report includes some observations on the heavy rainfall that occurred on the Gold Coast in the 24 hours to 3pm 30th June 2005. It uses operational data from the ALERT system operated by Gold Coast City Council, supplemented by data from Bureau stations.

Rainfall Totals

- In the 24 hours to 3pm 30th June 2005, there was heavy rainfall in the coastal area centered around Biggera on the Gold Coast.
- Table 1 shows the 48 hour totals recorded in the area and Figure 1 shows the areal extent.
- The highest total in the period was 595 mm at Loder Ck Dam.

Table 1
Rainfall (mm) between 9am 29/06/2005 and 9am 01/07/2005

CBM No	Station	Latitude	Longitude	Total
040558	NATURAL BRIDGE	-28.2156	153.2344	207
040882	NUMINBAH ALERT	-28.1653	153.2161	149
040607	SPRINGBROOK	-28.2031	153.2719	217
040750	SPRINGBROOK TM	-28.2322	153.2825	302
040848	SPRINGBROOK LOWER ALERT	-28.2083	153.2700	217
540353	MT NIMMEL ALERT	-28.1542	153.2967	290
540352	BONOGIN CREEK ALERT	-28.1092	153.3639	446
540054	LITTLE NERANG DAM ALERT	-28.1467	153.2850	265
040584	HINZE DAM	-28.0481	153.2875	262
040847	HINZE DAM ALERT	-28.0522	153.2817	218
040846	CLEARVIEW ALERT	-28.0017	153.3083	313
540319	CARRARA ALERT	-28.0064	153.3667	590
540253	BOOBEGAN CREEK LOCK AL	-28.0383	153.3917	489

540318	EVANDALE ALERT	-28.0050	153.4161	585
540360	BIGGERA CK DAM ALERT	-27.9486	153.3828	572
540359	LODER CK DAM ALERT	-27.9675	153.3867	595
540238	LODER CREEK ALERT	-27.9700	153.3964	507
040881	AIR SEA RESCUE ALERT	-27.9561	153.4233	420
040764	GOLD CST SEAWAY	-27.9389	153.4283	451
040417	MIAMI	-28.0717	153.4433	250
540366	TALLEBUDGERA CK DAM ALERT	-28.1789	153.3606	390
540356	TALLEBUDGERA CK RD AL	-28.1472	153.4019	445
540320	COPLICKS BRIDGE ALERT	-28.1381	153.4244	459
540252	OYSTER CREEK ALERT	-28.1128	153.4378	485
540354	TOMEWIN ALERT	-28.2406	153.3783	274
040717	COOLANGATTA	-28.1656	153.5094	507
058158	MURWILLUMBAH	-28.3408	153.3784	197
040845	BINNA BURRA ALERT	-28.2006	153.1872	171
040376	TYUNGUN ALERT	-28.0867	153.1594	153
540290	CANUNGRA ARMY ALERT	-28.0256	153.1928	204
040844	BEECHMONT ALERT	-28.1350	153.1883	165
040197	MT TAMBORINE	-27.9694	153.1953	241
040335	MT TAMBORINE ALERT	-27.9694	153.2133	229
540291	CLAGIRABA ROAD ALERT	-27.9900	153.2436	260
040341	WONGAWALLAN ALERT	-27.8794	153.2139	246
040166	OXENFORD	-27.8936	153.3106	344
540292	OXENFORD WEIR ALERT	-27.8986	153.2914	316
040516	COOMERA	-27.8417	153.3544	371
540269	MONTEREY KEYS ALERT	-27.8856	153.3381	383
540293	COOMERA SHORES ALERT	-27.8478	153.3594	415
040345	LUSCOMBE ALERT	-27.8064	153.2072	201
540294	KERKIN ROAD ALERT	-27.8028	153.3392	320
540295	STEIGLITZ WHARF ALERT	-27.7453	153.3536	270

