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HEAD OFFICE
Bureau of Meteorology
GPO Box 1289 Melbourne VIC 3001 Australia

SPECIAL CLIMATE STATEMENT 24

Frequent heavy rain events in late 2010/early 2011 lead to widespread flooding across eastern Australia.

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This statement is based on preliminary data available as of 23 January 2011, which may be subject to change as a result of standard quality control procedures.

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Frequent heavy rain events in late 2010/early 2011 lead to widespread flooding across eastern Australia

The period from late November 2010 to mid January 2011 was extremely wet through much of eastern Australia. Six major rain events affected large parts of the eastern states during this period, resulting in widespread flooding on many rivers, culminating in severe flooding (including river and flash flooding) in Brisbane and nearby areas of south-east Queensland and northern New South Wales during the second week of January. Other significant floods affected the Fitzroy, Burnett and Condamine-Balonne catchments in Queensland in late December and early January, the Murrumbidgee, Lachlan and Castlereagh catchments in inland New South Wales in early December, and large parts of northern and western Victoria and northern Tasmania in mid-January. The flooding, in terms of extent, impact and severity, was amongst the most significant in Australia's recorded history.

It was the wettest December on record for Queensland and for eastern Australia as a whole, the second-wettest for the Murray-Darling Basin, the sixth-wettest for Victoria and the eighth-wettest for New South Wales. For Australia as a whole it was the third-wettest December on record. This followed an extremely wet spring, the wettest on record for Queensland, New South Wales, eastern Australia and the Murray-Darling Basin, meaning many catchments were already wet before the flooding rain. It was Australia's wettest July to December on record. The continued rains in the first half of January have resulted in Victoria already exceeding its January monthly record.

The rains of late 2010 have taken place during a strong La Niña event in the Pacific Ocean. The December Southern Oscillation Index (SOI) was +27.1, the highest December value on record and the highest monthly value since 1973, whilst other indicators of La Niña also indicate the strongest event since at least the mid-1970s, and one of the four strongest events of the last century. Previous strong La Niña events, such as those of 1973/74 and 1955, have also been associated with widespread and severe flooding in eastern Australia. Sea surface temperatures off the northern Australian coast in recent months have also been at or near record levels.

Major rain events of the period

There were six major rain events during late November to mid January, concentrated on the periods 28 November to 4 December, 7 to 13 December, 19 to 20 December, 23 to 28 December, 10 to 12 January (in southeast Queensland) and 12 to 15 January (in Victoria, South Australia and Tasmania).

28 November to 4 December. A trough remained over eastern Australia through this period, with the southeast predominantly in a humid northerly airstream for the bulk of the period. Total rainfall for the period (Figure 1a) was widely in the 100-300 mm range on the ranges and western slopes of southern and central New South Wales, as well as in central Queensland in a band extending from Mackay southwards to the Emerald area. Falls exceeded 50 mm over most of the eastern two-thirds of New South Wales and the eastern half of Queensland (except the southeast corner), as well as large parts of central and northern Victoria. Notable daily falls during this period included 118.6 mm at Young on 29 November, 143.6 mm at Mackay and 100.8 mm at Mudgee on 1 December, and 228.0 mm at Mount Charlton (near Mackay) on 3 December.

7 to 13 December. A cold front crossed southeastern Australia at the start of the period, initially reaching South Australia late on the 7th and then continuing eastwards over the next two days. A trough developed associated with the front and moved slowly across northern New South Wales and the southern half of Queensland over the following days, eventually moving off the Queensland coast on the 13th. Falls for the period 8 to 13 December (Figure 1b) widely exceeded 50 mm in a

number of areas, including eastern South Australia and western Victoria, the upland areas of northeast Victoria and southeast New South Wales, northwestern Tasmania, much of the Queensland coast and an inland area in Queensland's central west. Some falls were locally much higher, especially as a result of severe thunderstorms in South Australia on the afternoon of the 7th, with all-time daily records at some sites and December records at many others (Table 1). Mannum received 130.0 mm and Birdwood 128.2 mm for the 24 hours to 9 a.m. on the 8th, while other notable daily falls during the period included 127.8 mm at Blackall (Queensland) on the 8th, 182.0 mm at Rocky Valley (Victoria) on the 9th, 106.1 mm at Cowra (NSW) on the 10th and 128.0 mm at Miriam Vale (Queensland) on the 12th.

19 to 20 December. A trough moved north over Queensland on 19 and 20 December, associated with an intense low east of Tasmania (which also brought snow to relatively low levels in Victoria and southern New South Wales). Whilst no exceptional daily totals occurred, much of southern and central Queensland received a further 50 to 100 mm for the period (Figure 1c).

23 to 28 December. A moist easterly flow covered much of Queensland for the period 23 to 28 December. Further moisture was brought into the region by the circulation associated with Tropical Cyclone *Tasha*, which made landfall south of Cairns on the morning of 25 December. A trough moved northeast across New South Wales and Queensland from the 26th, eventually clearing most of the rain seawards on the 28th. Rainfall totals for the period (Figure 1d) exceeded 200 mm over a large area of central eastern Queensland, roughly bounded by Rockhampton, Carnarvon Gorge and Hervey Bay, with falls exceeding 400 mm in places. Similar falls extended northwards along the Queensland coast as far north as Cairns, as well as near the Gold Coast and far northern New South Wales. Much of the eastern half of Queensland received at least 100 mm. The most widespread intense rainfall was on the 27th, where a number of stations in the Carnarvon Range area set all-time daily records with daily totals in excess of 200 mm, peaking at 273.6 mm at Carnarvon Station. Other very high totals (including 304 mm at Corsis and 294 mm at Babinda) occurred on the north tropical coast on the 25th near the landfall of *Tasha*, while other notable daily totals included 140.2 mm at Rockhampton on the 26th, 148.0 mm at Condamine on the 27th and 165.4 mm at Bundaberg on the 28th. Further south, falls of 50-100 mm in the NSW Central Tablelands on the 26th exacerbated flooding in that region.

10 to 12 January. An upper-level low combined with a humid easterly flow to bring very heavy rain to southeast Queensland and northeast New South Wales. The heaviest falls were in the areas north and west of Brisbane (Figure 1e). Three-day totals exceeded 200 mm over most of the area bounded by Brisbane, Gympie and Toowoomba, including the majority of the Brisbane River Catchment. Further south, totals exceeding 100 mm extended to the coast and adjacent ranges of New South Wales north of Coffs Harbour, locally approaching 200 mm on parts of the Northern Tablelands, and also extended into inland southern Queensland as far west as Dalby. The heavy rain covered a smaller area than was the case in the late December event. The highest daily totals observed in the Bureau's regular network were 298.0 mm at Peachester and 282.6 mm at Maleny on 10 January, while the highest three-day totals were 648.4 mm at Mount Glorious and 617.5 mm at Peachester. Intense short-period falls also occurred during the event, with one-hour falls in excess of 60 mm occurring on both 10 and 11 January at numerous stations in various locations north and west of Brisbane. It is possible that higher short-period falls occurred in areas between observing sites.

12 to 15 January. Tropical air was drawn into a trough near the eastern border of South Australia, placing much of Victoria, Tasmania and western New South Wales in an extremely moist air mass. A low formed on the trough on 12 January near Mount Gambier, moving southwest and then southeast before passing south of Tasmania on the 14th. The heaviest period of general rain in Victoria was on the 13th and the morning of the 14th, but there was also heavy rain in western border areas of Victoria on the 12th. In Tasmania, very heavy rain affected the northern parts of the east

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coast, and parts of the northwest, on the 13th, whilst more extensive but less extreme rainfall extended across large parts of the state's north on the 14th. Total rainfalls for the four-day period exceeded 100 mm in most parts of Victoria north and west of Melbourne, most of New South Wales west of Wilcannia, and much of northwestern and northeastern Tasmania, where 200 mm was locally exceeded. In Victoria the highest falls, generally between 150 and 200 mm, were in upland areas between Ballarat and Horsham, including the Grampians. The most extreme daily falls during the event were in Tasmania (see below). In Victoria, the highest four-day total was 270.8 mm at Mount William in the Grampians, including daily totals of 134.6 mm on the 12th and 132.8 mm on the 14th, whilst the highest daily total was 161.2 mm at Jeparit, in the Wimmera, on the 12th.

A noteworthy feature of this event was the exceptionally high moisture content of the atmosphere for such a southern location. The total precipitable water in the atmosphere[1] at Melbourne on the 13th was 65.0 mm, well in excess of the previous record of 54.5 mm on 5 February 1973 and a value more typical of tropical locations such as Darwin. Melbourne's peak dewpoint[2] was 23.7°C at 1800 on the 13th, falling just short of the city's record of 24.0°C set on 24 January 1982. The dewpoint remained above 21°C continuously for 30 hours and above 22°C for 9 hours, both of which rank second behind an event on 12-14 February 1955.

Extreme daily rainfall totals during the period

Selected daily rainfall records set during December 2010 and January 2011 are listed in Table 1. The Queensland events were more notable for their extent, particularly the extent of heavy falls inland from the coast, and duration than for the daily intensity, and only a relatively modest number of daily records was set during the month.

The greatest concentration of daily rainfall records during the period was in South Australia and western Victoria on 8 December, mostly as a result of severe thunderstorms on the afternoon and evening of the 7th. December is normally a relatively dry month in this region and many stations exceeded their monthly average in one day. Many daily rainfall records were also set in southeastern Australia between 12 and 14 January. The greatest number of records occurred in Victoria, but the highest daily falls were on the east coast of Tasmania on 13 January, where totals of 282.0 mm at Falmouth, 278.0 mm at Scamander and 250.0 mm at St. Helens (Kellraine)[3] all exceeded the previous Tasmanian January record of 246.9 mm at The Springs (near Mount Wellington) on 30 January 1916.

Averaged over Queensland, the wettest day of the period was 27 December, with a state-wide average of 22.0 mm. This was the second-highest on record for the month of December (after 30.7 mm on 22 December 1956) but fell well short of the all-months record of 31.6 mm set on 2 March 2010 (see Special Climate Statement 20). Whilst no individual day approached record levels in the Murray-Darling Basin, the Basin-wide average daily total exceeded 10 mm on five days during the period (peaking at 13.7 mm on 28 November) and 5 mm on 14 days (this compares with the average daily total of about 1.5 mm).

In Victoria, state-wide daily totals were 40.5 mm on 14 January and 33.2 mm on 12 January, with a three-day total of 85.2 mm from 12-14 January. These daily totals are the two highest on record for Victoria for January and rank third and seventh respectively for any month, while the three-day total is a record for any month, breaking the mark of 76.5 mm set from 4-6 February 1973.

[1] This is a measure of moisture content through the full depth of the atmosphere. Upper-air observations are currently taken at Melbourne Airport; in 1973 they were being taken at Laverton.
[2] Only 3-hourly data are used to allow consistent comparisons with the available historical data.
[3] These sites all have fewer than 50 years of observations and are hence not included in Table 1.

