

## Flood summary for the Macintyre River at Goondiwindi

- The town of Goondiwindi is in the Macintyre River catchment.
- The flood heights at Goondiwindi are measured using a combination of an automatic gauge which is owned by the Department of Environment and Resource Management (DERM) and a manual station which is co-owned by the Bureau of Meteorology and DERM (Bureau station number: automatic gauge – 041500 and manual gauge – 041350).
- 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

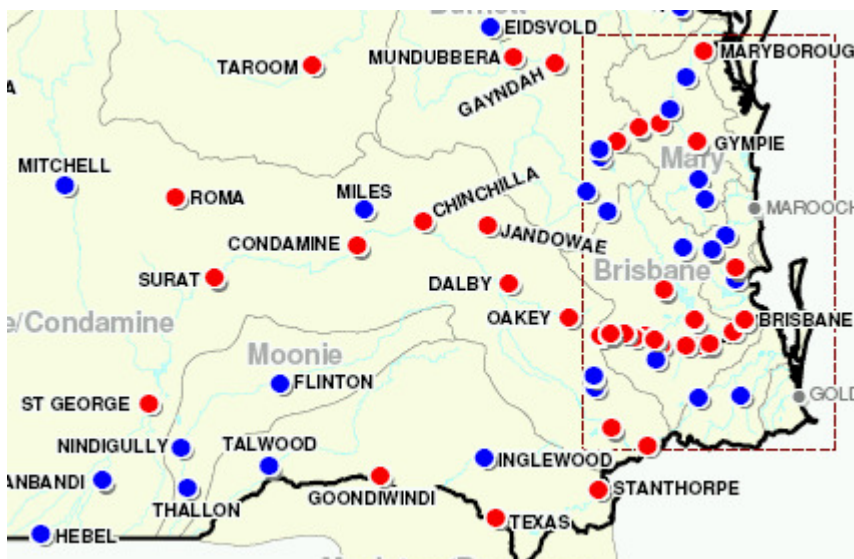
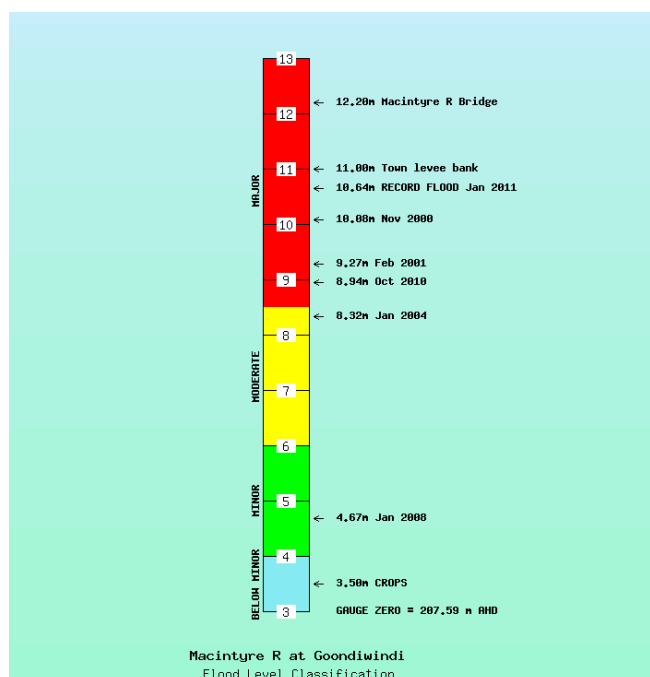


Figure 1. Map showing location of Goondiwindi.

