

## Flood summary for Charleys Creek at Chinchilla

- The town of Chinchilla is on Charleys Creek in the Condamine and Balonne catchment.
- The flood heights at Chinchilla are measured with a combination of an automatic gauge owned by the Department of Environment and Resource Management and a manual gauge owned by the Bureau of Meteorology (Bureau station number: Automatic - 541074, Manual - 041351).
- 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](http://www.bom.gov.au/hydro/flood/qld/brochures/river_maps.shtml)

## Location map

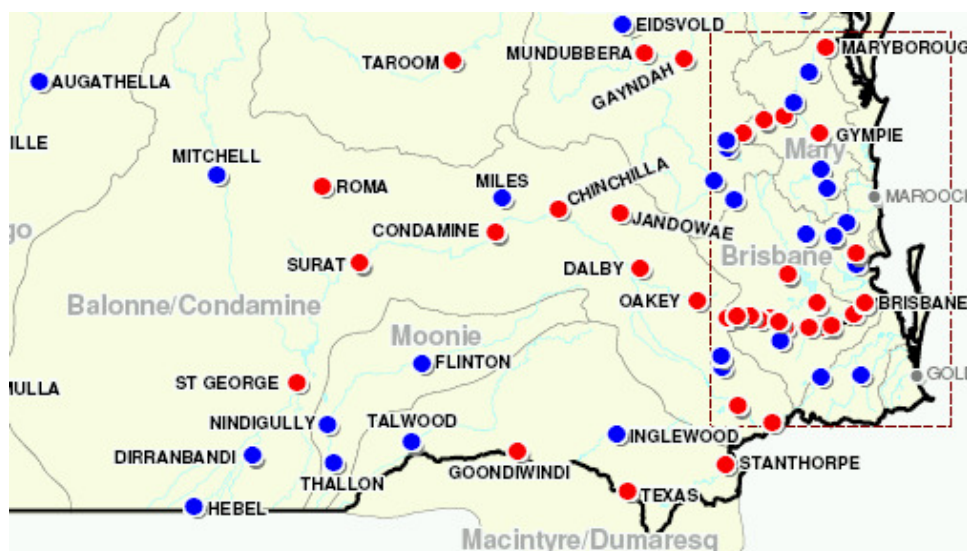
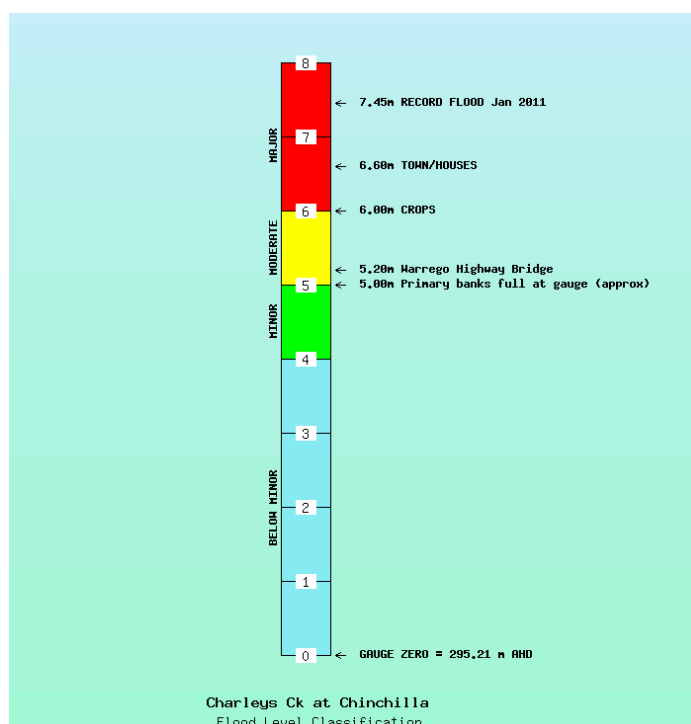


Figure 1. Map showing location of Chinchilla.

