

Flood summary for the Brisbane River at Brisbane City

- The city of Brisbane is in the lower Brisbane River catchment.
- The flood heights at Brisbane are measured using an automatic gauge located at the Thornton Street Ferry which is owned by Seqwater (Bureau station number: 540198). There are a set of manual staff gauges at this site which is owned by the Bureau of Meteorology.
- A detailed map of the flood warning network is available on the Bureau website at http://www.bom.gov.au/hydro/flood/qld/brochures/river_maps.shtml

Location map

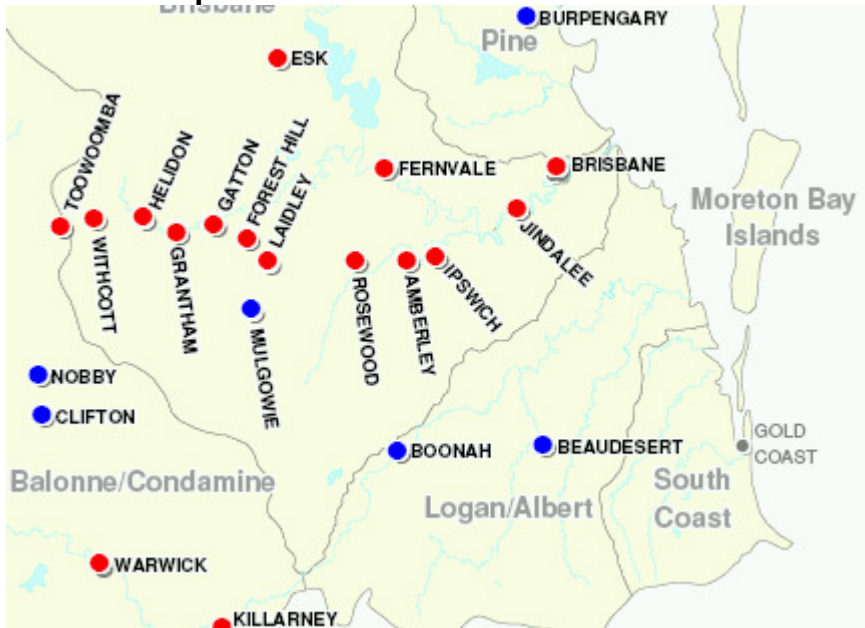
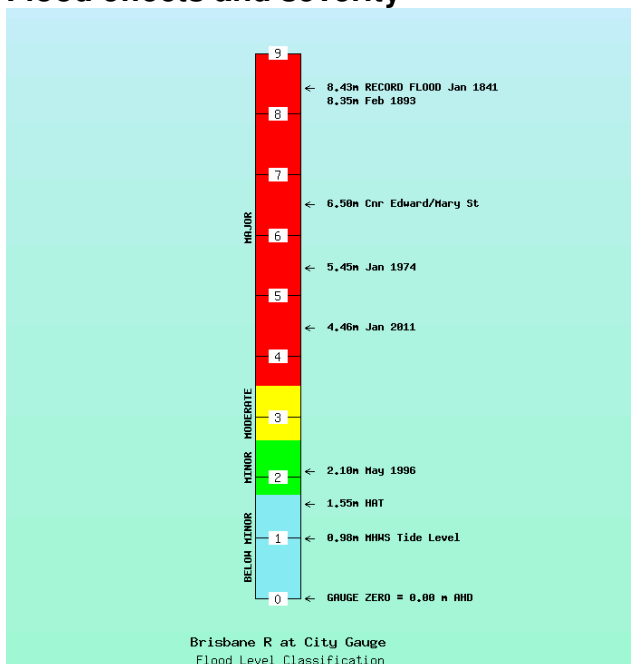


Figure 1. Map showing location of Brisbane.

Note: Red dots are reported flood inundated towns or cities and blue dots are flood affected towns or cities.

