

Flood summary for the Balonne River at St George

- The town of St George is on the Balonne River in the Condamine-Balonne River catchment.
- St George has a manual river height gauge jointly owned by the Bureau of Meteorology and Sunwater (Bureau station number: 043053) and an automatic river height gauge owned by the Queensland Department of Environment and Resource Management (Bureau station number: 043104). River level heights and peaks in this report are in reference to the manual gauge data.
- St George experienced two major flood peaks in January 2011 which rank as the 2nd and 3rd highest peaks on record
- 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

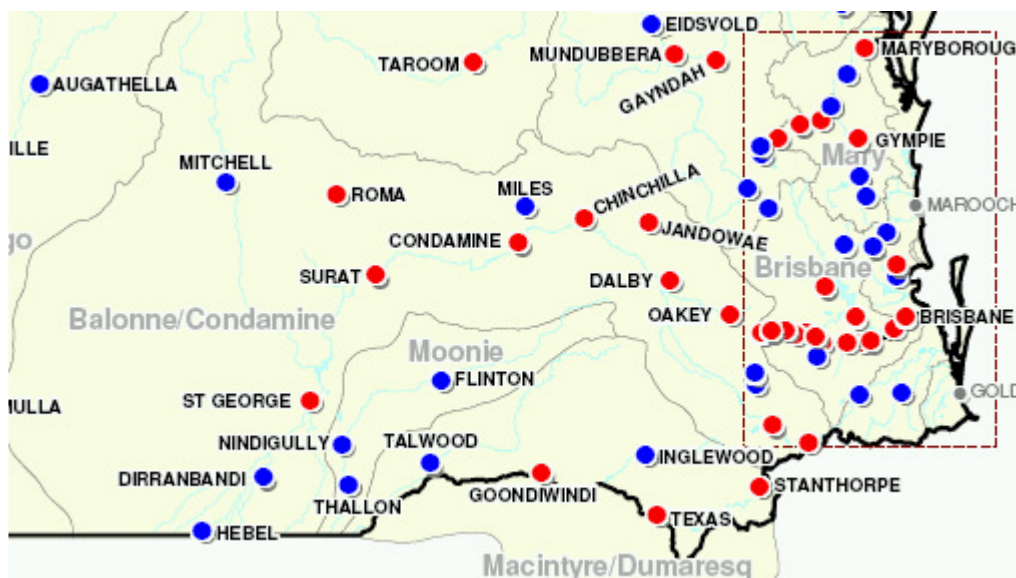
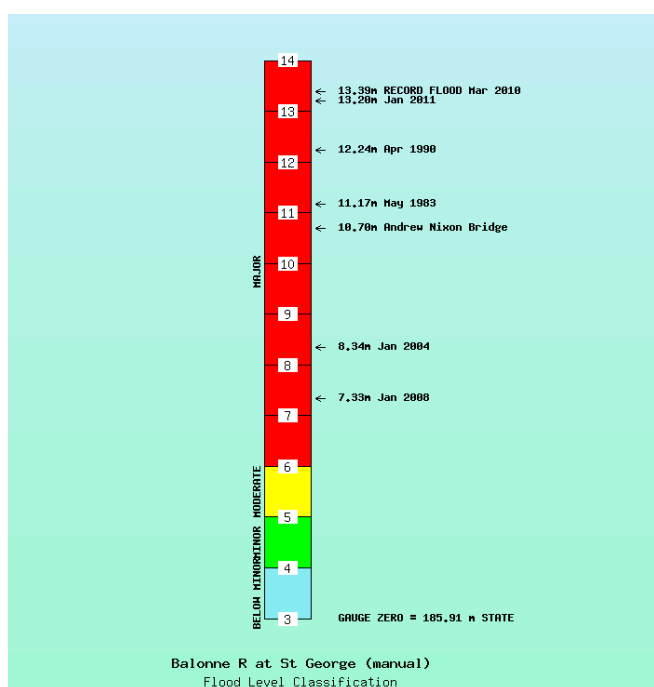


Figure 1. Map showing location of St George.