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Total rainfalls for the period

For the period from 28 November to 17 January (Figure 2), total rainfall exceeded 300 mm over most of the eastern half of Queensland, except for inland southern border areas. Totals in the 400 to 600 mm range were widespread along most of the Queensland east coast and the NSW coast north of Coffs Harbour, extending inland to cover many areas in the Central Highlands and adjacent areas, as well as most of Cape York Peninsula. The inland penetration of the heaviest falls can be compared with the 1918 event, which led to Rockhampton's record flood peak; that event, associated with a tropical cyclone, was concentrated quite close to the coast. Some stations in the Mackay area and north of Brisbane exceeded 1200 mm, and totals in excess of 800 mm occurred along several parts of the coast, especially around Mackay, between Cairns and Townsville, and in coastal and near-coastal areas from Gladstone southwards to Brisbane.

Totals for the period were less extreme in the southeastern states, but were still between 200 and 400 mm over most of Victoria (except Gippsland), the far west of New South Wales, and most of that state's eastern half except for coastal areas between Sydney and Port Macquarie. Similar totals also occurred in northern and western Tasmania. The only parts of the four eastern states not to receive at least 100 mm for the period were parts of the Channel Country in Queensland and a small area west of Cunnamulla.

December 2010 was the wettest December on record over most of southeastern Queensland, as well as some areas further north (Figure 3). It was also the wettest December on record in a band through central New South Wales between Canberra and Dubbo, and in a broad region on both sides of the South Australia-Victoria border. All of these regions generally received between three and six times their average December rainfall (Figure 4). At some stations, particularly in Queensland (Table 2), it was the wettest month (i.e., compared against all calendar months) on record.

On an area-average basis, it was the wettest December on record for eastern Australia[4], with the total of 167.2 mm (132% above normal) surpassing the 154.8 mm set in 1975. Queensland (209.5 mm, 154% above normal) also set a record for the month of December (previously 200.1 mm in 1975), while the figure for the Murray-Darling Basin (107.0 mm, 119% above normal) ranked second behind the record set in 1992. The December rainfall totals for Victoria (103.9 mm, 118% above normal) ranked fifth, and for New South Wales (98.9 mm, 83% above normal) ranked eighth.

In some parts of the inland southeast the heaviest rain was split between the months of November and December and its extreme nature was thus not fully reflected in monthly totals. The New South Wales township of Young received 346.4 mm in the 13 days from 28 November to 10 December, more than half its annual mean (662 mm), and more than the 262.4 mm they received in all of 2006, and well in excess of their wettest calendar month on record (298.9 mm in March 1950). Whilst such statistics are not extraordinary in the more arid parts of Australia – where a number of stations in recent years have received their average annual rainfall in a single day – they are highly unusual for a location in southeastern Australia. Over the same 13-day period, Burrinjuck Dam received 332.0 mm and Canberra 225.0 mm.

In January to date the most exceptional area-averaged totals have been in southeastern Australia, especially in Victoria. The Victorian state-wide average for the period 1-23 January was 112.1 mm, which has already exceeded the existing January monthly record of 109.3 mm, set in 1941. Numerous stations have already exceeded their January monthly records (Table 3), and some have already experienced their wettest month on record for any calendar month. New South Wales, Tasmania and the Murray-Darling Basin have already exceeded their January monthly average. In

[4] In this context eastern Australia is defined as Queensland, NSW, Victoria, Tasmania and the ACT.

Queensland high rainfalls in January have been confined to the southeast and parts of the far west, with most other parts of the state near or below normal for the month so far.

A comparison of the 2011 southeast Queensland rainfall with previous events

While all of the data is yet to be compiled, a preliminary comparison can be made between the three-day rainfall totals from the 10-12 January 2011 event with those of 25-27 January 1974 is shown in Figure 5.

Peak rainfalls from the 1974 event were substantially heavier than those in 2011. A number of stations had three-day totals from 25-27 January 1974 in excess of 1000 mm, the highest being 1215.0 mm at Mount Tamborine, compared with the 2011 event peak of 648.4 mm. Many stations in the 1974 event experienced daily totals which exceeded 400 mm; the highest were 563.2 mm at Mount Tamborine and 561.5 mm at Wundurra, in the Gold Coast hinterland, while in the Brisbane area 475.8 mm fell on 26 January at Enoggera Reservoir. 1974 also saw much heavier rainfall in metropolitan Brisbane than 2011, with Brisbane's three-day and peak one-day totals of 600.4 mm and 314.0 mm in 1974 comparing with 166.2 mm and 110.8 mm in 2011. However, in 1974 the heaviest rains were close to the coast, whereas in 2011 heavy falls spread further inland, and on the western fringe of the Brisbane River catchment and on the Great Dividing Range 2011 was the wetter of the two events (Figure 5, right). The weeks prior to the 1974 event, whilst wetter than normal, were also less wet than the equivalent weeks prior to the 2011 event. Over the Brisbane River catchment as a whole, average three-day rainfall in the 1974 event was 348.5 mm, compared with 286.4 mm in 2011, and all four major sub-catchments were also wetter in 1974 than in 2011, although by small margins in the cases of the Bremer (1974 442.1 mm; 2011 417.1 mm) and Lockyer (1974 331.3 mm; 2011 292.0 mm) sub-catchments.

Insufficient rainfall data exist for a comprehensive assessment of the 1893 event. However, the available station data indicate that peak rainfalls in the region during the 1893 event were much heavier than those during either the 1974 or 2011 events. Crohamhurst, in the Glasshouse Mountains inland from the Sunshine Coast, received 907.0 mm on 3 February 1893, which remains an Australian daily record, whilst three-day totals included 1715.0 mm at Mooloolah and 1680.3 mm at Crohamhurst.

Floods resulting from the rainfall

The most destructive floods during the period occurred during the second week of January in the southeast corner of Queensland and adjacent border areas of New South Wales. There was major flooding through most of the Brisbane River catchment, most severely in the Lockyer and Bremer catchments where numerous flood height records were set (Table 4), along with the Toowoomba area just outside the Brisbane catchment. In Brisbane it was the second-highest flood of the last 100 years, after January 1974. The flooding caused substantial loss of life, and thousands of properties were inundated in metropolitan Brisbane and elsewhere. Major flooding with inundation of properties also extended inland to the upper Condamine-Balonne catchment, with Chinchilla and Dalby being severely affected for the second time in less than a month. Other rivers which experienced major flooding during the period included the Mary River around and upstream of Maryborough and Gympie, the Macintyre River around Tenterfield and Goondiwindi, and the Clarence around and downstream of Grafton.

Major flooding also occurred in Victoria as a result of the heavy rains from 12 to 15 January. Initially localised flash flooding occurred in parts of western Victoria following the first significant rainfall on 12 January; this was followed by much more extensive river flooding from the 14th onwards. Most Victorian catchments outside Gippsland experienced at least minor flooding but the

most serious flooding occured in the state's north and west in the Wimmera, Avoca, Loddon and Campaspe catchments. Record flood peaks were observed in all four catchments (Table 4). The records are all the more remarkable because the associated catchments are seasonally dry in summer . Towns to experience inundation across large parts of their urban areas included Charlton, Bridgewater, Carisbrook and Rochester, whilst significant flooding also occurred in the larger centres of Horsham, which had its highest flood on record, and Echuca. In Tasmania, there was significant flash flooding on the east coast around St. Helens and Scamander, and river flooding on several northern rivers with some major flooding.

The rains from 23 to 28 December resulted in exceptional flooding in many parts of central and southern Queensland with many rivers reaching record levels (Table 4). By 23 December, many rivers were already at or near flood level as a result of the rains in the preceding weeks (with some, notably the Dawson, experiencing major flooding). The rains during the following few days, on top of the pre-existing wet conditions, resulted in major flooding over a vast region. Except for the southeast coastal fringe south of Maryborough, almost every river in Queensland that is south of the Tropic of Capricorn and east of Charleville and Longreach reached major flood level at some stage during the period from 26 November to 7 January, mostly between 23 December and 4 January (Figure 6). Properties were inundated in at least 17 towns in Queensland and adjacent border areas of New South Wales, with the largest impacts in the towns of Theodore, Dalby, Chinchilla, Emerald, Bundaberg and Rockhampton.

The most extreme flooding in the late December event occurred in the Fitzroy and Condamine-Balonne catchments. Record flood levels occurred at a number of locations in these catchments (Table 3), including the Dawson River at Theodore, the Nogoa at Emerald, the Comet at Rolleston and Comet Weir, and in the Condamine-Balonne system at Tummaville, Millmerran, Condamine Township and Surat. In some cases these flood peaks broke records which had only just been set during the February-March 2010 event. The Fitzroy at Rockhampton reached its fifth highest level of the last 100 years, and the Burnett at Bundaberg its highest since 1942. The flooding was prolonged in many areas, with the Dawson at Theodore remaining above major flood level for more than two weeks. Flood hydrographs for selected Queensland towns are shown in Figure 7.

Whilst not reaching the severity of Queensland or Victoria, there was also widespread flooding in various parts of New South Wales, most significantly in the Murrumbidgee, Lachlan and Castlereagh catchments. Eugowra was flooded three times during the month on December 4, 10 and 27. Wagga Wagga experienced its worst flooding since 1974 when the Murrumbidgee peaked at 9.7 metres on 6 December, while major flooding (the highest since 1976) inundated properties in Queanbeyan on 9 December. This caused a secondary peak further down the Murrumbidgee, where floods extended downstream over the following weeks, reaching Hay at the end of December. Total River Murray inflows for December were the highest on record, and in conjunction with floods earlier in the spring in southern inland New South Wales and northern Victoria, these are expected to produce the strongest flows[5] since at least 1992 in the South Australian portion of the Murray during the remainder of January and February. The January rains in Victoria and Queensland are not expected to result in increased peak flows in South Australia but are expected to prolong the period of high flows in that state.

Further information

This statement is based on information available as of 23 January 2011. An update is expected to be issued in early February after downstream flood peaks have occurred and final January data are available.

[5] From the 14 January 2011 River Murray Flow Advice, SA Government Department for Water (http://www.waterforgood.sa.gov.au/wp-content/uploads/2011/01/flows-advisory-14-jan-2011.pdf).

Separate, more detailed state-based Special Climate Statements are available for the Tasmanian and Victorian aspects of the event and may be obtained at http://www.bom.gov.au/climate/current/special-statements.shtml. The Gascoyne River flooding in Western Australia is not covered in this statement. A separate report on that event is available at http://www.bom.gov.au/announcements/sevwx/.

Separate reports are also expected to be issued in due course on detailed hydrological aspects of the flooding in Queensland, and on flooding in the Murray River system.

The information in this statement is based on preliminary data, and may change as further data are obtained and quality assurance is undertaken.