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

## Flood effects and severity



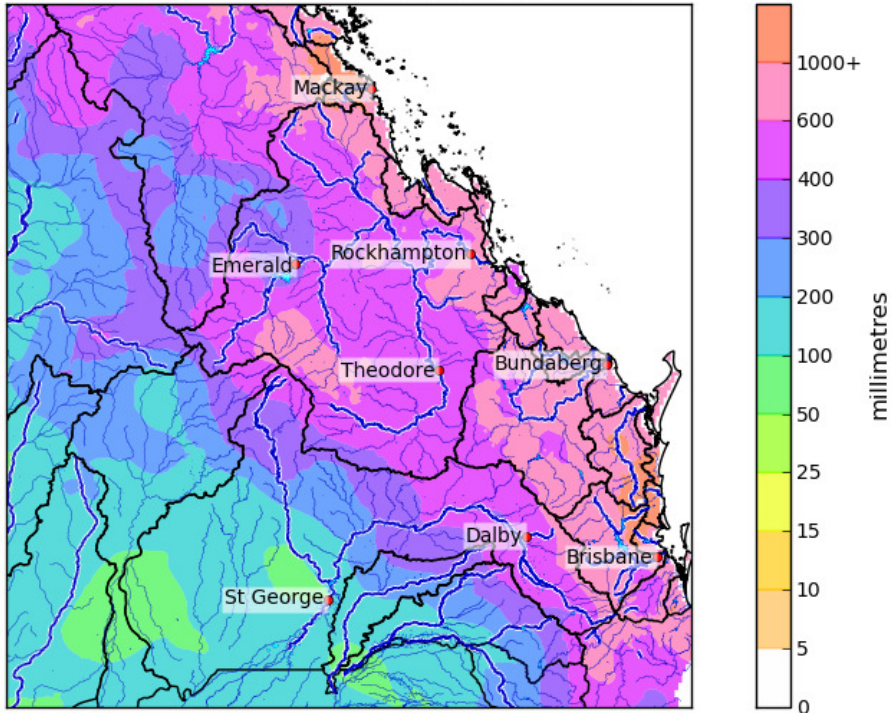
- **Peaked at 10.64 metres on 14/01/2011.**
- Minor: 4.0 metres  
Moderate: 6.0 metres  
Major: 8.5 metres.
- Gauge zero is 207.590 metres AHD.
- Goondiwindi Hospital and Aged Care Facility were evacuated. (WDRG)
- Goondiwindi was above major flood level (8.5 metres) from 09/01/2011 to 10/01/2011 and between the 13/01/2011 and 17/01/2011.
- It remained above minor flood level (4.0 metres) from 06/01/2011 to 23/01/2011.

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

## Rainfall summary

- In excess of 400mm or rainfall was recorded in the Macintyre River catchment during December 2010 and January 2011.
- The vast majority of this rainfall fell between 09/01/2011 and 13/01/2011.

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



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

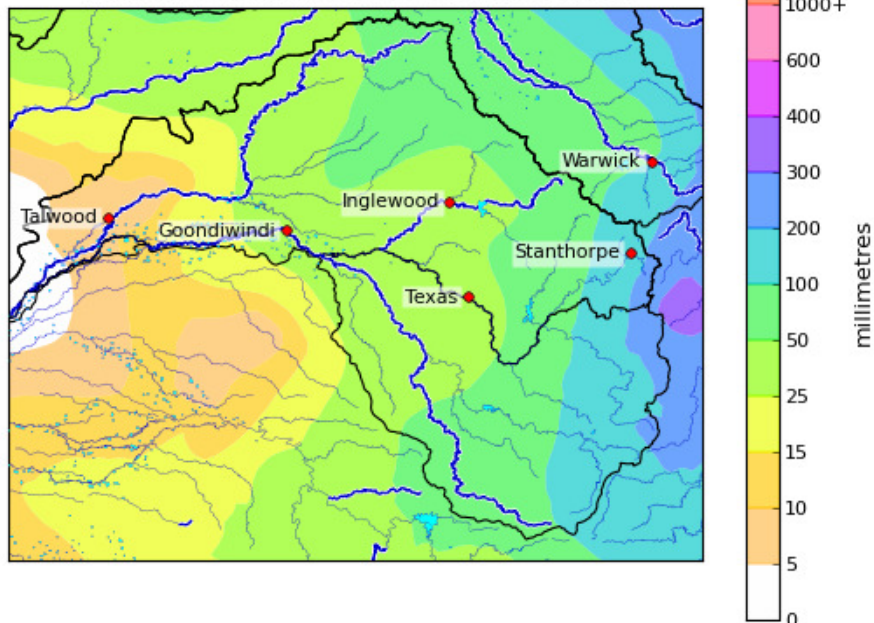


Figure 3. Rainfall map from 01/12/2010 to 31/01/2011 (top) and for the period 09/01/2011 to the 13/01/2011 (bottom).