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

Flood effects and severity



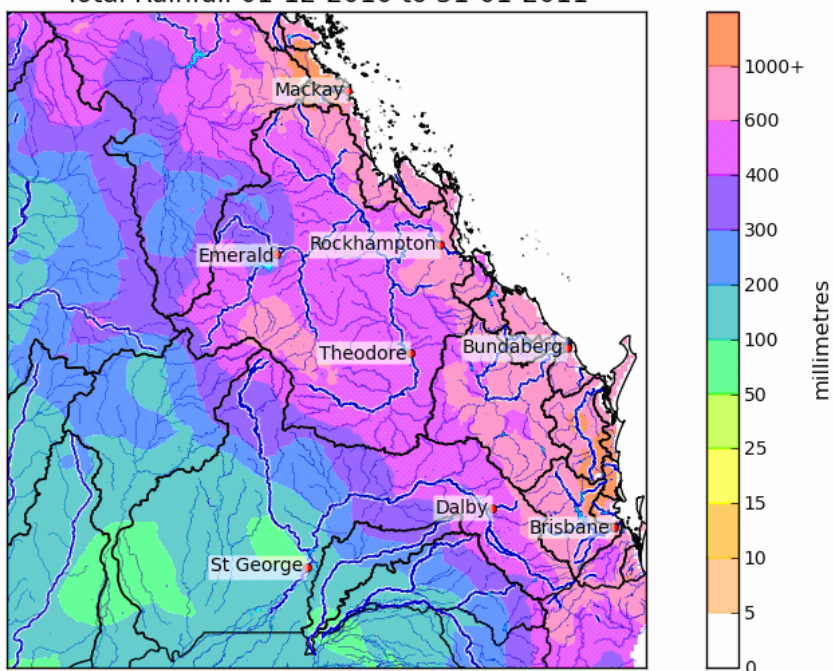
- **Peaked at:**
13.2 metres on 08/01/2011
12.49 metres on 23/01/2011
- Minor: 4 metres
Moderate: 5 metres
Major: 6 metres
- Gauge zero is 185.907 metres State Datum.
- Residents of the nursing home were evacuated to Brisbane (Source: ABC).
- 30 homes were expected to be inundated (Source: ABC).
- Above major flood level (6 metres) from 07/12/2010 to 13/12/2010, 16/12/2010 to 20/12/2010 and 21/12/2010 to 02/02/2011.
- Above minor flood level (4 metres) from 05/12/2010 to 04/02/2011.

Figure 2. Flood level classifications and flood effects for St George.

Rainfall summary

- Rainfall recorded in December 2010 and January 2011, which led to major flooding at St George, was heaviest over the eastern half of the catchment.
- Between 300 to 600 millimetres of rainfall was recorded over most of the Condamine River catchment from the start of December 2010 to the end of January 2011 with falls up to 1000mm over the far east of the catchment. Falls between 50 and 300 millimetres were recorded over the Balonne River catchment.
- The heaviest rainfall periods during December 2010 and January 2011 occurred from 27/12/2010 to 28/12/2010, with falls between 100 and 200 millimetres and from 06/01/2011 to 12/01/2011 with falls between 200 and 400 millimetres.

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



Total Rainfall 25-12-2010 to 12-01-2011

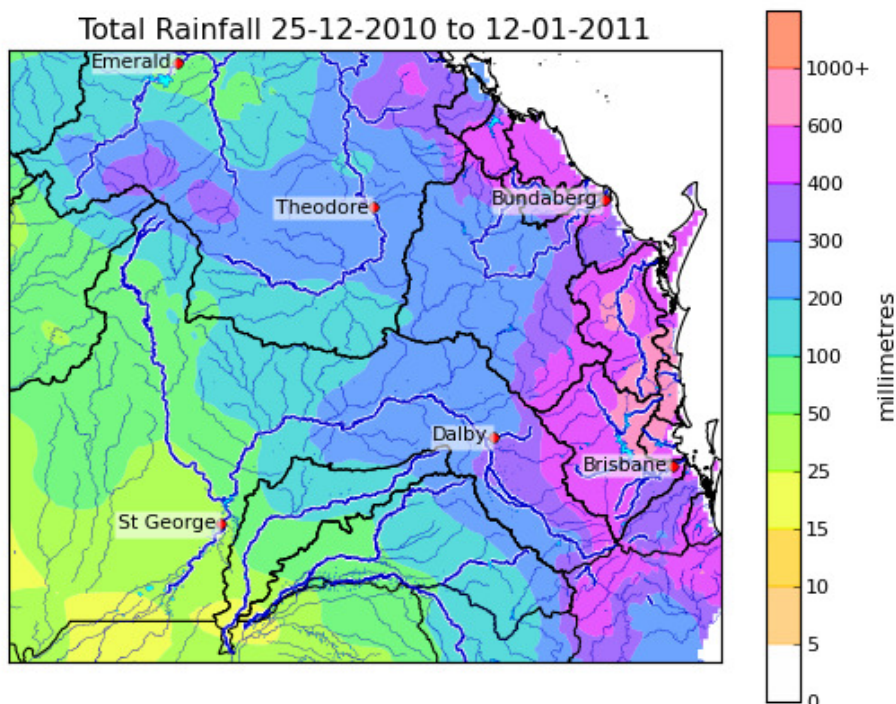


Figure 3. Rainfall map from 01/12/2010 to 31/01/2011 (top) and for the period from 9 AM on 25/12/2010 to 9 AM on 12/01/2011 (bottom).