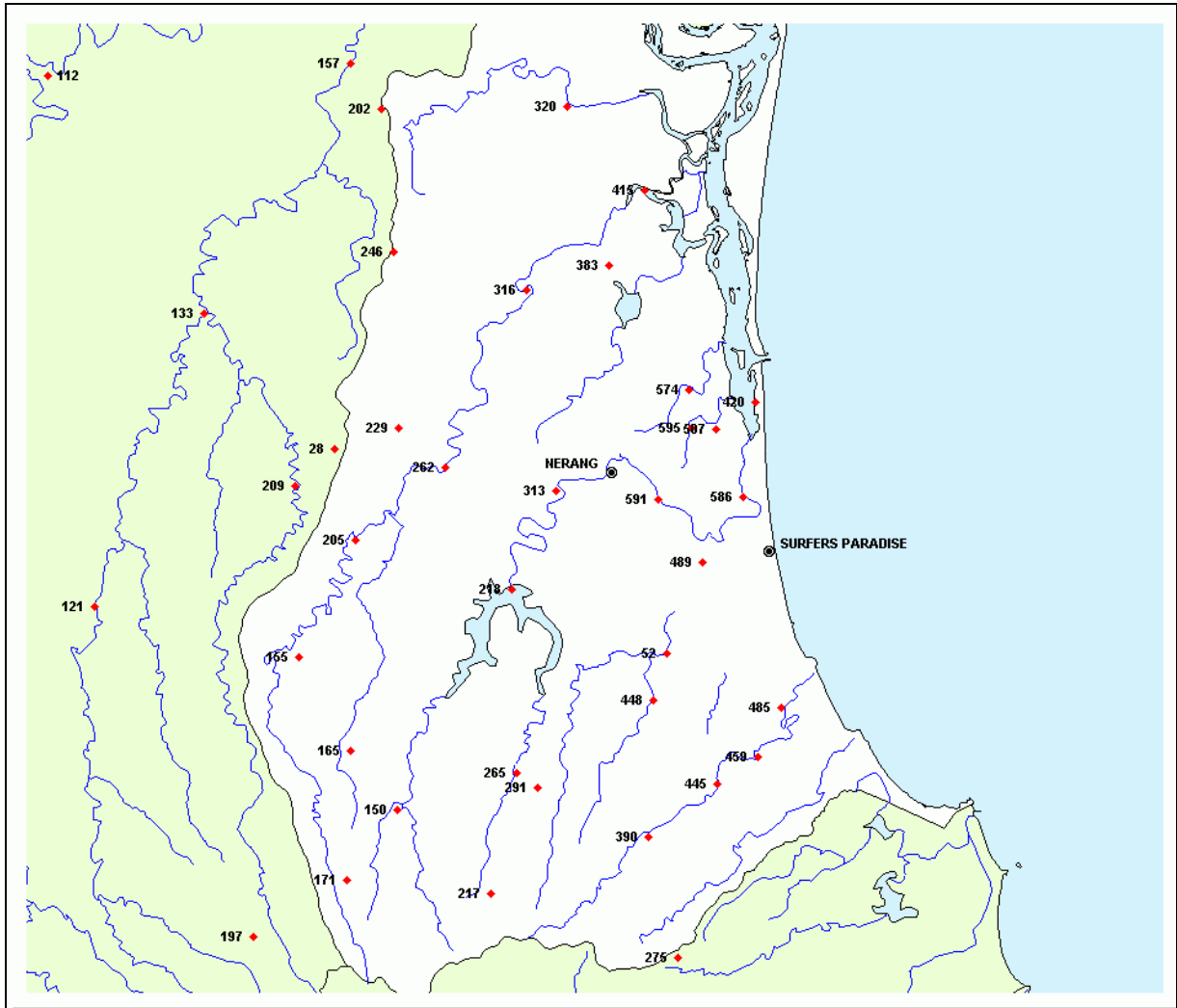


Figure 1 Rainfall 48 Hours to 9am 1st July 2005

Intensity- Frequency- Duration Analysis

- Intensity-Frequency-Duration (IFD) analysis of the actual event rainfall was conducted at two selected stations.
- The IFD analysis of the station at Loder Creek Dam ALERT indicates that for all intervals above 60 minutes, the rainfall intensity was well in excess of 100 Average Recurrence Interval.
- The IFD analysis of the station at Carrara ALERT shows that for all intervals above 30 minutes, the rainfall intensity was well in excess of 100 Average Recurrence