## Rainfall Intensity

- Maximum rainfall intensities for Broadwater Creek AL and Amiens Knob AL on the upper Dumaresq River which is in the Macintyre River catchment are shown in Table 1.
- The most significant rainfall intensity for Broadwater Creek AL in January 2011 occurred in the 20 minutes ending 3:10pm on 03/01/2011 producing a 10-20 ARI, however all periods were well below the 1% Annual Exceedence Probability (100 year Average Recurrence Interval).
- The most significant rainfall intensity for Amiens Knob AL in January 2011 occurred in the 30 minutes to 2:45pm on 03/01/2011 producing a 50-100 ARI, which represents close to a 1% Annual Exceedence Probability (100 year Average Recurrence Interval).

**Table 1. Recorded maximum rainfall intensities for Broadwater Creek AL and Amiens Knob AL on the Macintyre River for January 2011.**

Rainfall Duration	Broadwater Creek AL			Amiens Knob AL		
	Rainfall (mm)	Period ending	ARI (years)	Rainfall (mm)	Period ending	ARI (years)
5 min	11	3:05 PM 03/01/2011	5	11	2:25 PM 03/01/2011	5
6 min	12	3:06 PM 03/01/2011	5	13	2:26 PM 03/01/2011	5-10
10 min	18	3:05 PM 03/01/2011	5-10	19	2:45 PM 03/01/2011	10
20 min	29	3:10 PM 03/01/2011	10-20	36	2:40 PM 03/01/2011	20-50
30 min	31	3:20 PM 03/01/2011	5-10	49	2:45 PM 03/01/2011	50-100
1hr	33	3:45 PM 03/01/2011	2-5	57	3:15 PM 03/01/2011	20-50
2hr	35	4:30 PM 03/01/2011	1-2	58	4:15 PM 03/01/2011	10-20
3hr	36	5:05 PM 03/01/2011	1-2	59	4:20 PM 03/01/2011	5-10
6hr	36	5:05 PM 03/01/2011	<1	60	4:20 PM 03/01/2011	2-5
12hr	50	12:50 PM 27/12/2010	<1	61	10:35 PM 03/01/2011	1-2
24hr	63	12:50 PM 27/12/2010	1	61	10:35 PM 03/01/2011	1
48hr	92	11:30 PM 11/01/2011	1-2	72	10:45 PM 11/01/2011	<1
72hr	104	4:40 PM 11/01/2011	1-2	98	1:10 PM 06/01/2011	1-2

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 Goondiwindi.**

Time/Date	Event Description	Gauge height (metres)	Comment
27/12/2010	First warning issued	2.94	
06/01/2011	First time it exceeded minor flood level	4.00	Remained above minor flood levels for ~16 days.
07/01/2011	First time it exceeded moderate flood level	6.00	Remained above moderate flood levels for ~10.5 days.
09/01/2011	First time it exceeded major flood level	8.50	Remained above major flood levels for ~1.5 days.
7:00 PM 09/01/2011	Major flood peak	8.94	
10/01/2011	Fell below major	8.50	
13/01/2011	First time it exceeded major flood level	8.50	Remained above major flood levels for ~4 days.
7:00 AM 14/01/2011	Major flood peak	10.64	Highest on record.
16/01/2011	Final fall below major	8.50	
18/01/2011	Final fall below moderate	6.00	
23/01/2011	Final fall below minor	4.00	River level exceeded the minor flood level on the high tide on the 15/01/2011.
7:43 AM 21/01/2011	Final warning issued		