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

## Flood effects and severity



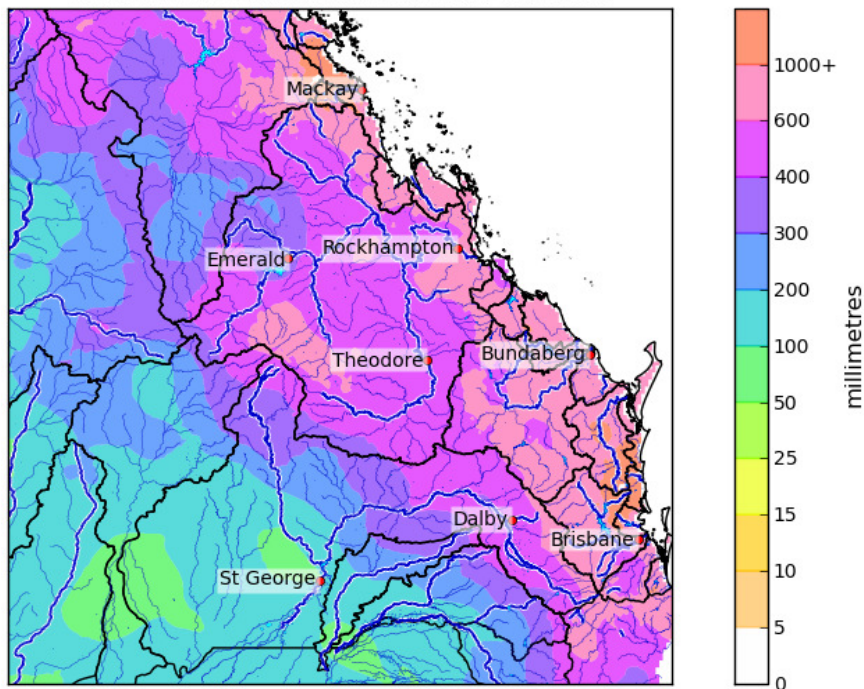
- **Peaked at 7.24 metres on 28/12/2010**  
**Peaked at 7.45 metres on the 12/01/2011.**
- Minor: 4 metres  
Moderate: 5 metres  
Major: 6 metres.
- Gauge zero is 295.215 metres AHD
- Houses begin to be affected at 6.6 metres.
- 36 properties were affected. (Courier Mail)
- Chinchilla was above major flood level (6 metres) between the 27/12/2010 and 01/01/2011 and then again from 11/01/2011 to 14/01/2011.
- Chinchilla remained above minor flood level (4 metres) between the 21/12/2010 and 06/01/2011 and then again from 10/01/2011 to 18/01/2011.

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

## Rainfall summary

- Between 300 to 400 millimetres of rainfall was recorded over the Condamine River and nearby creeks during the month of December 2010. Further heavy rain and falls between 200 and 400 millimetres were recorded during early January 2011.
- The heaviest rainfall periods during December 2010 and January 2011 occurred between the 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 06-01-2011 to 12-01-2011

