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Special Climate Statement 49 – an exceptionally prolonged autumn warm spell over much of Australia

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1 Introduction

An exceptionally prolonged warm spell affected large parts of Australia during May 2014. The unusual warmth was concentrated in the southeast of the continent, with areas affected including Adelaide, Melbourne, Sydney, Brisbane, Canberra and Hobart.

The first four days of May saw cool conditions across much of eastern Australia, with temperatures between 2 and 6 °C below average in the southeast. This was followed by the passage of a high-pressure system and near-normal conditions from 8 to 10 May. After the passage of a weak front, high pressure became re-established over the Tasman Sea and adjacent southeastern Australia from the 12th onwards. This high-pressure system remained largely in place for the next two weeks, with cold fronts approaching from the west being deflected southwards over, or south of, Tasmania. The near-stationary high-pressure system did not shift significantly until a stronger front crossed southeastern Australia on the 27th.

The location of the near-stationary high-pressure system resulted in a generally northerly or northwesterly flow over most of southeastern Australia almost throughout the entire period from the 12th to the 26th, bringing warm air from northern Australia and the Indian Ocean over most of the eastern States. Whilst slow-moving high-pressure systems (referred to as ‘blocking highs’ or ‘blocking episodes’) are not unusual at this time of year and settled spells with a length in the order of a week are a typical part of the late autumn climate, the duration of this event, lasting for more than two weeks, coupled with the unusual warmth, made it exceptional compared with other events in the historical record.

Temperatures during the period from 8 to 26 May were above average almost throughout Australia, except for parts of coastal Queensland and the west coast of Western Australia. The most abnormal conditions occurred in South Australia, New South Wales, Victoria, and southern inland Queensland, with unusual warmth also extending periodically to Tasmania, and parts of the Northern Territory and southeastern Western Australia. Relatively dry conditions also prevailed over most of central and southeastern mainland Australia through the period, although only northwestern New South Wales and southwestern Queensland were completely without any rain.

While the event was more exceptional for its duration, the air mass was also unseasonably warm, and record-high maximum and minimum temperatures for the time of year still occurred in numerous locations.

The most unusual warmth eased after 26 May, but temperatures remained generally above normal in eastern Australia into early June, particularly in Tasmania where a number of record high maximum and minimum temperatures for June were set in the State’s north on the 2nd and 3rd.

2 Details of the warm spell

2.1 Temperature anomalies during the event

Abnormal warmth affected almost the entire continent during the event. Maximum temperatures for the period 8 to 26 May (Figure 1) were above average throughout Australia except for parts of coastal Queensland, and the west coast of Western Australia between Perth and Karratha. Daytime temperatures were 4 to 6 °C above average over a large area encompassing most of South Australia, the western half of New South Wales, northwestern Victoria, southwestern Queensland and the southern Northern Territory.

Minimum temperatures for this period (Figure 2) were also above average over most of the continent, except for parts of the New South Wales tablelands and the Kimberley region in the north of Western Australia. The largest anomalies, 4 to 6 °C above average, occurred in the South Australian outback and adjacent border areas of Western Australia and the Northern Territory.

An unusual feature of this event is that maximum and minimum temperatures have been above average to a broadly similar extent. Typically, during prolonged blocking episodes, clear skies result in relatively cooler nights, and diurnal temperature ranges (the difference between maximum and minimum temperatures) which are well above average. Most previous major blocking episodes in the cooler months have been associated with below-average minimum temperatures, and frost, over at least some of the region.

Sea surface temperatures during the event off the New South Wales coast were generally 1 to 2 °C above average. There is no clear connection between these sea-surface temperatures and the formation of such a slow-moving high-pressure system. However, the warm sea surface temperatures limited the moderating influence of sea breezes on maximum temperatures in coastal areas, potentially contributing to records for large numbers of consecutive warm days (section 2.2), especially at Sydney.

As a result of the warm spell, May monthly temperatures were well above normal across most of Australia (Figure 3), despite a cool first week of the month. It was the warmest May on record for South Australia, with mean temperatures 2.67 °C above the 1961-1990 average, 0.10 °C above the previous record set in 2013. Monthly mean temperatures also ranked in the five highest on record for Victoria (3rd), New South Wales (4th) and Western Australia (5th). For Australia as a whole it was the third-warmest May on record, 1.62 °C above average, behind May 1958 (2.11 °C above average) and May 2007 (1.73 °C above average). Numerous stations, particularly in South Australia and coastal New South Wales, had their warmest May on record for mean maximum and/or minimum temperatures (Table 1).