Rainfall Intensity

- The December and January floods at St George were not caused by local area intense rainfall and rainfall intensity analysis of single sites in the large catchment above St George is not informative.
- The flood levels at St George were the result of the combination of large flows in Charleys Creek, Myall Creek, Upper Condamine and Maranoa Rivers.

Flood event timeline

Table 2. Flood timeline for St George

Time/Date	Event Description	Gauge Height (metres)	Comment
05/12/2010	First warning issued		
05/12/2010	River level first exceeds the minor flood level.	4.00	Remained above the minor flood level for ~61 days.
06/12/2010	River level first exceeds the moderate flood level.	5.00	Remained above the moderate flood level for ~59 days.
07/12/2010	River level exceeds the major flood level.	6.00	Remained above the major flood level for ~6 days.
9:00 AM 11/12/2010	Major flood peak.	8.05	
13/12/2010	River level falls below major	6.00	
16/12/2010	River level exceeds the major flood level.	6.00	Remained above the major flood level for ~4 days.
9:00 AM 17/12/2010	Major flood peak.	7.49	
20/12/2010	River level falls below major		
21/12/2010	River level exceeds the major flood level.	6.00	Remained above the major flood level for ~43 days.
9:00 PM 25/12/2010	Major flood peak.	8.75	
12:00 PM 08/01/2011	Major flood peak	13.2	2 nd highest flood peak on record.
9:00 PM 23/01/2011	Major flood peak	12.49	3 rd highest flood peak on record.
02/02/2011	River level falls below major	6.00	
03/02/2011	Final fall below moderate	5.00	
04/02/2011	Final fall below minor	4.00	
10/02/2011	Final warning issued		

Flood Heights at St George

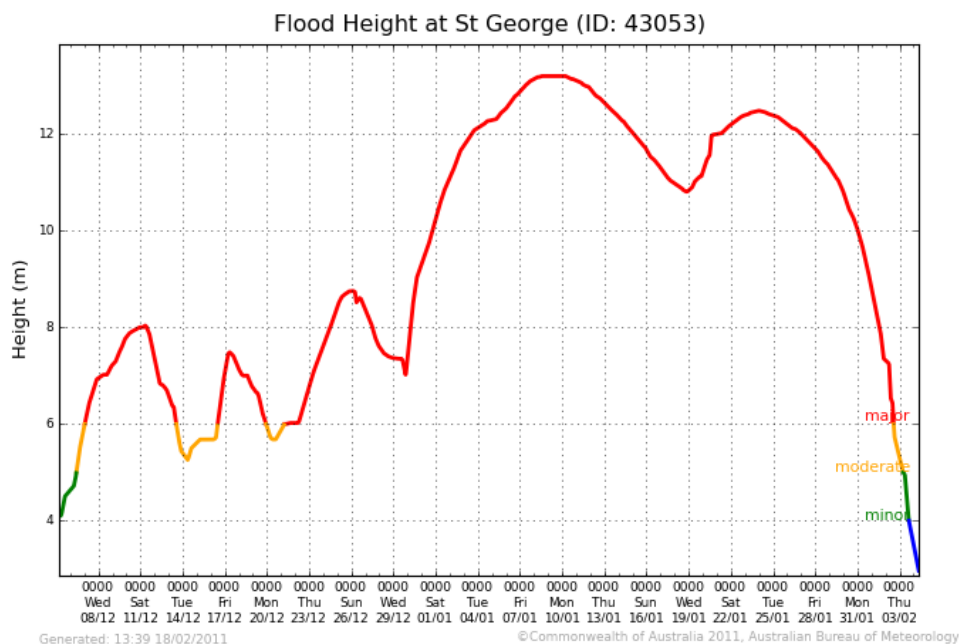


Figure 4. Flood Heights at St George manual gauge for December 2010 and January 2011

Comparison with previous floods

- River height records for the manual river height recording gauge at St George at its current site commenced in 1968.
- River height peaks on 08/01/2011 and 23/01/2011 ranked as the 2nd and 3rd highest on record.
- The previous time the river level at St George exceeded 13 metres was in March 2010.