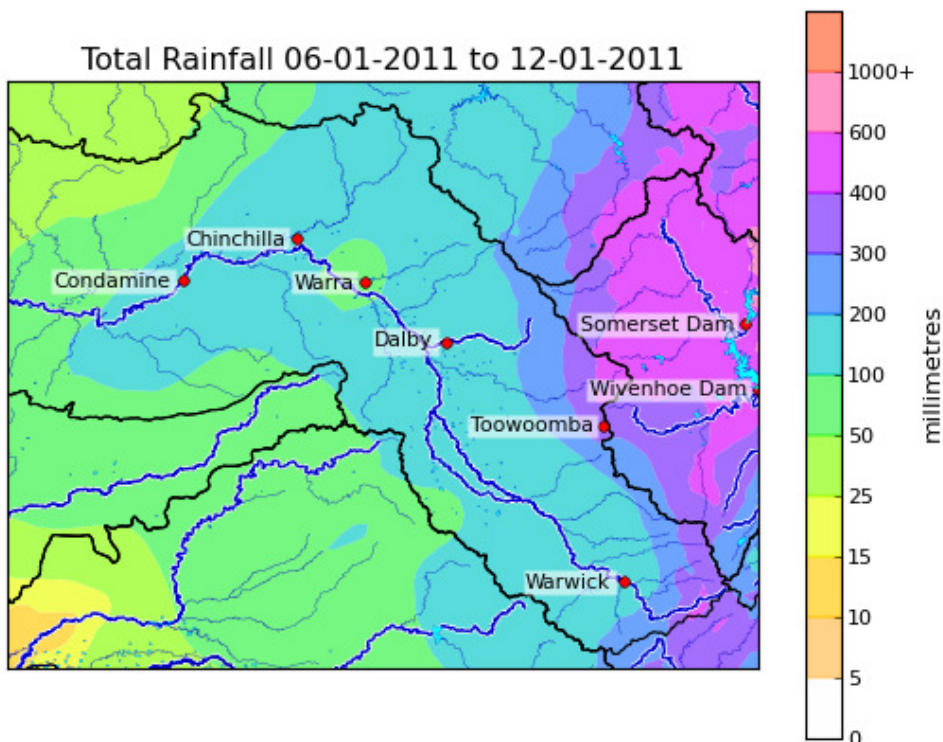


Figure 3. Rainfall map from 01/12/2010 to 31/01/2011 (top) and for the period between 06/01/2011 and 12/01/2011 (bottom).

## Rainfall Intensity

- Maximum rainfall intensities for two selected stations at Ballon TM and Horse Creek TM in Charley's Creek catchment are shown in Table 1.
- The most significant rainfall intensities for Ballon TM in January 2011 occurred on the 10/01/2011 and 11/01/2011. Intensities for all durations did not exceed the 1% Annual Exceedence Probability (100 year Average Recurrence Interval) intensities.
- The most significant rainfall intensities for Horse Creek TM in January 2011 occurred on the 10/01/2011 and 11/01/2011. Intensities for durations did not exceed the 1% Annual Exceedence Probability (100 year Average Recurrence Interval).

**Table 1. Recorded Maximum Rainfall Intensities for Ballon TM and Horse Creek TM on the Brisbane River for January 2011.**

Rainfall Duration	Ballon TM			Horse Creek TM		
	Rainfall (mm)	Period ending	ARI (years)	Rainfall (mm)	Period ending	ARI (years)
2hr	64	5:25 PM 10/01/2011	10-20	61	6:00 PM 10/01/2011	5-10
3hr	71	6:25 PM 10/01/2011	10-20	85	7:00 PM 10/01/2011	20-50
6hr	115	8:35 PM 10/01/2011	50-100	114	7:45 PM 10/01/2011	50-100
12hr	124	8:35 PM 10/01/2011	20-50	118	8:20 PM 10/01/2011	20-50
24hr	125	12:00 AM 11/01/2011	10-20	118	12:00 AM 11/01/2011	5-10

**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.

## Flood event timeline

**Table 2. Flood event timeline for Chinchilla.**

Time/Date	Event Description	Gauge height (metres)	Comment
19/12/2010	First warning issued	Below minor	
21/12/2010	Exceeded minor flood level	4.00	Remained above minor flood levels for ~14 days.
26/12/2010	Exceeded moderate flood level	5.00	Remained above moderate flood levels for ~7 days and 16 hours.
27/12/2010	Exceeded major flood level	6.00	Remained above major flood levels for ~5 days.
6:00 AM 28/12/2010	Major flood peak	7.24	Highest flood recorded since the start of record in 1970*.
01/01/2011	Fell below major flood level	6.00	
03/01/2011	Fell below moderate flood level	5.00	
03/01/2011	Fell below flood minor	4.00	
10/01/2011	Exceeded minor flood level	4.00	Remained above minor flood levels for ~7 days.
10/01/2011	Exceeded moderate flood level	5.00	Remained above moderate flood levels for ~6.5 days.
11/01/2011	Exceeded major flood level	6.00	Remained above major flood levels for ~3.5 days.
10:15 AM 12/01/2011	Major flood peak	7.45	New Record.
14/01/2011	Fell below major flood level	6.00	
17/01/2011	Fell below moderate flood level	5.00	
17/01/2011	Fell below minor flood level	4.00	
9:00 AM 17/01/2011	Final warning issued		