2.2 Long spells of consecutive warm days and nights

The length of the warm spell was its most significant feature in a historical context. 48 of the 112 ACORN-SAT (long-term temperature reference) stations in Australia, including most of those in Victoria, South Australia and New South Wales, set records for the greatest number of consecutive days from May onwards[1] above certain thresholds (Table 2), while 12 locations set records for the greatest number of consecutive nights in May above thresholds (Table 3). Records for large numbers of consecutive warm nights extended to parts of southern Western Australia, including Perth Airport, while there were also records for consecutive warm days in parts of the inland tropics.

Most significantly, Sydney experienced 19 consecutive days of 22 °C or above from 10 to 28 May, far exceeding the previous May record of 9 days (set from 1 to 9 May 1978 and 1 to 9 May 2007). Sydney (25 days), Adelaide (16 days) and Melbourne (13 days) have also all set records for the most consecutive days of 20 °C or above. Also noteworthy was the spell of 6 consecutive days of 20 °C or above at Wilsons Promontory. There has been no previous instance in May of a spell of more than 3 consecutive days of 20 °C or above there, and only one previous spell in April (a 7-day spell in April 1970) which has surpassed the May 2014 event. Victoria had 9 consecutive days from 14 to 22 May with a statewide mean maximum above 20 °C, matching the record set from 1 to 9 May 1972.

In total, Sydney had 30 days of 20 °C or above in May 2014, breaking the previous record of 27 set in May 2013. There have only been two days below 20 °C in Sydney so far this year; the previous record low for the January-May period was six days (in 2013), with 1958 and 2007 (both eight) the only other years with fewer than ten.

2.3 Record-breaking warmth for late autumn

Few absolute May record-high temperatures were observed during the warm spell. Extreme maximum temperatures at most locations in southern Australia typically decrease by 4 to 6 °C from the start to the end of May, making it extremely difficult to set monthly records for warm temperatures in the second half of the month.

[1] For the purposes of this report, this encompasses any event within the window 1 May to 30 June. In some locations and for some thresholds, records set during the warm spell of late May/early June 1957 surpass anything recorded entirely within the month of May.

Numerous records were set for the warmest maximum temperatures occurring so late in the season[2] (Table 4). The two most significant periods for such records occurred during 15 to 16 May (mostly in southern South Australia, southern Victoria and Tasmania), and 25 to 26 May (New South Wales, northern Victoria, northern South Australia and border areas of Queensland). Twenty-five of the 112 ACORN-SAT locations set records for high late-season maximum temperatures. At some locations, particularly in New South Wales and the Australian Capital Territory, the temperatures observed on 26 May occurred at least two weeks later than any previous occurrences of such values.

24.1 °C was observed at Campania on 15 May, the highest maximum temperature so late in the season for any Tasmania site. This was followed by a similar record for Victoria, with 27.4 °C at Ouyen on 26 May. Also on 26 May, Birdsville reached 34.7 °C, the highest temperature of the event outside the tropics. This is also the highest temperature reached so late in the season at any Australian site outside of the tropics.[3]

Warm nights were also an occasional feature of the event, though not to the same extent as warm days (Table 5), with 13 ACORN-SAT locations setting late-season record highs, two of which (Forrest and Orbost) were record highs for the month of May.

A particularly unusual occurrence was the abnormal warmth in the Melbourne area in the early hours of the morning of 27 May, as northerly winds strengthened ahead of an approaching front. The Melbourne temperature rose to 22.1 °C around 4.30 am, which was only 0.3 °C short of the highest maximum temperature ever observed so late in the season. (It subsequently cooled below 18 °C after 6.30 am, preventing any records being set for high overnight minimum temperatures.)

A number of records were also set for warmth over large areas. The Australian area-averaged daily maximum temperature was 27.35 °C or above on each of the five days from 21 to 25 May, higher than any value previously recorded on or after 21 May (previously 27.23 °C on 23 May 1958). The peak value was 27.98 °C on 23 May. Late-season State records were also set for South Australia (28.11 °C on 25 May) and New South Wales (26.41 °C on 26 May).

Abnormal warmth persisted into early June in some areas, particularly in Tasmania. Swan Island experienced a minimum temperature of 15.2 °C on 2 June, equalling the Tasmanian record high for June (previously set at Flinders Island Airport on 7 June 1991), and June record high maximum temperatures were set at a number of locations in northern Tasmania, including Burnie, Wynyard, Marrawah and Scottsdale.

[2] For this purpose, 'warmest so late in the season' encompasses any date between the date of the observation and 30 June.

[3] The previous records were: Tasmania – 23.8 °C at Hobart on 15 May 1904, Victoria – 25.7 °C at Bairnsdale on 3 June 1957 and Hopetoun on 8 June 2005, Australia outside the tropics – 34.4 °C at Longreach Post Office on 1 June 1962.

