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Thunderstorm Asthma Panel Discussion

Some thirty people attended a panel discussion in Adelaide hosted by Flinders University, that the regional branch of AMOS, together with the Australian Meteorological Association (AMETA), organised on October 18 2018. The speakers were John Nairn, South Australian State Manager of the Bureau of Meteorology, Dr William Smith of AllergySA and the Royal Adelaide Hospital, Professor Paddy Philips – Chief Medical Officer of SA, and Assoc. Prof. Janet Davies from Queensland University of Technology.

The context for the event was the outbreak of thunderstorm asthma that occurred in Melbourne in November 2016, with the question addressed by the panel being whether such an outbreak could occur in Adelaide.

Melbourne thunderstorm asthma victims left waiting for ambulances which had not been despatched

By Karen Percy

Updated 26 Jun 2018, 5:31pm

Demand for ambulances was so high during Melbourne's thunderstorm asthma event that some people were told an ambulance was on its way when, in fact, a despatch "had not occurred", a coroner has heard.

Ten people died in the November 2016 event, which saw rye grass pollen swept across the city during a dramatic cool change.

The pollen burst into very fine particles, sparking asthma-like symptoms in thousands of people across the city.



The allergen usually implicated in such events is ryegrass pollen which is common in the temperate regions (the SE) of Australia and flowers around October/November. We heard from John Nairn that the Nov 2016 event was preceded by a particularly wet spring which would have encouraged the growth of grass. The history of the air-mass involved in the event was such that it would have been carried over central NSW and western Victoria, where grasses would have been flourishing at the time, before reaching Melbourne.

Janet Davies showed that the ryegrass extends westwards well into SA towards Adelaide. However it was pointed out that thunderstorms around Adelaide typically involve air-masses that move from the west where there is little temperate grass growing, and large areas of water ie. Spencer Gulf. Paddy Philips said that a study on the risk of thunderstorm asthma in Adelaide had concluded that the likelihood of an outbreak was considerably less than that for Melbourne, presumably because of the very different earth surface types to the west of each city. William Smith presented a clinicians viewpoint on thunderstorm asthma, and gave further context with statistics on susceptibility to asthma as a function of age and ethnicity among other factors.

However, the lack of detailed understanding as to what causes thunderstorm asthma moderates such a conclusion; e.g. it is unclear what leads to pollen grains bursting and releasing the allergenic components of pollen in small enough particles that they can be taken into the lungs.

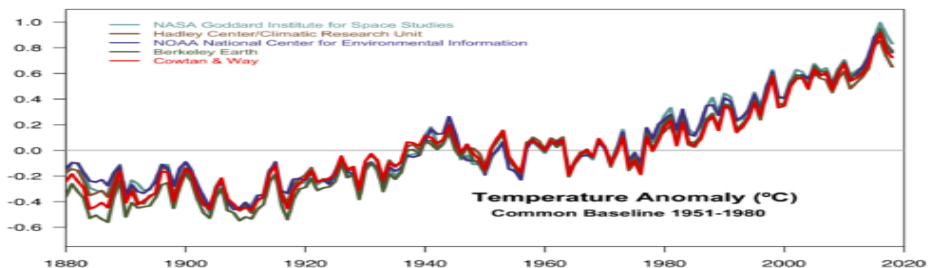
Murray Hamilton –AMOS

From the December issue of BAMOS: <https://view.joomag.com/bamos-vol-31-no4-december-2018/0089160001545353490?short>

This is a gentle reminder for those who haven't yet paid their \$15 subscription for AMETA to get in touch with the treasurer to arrange payment. This goes to the cost of newsletter publication and holding events, so is needed for the continuation of the groups activities.

john.braendler@bigpond.com 08 8337 2852

It's now official!! 2018 was the 4th hottest year on record globally. All of the major organisations who produce global temperature datasets have crunched the numbers and finalised their figures. The World Meteorological agency summary can be seen here: <https://public.wmo.int/en/media/press-release/wmo-confirms-past-4-years-were-warmest-record>



Greater Adelaide in October 2018: warmer and drier than average

October rainfall was below average at sites throughout Adelaide and the Hills. Temperatures were warmer than average for October, and several warm days with maximum temperatures close to 30 °C were observed in the city during the month.