RAINFALL INTENSITY FREQUENCY DURATION ANALYSIS

LOCATION: 540359 LODER CK DAM ALERT

Analysis of the rainfall for the 164 hours to Mon Jul 4 07:33:28 2005

Rainfall (mm)	Period Ending	ARI (years)
13	5 mins ending at 20:09:05 29/06/2005	2
15	6 mins ending at 20:09:20 29/06/2005	2
22	10 mins ending at 20:08:20 29/06/2005	2-5
40	20 mins ending at 20:09:20 29/06/2005	5-10
55	30 mins ending at 07:30:20 30/06/2005	10-20
103	60 mins ending at 07:34:05 30/06/2005	50-100
173	2 hours ending at 08:01:50 30/06/2005	> 100
241	3 hours ending at 07:21:20 30/06/2005	> 100
415	6 hours ending at 09:59:05 30/06/2005	> 100
500	12 hours ending at 11:16:35 30/06/2005	> 100
588	24 hours ending at 13:33:35 30/06/2005	> 100
626	48 hours ending at 13:33:35 30/06/2005	> 100
664	72 hours ending at 13:33:35 30/06/2005	> 100

RAINFALL INTENSITY FREQUENCY DURATION ANALYSIS

LOCATION: 540319 CARRARA ALERT

Analysis of the rainfall for the 161 hours to Mon Jul 4 05:11:12 2005

Rainfall (mm)	Period Ending	ARI (years)
15	5 mins ending at 07:37:10 30/06/2005	2-5
18	6 mins ending at 07:37:10 30/06/2005	5
29	10 mins ending at 07:43:40 30/06/2005	10-20
57	20 mins ending at 07:48:10 30/06/2005	50-100
84	30 mins ending at 07:46:40 30/06/2005	> 100
145	60 mins ending at 07:58:40 30/06/2005	> 100
227	2 hours ending at 08:10:40 30/06/2005	> 100
286	3 hours ending at 09:06:40 30/06/2005	> 100
440	6 hours ending at 10:10:10 30/06/2005	> 100
503	12 hours ending at 10:58:25 30/06/2005	> 100
584	24 hours ending at 14:11:25 30/06/2005	> 100
610	48 hours ending at 11:42:10 30/06/2005	> 100
645	72 hours ending at 13:20:55 30/06/2005	> 100

Temporal Patterns

- Up until 4am on 30th, the heaviest hourly totals were generally below 50 mm in any particular hour. During the evening of the 29th and in the early hours of 30th a few hourly totals above 40 mm were recorded in the Biggera area and in the headwaters of Mudgeeraba Creek.
- From 4am 30th June, heavy rainfall commenced in a narrow coastal strip from Coomera Shores to the NSW border. Hourly totals in excess of 50mm were common up until midday 30th by which time the heaviest rainfall had cleared the Gold Coast.
- The heaviest rainfall was recorded during the period between 7 and 8am 30th June with the highest total of 145mm at Carrara.
- Figures 3 & 4 show the hourly distribution of rainfall at Carrara and Loder Creek ALERT gauges.