Flood effects and severity



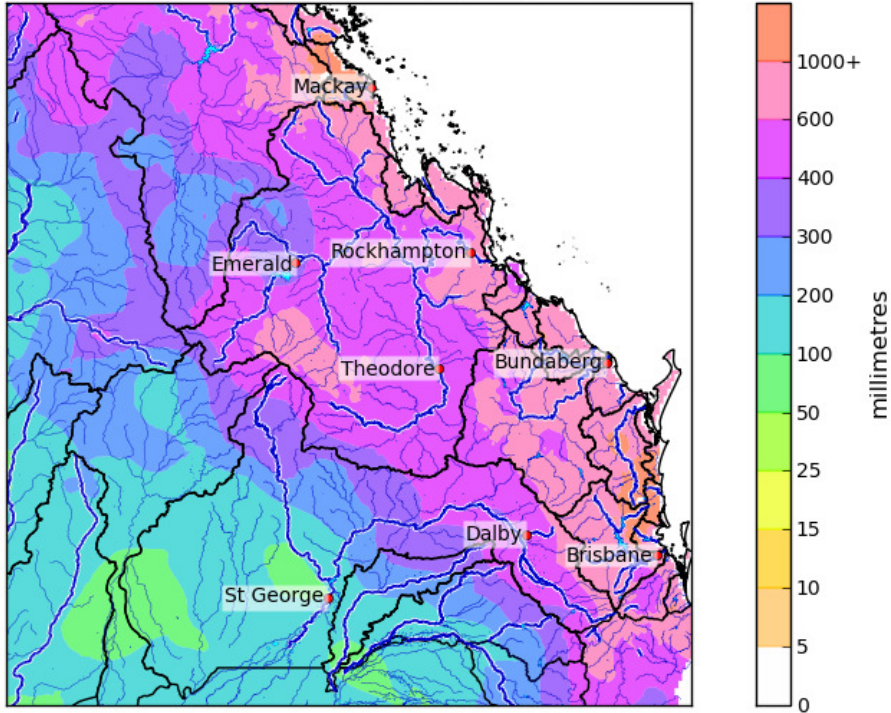
- **Peaked at 4.46 metres on 13/01/2011.**
- Minor: 1.7 metres
Moderate: 2.6 metres
Major: 3.5 metres.
- Gauge zero is 0.0 metres AHD.
- Estimated 26600 houses and 5000 businesses affected during the flood. (Source BCC)
- Estimated 12500 properties were inundated by flood waters (Source BCC)
- Above major flood level (3.5 metres) from 12/01/2011 to 13/01/2011.
- Remained above minor flood level (1.7 metres) from 11/01/2011 to 14/01/2011.

Figure 2. Flood level classifications and flood effects for Brisbane.

Rainfall summary

- Rainfalls of between 600-1000mm were recorded in most of the Brisbane catchment during December 2010 and January 2011.
- Most of this rainfall fell between 09/01/2011 and 13/01/2011 with over 600mm recorded in parts of the Stanley River catchment during this period.