2.4 Other effects of the slow-moving high-pressure system

The persistent high-pressure system brought prolonged warmth to much of the continent. However, on the northern flank of the system, it also brought prolonged onshore easterly winds over coastal Queensland. This resulted in persistent wet conditions over parts of the central and northern Queensland coast. Mackay had 13 consecutive days with rainfall from 13 to 25 May, equalling its record-long wet spell for May, whilst the 14 consecutive days with rainfall at Cairns from 11 to 24 May were second behind a 19-day spell from 2 to 20 May 1959. Rainfall totals, however, were generally modest (except for the normally-wettest parts of the coast around Tully and Innisfail), with both Cairns and Mackay having near-average total rainfall for May despite the large number of wet days.

With the high-pressure ridge entrenched over the eastern States, frontal systems during the event peaked over the southwest of Western Australia, resulting in a persistent wet spell over many parts of the region. Pemberton experienced 23 consecutive days with rainfall from 7 to 29 May, a May record, and numerous other sites in the region had 20 to 22 days with rainfall during this period. This contributed to southwestern Western Australia having its wettest May since 2005.

2.5 Longer-term climatological context

The warm spell has been driven by persistent blocking in the Tasman, resulting in northwesterly winds over the southeast of the continent.

While all exceptional climate events are driven by antecedent and concurrent weather conditions, long-term trends also very likely play a role when significant climatological records are broken.

Australian annually averaged temperature has warmed by 0.9 °C since 1910, and the month of May has warmed by a similar amount. The annual warming trend is consistent with that observed for the globe.

The current warm event is the latest in a sequence of prolonged or intense warm spells that have affected a large part of the continent roughly every six weeks since the end of 2012. This coincides with record-breaking or well-above-average temperatures that have persisted across Australia for the past 22 months. The 12 months ending January 2014, February 2014, March 2014, April 2014 and May 2014 have all been record-warm for Australia. The year-to-date (January to May) temperature anomaly for Australia at 31 May 2014 was +0.84 °C. This will mean that 2014 ranks in the top five warmest starts to a year on record behind 2005 (+1.17 °C), 1998 (+1.05 °C), 2013 (+1.04 °C) and 2007 (+0.96 °C).

Station number(s)	Location	State	Value (°C)	Previous record (°C)
Maximum temperature				
15135	Tennant Creek	NT	30.3	30.0 (1988)
18012	Ceduna	SA	23.5	23.3 (1975)
66062	Sydney	NSW	23.2	22.7 (1958)
66131	Riverview	NSW	22.6	21.9 (2007)
66137	Bankstown	NSW	22.7	22.5 (2007)
69017	Montague Island	NSW	20.3	20.2 (2007)
89085	Ararat	VIC	17.8	16.8 (2007)
Minimum temperature				
9789	Esperance	WA	12.7	12.5 (1999)
11004/11052	Forrest	WA	11.5	11.4 (2005)
16044/16098	Tarcoola	SA	12.3	12.1 (2013)
17031	Marree Comparison	SA	12.7	12.1 (1988)
17043	Oodnadatta	SA	13.2	12.9 (2013)
18014	Cleve	SA	13.1	12.6 (2013)
18040	Kimba	SA	10.7	10.6 (2013)
18079	Streaky Bay	SA	13.6	13.5 (2013)
18115	Neptune Island	SA	15.3	15.2 (2013)
19017	Hawker	SA	10.1	9.9 (1988)
69017	Montague Island	NSW	14.9	14.7 (2007)

Table 1. Record high monthly mean maximum and minimum temperatures set in May 2014 at locations with 40 years or more of data.