Drier than average

- October rainfall was below average at all sites around Adelaide and the Hills
- Adelaide (West Terrace / ngayirdapira) had 19.2 mm of rainfall for the month, which is 43% of the monthly average and the driest October in the city since 2015
- Rainfall totals ranged from 36% of average at Adelaide Airport to 109% of average at Mount Lofty
- Despite the below average monthly totals, the count of nine rain days in the city was only one less than the October average

Warm days and nights

- Daytime temperatures were mostly warmer than the October average, interspersed with a number of cold days
- Mean maximum temperatures were warmer than average at all sites around Greater Adelaide, ranging from 1.5 °C above average at Kuitpo Forest Reserve to 3.5 °C above average at Mount Lofty
- The hottest temperatures for the month were recorded on the 31st, when Rosedale reached 36.2 °C
- Maximum temperatures were close to 30 °C at sites in Greater Adelaide multiple times during the month
- Night time temperatures across Adelaide were mostly warmer than average at the start and middle of the month, but there was a week of cooler than average nights towards the end of the month
- Mean minimum temperatures ranged from 0.5 °C above average at Mount Crawford to 1.4 °C above average at Edinburgh, Adelaide Airport, and Rosedale

Adelaide (West Terrace / ngayirdapira)

- Total rainfall was 19.2 mm, which is 43% of the long-term average of 44.2 mm
- The mean daily maximum temperature was 23.7 °C, which is 2.4 °C above the long-term average of 21.3 °C. The warmest day was 35.1 °C on the 31st, and the coolest day was on the 17th when the temperature reached 14.8 °C
- The mean daily minimum temperature was 12.2 °C, 1.1 °C above the long-term average of 11.1 °C. The coldest morning was 6.5 °C on the 11th, and the warmest morning was on the 14th when the minimum temperature was 21.7 °C

Extremes in October 2018

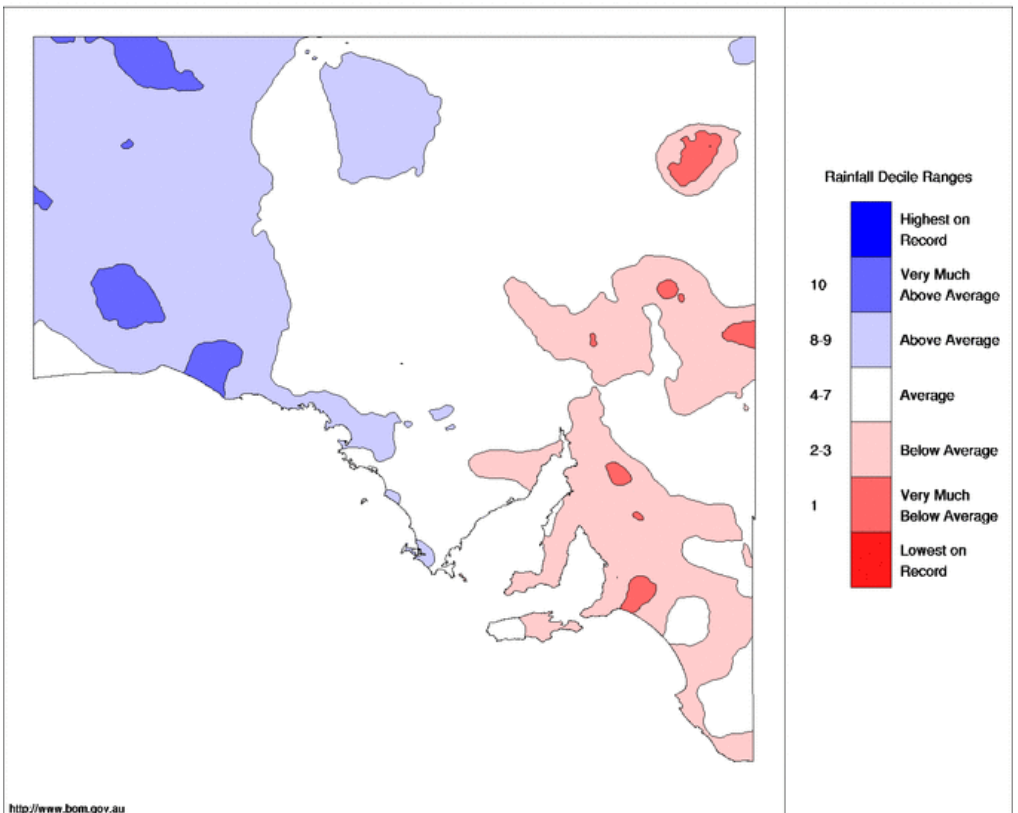
Hottest day	36.2 °C at Rosedale on the 31st
Warmest days on average	24.9 °C at Parafield Airport
Cooler days on average	18.3 °C at Mount Lofty
Coldest day	9.1 °C at Mount Lofty on the 17th
Coldest night	2.7 °C at Mount Lofty on the 10th
Cooler nights on average	8.1 °C at Mount Barker