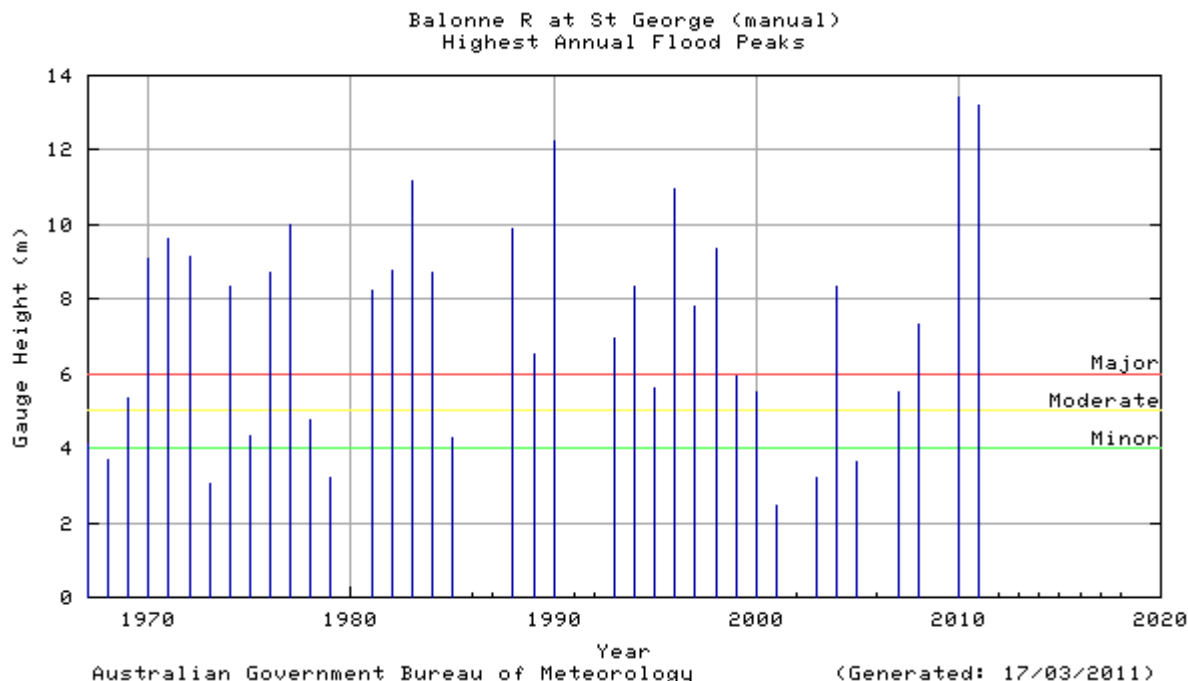


Figure 5. Highest annual flood peaks for the Balonne River at St George

Note: Records for St George date back to 1890 however only peak heights from 1968 to now can be compared. Heights before 1968 were recorded from a different site.

Warning and Forecast Service

- The first warning for the Condamine-Balonne River was issued on 05/12/2010 for minor flooding in the Condamine River and more significant flooding in the Maranoa and Balonne Rivers. However, further rainfall in December saw the continuation of the Condamine-Balonne River Flood Warning through to 10/02/2011.
- Major flooding was first predicted for St George in the Flood Warning issued at 9:43 AM on 07/12/2010.
- Thunderstorm activity caused river rises and 3 major flood peaks in December 2010. Heavy rainfall over the Upper Condamine River catchment area including Myall and Charleys Creek during late December 2010 and again in early January 2011 resulted in the two major flood peaks of 13.2 metres and 12.49 metres at St George during January 2011.
- A total of 103 warnings were issued for the Condamine-Balonne River system during December 2010 and January 2011.

Table 3. Table of peak height predictions for St George.