Station number(s)	Location	State	Threshold (°C)	Number of days	Dates	Previous record
2012	Halls Creek	WA	30	29	4 May – 1 June	25 (1-25/5/1969, 1-25/5/2002, 1-25/5/2003)
9789	Esperance	WA	20	20	6-25 May	15 (9-23/5/2005)
			22	14	10-23 May	8 (1-8/5/2003)
14825	Victoria River Downs	NT	30	34	1 May – 3 June	31 (12/5-11/6/1988)
15135	Tennant Creek	NT	26	33	1 May – 2 June	27 (1-27/5/2005)
			28	24	8-31 May	20 (5-24/5/2003)
15548/15666	Rabbit Flat	NT	30	24 (=)	7-30 May	24 (1-24/5/2002)
17031/17126	Marree	SA	24	18	10-27 May	16 (28/5-12/6/1957, 1-16/5/2002)
17043	Oodnadatta	SA	22	26 (=)	5-30 May	26 (1-26/5/2005)
			25	17	10-26 May	15 (1-15/5/2002)
18012	Ceduna	SA	20	22	4-25 May	16 (2-17/5/1959)
			22	15	11-25 May	12 (30/5-10/6/1957)
			24	10 (=)	12-21 May	10 (1-10/6/1957, 1-10/5/1972)
18070/18192	Port Lincoln	SA	20	17	9-25 May	16 (1-16/5/1947)
22801/22823	Cape Borda	SA	18	17	9-25 May	13 (1-13/5/2002)
23000/23090	Adelaide	SA	20	16	11-26 May	15 (1-15/5/2002)
23321/23373	Nuriootpa	SA	18	17	10-26 May	15 (1-15/5/2001)
			20	13	14-26 May	12 (31/5-11/6/1957)
26021	Mount Gambier	SA	18	11 (=)	9-19 May	11 (4-14/5/1974, 1-11/5/2002)
30045	Richmond	QLD	30	24	7-30 May	22 (16/5-6/6/1921)
36031	Longreach	QLD	26	29	6 May – 3 June	26 (1-26/5/2003)
37010	Camooweal	QLD	28	26	6-31 May	25 (1-25/5/1947, 1-25/5/1958, 8/5-1/6/1984)
			30	24	8-31 May	20 (1-20/5/1967, 1-20/5/1980, 1-20/5/1990)
38002/38026	Birdsville	QLD	25	23	8-30 May	21 (3-23/5/1999)
			26	19	9-27 May	18 (1-18/5/1967)
			28	18	9-26 May	16 (1-16/5/2002)
40043	Cape Moreton	QLD	22	26	9 May-3 June	20 (4-23/5/1974, 1-20/5/2007)
43034/43109	St. George	QLD	22	24	8-31 May	17 (5 occasions)
			24	24	8-31 May	17 (1-17/5/2007)
44021	Charleville	QLD	24	24	8-31 May	20 (1-20/5/1947, 1-20/5/1980)
			25	24	8-31 May	17 (1-17/5/1980)
			26	17	15-31 May	16 (1-16/5/2002)
46037/46126	Tibooburra	NSW	26	14	13-26 May	10 (2-11/5/1918, 3-12/5/2013)
46043	Wilcannia	NSW	24	15	13-27 May	11 (1-11/5/1972)

			25	14	13-26 May	11 (1-11/5/1972)
			26	13	14-26 May	9 (1-9/5/1972, 1-9/5/1978, 1-9/5/2002)
48027	Cobar	NSW	22	15	13-27 May	13 (1-13/5/2002, 2-14/5/2005)
			24	14	14-27 May	10 (1-10/5/1965)
52026/52088	Walgett	NSW	22	24 (=)	7-30 May	24 (3-26/5/1934)
			24	17	12-28 May	16 (9-24/5/1934, 1-16/5/2002, 2-17/5/2007)
53027/53048 /53115	Moree	NSW	22	25	7-31 May	23 (29/5-20/6/1957)
55024	Gunnedah	NSW	18	27	7 May – 2 June	26 (1-26/5/1958)
			20	21	11-31 May	18 (2-19/5/1996, 1-18/5/2009)
58012	Yamba	NSW	22	20 (=)	11-30 May	20 (1-20/5/1989)
59040	Coffs Harbour	NSW	22	21	9-29 May	11 (9-19/5/1953, 5-15/5/1973)
			26	2 (=)	24-25 May	2 (6 occasions)
60026/60139	Port Macquarie	NSW	22	20	10-29 May	13 (1-13/5/1990)
			24	8	21-28 May	4 (17-20/5/2003, 3-6/5/2007)
			26	3	23-25 May	2 (12-13/5/1957, 19-20/5/2003)
61078	Williamtown	NSW	20	21	9-29 May	17 (1-17/5/2007)
			22	10 (=)	19-28 May	10 (1-01/5/2002)
61089/61363	Scone	NSW	22	14	15-28 May	10 (1-10/5/2002)
66062	Sydney	NSW	20	31	4 May – 3 June	19 (1-19/5/1947)
			22	19	10-28 May	9 (1-9/5/1978, 1-9/5/2007)
67033/67105	Richmond	NSW	20	21	8-28 May	17 (1-17/5/1965)
			22	18	10-27 May	10 (1-10/5/2002)
68034/68151	Point Perpendicular	NSW	18	21	9-29 May	16 (10-25/5/1958)
			20	15	13-27 May	12 (5-16/5/1974)
68076/68072	Nowra	NSW	18	27	5-31 May	19 (1-19/5/1992)
			20	19	9-27 May	11 (6-16/5/1974)
69018	Moruya Heads	NSW	18	29	4 May – 1 June	27 (1-27/5/2009)
			20	20	9-28 May	11 (6-16/5/1974, 1-11/5/2002)
73054	Wyalong	NSW	20	16	12-27 May	13 (5-17/5/2003)
74128/74258	Deniliquin	NSW	20	14	13-26 May	13 (1-13/5/2002)
			22	9 (=)	14-22 May	9 (1-9/5/2002)
76031	Mildura	VIC	22	14	13-26 May	9 (1-9/5/1972, 1-9/5/2002)
78031/78015	Nhill	VIC	22	9	14-22 May	8 (1-8/5/1972, 1-8/5/2002)
80023	Kerang	VIC	20	16	12-27 May	12 (1-12/5/2002)