Warmest nights on average	12.4 °C at Adelaide (Kent Town)
Warmest night	21.8 °C at Adelaide (Kent Town) and Adelaide Airport on the 14th
Warmest on average overall	18.3 °C at Adelaide (Kent Town)
Coollest on average overall	13.3 °C at Mount Lofty
Wettest overall	67.4 mm at Uraidla
Driest overall	7.4 mm at Red Creek (Burwood)
Wettest day	25.2 mm at Bridgewater on the 17th
Strongest wind gust	107 km/h at Mount Crawford on the 15 th

For more information on October's temperatures and rainfall plus a summary of statistics please see:

South Australian Rainfall Deciles October 2018

Distribution Based on Gridded Data
Australian Bureau of Meteorology



<http://www.bom.gov.au/climate/current/month/sa/archive/201810.adelaide.shtml>

Adelaide (West Terrace / Ngayirdapira), South Australia October 2018 Daily Weather Observations

The official site for Adelaide, having reopened in May 2017.

Date	Day	Temps		Rain	Evap	Sun	Max wind gust			9am			3pm								
		Min °C	Max °C				Dirn	Spd km/h	Time local	Temp °C	RH %	Cid eighths	Dirn	Spd km/h	MSLP hPa	RH %	Cid eighths	Dirn	Spd km/h	MSLP hPa	
1	Mo	14.5	25.0							20.4	21	NNE	17	1022.2	21.2	24	WSW	13	1019.5		
2	Tu	17.9	29.2	0						24.8	15	N	17	1016.8	26.2	22	WSW	13	1013.5		
3	We	14.0	19.6	6.0			S	39	17:34	16.1	71	SSE	15	1018.6	19.2	58	S	13	1017.3		
4	Th	11.0	16.2	0.2			SSE	39	14:24	13.1	61	SSE	13	1025.0	14.7	53	S	20	1023.5		
5	Fr	8.6	19.6	0			ESE	31	00:16	13.3	52	NW	6	1026.3	18.4	50	SW	11	1020.9		
6	Sa	8.7	23.7	0			N	20	10:05	17.5	51	NE	9	1020.9	22.7	28	E	2	1018.0		
7	Su	13.9	29.7	0.2			ENE	31	18.3	18.3	55	NE	9	1019.0	28.3	19	N	9	1015.4		
8	Mo	18.3	28.7	0			NW	46	10:42	24.9	24	NNE	15	1013.2	21.2	56	NNW	22	1013.0		
9	Tu	13.3	16.0	0			SW	39	11:32	13.6	91	SW	19	1016.2	14.5	93	SW	17	1016.0		
10	We	9.9	18.8	0.2			SE	43	23:57	10.7	57	SE	17	1023.1	17.4	45	SSE	15	1019.9		
11	Th	6.5	22.2	0			ESE	37	23:58	14.0	54	SSE	2	1022.0	19.1	44	SW	19	1019.7		
12	Fr	13.9	25.9	0			ENE	35	10:52	19.6	42	NE	9	1019.7	23.7	33	ENE	17	1016.4		
13	Sa	15.9	29.2	0			NE	39	20:50	22.1	39	NE	15	1015.3	27.4	24	ENE	9	1011.5		
14	Su	21.7	28.5	0			NNE	50	02:29	22.8	39	NNE	15	1010.5	26.7	36	NE	19	1006.9		
15	Mo	19.3	26.4	4.6			NNE	83	09:09	24.2	44	NE	39	1002.3	20.7	56	W	15	1005.1		
16	Tu	13.6	16.0	2.2			NW	50	01:33	13.9	86	W	20	1013.3	14.7	81	WSW	24	1014.0		
17	We	12.3	14.8	3.6			WSW	31	11:04	12.5	95	WSW	15	1018.8	14.4	76	WSW	17	1017.8		
18	Th	11.2	24.0	2.0			W	20	14:01	12.0	93	NW	6	1018.4	17.4	63	W	9	1015.8		
19	Fr	11.8	26.7	0.2			NW	54	15:30	23.6	26	NNE	20	1008.3	24.1	28	NE	13	1004.9		
20	Sa	11.9	18.3	0			WSW	39	03:08	14.0	60	SSW	19	1019.3	17.4	53	WSW	20	1020.0		
21	Su	7.2	24.1	0			NNW	26	11:58	15.0	63	NNE	9	1021.1	22.4	33	W	13	1016.4		
22	Mo	14.9	29.7	0			WSW	43	08:48	22.4	23	N	15	1011.3	28.9	16	NNW	17	1009.0		
23	Tu	12.6	18.9	0			WSW	41	08:50	15.6	53	WSW	15	1018.3	18.0	44	SW	20	1018.8		
24	We	7.5	22.6	0			ENE	31	07:47	13.7	46	E	17	1023.6	21.3	26	ENE	7	1019.5		
25	Th	10.1	23.7	0			SW	35	15:38	20.7	29	NNE	9	1017.2	21.4	45	SW	17	1018.1		
26	Fr	7.7	24.3	0			SW	35	14:56	14.8	59	SSW	6	1022.6	23.3	36	WSW	17	1019.7		
27	Sa	9.0	25.7	0			SW	30	14:43	16.8	52	SW	2	1019.5	23.9	43	W	20	1018.1		
28	Su	12.6	21.8	0			W	26	12:41	16.3	61	WSW	7	1020.0	20.4	46	WSW	15	1017.7		
29	Mo	8.6	22.4	0			W	28	11:46	16.2	55	WSW	10	1019.4	21.2	38	WSW	15	1016.5		
30	Tu	8.4	27.9	0			SE	26	19:26	18.7	32	W	6	1017.7	25.7	19	WSW	17	1015.3		
31	We	12.5	35.1	0			NE	28	22:51	23.0	36	NNE	6	1016.6	33.2	18	WNW	9	1013.5		
Statistics for October 2018																					
Mean		12.2	23.7							17.6	51		12	1018.0	21.6	42			14	1015.9	
Lowest		6.5	14.8							10.7	15		Calim	1002.3	14.4	16	E		2	1004.9	
Highest		21.7	35.1	6.0			NNE	83	24.9	24.9	95	NE	39	1026.3	33.2	93	WSW		24	1023.5	
Total				19.2																	