Further information can be obtained from the following contacts:

For general enquiries on this statement

National – Blair Trewin (03-9669 4623), David Jones (03-9669 4085)
Queensland – Climate Services Centre (07-3239 8700), Flood Warning Services (07-3239 8768)
NSW – Climate Services Centre (02-9296 1555), Flood Warning Services (02-9296 1511)
SA – Climate Services Centre (08-8366 2600), Flood Warning Services (08-8366 2669)
Victoria – Climate Services Centre (03-9669 4956), Flood Warning Services (03-9669 4945)
Tasmania – Climate Services Centre (03-6221 2043), Flood Warning Services (03-6221 2061)

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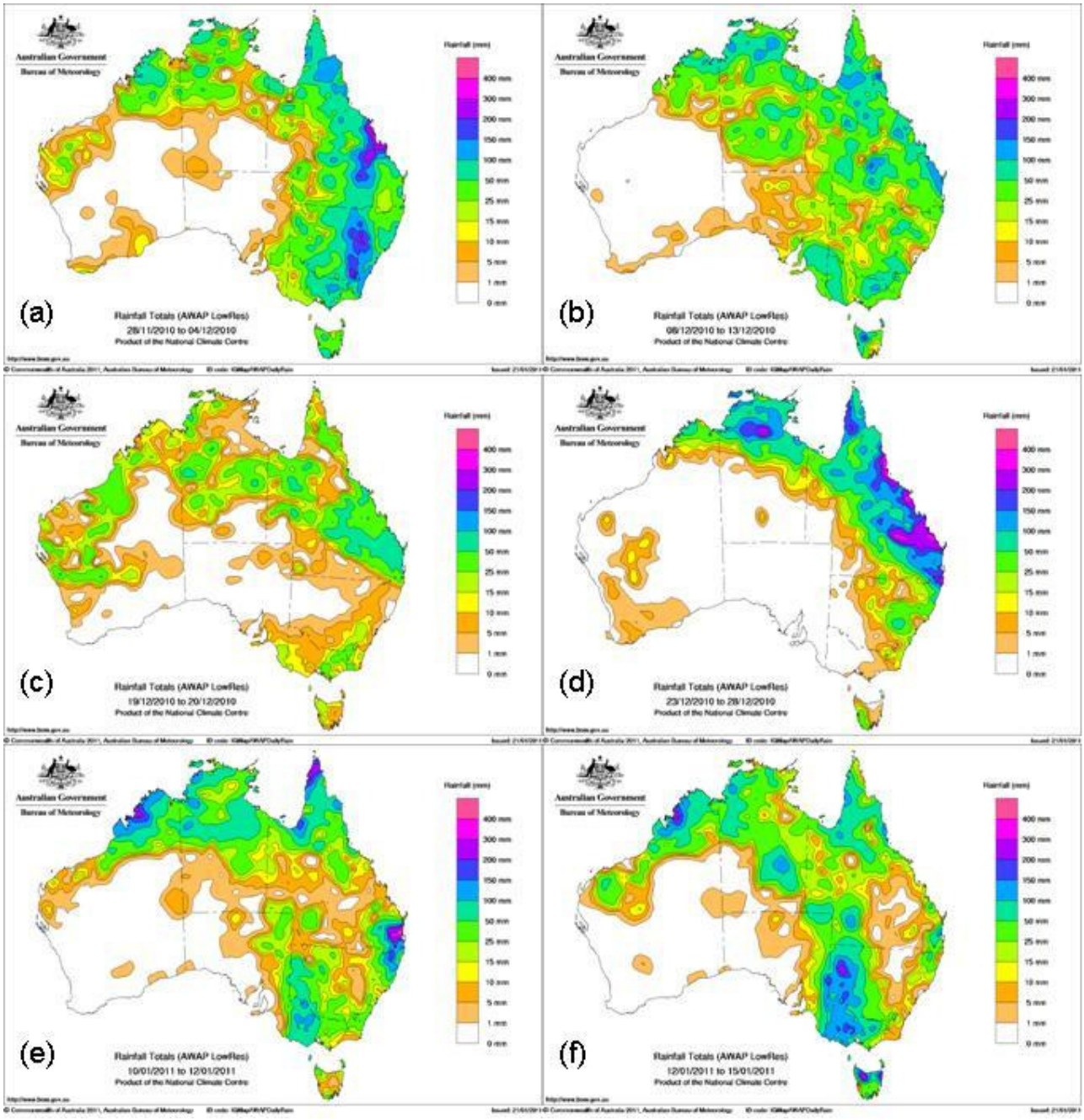

Figure 1. Australian rainfall totals for the periods (a) 28 November to 4 December, (b) 8 to 13 December, (c) 19 to 20 December, (d) 23 to 28 December, (e) 10 to 12 January and (f) 12 to 15 January.

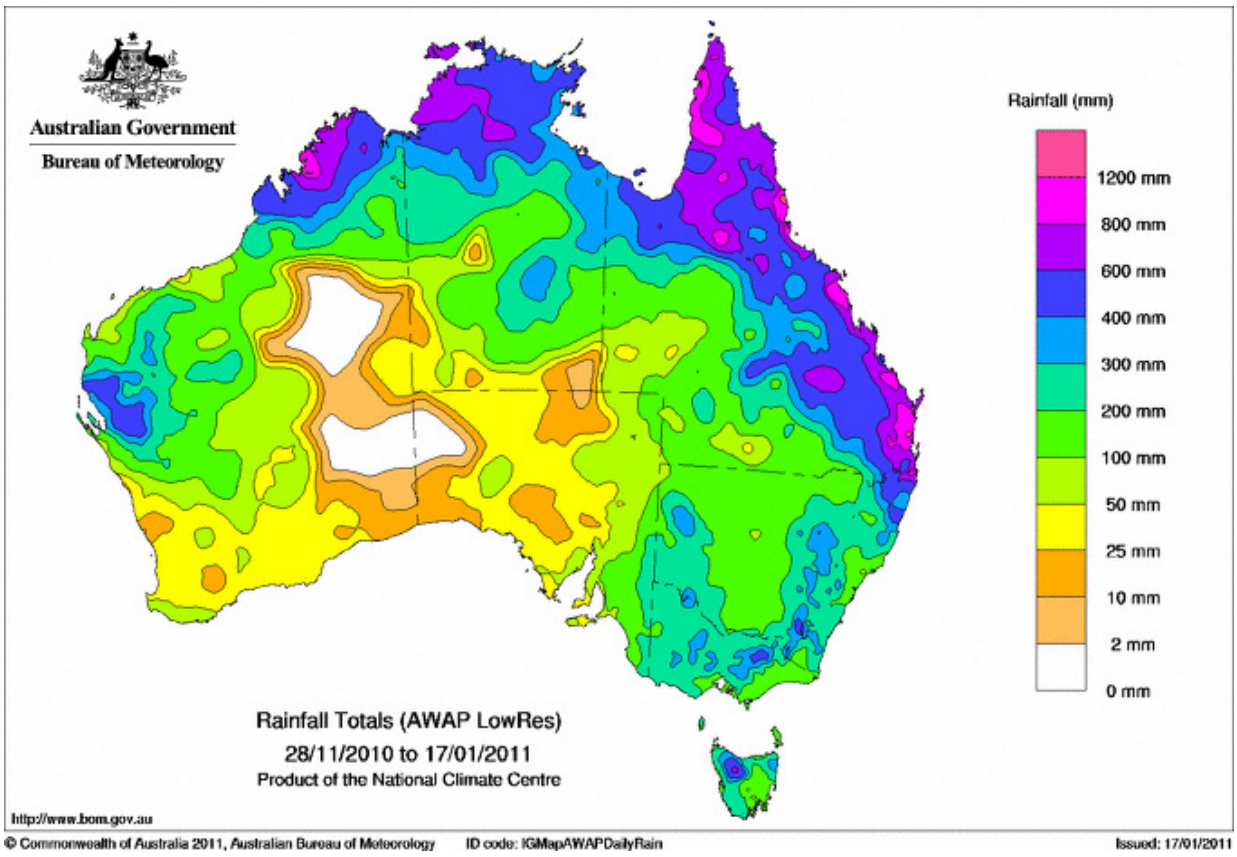

Figure 2. Total rainfall for the period 28 November 2010 – 17 January 2011.

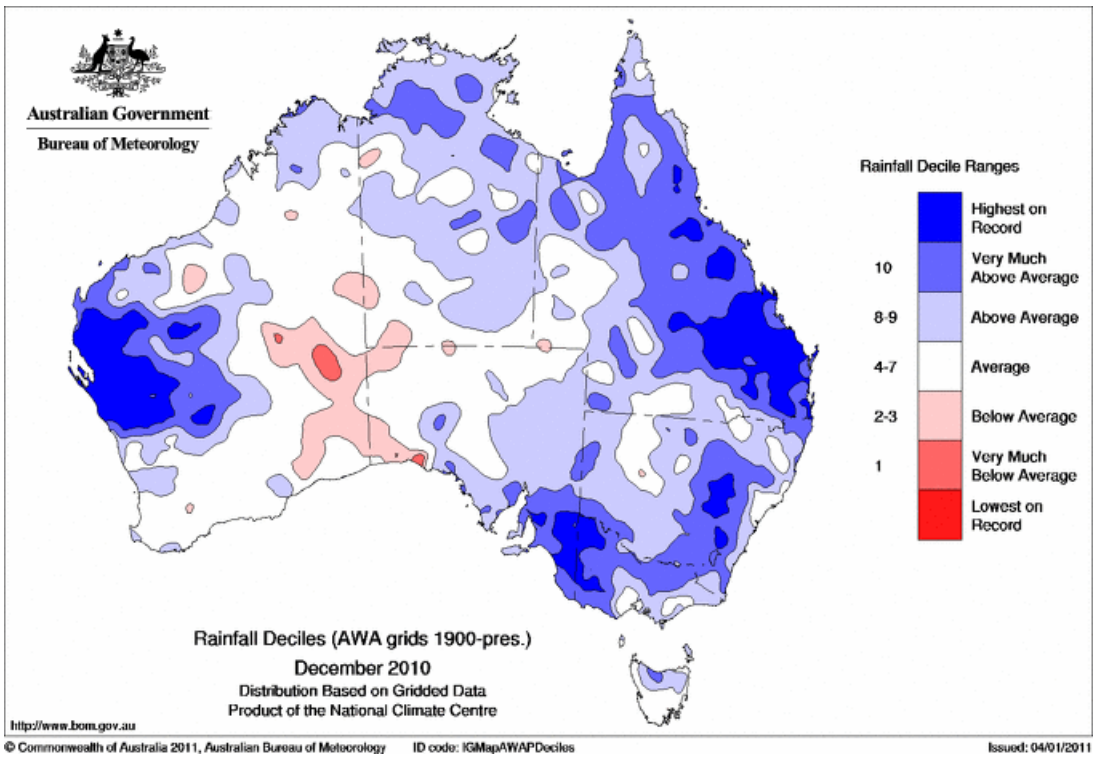

Figure 3. Australian rainfall deciles for December 2010.