			22	10	13-22 May	9 (1-9/5/1972, 1-9/5/2002)
84016	Gabo Island	VIC	20	8	15-22 May	6 (1-6/6/2003)
85072	Sale	VIC	20	7 (=)	14-20 May	7 (1-7/5/1972, 3-9/5/2002)
85096	Wilsons Promontory	VIC	18	6 (=)	14-19 May	6 (7-12/5/2013)
			20	6	14-19 May	3 (5 occasions)
86071	Melbourne	VIC	18	18	11-28 May	14 (1-14/5/2002)
			20	13	11-23 May	10 (1-10/5/1972)
87031	Laverton	VIC	20	11	13-23 May	7 (1-7/5/2007)
			22	5 (=)	18-22 May	5 (8-12/5/2013)
90015	Cape Otway	VIC	18	7 (=)	13-19 May	7 (4 occasions)
94029	Hobart	TAS	18	6 (=)	14-19 May	6 (4 occasions)
94069/94220	Grove	TAS	18	6 (=)	14-19 May	6 (1-6/5/1985)

Table 2. Records set at ACORN-SAT locations for the greatest number of consecutive days with maximum temperatures at or above the listed threshold in the period 1 May to 30 June.

Station number(s)	Location	State	Threshold (°C)	Number of days	Dates	Previous record
9021	Perth Airport	WA	10	25	4-28 May	23 (1-23/5/2005)
9518	Cape Leeuwin	WA	15	13 (=)	10-22 May	13 (1-13/5/1962)
9789	Esperance	WA	10	31	1-31 May	25 (1-25/5/2005)
11004/11052	Forrest	WA	10	11	16-26 May	10 (3-12/5/1950, 1-10/5/2013)
13017	Giles	WA	15	10 (=)	12-21 May	10 (1-10/5/2013)
16044/16098	Tarcoola	SA	10	17	12-28 May	13 (26/5-7/6/1963)
17043	Oodnadatta	SA	10	27	1-27 May	17 (30/5-15/6/1957)
37010	Camooweal	QLD	15	22	11 May – 1 June	21 (2-22/5/1990)
38002/38026	Birdsville	QLD	10	26	6-31 May	25 (28/5-21/6/1957)
85096	Wilsons Promontory	VIC	15	5	16-20 May	4 (4-7/5/1988, 1-4/5/1997)
86071	Melbourne	VIC	10	14	15-28 May	13 (5-17/5/1974)
			15	4 (=)	16-19 May	4 (1-4/5/1997)
87031	Laverton	VIC	15	4	16-19 May	2 (1-2/5/1997, 4-5/5/2005, 2-3/5/2007)
91104/91311	Launceston AP	TAS	10	5 (=)	16-20 May	5 (15-19/5/2003)

Table 3. Records set at ACORN-SAT locations for the greatest number of consecutive days with minimum temperatures at or above the listed threshold in the period 1 May to 30 June.

Station number(s)	Location	State	Value (°C)	Date	Previous highest on same or later date	Previous latest date of same or higher value
16001	Woomera	SA	29.9	25 May	28.9 (8/6/1995)	24 May (1994)
16044/16098	Tarcoola	SA	29.7	25 May	29.1 (27/6/1991)	24 May (1994)
18044	Kyancutta	SA	29.0	25 May	28.6 (30/5/1973)	24 May (1994)
18070/18192	Port Lincoln	SA	27.5	25 May	27.3 (7/6/2005)	24 May (1994)
23000/23090	Adelaide	SA	27.4	16 May	27.2 (16/5/1947)	11 May (1950, 1987)
38002/38026	Birdsville	QLD	34.7	26 May	33.5 (30/5/1999)	14 May (1958)
46043	Wilcannia	NSW	29.7	26 May	29.3 (9/6/1995)	11 May (1996)
48013/48239/48245	Bourke	NSW	30.5	26 May	30.0 (1/6/1923)	19 May (1923)
48027	Cobar	NSW	28.6	26 May	26.3 (9/6/1995)	10 May (2012)
55024	Gunnedah	NSW	25.7	26 May	24.6 (4/6/1958)	25 May (1994)
60026/60139	Port Macquarie	NSW	27.8	24, 25 May	26.8 (16/6/2002)	19 May (2003)
61089/61363	Scone Airport	NSW	27.4	26 May	24.6 (30/5/1999)	10 May (1973, 2012)
65012/65070	Dubbo	NSW	27.0	26 May	26.1 (2/6/1923)	14 May (1923)
68076/68072	Nowra	NSW	26.6	26 May	26.0 (30/5/1999)	25 May (1994)
68034/68151	Point Perpendicular	NSW	23.9	26 May	23.0 (1/6/1976)	25 May (1994)
70014/70351	Canberra	ACT	21.7	26 May	20.1 (29/5/1954, 3 and 4/6/1957)	12 May (2007)
72150	Wagga Wagga	NSW	24.2	23 May	23.2 (1/6/1994)	14 May (2001)
73054	Wyalong	NSW	26.0	26 May	24.2 (3/6/1975)	13 May (1967)
74128/74258	Deniliquin	NSW	26.5	19 May	26.3 (21/5/1975)	16 May (1938)
76031	Mildura	VIC	26.4	26 May	25.4 (5/6/1998)	24 May (1994)
80023	Kerang	VIC	26.7	19 May	26.5 (20/5/1975)	16 May (1938)
85072	Sale	VIC	25.0	16 May	24.8 (16/5/1947)	12 May (1987)
90015	Cape Otway	VIC	23.5	16 May	22.5 (18/5/1982)	15 May (1938)
94029	Hobart	TAS	23.9	15 May	22.6 (16/5/1947)	6 May (1947)
94069/94220	Grove	TAS	22.7	15 May	21.6 (22/5/2011)	10 May (1996)