## Flood Heights at Goondiwindi

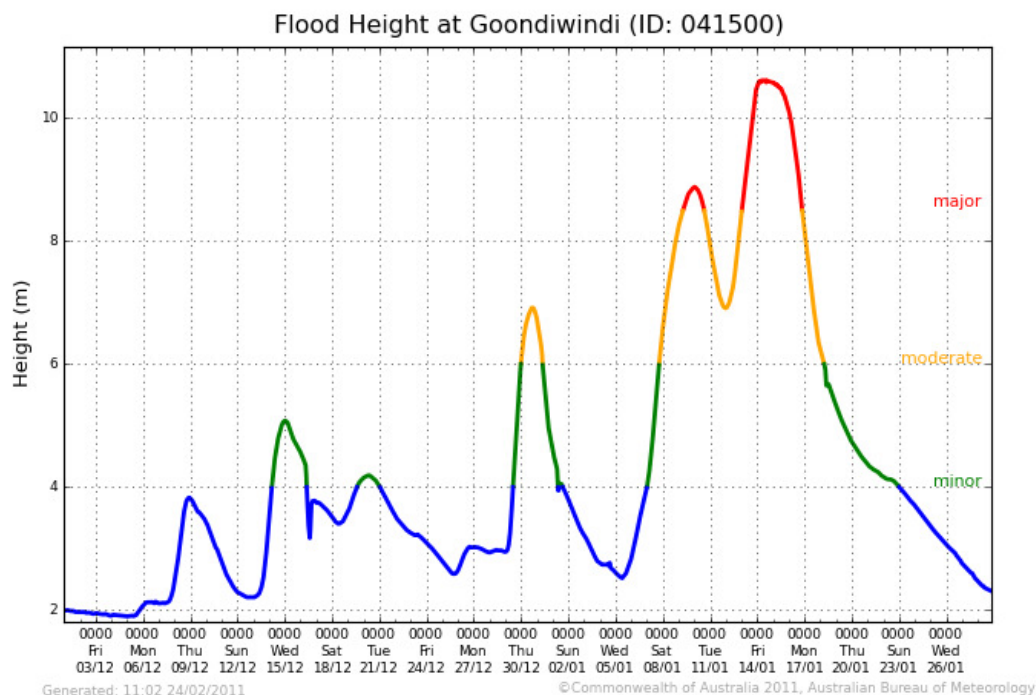


Figure 4. Flood Heights at the Goondiwindi TM gauge for December 2010 and January 2011.

### Comparison with previous floods

- River height records for Goondiwindi commenced in 1886 with 82 major flood peaks since that time, with many occurring in the same year.
- The peak of 10.64 metres recorded at Goondiwindi in January has replaced the previous record flood of 10.60 metres recorded in 1996.