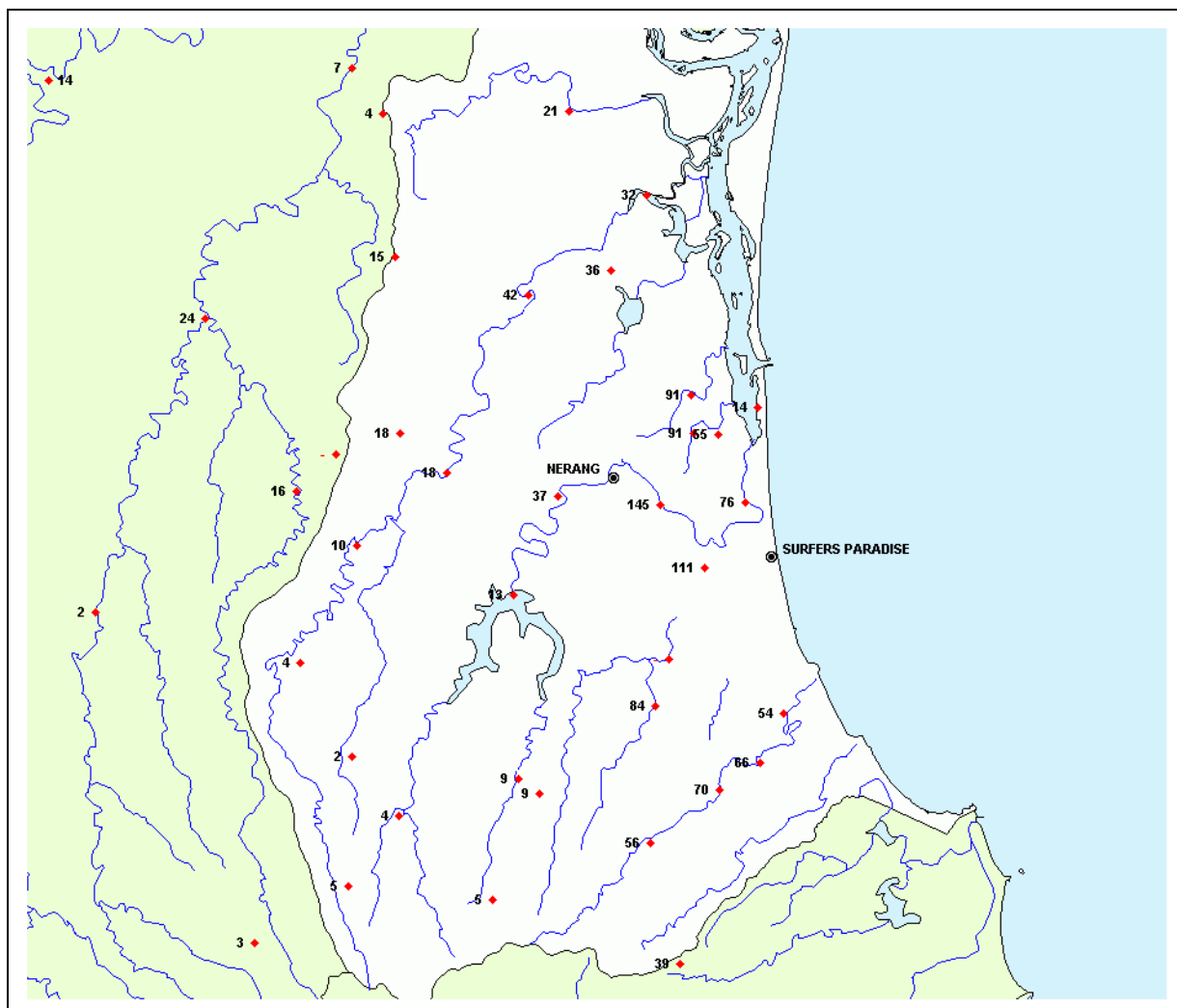


Figure 2 Rainfall (mm) 7am to 8am 30th June 2005

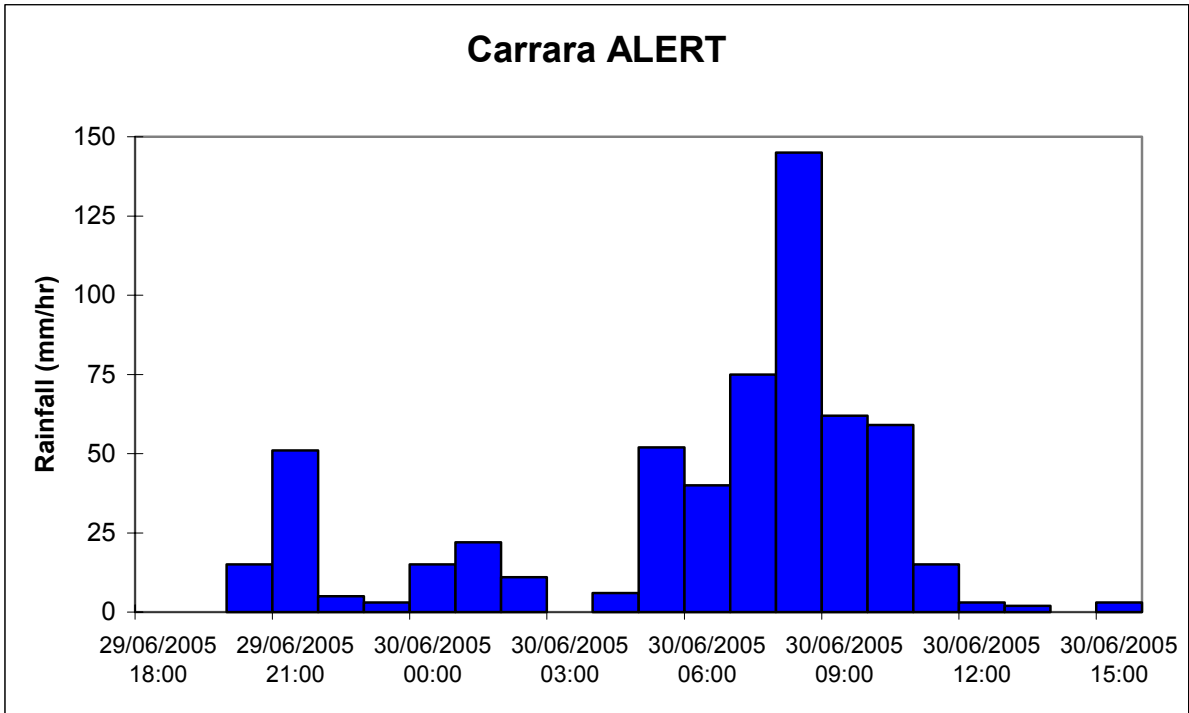


Figure 3 Carrara ALERT Hourly Rainfall

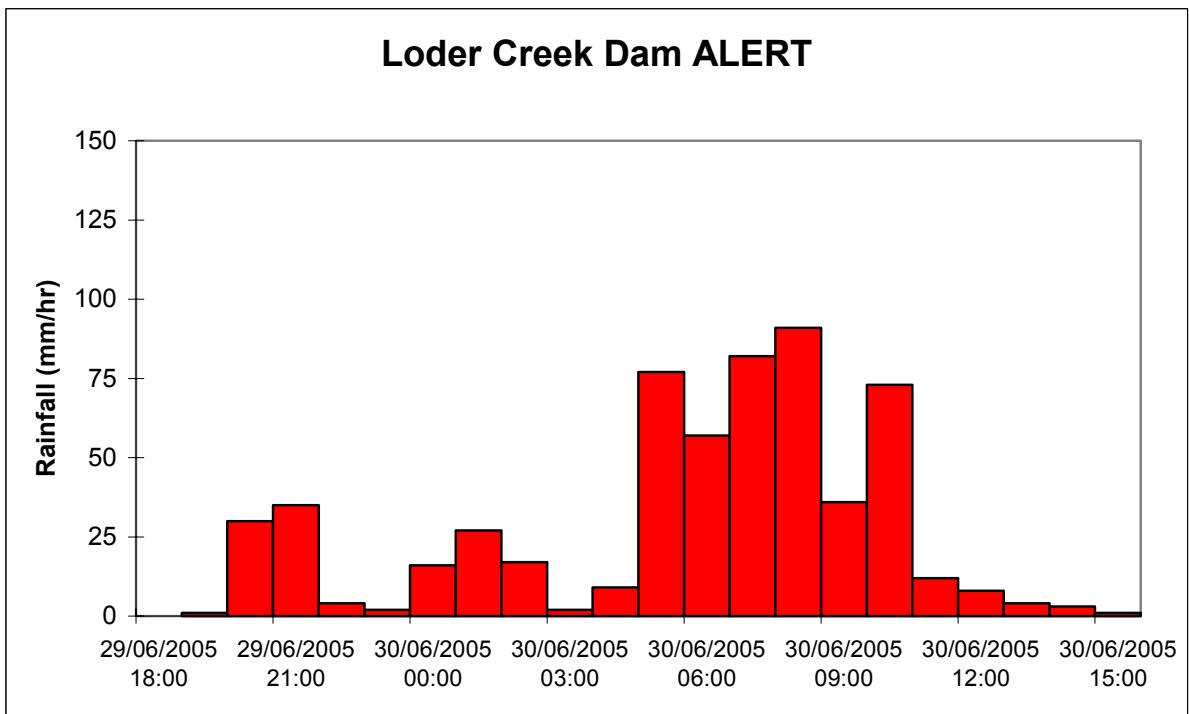


Figure 4 Loder Creek Dam ALERT Hourly Rainfall

Rainfall Records

The highest totals recorded in the 24 hours to 3pm on the 30th included Loder Creek Dam with 587mm, Carrara with 585 mm, Evandale with 578mm and Biggera with 563mm.

In the 24 hours to 9am on the 30th June, several long-standing records for daily 9am rainfall totals were broken.

Daily Rainfall Records

CBM	Station	Period of Record (Years)	Previous Record (mm)	24 Hours to 9am	
				30 th June	1 st July
040166	Oxenford	102	398	290	54
040160	Nerang	115	406	346	60
040717#	Coolangatta	78	461	369	138
058040*	Murwillumbah	115	424	174	23
040899%	Tomewin	92	508	143	274

Historical record at 040052

* Historical record at 040020

% Historical record at 058067