## Flood heights at Chinchilla

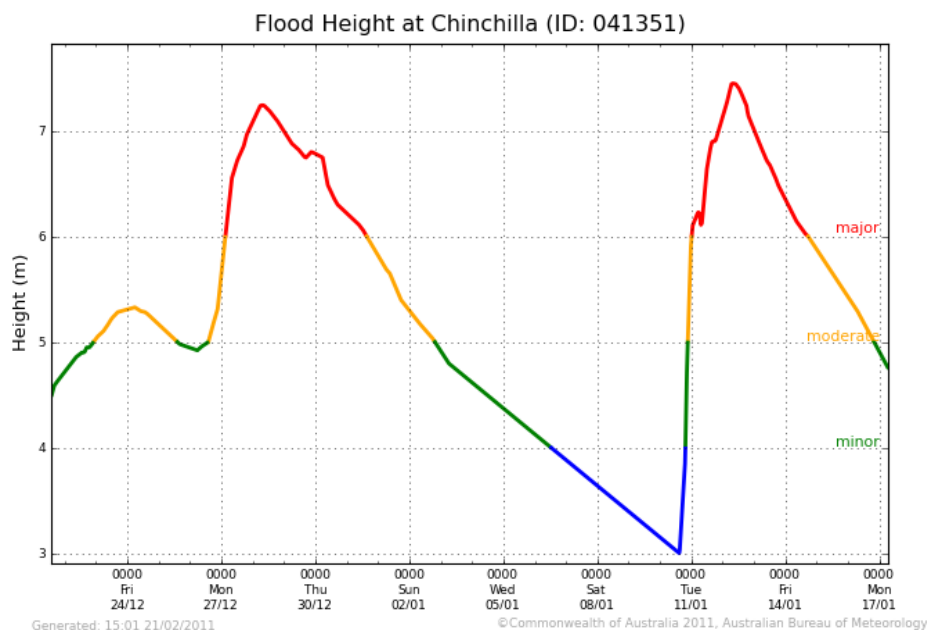


Figure 4. Flood heights at the Chinchilla manual gauge.

## Comparison with previous floods

- Start of record 1970. Chinchilla manual station has peak heights dating back to 1893 however the station was re-located in 1970 and heights before this date cannot be compared.
- 5 major flood peaks in the record
- The last major flood recorded at Chinchilla was 6.60 metres in May 1983 with major floods also occurring in 1981 (6.15 metres) and 1970 (6.17 metres). The record flood of February 1942 was 8.33 metres, however this was recorded at a different location and heights can't be related.