Table 4. ACORN-SAT locations which have set records in May 2014 for the highest maximum temperature recorded so late in the season.

Station number(s)	Location	State	Value (°C)	Date	Previous highest on same or later date	Previous latest date of same or higher value
11004/11052	Forrest	WA	21.3	8 May	19.7 (30/5/1994)	16 April (1970)
22801/22823	Cape Borda	SA	16.7 (=)	17 May	16.7 (8/6/2005)	8 June (2005)
38002/38024	Birdsville	QLD	20.8	20 May	20.6 (22/6/1996)	17 May (2007)
45017/45025	Thargomindah	QLD	20.3	27 May	19.3 (10/6/1995)	10 May (2005)
48027	Cobar	NSW	18.6	27 May	16.4 (10/6/1995)	13 May (1995)
68034/68151	Point Perpendicular	NSW	18.4	27 May	16.5 (30/5/1978)	4 May (1996, 2007)
72091/72161	Cabramurra	NSW	9.3	27 May	7.3 (28/5/1982)	12 May (2007)
72150	Wagga Wagga	NSW	14.6	27 May	14.2 (29/5/1985)	17 May (1947)
84030/84145	Orbost	VIC	16.3	23 May	13.1 (11/6/2005)	26 April (1973)
85072	Sale	VIC	14.8	23 May	14.5 (9/6/1991)	15 May (1974)
85096	Wilsons Promontory	VIC	18.6	19 May	17.4 (25/5/1994)	9 May (2002)
91104/91311	Launceston AP	TAS	12.9	19 May	12.7 (9/6/1995)	13 May (1995)
94029	Hobart	TAS	14.9	16 May	14.5 (24/5/2000, 31/5/1976)	9 May (2002)

Table 5. ACORN-SAT locations which have set records in May 2014 for the highest minimum temperature recorded so late in the season.

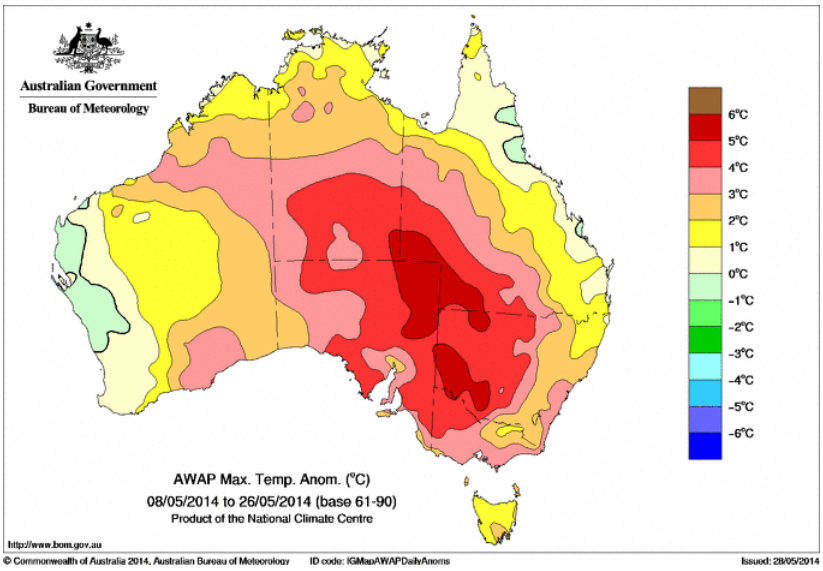

Figure 1. Maximum temperature anomalies (from 1961–1990 average) for period 8 to 26 May 2014.