Total Rainfall 01-12-2010 to 31-01-2011



Total Rainfall 09-01-2011 to 13-01-2011

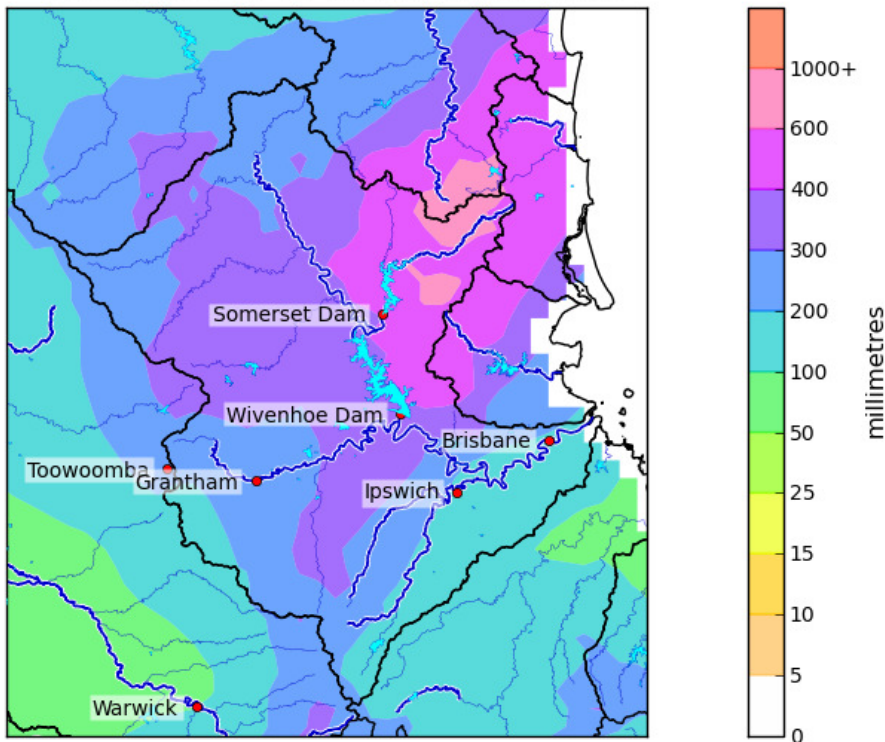


Figure 3. Rainfall map from 01/12/2010 to 31/01/2011 (top) and for the 96 hours to 9am on 13/01/2011 (bottom).

Rainfall Intensity

- Maximum rainfall intensities for two selected stations at Savages Crossing AL and Mt Glorious AL-P on the lower Brisbane River are shown in Table 1.
- The most significant rainfall intensities for Savages Crossing AL in January 2011 occurred on the 11/01/2011 and 12/01/2011. Intensities for all durations from 1 to 72 hours exceeded the 1% Annual Exceedence Probability (100 year Average Recurrence Interval) intensities.
- The most significant rainfall intensities for Mt Glorious AL-P in January 2011 occurred on the 11/01/2011. Intensities for durations from 3 to 48 hours exceeded the 1% Annual Exceedence Probability (100 year Average Recurrence Interval).

Table 1. Recorded Maximum Rainfall Intensities for Savages Crossing AL and Mt Glorious AL-P in the Brisbane River catchment for January 2011.

Rainfall Duration	Savages Crossing AL			Mt Glorious AL-P		
	Rainfall (mm)	Period ending	ARI (years)	Rainfall (mm)	Period ending	ARI (years)
5 min	10	8:25 AM 11/01/2011	1-2	12	8:30 AM 11/01/2011	2
6 min	12	8:26 AM 11/01/2011	1-2	14	8:31 AM 11/01/2011	2-5
10 min	21	8:25 AM 11/01/2011	2-5	24	8:35 AM 11/01/2011	5-10
20 min	41	8:25 AM 11/01/2011	10-20	37	8:35 AM 11/01/2011	5-10
30 min	57	8:35 AM 11/01/2011	20-50	50	8:35 AM 11/01/2011	10-20
1hr	104	8:40 AM 11/01/2011	>100	83	8:40 AM 11/01/2011	20-50
2hr	186	8:50 AM 11/01/2011	>100	132	8:35 AM 11/01/2011	50-100
3hr	211	9:30 AM 11/01/2011	>100	188	10:25 AM 11/01/2011	>100
6hr	293	1:10 PM 11/01/2011	>100	298	12:35 PM 11/01/2011	>100
12hr	368	2:10 PM 11/01/2011	>100	408	2:30 PM 11/01/2011	>100
24hr	378	2:05 PM 11/01/2011	>100	438	6:55 PM 11/01/2011	>100
48hr	485	2:15 PM 11/01/2011	>100	630	2:30 PM 11/01/2011	>100
72hr	507	2:00 AM 12/01/2011	>100	698	5:05 AM 12/01/2011	50-100

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

Flood event timeline

Table 2. Flood event timeline for Brisbane City.

Time/Date	Event Description	Gauge height (metres)	Comment
09/01/2011	First warning issued	0.61	
11/01/2011	First time it exceeded minor flood level	1.70	Remained above minor flood levels for ~3.5 days.
12/01/2011	First time it exceeded moderate flood level	2.60	Remained above moderate flood levels for ~2.5 days.
12/01/2011	First time it exceeded major flood level	3.50	Remained above major flood levels for ~1.5 days.
3:00 AM 13/01/2011	Major flood peak	4.46	Highest since 1974.
13/01/2011	Final fall below major	3.50	
14/01/2011	Final fall below moderate	2.60	
14/01/2011	Final fall below minor	1.70	River level exceeded the minor flood level on the high tide on the 15/01/2011.
8:18 AM 19/01/2011	Final warning issued		