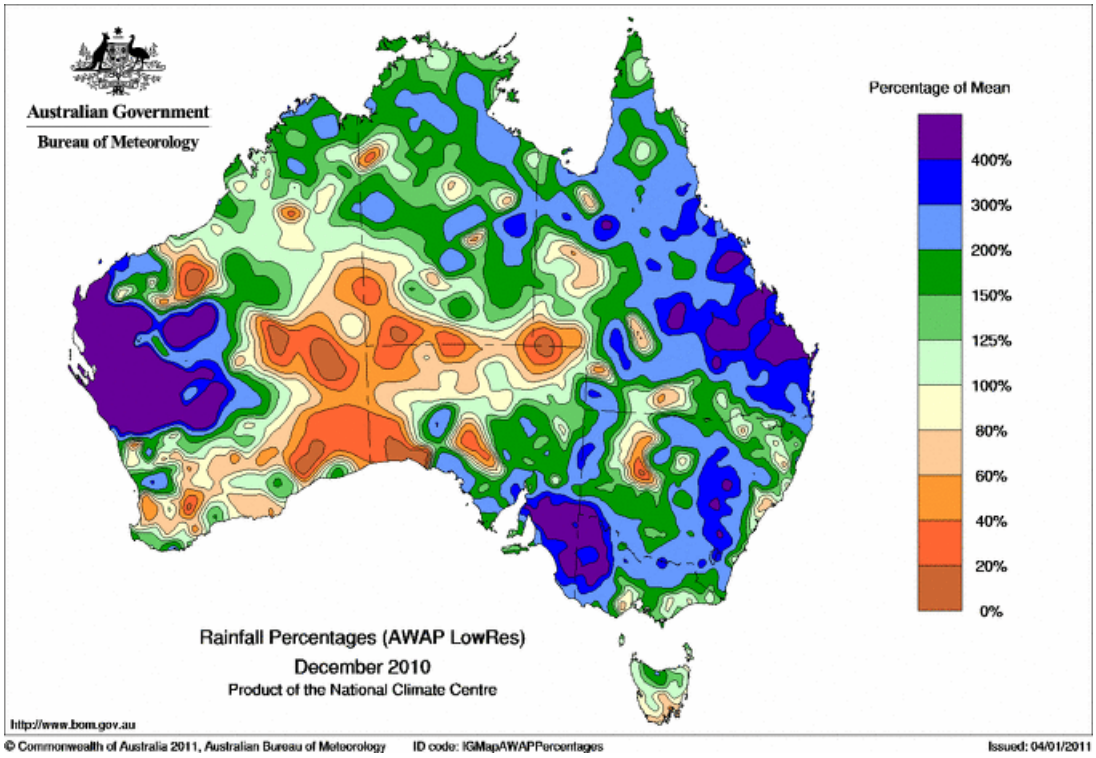

Figure 4. Australian rainfall percentages of normal for December 2010.

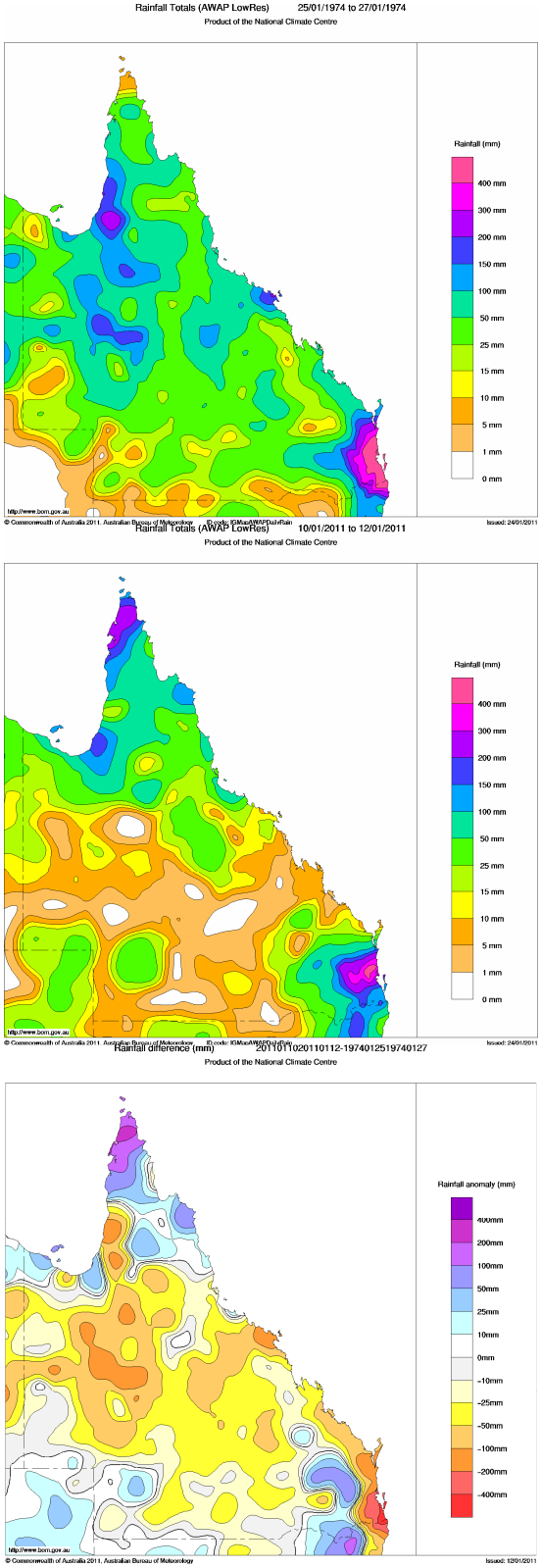

Figure 5. Three-day rainfalls for the periods from 25 to 27 January 1974 (left) and 10 to 12 January 2011 (centre), and the difference between the two (right; positive values indicate where 2011 is wetter).

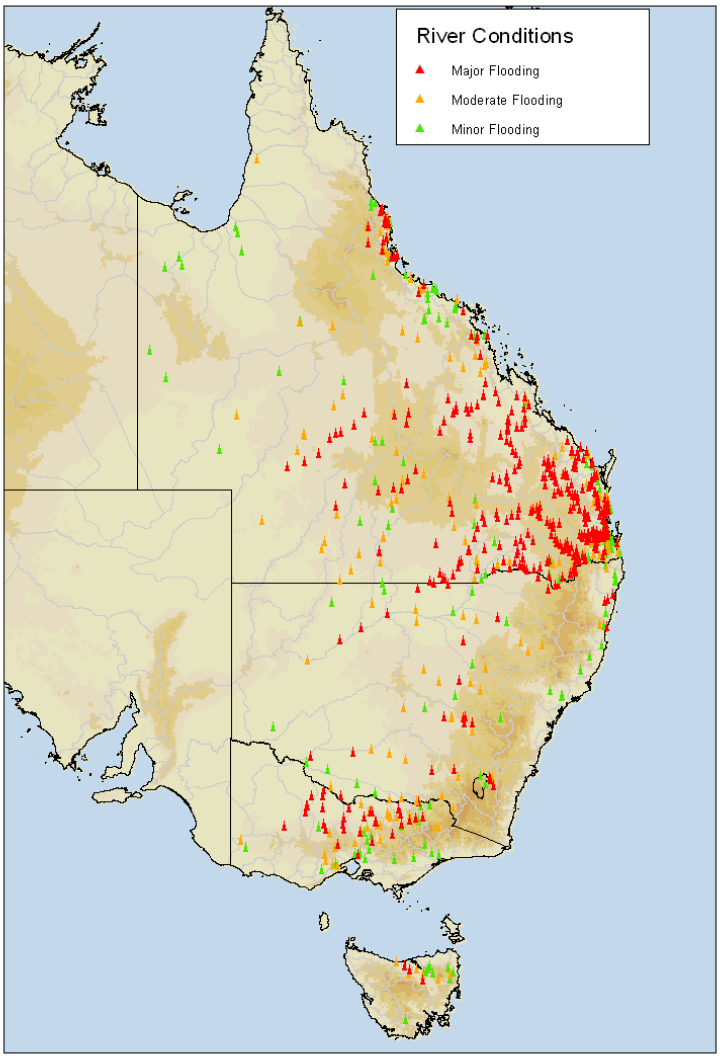

Figure 6. Flood peaks in eastern Australia over the period 26 November 2010 – 20 January 2011.

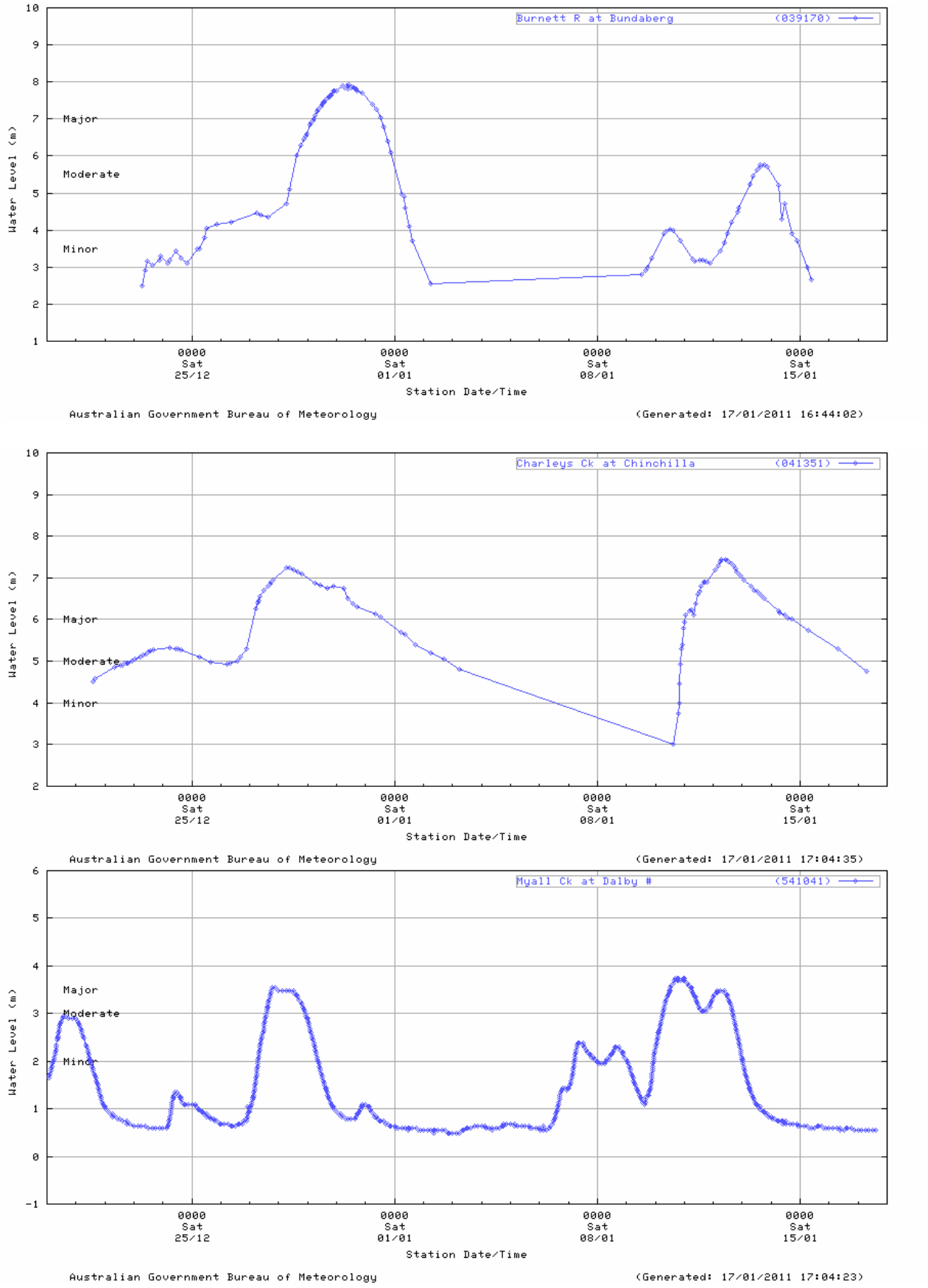

Figure 7(a). Preliminary flood hydrographs at selected Queensland towns: (from top) Bundaberg, Chinchilla and Dalby.