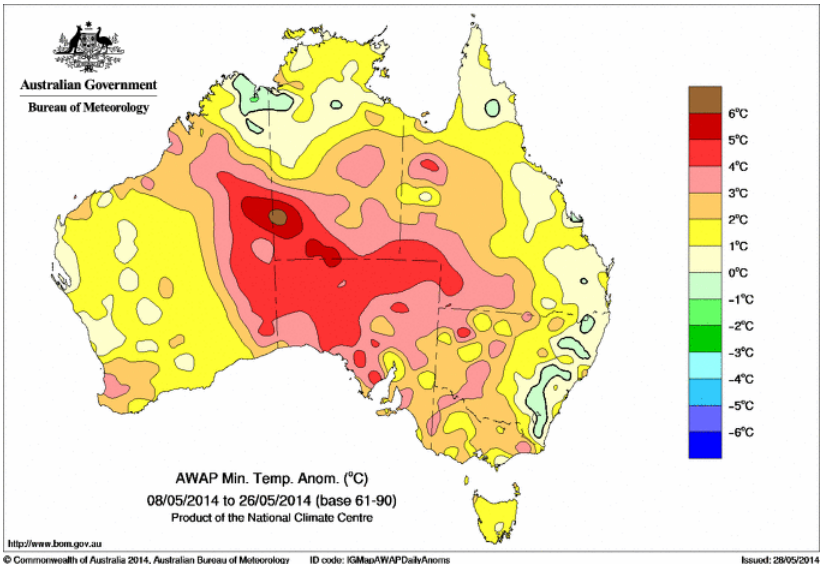

Figure 2. Minimum temperature anomalies (from 1961–1990 average) for period 8 to 26 May 2014.

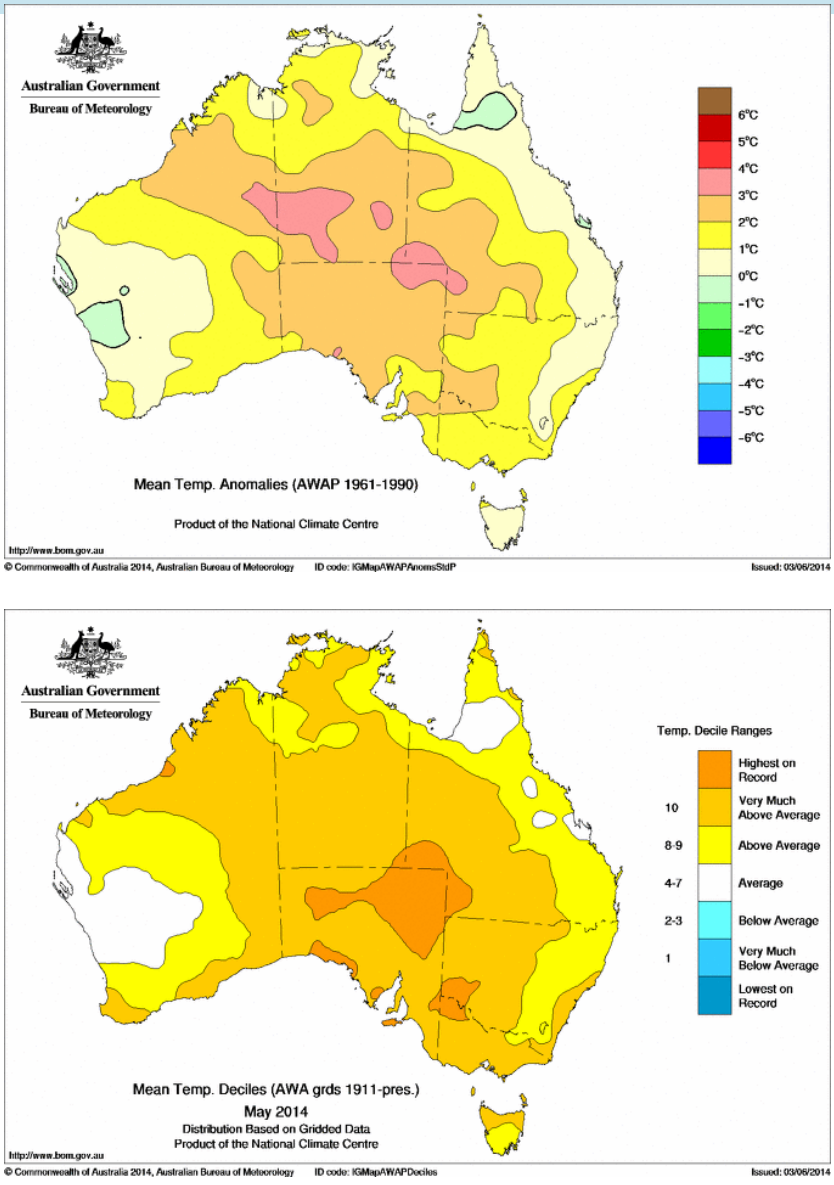

Figure 3. Monthly mean temperatures for May 2014 - anomalies from 1961-1990 average (top) and deciles based on 1911-2013 climatology (bottom).