Flood Heights at Brisbane City

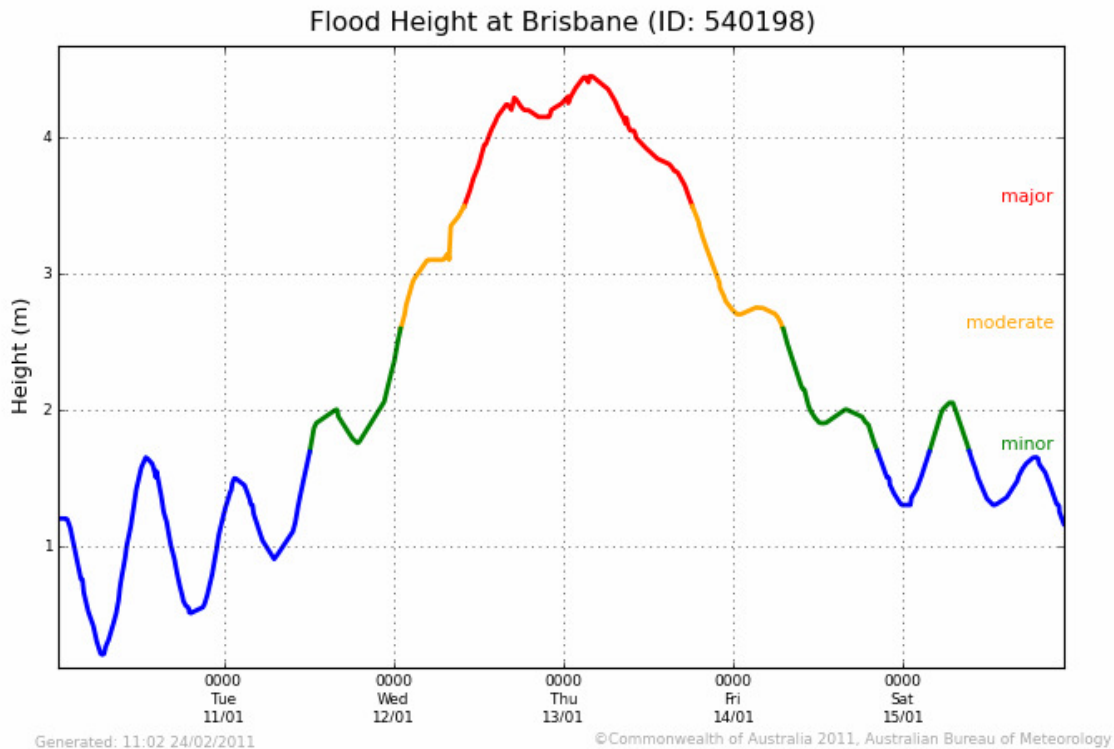


Figure 4. Flood Heights at Brisbane City (Thornton Street Ferry) gauge for January 2011.

Comparison with previous floods

- River height records for Brisbane commenced in 1841 with 13 major flood peaks since that time, three of these occurring in 1893.
- The last major flood recorded at Brisbane was the large scale flood event in January 1974 of 5.45 metres. The record flood at Brisbane was 8.43 metres in 1841.