Time of Height Forecast	Forecast	Peak
05/12/2010 First warning issued. St George had just exceeded the minor flood level.		
9:43 AM on Tuesday the 7th of December 2010	Further rises are expected during the next few days as upstream floodwaters arrive. A forecast for St George will be given once upstream peaks have been observed.	Rising limb forecasts – reach a level and expected to continue rising.
10:22 AM on Thursday the 9th of December 2010	Levels are expected to reach at least 8 metres during the weekend.	
9:30 AM on Friday the 10th of December 2010	Peak around 8.3 metres during the weekend.	8.05 metres at 9:00 AM Sat 11/12/2010
11:35 AM on Sunday the 12th of December 2010	Major flood levels in the Balonne River at St George have recorded a peak at 8.05 metres during Saturday.	
9:49 AM on Monday the 13th of December 2010	Renewed rises expected later this week which will maintain high river levels going into next week.	Rising limb forecasts – reach a level and expected to continue rising.
9:50 AM on Friday the 17th of December 2010	Major flooding is rising at St George, with further rises expected during the weekend which will maintain high river levels during next week.	
10:30 AM on Saturday the 18th of December 2010	Major flood levels remain steady at St George, with further small rises expected during the weekend which will maintain high river levels during next week.	7.49 metres at 9:00 AM Fri 17/12/2010
11:17 AM on Sunday the 19th of December 2010	Major flood levels are easing at St George, with further rises expected which will maintain high river levels during this week.	Rising limb forecasts – reach a level and expected to continue rising.
6:43 PM on Sunday the 19th of December 2010	Major flood levels are easing at St George, with further rises expected to at least 10 metres during this week.	
12:03 PM on Tuesday the 21st of December 2010	Rises are expected over the new year period at St George. Further predictions will be made as peaks are observed upstream.	
4:29 PM on Thursday the 23rd of December 2010	High river levels and major flooding expected to continue at St George late next week.	8.75 metres at 9:00 PM Sat 25/12/2010
10:07 AM on Sunday the 26th of December 2010	High river levels are nearing an initial major flood peak at St George, however high river levels will continue into next week. Further predictions will be made for St George as upstream peaks are observed.	
6:47 AM on Monday the 27th of December 2010	Major flooding is easing at St George. Renewed rises and higher river levels to at least 9 metres expected during this week and higher levels during next week.	Rising limb forecasts – reach a level and expected to continue

3:40 PM on Sunday the 2nd of January 2011	renewed river rises are expected and will continue for at least the next 2 weeks as upstream floodwaters arrive which will prolong major flooding in the area.	rising.
7:08 AM on Tuesday the 28th of December 2010	Major flood levels (at least 10 metres) later this week with continued river rises.	
2:43 PM on Thursday the 30th of December 2010	Reach 10 metres (major) later this week and continue rising.	
9:00 PM on Thursday the 30th of December 2010	Reach 10 metres (major) during the weekend. Further rises to 12 metres expected during the next two weeks.	
7:27 AM on Saturday the 1st of January 2011	An initial assessment indicates levels higher than 12 metres. The main peak will not reach the St George area until about mid January.	
9:11 PM on Saturday the 1st of January 2011	Reach 12 metres during Monday 3rd January. Reach 13 metres during Thursday 6th with further rises. Peak higher than 13 metres during the weekend 8th/9th January.	13.2 metres at 12:00 PM Sat 08/01/2011
8:27 AM on Monday the 3rd of January 2011	Reach 12 metres during Monday 3/1/2011. Reach 13 metres by Thursday 6/1/2011. Peak similar to or higher than the March 2010 flood during the weekend starting 8/1/2011	
8:27 AM on Tuesday the 4th of January 2011	Reach 13 metres on Thursday 6 Jan; Reach 13.4 metres (Mar 2010 level) overnight Friday 7 Jan; Reach 14 metres on Sunday 9 Jan; Peak possibly higher than 14 metres on Monday 10 Jan or Tuesday 11 Jan.	
9:26 AM on Thursday the 6th of January 2011	Reach 13 metres overnight; Reach 13.4 metres (Mar 2010 level) overnight Friday 7 Jan; Peak below 14 metres during weekend.	
Friday the 7th of January 2011	Reach 13.4 metres (Mar 2010 level) during Saturday; Peak below 14 metres late in the weekend.	
7:56 AM on Saturday the 8th of January 2011	Peak near the March 2010 flood level (13.4 metres)during today and Sunday; Remain above 13 metres until mid next week.	
7:27 AM on Sunday the 9th of January 2011	Remain above 13 metres during the next few days.	
6:44 PM on Tuesday the 11th of January 2011	Remain around 13 metres until Thursday.	Rising limb forecasts – reach a level and expected to continue rising.
10:55 AM on Saturday the 15th of January 2011	Return to above 12 metres this week with further rises. A peak is expected mid/late in the week beginning 22nd January.	
9:04 AM on Wednesday the 19th of January 2011	Exceed 12 metres later this week with further rises. Peak near 12.5 metres(major) late in the weekend or early next week.	12.49 metres at 9:00 PM Sun 23/01/2011
8:40 AM on Saturday the 22nd of January 2011	Reach the peak of about 12.5 metres on Sunday or Monday. Remain at peak level for around 3 days.	
9:33 AM on Monday the 24th of January 2011	Currently at a peak just under 12.5 metres and expected to remain steady around that level until about Thursday.	
10/02/2011 Final warning issued for the Condamine-Balonne River System.		

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