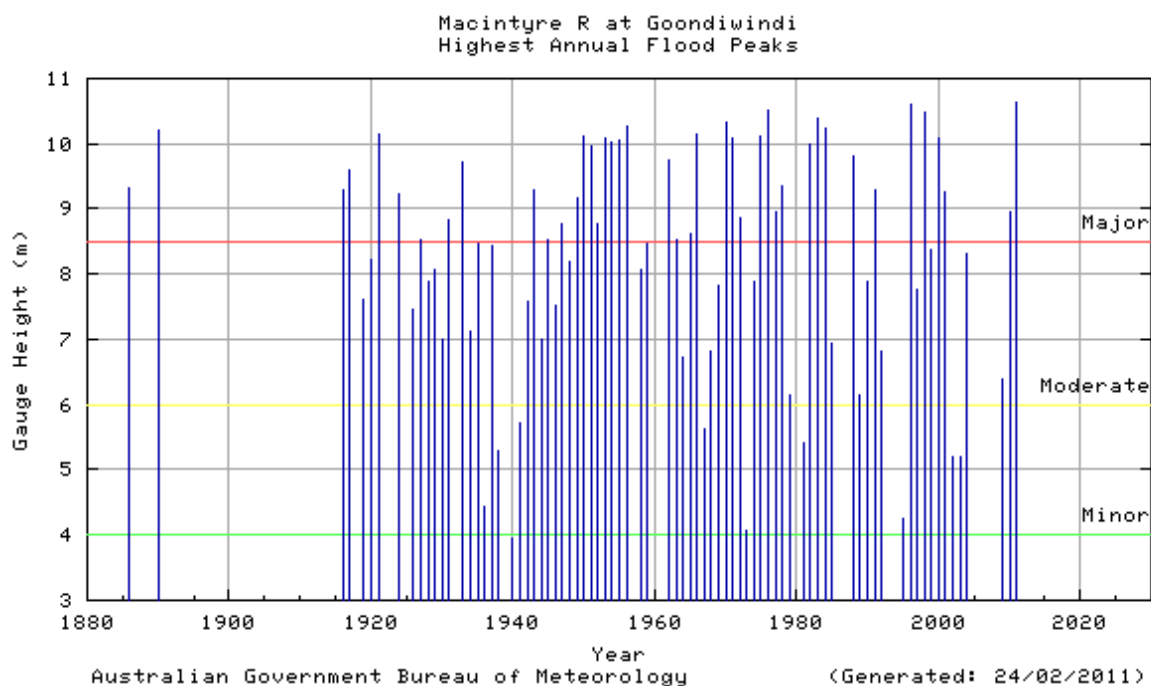


Figure 5. Highest annual flood peaks for the Macintyre River at Goondiwindi.

## Warning and Forecast Service

- The catchment received well above average rainfall and subsequently recorded multiple flood peaks throughout August, September and October with 6 periods of flood warnings issued for the Border Rivers during this period.
- Flood warnings for the Border Rivers were next issued between the 11/12/2010 and 15/12/2010 and begun again on the 27/12/2010 and continued until the 30/01/2011.
- A total of 59 warnings were issued for the Border Rivers during December 2010 and January 2011.

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

Time of Height Forecast	Forecast	Peak
<b>27/12/2011 First warning issued. Height at the time was 2.94m (below minor)</b>		
1:44 AM on Thursday the 6th of January 2011	Minor flooding to develop going into the weekend between New Kildonan and Goondiwindi.	Rising limb forecasts
4:17 PM on Thursday the 6th of January 2011	Moderate flood levels during the weekend.	
6:22 AM on Friday the 7th of January 2011	Major flood levels above 9 metres expected during the weekend.	
6:51 AM on Saturday the 8th of January 2011	Major flood peak around 9.2 metres during Sunday.	8.94 metres at 7:00 PM Thurs 09/01/2011
6:32 AM on Sunday the 9th of January 2011	Major flood peak of about 8.8 metres today.	
11:13 AM on Tuesday the 11th of January 2011	Major flood levels are expected along the lower Macintyre River from Glenarbon to Goondiwindi during the next 48 hours.	Rising limb forecasts
5:48 PM on Tuesday the 11th of January 2011	At Goondiwindi, river levels have eased below the major flood level but are expected to rise again and peak around the January 1996 flood level of 10.6 metres late Thursday.	
11:31 PM on Tuesday the 11th of January 2011	Peak around the January 1996 flood level of 10.6 metres late Thursday.	10.64 metres at 7:00 AM Thurs 14/01/2011
7:23 PM on Wednesday the 12th of January 2011	Reach around the January 1996 flood level of 10.6 metres late Thursday with further rises possible.	
12:09 PM on Thursday the 13th of January 2011	Reach above the 1996 flood level of 10.6 metres late Thursday. A record flood peak is expected.	
2:04 PM on Thursday the 13th of January 2011	Reach above the 1996 flood level of 10.6 metres late Thursday. A record flood peak of 10.85 metres with possible further rises.	
8:14 PM on Thursday the 13th of January 2011	Reach above the 1996 flood level of 10.6 metres overnight Thursday. A record flood level of higher than 10.85 metres is likely.	
7:28 AM on Friday the 14th of January 2011	Rises continuing this morning. Record flood peak today of 10.85 metres, possibly higher.	

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