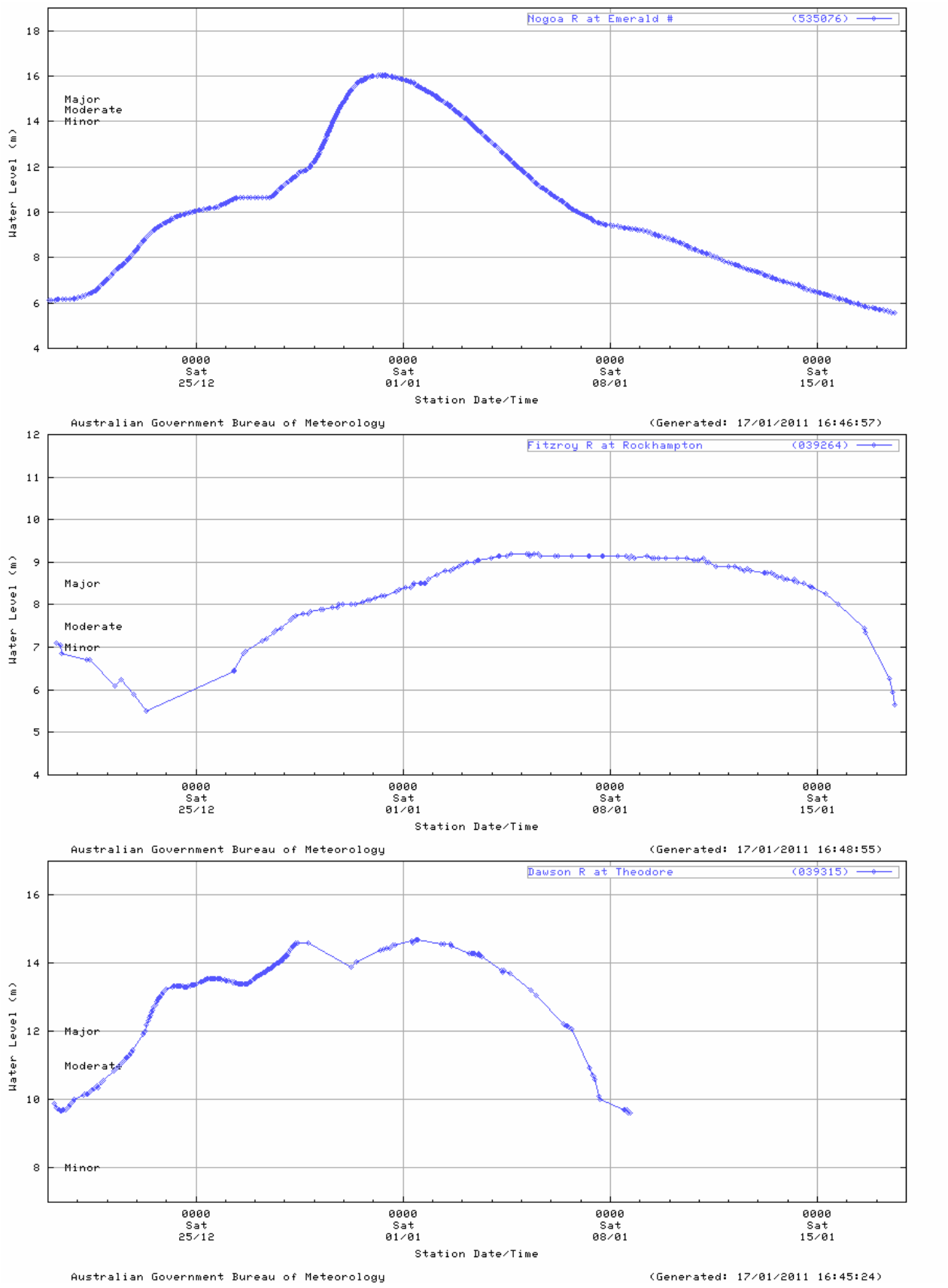

Figure 7(b). Preliminary flood hydrographs at selected Queensland towns: (from top) Emerald, Rockhampton and Theodore

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Station number	Name	State	Rainfall (mm)	Date	Previous record (mm)	Date
18058	Whyalla (Mullaquana)	SA	44.8	8/12	39.2	12/12/2008
21001	Auburn	SA	65.8	8/12	50.3	12/12/1917
21002	Balaklava	SA	84.2	8/12	46.0	12/12/1917
21003	Blyth	SA	63.6	8/12	62.5	21/12/1921
21004	Booborowie	SA	71.4	8/12	49.0	1/12/1966
21012	Bute	SA	66.0	8/12	35.0	3/12/1989
21019	Farrell Flat	SA	89.6	8/12	69.3	27/12/1929
21022	Gulnare	SA	61.0	8/12	50.3	1/12/1966
21026	Hoyleton	SA	74.2	8/12	62.0	12/12/2008
21033	Mintaro	SA	66.8	8/12	54.6	12/12/1917
21034	**Mount Bryan**	**SA**	**76.6**	**8/12**	**57.9 (Dec)**	**25/12/1946**
					62.4 (all)	**27/9/1979**
21047	Spalding	SA	53.0	8/12	52.3	1/12/1966
23005	Glen Osmond	SA	64.8	8/12	53.1	23/12/1913
23013	Parafield	SA	51.2	8/12	47.0	28/12/1929
23025	Smithfield	SA	68.8	8/12	45.7	27/12/1920
23078	Gawler	SA	72.8	8/12	35.6	19/12/1922
23090/23000	Adelaide	SA	70.0	8/12	61.5	23/12/1913
23305	Greenock	SA	98.8	8/12	50.5	28/12/1896
23307	Kapunda	SA	85.0	8/12	46.7	18/12/1923
23309	Lyndoch	SA	86.4	8/12	39.9	25/12/1946
23310	Manoora	SA	77.0	8/12	52.8	12/12/2008
23311	Marrabel	SA	70.0	8/12	50.8	12/12/1917
23314	Riverton	SA	90.0	8/12	63.0	12/12/2008
23315	Saddleworth	SA	74.8	8/12	60.5	17/12/1902
23318	**Tanunda**	**SA**	**94.0**	**8/12**	**48.5 (Dec)**	**28/12/1896, 5/12/1966**
					87.1 (all)	**17/4/1889**
23319	Tarlee	SA	109.8	8/12	64.8	24/12/1954
23343	Turretfield	SA	90.0	8/12	28.4	4/12/1911, 25/12/1964
23370	Stockport (Clifton)	SA	88.2	8/12	43.0	12/12/2008
23705	**Birdwood**	**SA**	**128.2**	**8/12**	**62.5 (Dec)**	**25/12/1948**
					125.5 (all)	**9/2/1969**
23719	Gumeracha	SA	73.4	8/12	58.4	27/12/1920
23737	Mount Pleasant	SA	73.6	8/12	48.2	1/12/1987
23752	Williamstown	SA	94.6	8/12	45.7	27/12/1920
24006	**Kingston on Murray**	**SA**	**85.2**	**8/12**	**53.3 (Dec)**	**17/12/1936**
					82.2 (all)	**20/2/2000**
24010	**Moorook**	**SA**	**92.0**	**8/12**	**41.1 (Dec)**	**27/12/1929**
					86.4 (all)	**17/11/1961**
24013	**Loxton (Pyap)**	**SA**	**93.0**	**8/12**	**41.4 (Dec)**	**27/12/1929**
					73.7 (all)	**21/2/1917**
24017	**Taldra**	**SA**	**102.0**	**8/12**	**49.0 (Dec)**	**1/12/1911**
					71.1 (all)	**17/11/1961**
24517	Mannum	SA	130.0	8/12	62.2	25/12/1946
24525	Palmer	SA	86.2	8/12	81.0	18/12/1992
24534	Sutherlands	SA	87.0	8/12	83.1	26/12/1946
25000	**Alawoona**	**SA**	65.0	8/12	53.6	31/12/1983
			132.0	**14/1**	**61.0 (Jan)**	**25/1/1941**
					67.0 (all)	**12/11/1998**
25002	Purnong	SA	75.0	8/12	48.0	28/12/1929
25006	Karoonda	SA	73.6	8/12	57.2	28/12/1929

Table 1. Selected record daily rainfall totals which have occurred during December 2010 and January 2011 at locations with 50 or more years of data. Values shown in bold are records for any calendar month.

Station number	Name	State	Rainfall (mm)	Date	Previous record (mm)	Date
25010	**Mindarie**	**SA**	**85.0**	**8/12**	**35.6 (Dec)**	**27/12/1920**
					79.8 (all)	**18/12/1946**
25013	Parilla	SA	79.0	8/12	74.0	26/12/1999
25014	Paruna	SA	64.6	8/12	40.6	22/12/2000
25015	Pinnaroo	SA	64.0	8/12	38.4	28/12/1962
25017	Sandalwood	SA	82.0	8/12	36.8	22/12/1964
25509	Lameroo	SA	73.0	8/12	60.0	26/12/1999
25519	Wolseley	SA	86.2	14/1	61.4	20/1/2007
26007	Frances	SA	104.0	14/1	56.0	20/1/2007
26009	Kalangadoo	SA	74.0	14/1	59.7	25/1/1941
26018	Millicent	SA	59.8	14/1	45.2	25/1/1941
26021	Mount Gambier	SA	82.4	14/1	53.4	15/1/1995
35018	**Carnarvon Station**	**QLD**	**273.6**	**27/12**	**124.5 (Dec)**	**28/12/2008**
					126.0 (all)	**1/6/1981**
35021	Comet	QLD	148.4	3/12	136.4	30/12/1962
35051	Orion	QLD	153.4	3/12	139.8	28/12/2008
35077	**Warrinilla**	**QLD**	**238.0**	**27/12**	**165.4 (Dec)**	**29/12/1921**
					204.0 (all)	**3/3/1990**
35079	**Wharton Creek**	**QLD**	**257.0**	**27/12**	**103.1 (Dec)**	**22/12/1956**
					184.2 (all)	**24/11/1950**
35090	Rewan	QLD	190.6	27/12	144.8	11/12/1917
35194	**Wyseby**	**QLD**	**247.2**	**27/12**	**119.6 (Dec)**	**22/12/1975**
					213.8 (all)	**3/3/1990**
36003	Birricannia	QLD	95.0	27/12	87.9	18/12/1944
36143	Blackall	QLD	123.6	8/12	96.4	31/12/2009
39204	Colodan	QLD	89.0	20/12	83.0	12/12/1988
40020	Blackbutt	QLD	149.2	10/1	113.8	27/1/1974
40071	Lanark	QLD	102.0	23/12	100.1	15/12/1965
40120	Lowood	QLD	203.2	12/1	194.0	27/1/1974
40158	**Nanango**	**QLD**	**183.8**	**11/1**	**167.1**	**20/1/1929**
40169	Peachester	QLD	298.0	10/1	265.0	27/1/1974
40247	**Lindfield**	**QLD**	**257.0**	**10/1**	**179.8 (Jan)**	**20/1/1929**
					237.8 (all)	**9/2/1999**
40382	Crows Nest	QLD	162.4	11/1	142.4	27/1/1974
41069	Millmerran	QLD	97.0	27/12	94.0	5/12/2003
41082	Pittsworth	QLD	114.0	28/12	100.1	22/12/1956
42009	Drillham	QLD	81.0	27/12	66.5	26/12/1971
42016	Hannaford	QLD	102.0	27/12	90.2	12/12/1942
42048	Condamine	QLD	148.0	27/12	96.6	22/12/1988
47016	Lake Victoria	NSW	86.0	8/12	49.0	29/12/1957
47093	Burtundy	NSW	49.0	14/1	45.7	9/1/1897
49002	Balranald	NSW	71.8	14/1	70.4	4/1/1941
50045	Yalgogrin North	NSW	68.2	9/12	66.5	17/12/1930
56032	Tenterfield	NSW	144.0	11/1	110.5	10/1/1902
63267	**Wyangala Dam**	**NSW**	**103.4**	**10/12**	**102.6**	**25/12/1946**
64009	Dunedoo	NSW	77.6	1/12	71.6	13/12/2008
65020	Manildra	NSW	63.8	10/12	63.2	14/12/1960
70016	Captains Flat	NSW	74.2	9/12	68.8	30/12/1948
70083	Tharwa	ACT	85.0	9/12	80.3	18/12/1961
70097	**Breadalbane**	**NSW**	**136.4**	**9/12**	**77.0 (Dec)**	**5/12/1911**
					121.9 (all)	**26/7/1922**
70351/70014	Canberra	ACT	87.0	3/12	86.6	30/12/1948
72004	Batlow	NSW	99.6	9/12	94.0	28/12/1919
72150	Wagga Wagga	NSW	67.6	9/12	65.2	26/12/1988
73007	Burrinjuck Dam	NSW	111.0	3/12	87.6	18/12/1961