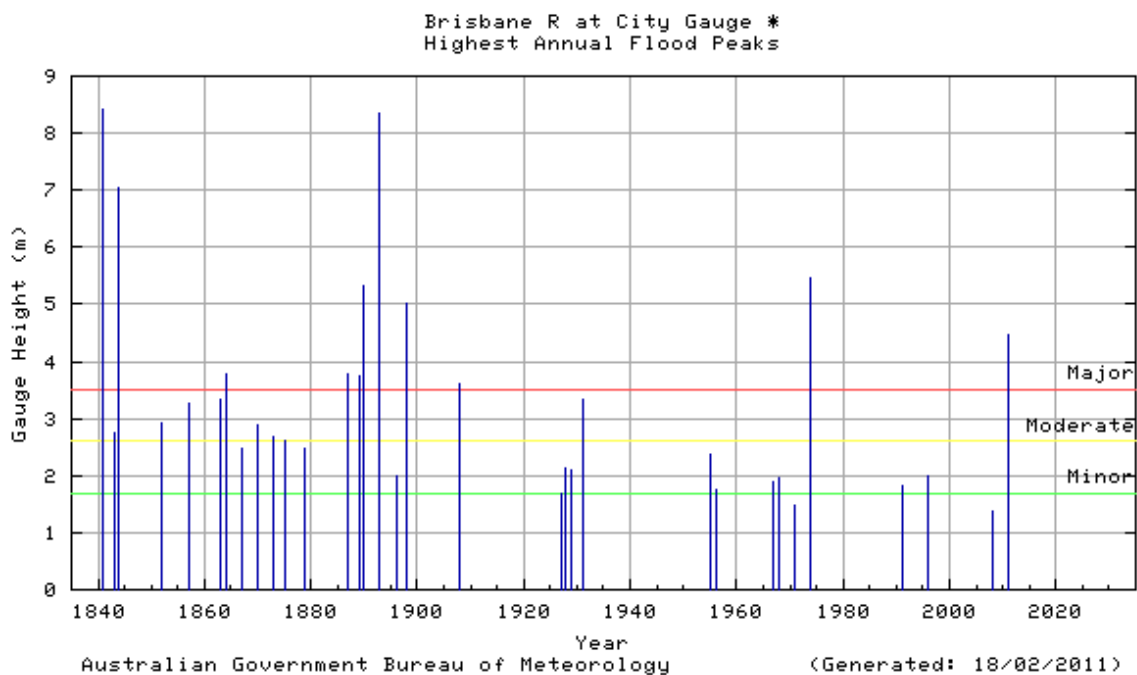


Figure 5. Highest annual flood peaks for the Brisbane River at Brisbane. Warning and Forecast Service

- Significant runoff commenced during October with flood warnings for the Stanley, upper Brisbane and Bremer Rivers and Lockyer Creek issued between 10/10/2010 and 19/10/2010. This included the first large scale release from Wivenhoe Dam since 2001.
- A total of 96 warnings were issued for the Brisbane River during December 2010 and January 2011.

Table 3. Table of peak height predictions for Brisbane.

Time of Height Forecast	Forecast/Time	Peak
First warning issued 09/01/2011		
12:36 AM on Monday the 10th of January 2011	Higher than predicted tides are expected to continue in the Lower Brisbane area during Monday. Minor flood levels are possible on the high tide at the Brisbane City (Port Office) gauge during Tuesday and Wednesday.	Rising limb forecasts – reach a level and expected to continue rising
10:28 AM on Monday the 10th of January 2011	Reach about 2.3 metres (minor) with the high tides on Tuesday and Wednesday. Further rises are possible as rainfall continues.	
4:16 PM on Monday the 10th of January 2011	Reach about 2.1 metres with the afternoon high tide on Tuesday. Reach about 3 metres with the high tides on Wednesday causing moderate flooding.	
9:28 AM on Tuesday the 11th of January 2011	Reach about 2.6 metres (moderate) with the overnight high tide tonight. Reach 3.5 metres (major) with the high tides on Wednesday. Higher levels are expected on Thursday with the high tides.	
3:24 PM on Tuesday the 11th of January 2011	Reach about 3 metres (moderate) around 3am Wednesday. Reach 4.5 metres (major) at 3pm Wednesday. Exceed 1974 flood level (5.45 metres) on Thursday.	
7:33 AM on Wednesday the 12th of January 2011	Reach about 4.5 metres (major) at 3pm Wednesday. Peak about 5.5 metres (major) during Thursday.	Reached 4.3 metres at 5:00 PM Wed 12/01/2011
11:56 AM on Wednesday the 12th of January 2011	Reach about 4.5 metres (major) at 3pm Wednesday. Peak about 5.5 metres (major) during Thursday. Fall below major flood level during Friday.	
4:29 PM on Wednesday the 12th of January 2011	Peak about 5.2 metres (major) with the high tide at 4am Thursday. Fall below major flood level during Friday.	Peaked at 4.46 metres at 3:00 AM Thurs 13/01/2011
12:27 AM on Thursday the 13th of January 2011	Peak under 5 metres (major) with the high tide at 4am Thursday. Fall below major flood level by Friday.	
3:52 AM on Thursday the 13th of January 2011	Peak around 4.6 metres (major) with the high tide about 4am Thursday. Fall below major flood level by Friday.	
Final warning issued 21/01/2011		

Note: This table does not include all forecasts issued during these flood events.