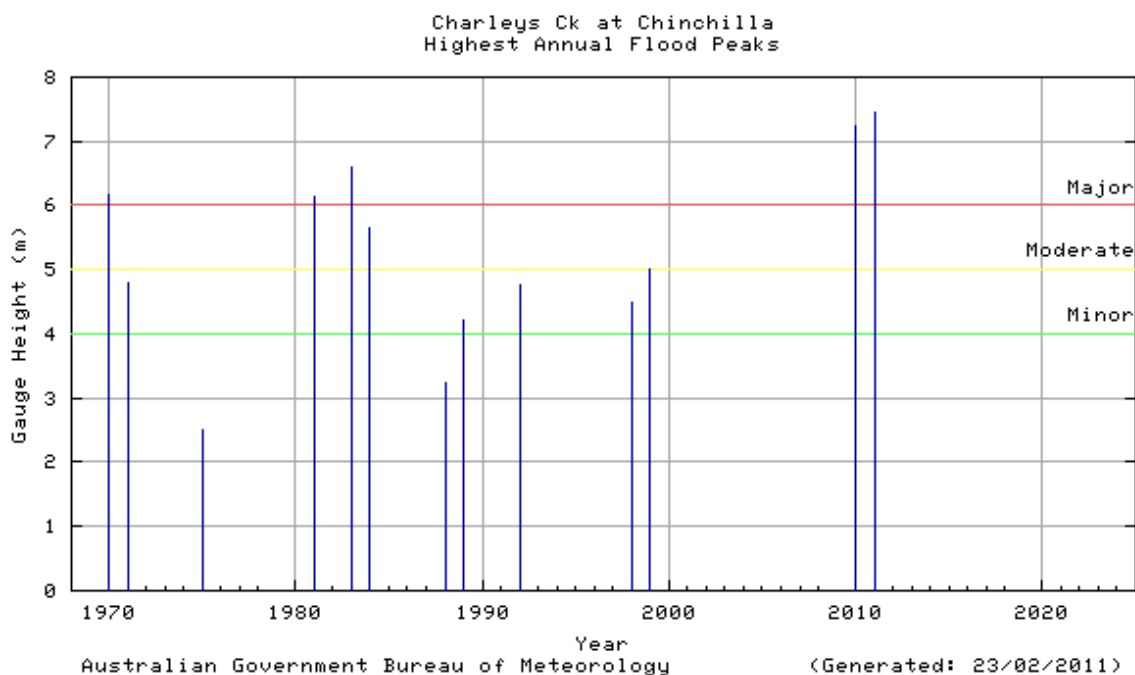


Figure 5. Highest annual flood peaks for Charleys Creek at Chinchilla.

## Warning and Forecast Service

- The catchments started to become saturated during October with flood warnings for the Condamine and Balonne Rivers issued between 10/10/2010 and 25/10/2010.
- A total of 103 warnings were issued for the Condamine and Balonne River during December 2010 and January 2011.

**Table 3. Table of peak height predictions for Chinchilla.**

Time of Height Forecast	Forecast	Peak
<b>05/12/2010 First warning issued. Height at the time was below minor.</b>		
12:03 PM on Tuesday the 21st of December 2010	Creek levels are expected to continue rising at Chinchilla with a peak just over 6 metres estimated during the next 36 hours.	7.24 metres at 6:00 AM Tue 28/12/2010
9:27 AM on Wednesday the 22nd of December 2010	Creek levels are expected to continue rising at Chinchilla with a peak just over 6 metres estimated overnight tonight.	
11:02 AM on Thursday the 23rd of December 2010	Moderate flood levels are rising slowly at Chinchilla with higher levels possible during the next few days from overnight rainfall.	
4:29 PM on Thursday the 23rd of December 2010	At 4pm, the level at Chinchilla was 5.28 metres and rising slowly. Further heavy falls were recorded in the catchment although this is unlikely to affect the peak at Chinchilla.	
10:09 AM on Friday the 24th of December 2010	Moderate flood levels are slowly approaching a peak at Chinchilla.	
10:59 AM on Saturday the 25th of December 2010	River levels at Chinchilla will fall today before rising again. A flood peak of up to 6 metres is possible on Monday. River levels will be higher than Friday's peak.	
10:07 AM on Sunday the 26th of December 2010	A major flood peak of up to 6 metres is possible on Monday-Tuesday, with levels higher than the Friday peak.	
6:47 AM on Monday the 27th of December 2010	Major flooding is rising fast at Chinchilla with levels expected to be higher than the 1983 peak of 6.6 metres.	
12:36 PM on Monday the 27th of December 2010	Creek levels at Chinchilla have already exceeded the 1983 peak of 6.6 metres, with strong rises continuing during Monday.	
5:26 PM on Monday the 27th of December 2010	Charleys Creek at Chinchilla is expected to peak at 7 metres or above during Monday night and Tuesday morning.	7.45 metres at 10:15 AM Wed 12/01/2011
10:32 PM on Monday the 10th of January 2011	Reach 7 metres (major) during Tuesday morning. Possibly reach 7.5 metres Tuesday afternoon	
2:15 PM on Tuesday the 11th of January 2011	Reach 7 metres (major) during Tuesday night. Possibly reach 7.5 metres overnight and Wednesday.	
11:07 PM on Tuesday the 11th of January 2011	Possibly reach 7.5 metres during Wednesday.	
7:28 AM on Wednesday the 12th of January 2011	Further rises to around 7.5 metres during Wednesday morning.	

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