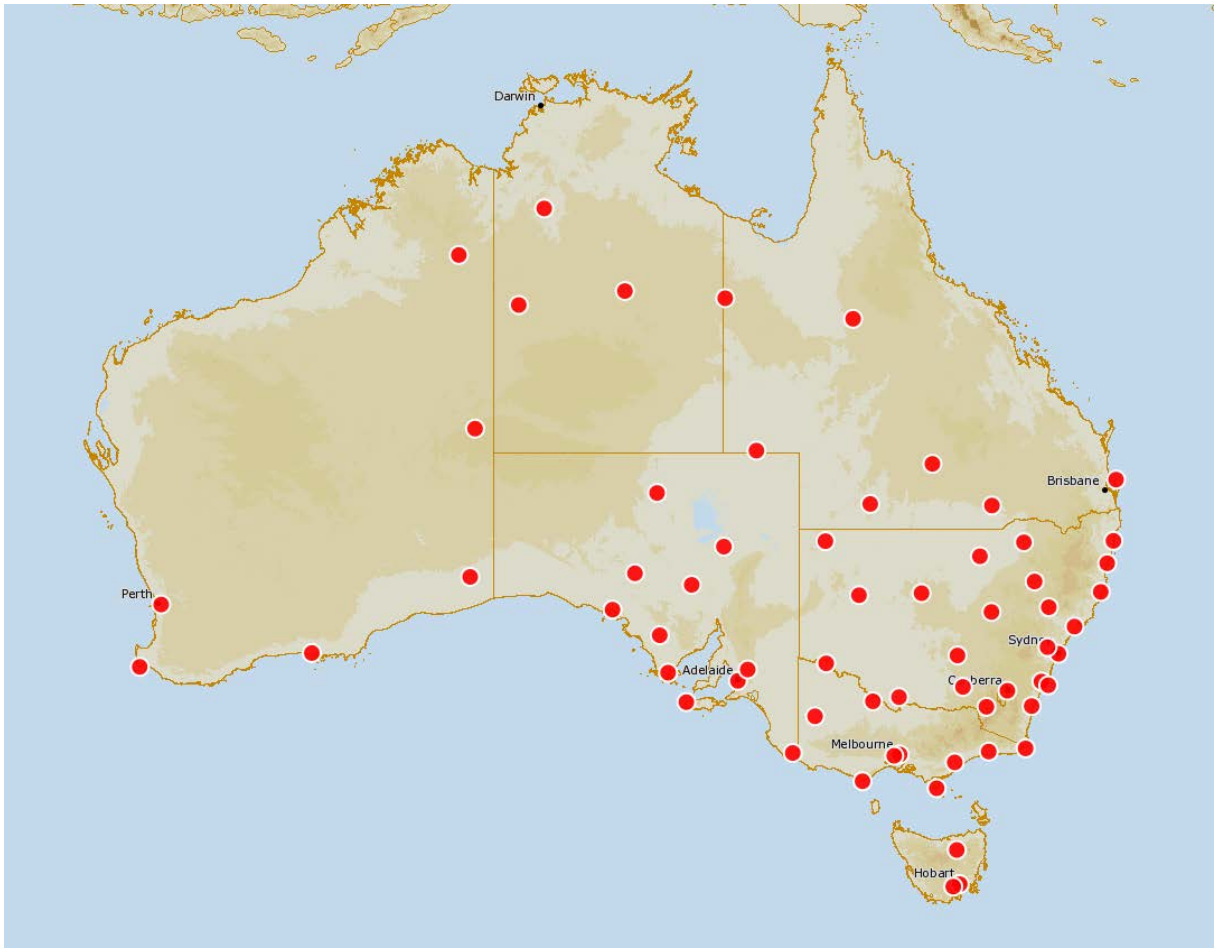

Figure 4. ACORN-SAT locations at which records have been set during the event (see Tables 1–5).

Further information

This statement is based on data available as of 3 June 2014. Some changes may occur as a result of late-arriving data or the Bureau's routine quality control procedures.

Temperature data prior to 1910 are generally not used for the purposes of this statement due to the lack of standardisation of instrument shelters, making most pre-1910 observations not strictly comparable with more recent data. However, pre-1910 data which are known to have been measured in a Stevenson screen are included.