Table 1 (continued). Selected record daily rainfall totals which have occurred during December 2010 and January 2011 at locations with 50 or more years of data. Values shown in bold are records for any calendar month.

Station number	Name	State	Rainfall (mm)	Date	Previous record (mm)	Date
74064	Lockhart	NSW	53.2	9/12	45.7	3/12/1960
74110	Urana	NSW	69.0	9/12	60.0	9/12/2004
75042	Maude	NSW	54.0	12/1	51.8	17/1/1962
76000	Annuello	VIC	76.6	14/1	60.0	1/1/1988
76031	Mildura	VIC	61.6	12/1	37.6	17/1/1962
76038	Murrayville	VIC	70.0	8/12	41.1	25/12/1919
76047	Ouyen	VIC	50.0	14/1	49.5	3/1/1921
76052	**Red Cliffs**	**VIC**	**83.4**	**12/1**	**57.9 (Jan)**	**26/1/1959**
					82.3 (all)	**24/3/1969**
76064	Walpeup	VIC	78.0	8/12	41.0	21/12/1992
76067	Werrimull	VIC	71.0	8/12	58.8	31/12/2002
77005	Berriwillock	VIC	63.8	14/1	54.0	14/1/1974
77008	Birchip	VIC	90.2	14/1	68.1	11/1/1962
77023	Lalbert	VIC	57.0	14/1	55.8	17/1/1974
77030	Narraport	VIC	70.0	14/1	53.0	27/1/1993
77033	Patchewollock	VIC	67.0	8/12	58.4	1/12/1987
77035	**Rainbow**	**VIC**	**131.0**	**12/1**	**56.4 (Jan)**	**25/1/1941**
					118.4 (all)	**7/3/1910**
77048	Ultima	VIC	64.4	14/1	61.4	22/1/1979
78010	Dimboola	VIC	104.2	12/1	95.0	14/1/1974
78086	**Jeparit**	**VIC**	**161.2**	**12/1**	**119.0 (Jan)**	**14/1/1974**
					127.3 (all)	**6/3/1910**
79023	Horsham (Polkemmet)	VIC	98.0	12/1	75.4	7/1/1886
79028	Longerenong	VIC	97.0	12/1	72.9	25/1/1863
79036	Natimuk	VIC	54.2	8/12	52.1	28/12/1929
79071	Apsley	VIC	48.4	8/12	38.6	10/12/1971
79075	**Rupanyup**	**VIC**	**90.0**	**14/1**	**71.0 (Jan)**	**27/1/1993**
					76.5 (all)	**28/12/1929**
80061	**Wedderburn**	**VIC**	**84.0**	**14/1**	**62.0 (Jan)**	**15/1/1974**
					78.8 (all)	**22/3/1983**
81038	Natte Yallock	VIC	81.8	14/1	68.0	16/1/1984
81051	Tungamah	VIC	83.4	9/12	57.7	15/12/1894
83038	**Tawonga**	**VIC**	**144.2**	**9/12**	**69.0 (Dec)**	**22/12/2007**
					95.4 (all)	**26/3/1993**
83043	Rocky Valley	VIC	182.0	9/12	128.6	14/12/1993
87029	Lancefield	VIC	92.0	14/1	71.1	2/1/1970
88043	Maryborough	VIC	90.4	14/1	83.8	2/1/1961
88051	Redesdale	VIC	78.6	14/1	76.0	1/1/1988
88059	Trentham	VIC	110.8	14/1	101.6	1/1/1921
89002	Ballarat	VIC	95.0	14/1	83.1	29/1/1963
89003	Balmoral	VIC	103.2	8/12	56.4	13/12/2008
89005	Beaufort	VIC	96.8	14/1	85.6	21/1/1904
89009	**Cavendish**	**VIC**	**106.8**	**8/12**	**65.0 (Dec)**	**13/12/2008**
					101.6 (all)	**7/2/1957**
89011	Dunkeld	VIC	78.4	8/12	64.0	13/12/2008
89034	**Willaura**	**VIC**	**98.0**	**8/12**	**64.8 (Dec)**	**13/12/1966**
					91.4 (all)	**6/2/1973**
90005	Beeac	VIC	66.2	14/1	52.6	21/1/1904
90008	Birregurra	VIC	52.0	14/1	48.0	22/1/1997
90059	**Nelson**	**VIC**	**113.2**	**14/1**	**77.4 (Jan)**	**24/1/1991**
					90.2 (all)	**18/2/1946**
90060	Nullawarre	VIC	70.2	8/12	61.6	3/12/1985
91009	Burnie	TAS	87.2	13/1	51.8	17/1/1979
91109	Yolla	TAS	131.0	14/1	70.1	20/1/1946

Table 1 (continued). Selected record daily rainfall totals which have occurred during December 2010 and January 2011 at locations with 50 or more years of data. Values shown in bold are records for any calendar month.

Station number	Name	State	Rainfall (mm)	Previous record (mm)	Year
21001	Auburn	SA	140.0	120.8	1966
21002	Balaklava	SA	129.2	80.9	1894
21004	Booborowie	SA	122.2	99.6	1966
21012	Bute	SA	96.0	66.7	1922
21019	Farrell Flat	SA	141.6	122.4	1894
21026	Hoyleton	SA	109.6	104.2	2008
23025	Smithfield	SA	129.8	109.5	1966
23081	Gawler	SA	118.8	109.7	1861
23305	Greenock	SA	152.4	94.8	2008
23307	Kapunda	SA	132.2	103.1	1902
23309	Lyndoch	SA	160.0	107.2	1992
23310	Manoora	SA	135.4	104.4	1992
23311	Marrabel	SA	126.0	110.6	1992
23314	Riverton	SA	197.0	123.7	1902
23315	Saddleworth	SA	139.0	112.1	1902
23318	Tanunda	SA	177.4	120.4	1875
23319	Tarlee	SA	183.6	121.0	1992
23343	Turretfield	SA	153.7	91.8	1992
23705	Birdwood	SA	199.2	177.8	1992
23707	Bridgewater	SA	160.5	148.6	1992
23752	Williamstown	SA	167.0	115.4	1992
24003	**Renmark Irrigation**	**SA**	**139.4**	**88.4 (Dec)**	**1992**
				138.5 (all)	**Apr 1974**
24008	**Lyrup**	**SA**	**134.6**	**88.4 (Dec)**	**1966**
				133.2 (all)	**Feb 1950**
24010	**Moorook**	**SA**	**140.2**	**84.1 (Dec)**	**1966**
				116.7 (all)	**Feb 1950**
24013	**Loxton (Pyap)**	**SA**	**134.6**	**78.0 (Dec)**	**1929**
				123.3 (all)	**Oct 1973**
24513	**Cambrai (Kongolia)**	**SA**	**142.0**	**141.5**	**1992**
24517	Mannum	SA	173.0	138.6	2004
24526	Point Pass	SA	175.4	99.6	1946
24535	**Swan Reach**	**SA**	**145.2**	**118.2 (Dec)**	**1992**
				134.9 (all)	**Feb 1973**
25002	Purnong	SA	142.0	87.7	1929
25004	**Galga**	**SA**	**146.4**	**104.2 (Dec)**	**1992**
				105.3 (all)	**Feb 1973**
25006	**Karoonda**	**SA**	**142.4**	**103.6 (Dec)**	**1992**
				113.1 (all)	**Feb 1969**
25010	**Mindarie**	**SA**	**132.4**	**84.0 (Dec)**	**1992**
				127.3 (all)	**Feb 1973**
25013	Parilla	SA	140.6	100.4	1937
25014	Paruna	SA	91.6	87.6	1992
25015	Pinnaroo	SA	86.0	71.6	1992
25017	**Sandalwood**	**SA**	**123.3**	**92.8 (Dec)**	**1937**
				119.1 (all)	**Mar 1921**
25507	Keith	SA	137.8	78.1	1937
25509	Lameroo	SA	107.8	88.1	1962
25513	Peake	SA	107.9	107.0	1929
25519	Wolseley	SA	129.6	106.0	1894
28000	Laura	QLD	410.4	406.6	1976
30082	Gregory Springs	QLD	350.2	315.4	2000
30137	Hillgrove	QLD	399.4	254.6	2000
31029	Herberton	QLD	446.2	416.0	1950
31046	Mount Garnet	QLD	337.4	327.0	1997

Table 2. Selected record monthly rainfall totals which have occurred during December 2010 at locations with 50 or more years of data. Values shown in bold are records for any calendar month.

Station number	Name	State	Rainfall (mm)	Previous record (mm)	Year
33008	Byfield	QLD	770.0	651.9	1962
33013	Collinsville	QLD	425.9	410.4	1956
34000	Balfes Creek	QLD	297.5	260.3	1906
35007	Bauhinia Downs	QLD	475.2	270.6	1988
35014	**Wandoan**	**QLD**	**409.0**	**357.8**	**1970**
35018	**Carnarvon Station**	**QLD**	**535.8**	**238.9 (Dec)**	**1927**
				340.2 (all)	**Feb 1997**
35021	Comet	QLD	383.0	273.5	1956
35049	Gillespie	QLD	268.6	213.1	1916
35051	Orion	QLD	380.1	350.0	1975
35065	Springsure	QLD	470.2	316.6	1975
35079	**Wharton Creek**	**QLD**	**452.0**	**307.0 (Dec)**	**1956**
				414.3 (all)	**Feb 1954**
35088	**Birraban**	**QLD**	**596.0**	**310.7 (Dec)**	**1956**
				484.2 (all)	**Feb 2010**
35109	**Booroondarra**	**QLD**	**390.4**	**277.6 (Dec)**	**1990**
				354.6 (all)	**Jan 1974**
35117	**La Palma**	**QLD**	**463.8**	**274.6 (Dec)**	**1942**
				431.9 (all)	**Feb 1954**
35194	**Wyseby**	**QLD**	**603.2**	**339.0 (Dec)**	**1970**
				511.6 (all)	**Feb 2010**
35225	**Cardbeign**	**QLD**	**489.6**	**280.5 (Dec)**	**1956**
				411.0 (all)	**Feb 1954**
36143	Blackall	QLD	254.0	246.8	1965
39000	**Abercorn**	**QLD**	**483.6**	**281.2 (Dec)**	**1959**
				306.8 (all)	**Feb 2003**
39004	Baralaba	QLD	461.2	353.9	1973
39027	**Cordalba**	**QLD**	**723.2**	**542.2 (Dec)**	**1956**
				723.0 (all)	**Feb 1928**
39040	Gin Gin	QLD	803.7	411.0	1970
39059	Lady Elliot Island	QLD	510.0	383.4	1962
39066/39039	Gayndah	QLD	380.8	321.2	1942
39070	Mount Perry	QLD	584.8	365.4	1956
39073	**Mundubbera**	**QLD**	**428.6**	**321.7 (Dec)**	**1959**
				364.4 (all)	**Feb 1956**
39089	**Thangool**	**QLD**	**374.4**	**344.4**	**1973**
39092	**Miara**	**QLD**	**573.0**	**467.0 (Dec)**	**1962**
				564.1 (all)	**Feb 1947**
39097	**Wateranga**	**QLD**	**579.0**	**426.5 (Dec)**	**1942**
				491.0 (all)	**Feb 1928**
39103	**Bancroft**	**QLD**	**514.2**	**294.0 (Dec)**	**1984**
				423.1 (all)	**Feb 1971**
39104	**Monto**	**QLD**	**499.0**	**248.5 (Dec)**	**1970**
				434.2 (all)	**Feb 1971**

Table 2 (continued). Selected record monthly rainfall totals which have occurred during December 2010 at locations with 50 or more years of data. Values shown in bold are records for any calendar month.

Station number	Name	State	Rainfall (mm)	Previous record (mm)	Year
39128/39015	Bundaberg	QLD	573.2	490.3	1962
39177	**Glenwood**	**QLD**	**412.4**	**257.3 (Dec)**	**1956**
				386.1 (all)	**Feb 1956**
39204	**Colodan**	**QLD**	**493.0**	**266.3 (Dec)**	**1973**
				345.0 (all)	**Feb 1971**
39248	**Tecoma**	**QLD**	**503.0**	**261.7 (Dec)**	**1959**
				373.1 (all)	**Feb 1971**
39278	**Glenhaven**	**QLD**	**411.8**	**256.3 (Dec)**	**1956**
				366.5 (all)	**Feb 1954**
40021	Biggenden	QLD	558.9	441.4	1942
40043	Cape Moreton	QLD	375.8	372.5	1965
40059	Cooroy	QLD	559.5	521.0	1926
40071	**Lanark**	**QLD**	**462.0**	**328.2**	**1947**
40078	Eumundi	QLD	615.8	516.7	1926
40082	UQ Gatton	QLD	317.0	278.7	1942
40098	Howard	QLD	631.4	543.0	1926
40099	Imbil	QLD	575.6	454.6	1926
40106	Kenilworth	QLD	547.1	481.1	1926
40135	Moogerah Dam	QLD	363.8	308.8	1921
40144	Mount Joseph	QLD	521.8	477.0	1926
40152	**Murgon**	**QLD**	**376.5**	**360.2**	**1947**
40158	Nanango	QLD	365.9	333.1	1970
40160	Nerang	QLD	481.2	392.8	1897
40166	Oxenford	QLD	542.2	493.8	1897
40170	Pechey	QLD	326.0	307.2	1942
40177	**Proston**	**QLD**	**399.0**	**282.3 (Dec)**	**1970**
				301.4 (all)	**Feb 1971**
40183	**Rosevale**	**QLD**	**516.6**	**440.9 (Dec)**	**1991**
				445.0 (all)	**Jan 1927**
40198	Tarome	QLD	523.4	449.9	1965
40231	Manly	QLD	467.0	397.1	1970
40251	**Wondai**	**QLD**	**374.0**	**330.7**	**1921**
40255	**Wooroolin**	**QLD**	**451.2**	**356.4**	**1970**
40428	**Brian Pastures**	**QLD**	**485.3**	**256.1 (Dec)**	**1970**
				307.4 (all)	**Jan 1959**
40455	**Dunollie**	**QLD**	**393.2**	**249.5 (Dec)**	**1955**
				300.9 (all)	**Jul 1954**
40671	**Killara**	**QLD**	**486.4**	**188.6 (Dec)**	**1970**
				342.9 (all)	**Feb 1971**

Table 2 (continued). Selected record monthly rainfall totals which have occurred during December 2010 at locations with 50 or more years of data. Values shown in bold are records for any calendar month.

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Station number	Name	State	Rainfall (mm)	Previous record (mm)	Year
41011	Cambooya	QLD	325.6	298.9	1895
41018	**Clifton**	**QLD**	**359.0**	**261.8 (Dec)**	**1928**
				350.7 (all)	**Feb 1893**
41019	**Condamine Plains**	**QLD**	**370.4**	**265.1 (Dec)**	**1965**
				360.7 (all)	**Feb 1893**
41050	**Jandowae**	**QLD**	**376.6**	**268.5 (Dec)**	**1921**
				356.4 (all)	**Mar 1941**
41061	**Kurrowah**	**QLD**	**413.4**	**361.9**	**1970**
41069	Millmerran	QLD	312.0	264.0	1970
41075	**Nobby**	**QLD**	**423.9**	**260.9 (Dec)**	**1970**
				361.0 (all)	**Apr 1988**
41082	**Pittsworth**	**QLD**	**433.6**	**297.5 (Dec)**	**1965**
				359.7 (all)	**Feb 1893**
41106	**Upper Forest Springs**	**QLD**	**422.8**	**278.2 (Dec)**	**1975**
				296.6 (all)	**Jan 1933**
41110	**Turallin**	**QLD**	**333.5**	**333.4**	**1975**
41120	**Yangan**	**QLD**	**374.4**	**292.0**	**1975**
41191	**Victory Downs**	**QLD**	**292.0**	**278.8**	**1970**
41202	**Talgai**	**QLD**	**352.2**	**251.7 (Dec)**	**1970**
				312.8 (all)	**Jan 1974**
41242	**Little Ridge**	**QLD**	**360.8**	**255.2 (Dec)**	**1970**
				304.7 (all)	**Jan 1974**
41250	**Pampas**	**QLD**	**318.0**	**256.6 (Dec)**	**1965**
				309.8 (all)	**Mar 1963**
41291	**Ehlma Park**	**QLD**	**270.2**	**261.0**	**1970**
41306	**Tosari**	**QLD**	**349.0**	**209.8 (Dec)**	**1965**
				288.2 (all)	**Mar 1963**
41314	**Brookstead**	**QLD**	**370.2**	**218.0 (Dec)**	**1980**
				309.6 (all)	**Mar 1963**
41327	**Bairnsdale**	**QLD**	**346.6**	**323.7 (Dec)**	**1965**
				326.4 (all)	**Apr 1988**
41504	**Glen Royal**	**QLD**	**385.6**	**264.8 (Dec)**	**1965**
				289.6 (all)	**May 1996**
42012	**Glenmorgan**	**QLD**	**301.7**	**222.6 (Dec)**	**2007**
				268.4 (all)	**Feb 2010**
42016	**Hannaford**	**QLD**	**254.5**	**242.6 (Dec)**	**1942**
				242.8 (all)	**Jan 2004**
42033	**Shelbourne**	**QLD**	**371.8**	**344.8**	**1970**
43015	Injune	QLD	349.9	280.4	1931
43020	Mitchell	QLD	319.4	253.9	1931
43093	**Waverley Downs**	**QLD**	**304.4**	**203.4 (Dec)**	**2007**
				286.0 (all)	**Mar 2010**
47016	Lake Victoria	NSW	140.1	98.7	1975
51049	Trangie Research	NSW	145.2	137.4	1992
55006	Blackville	NSW	244.4	208.9	1926
55023	Gunnedah Pool	NSW	232.4	185.8	2004
59040	Coffs Harbour	NSW	395.4	383.2	1991
62013	Gulgong	NSW	241.1	212.8	1958

Table 2 (continued). Selected record monthly rainfall totals which have occurred during December 2010 at locations with 50 or more years of data. Values shown in bold are records for any calendar month.

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Station number	Name	State	Rainfall (mm)	Previous record (mm)	Year
63005	Bathurst Ag Station	NSW	219.4	194.5	1947
63035	Hill End	NSW	257.6	220.4	1926
63119	**Crooked Corner (Wingadeena)**	**NSW**	**304.2**	**231.8 (Dec)**	**1988**
				244.2 (all)	**Jan 1978**
64004	Binnaway	NSW	272.0	233.4	2007
64008	Coonabarabran	NSW	293.8	289.6	2007
64009	Dunedoo	NSW	279.4	194.8	1926
64024	**Gilgandra (Wallumburrawang)**	**NSW**	**282.2**	**219.8 (Dec)**	**2007**
				274.5 (all)	**Jul 1920**
65011	Cumnock	NSW	283.0	200.2	1992
65018	Geurie	NSW	198.0	190.4	2007
65020	Manildra	NSW	252.6	204.5	1920
65023	Molong	NSW	241.4	214.8	1947
65026	Parkes	NSW	212.8	171.9	1947
65034	Wellington	NSW	184.6	173.2	2009
70025	Crookwell	NSW	270.8	212.4	1947
70083	Tharwa	ACT	220.4	159.6	1961
70097	**Breadalbane**	**NSW**	**279.6**	**140.7 (Dec)**	**1920**
				268.8 (all)	**May 1925**
70111	**Biala (Alvison)**	**NSW**	**231.4**	**211.4**	**1947**
70117	**Dalton (Rose Valley)**	**NSW**	**241.6**	**174.5 (Dec)**	**1962**
				238.8 (all)	**Apr 1974**
70171	**Rugby (Carovale)**	**NSW**	**353.4**	**158.0 (Dec)**	**1968**
				267.7 (all)	**Apr 1990**
73007	Burrinjuck Dam	NSW	260.5	243.5	1947
76038	Murrayville	VIC	122.8	82.0	1966
76064	**Walpeup**	**VIC**	**141.6**	**121.6 (Dec)**	**1992**
				139.0 (all)	**Feb 2000**
76067	Werrimull	VIC	132.2	74.4	1983
77026	**Lascelles**	**VIC**	**143.2**	**103.6 (Dec)**	**1992**
				127.2 (all)	**Mar 1996**
77033	Patchewollock	VIC	97.2	96.8	2004
77041	**Speed**	**VIC**	**128.5**	**95.6 (Dec)**	**1992**
				124.5 (all)	**Oct 1956**
77052	Woomelang	VIC	119.6	101.7	1930
78010	Dimboola	VIC	141.0	111.8	1992
79010	Drung Drung	VIC	142.6	137.8	1930
79023	Horsham	VIC	150.2	145.8	1930
79036	Natimuk	VIC	130.6	116.5	1930
79075	Rupanyup	VIC	148.2	124.7	1930
83038	Tawonga	VIC	247.8	212.0	1988
89003	**Balmoral**	**VIC**	**222.2**	**122.7 (Dec)**	**1902**
				197.4 (all)	**Jul 1947**
89034	Willaura	VIC	169.4	162.3	1966
90057	Merino	VIC	176.0	149.4	1986

Table 2 (continued). Selected record monthly rainfall totals which have occurred during December 2010 at locations with 50 or more years of data. Values shown in bold are records for any calendar month.

Station number	Name	State	Rainfall (mm)	Previous record (mm)	Year
25000	**Alawoona**	**SA**	**163.0**	**135.4**	**1941**
25519	Wolseley	SA	111.2	92.6	2007
26007	Frances	SA	121.8	93.2	2007
40095	Hattonvale	QLD	447.6	337.9	1974
40120	**Lowood**	**QLD**	**642.6**	**588.4**	**1974**
40158	**Nanango**	**QLD**	**534.6**	**448.9 (Jan)**	**1890**
				517.9 (all)	**Feb 1893**
40247	**Lindfield**	**QLD**	**624.4**	**581.9 (Jan)**	**1968**
				610.5 (all)	**Mar 1955**
40258	**Yarraman**	**QLD**	**533.8**	**435.0 (Jan)**	**1974**
				438.4 (all)	**Feb 1950**
47008	**Cockburn (Burta)**	**NSW**	**209.5**	**136.6 (Jan)**	**1974**
				197.8 (all)	**Feb 1911**
47029	Pooncarie	NSW	162.0	149.6	1941
47040	Wentworth (Wamberra)	NSW	144.4	128.3	1941
47093	Burtundy	NSW	138.8	110.0	1991
56032	**Tenterfield**	**NSW**	**360.4**	**352.8**	**1887**
75003	Barham	NSW	143.0	129.6	1984
75042	Maude	NSW	157.4	135.4	1984
76000	**Annuello**	**VIC**	**261.4**	**95.9 (Jan)**	**1979**
				133.7 (all)	**Feb 1969**
76031	Mildura	VIC	127.0	92.2	1984
76047	Ouyen	VIC	130.6	111.1	1941
76052	**Red Cliffs**	**VIC**	**145.6**	**100.9 (Jan)**	**1941**
				131.6 (all)	**Oct 1975**
77004	Beulah	VIC	158.4	127.8	1974
77005	Berriwillock	VIC	155.2	113.3	1974
77008	Birchip	VIC	180.6	105.3	1962
77014	Culgoa	VIC	103.4	84.0	1979
77023	Lalbert	VIC	149.6	124.1	1962
77030	Narraport	VIC	186.4	79.2	1984
77033	Patchewollock	VIC	134.3	97.0	1979
77035	Rainbow	VIC	181.8	82.7	1941
77039	Sea Lake	VIC	157.0	101.8	1974
77048	Ultima	VIC	172.8	73.5	1998
78010	Dimboola	VIC	150.0	125.2	1974
78086	**Jeparit**	**VIC**	**197.2**	**142.9 (Jan)**	**1974**
				181.4 (all)	**Dec 1930**
79023	Horsham (Polkemmet)	VIC	138.7	116.6	1941
79028	Longerenong	VIC	152.6	129.8	1863
79040	St. Arnaud	VIC	214.6	146.9	1897
79075	**Rupanyup**	**VIC**	**193.0**	**93.6 (Jan)**	**1993**
				189.0 (all)	**Oct 1975**
80002	Boort	VIC	202.8	99.6	1974
80004	**Canary Island**	**VIC**	**270.7**	**174.3**	**1928**
80009	Coonooer Bridge	VIC	163.2	128.4	1974
80023	Kerang	VIC	153.8	144.2	1928
80027	**Korong Vale (Burnbank)**	**VIC**	**197.0**	**117.6 (Jan)**	**1974**
				161.0 (all)	**Oct 1975**
80067	Charlton	VIC	178.6	128.4	1974
81020	**Inglewood**	**VIC**	**218.2**	**174.6 (Jan)**	**1974**
				209.2 (all)	**Nov 2010**
81038	Natte Yallock	VIC	201.8	114.0	1984
81085	**Dunolly**	**VIC**	**258.6**	**123.0 (Jan)**	**1928**
				204.8 (all)	**Oct 1975**

Table 3. Selected stations with 50 or more years of data where January month-to-date rainfall totals (as of 17 January 2011) have already exceeded January monthly records. Values shown in bold are records for any calendar month.

Station number	Name	State	Rainfall (mm)	Previous record (mm)	Year
87017	Blackwood	VIC	201.4	197.1	1970
87029	Lancefield	VIC	207.4	143.6	1904
88009	Cairn Curran	VIC	182.2	140.4	1973
88015	**Clunes**	**VIC**	**209.4**	**139.5 (Jan)** **197.4 (all)**	**1928** **Dec 1933**
88020	Daylesford	VIC	223.5	162.7	1904
88043	**Maryborough**	**VIC**	**229.3**	**132.5 (Jan)** **195.0 (all)**	**1928** **Oct 1975**
88051	Redesdale	VIC	170.4	139.1	1928
88059	Trentham	VIC	229.4	212.1	1904
88109	Mangalore	VIC	154.8	116.2	1984
89002	Ballarat	VIC	203.4	188.6	1963
89011	Dunkeld	VIC	161.8	136.3	1963
89068	Wurrook South	VIC	135.0	114.9	1970
90008	Birregurra	VIC	149.0	131.8	1991
90059	Nelson	VIC	188.6	107.3	1963
91009	Burnie	TAS	164.6	126.6	1996
91065	Mole Creek	TAS	230.4	208.6	1996
91102	Ulverstone	TAS	130.6	114.6	1902, 1904
91109	Yolla	TAS	308.2	211.6	1996
98013	Yambacoona	TAS	139.6	124.0	1997

Table 3 (continued). Selected stations with 50 or more years of data where January month-to-date rainfall totals (as of 17 January 2011) have already exceeded January monthly records. Values shown in bold are records for any calendar month.

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River	Location	Peak height (m)	Date	Previous record (m)	First year of data
Dawson	Utopia Downs	14.25	28 December	12.82 (27/4/1989)	1970
Dawson	Tanara Crossing	12.50	28 December	12.09 (26/5/1983)	1983
Dawson	Windamere	10.52	27 December	10.28 (3/5/1983)	1975
Dawson	Chilgerrie Hill	10.85	27 December	10.60 (28/8/1998)	1983
Dawson	La Palma	7.70	28 December	7.39 (23/2/1971)	1956
Dawson	Glebe Weir TW	18.81	31 December	15.19 (6/5/1983)	1983
Dawson	Glebe Weir HW	9.62	31 December	6.15 (6/5/1983)	1983
Dawson	Gyrandra Weir	4.80	27 December	3.94 (7/3/2010)	1988
Dawson	Theodore	14.70	1 January	14.07 (14/2/1956)	1924
Dawson	Woodleigh	18.45	2 January	13.97 (17/1/1996)	1986
Dawson	Redcliff	9.01	28 December	7.36 (22/2/1971)	1958
Dawson	Beckers	19.47	30 December	15.75 (4/5/1983)	1965
Nogoa	Raymond	12+	28 December	11.41 (25/11/1950)	1947
Nogoa	Craigmore	18.16	29 December	16.25 (20/1/2008)	1972
Nogoa	Emerald	16.05	31 December	15.70 (27/11/1950)	1950
Comet	Rewan	11.3+	27 December	10.97 (19/4/1990)	1987
Comet	Rolleston	8.2 (approx.)	28 December	5.87 (19/2/2010)	1958
Comet	Comet Weir	13.94	29 December	13.19 (11/2/1954)	1922
Mackenzie	Bingegang	17.45	2 January	17.23 (6/2/1978)	1974
Barker	Glenmore	4.45	28 December	4.11 (10/2/1999)	1988
Boyne	Boondooma Dam	3.46	28 December	1.30 (28/7/1984)	1983
Auburn	Glenwood	14.70	29 December	13.11 (5/2/1971)	1971
Burnett	Monto	6.49	28 December	5.96 (9/1/1996)	1990
Burnett	Lands End	6.81	27 December	6.45 (7/2/2003)	1987
Burnett	Wuruma Dam	3.38	28 December	0.59 (10/2/1971)	1971
Burnett	Eidsvold	14.28	28 December	12.36 (8/2/2003)	1963
Burnett	Gayndah Flume	16.34	28 December	14.20 (5/2/1971)	1971
Burnett	Coringa	10.09	27 December	8.47 (16/3/1992)	1986
Burnett	Walla	20.10	29 December	18.07 (5/2/1971)	1968
Condamine	Clydesdale	4.78	27 December	4.65 (3/5/1996)	1971
Condamine	Centenary Bridge (Millmerran)	8.30	28 December	8.20 (February 1976)	1976
Condamine	Loudoun Bridge	11.20	29 December	10.89 (13/2/1976)	1956
Condamine	Warra-Kogan Road Bridge	15.00	30 December	14.00 (1956)	1956
Condamine	Brigalow Bridge	14.84	30 December	13.99 (14/2/1976)	1972
Condamine	Beruna	7.95	28 December	7.20 (8/2/1981)	1962
Condamine	Chinchilla Weir	15.38	31 December	13.97 (8/4/1988)	1956
Condamine	Condamine	15.25	1 January	14.25 (13/2/1942)	1924
Condamine	Cotswold	17.82	2 January	16.13 (8/5/1983)	1967
Balonne	Warkon	12.03	3 January	11.88 (13/1/1996)	1941
Balonne	Surat	12.75	4 January	12.40 (3/3/2010)	1910
Moonie	The Deep Crossing	5.65	27 December	4.45 (10/1/1996)	1970
Moonie	Tartha	7.00	28 December	6.75 (1956)	1956
Weir	O'Connor	14.58	28 December	14.57 (January 1956)	1956
Boyne	Awoonga Dam	4.16	28 December	1.74 (7/1/1991)	1987
Kolan	Fred Haigh Dam	3.85	29 December	1.73 (12/3/1977)	1977

Table 4. A selection of record flood peak heights (preliminary data) reached during the event at sites with 20 or more years of observations. (HW – headwater/lake level; TW – tailwater/outflow level).

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River	Location	Peak height (m)	Date	Previous record (m)	First year of data
Campaspe	Redesdale	6.30	14 January	5.80 (September 2010)	1953
Campaspe	Barnadown	7.59	15 January	6.15 (September 1983)	1977
Campaspe	Rochester Syphon	9.17	15 January	9.15 (September 1983)	1963
Loddon	Newstead	5.86	14 January	5.35 (July 1990)	1967
Loddon	Appin South	3.52	17 January	3.19 (October 1996)	1927
Avoca	Archdale Junc.	5.32	14 January	5.15 (September 1988)	1966
Avoca	Charlton	8.05	15 January	7.30 (September 2010)	1989
Avoca	Quambatook	3.01	18 January	2.50 (September 1983)	1967
Wimmera	Glenorchy	5.04	15 January	4.97 (September 1988)	1950

Table 4 (continued). A selection of record flood peak heights (preliminary data) reached during the event at sites with 20 or more years of observations. (HW – headwater/lake level; TW – tailwater/outflow level).

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