Observations were drawn from Adelaide (West Terrace / Ngayirdapira) (station 023000)
 This is now the "official" site for Adelaide, having reopened in May 2017. Observations are also available from the Kent Town site (station number 023030).
 ICDCJ05081_201810 - Prepared at 13:32 UTC on 17 Jan 2019
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South Australia in October 2018

October rainfall for South Australia as a whole was below average, but heavy rain during the last week of the month brought above average totals to the State's west. Both daytime and night time temperatures were above average across most of the State.

Wet in the west, dry in the east

- October rainfall for South Australia as a whole was 17% below average
- A significant rain event in the last week of the month brought daily totals in excess of 20 mm to western areas of the State
- The rain towards the end of the month resulted in some western areas of the State being very much wetter than average, but eastern Agricultural districts finished the month drier than average
- Little rain fell in the Northeast Pastoral district, where Moomba Airport had no recorded rainfall for the month
- Uraidla in the Adelaide Hills had the State's highest monthly total of 67.4 mm, but it was still below its October average
- Two rain events in the first half of the month saw Coffin Bay and Naracoorte have their highest October daily rainfall on record

Warmer than average daytime and night time temperatures

- Daytime temperatures were above average in most areas of the State, including a large area of very much above average in the Northeast Pastoral district
- The mean maximum temperature for the State as a whole was 2.11 °C warmer than average, the highest in October since 2015
- Night time temperatures were warmer than average across most of SA, including large areas of very much above average in northern and western parts
- Minimum temperatures were close to average in the State's far southeast
- The mean minimum temperature for SA as a whole was 1.91 °C warmer than average, the third-highest for October on record and highest since 2015
- For overall mean temperature, it was SA's sixth-warmest October on record

Strong winds at times

- On the 15th, severe winds and storms resulted in fallen trees and power outages to more than 35000 homes in Adelaide. Mount Crawford recorded a maximum wind gust of 107 km/h in the early hours of the morning and many other sites across the State recorded gusts in excess of 80 km/h.
- Severe winds raised dust in some areas of the State on the 19th. There were dust storms across a broad area of eastern Eyre Peninsula and the dust was visible over Spencer Gulf on satellite images. In the State's north, Oodnadatta Airport recorded a maximum wind gust during the afternoon of 102 km/h and many other sites across the State recorded gusts in excess of 80 km/h.
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Extremes in October 2018

Hottest day	41.1 °C at Oodnadatta Airport on the 14th
Warmest days on average	32.8 °C at Moomba Airport

Coollest days on average	18.1 °C at Parawa
Coldest day	9.1 °C at Mount Lofty on the 17th
Coldest night	-2.5 °C at Keith (Munkora) on the 24th
Coollest nights on average	6.2 °C at Keith (Munkora)
Warmest nights on average	17.2 °C at Oodnadatta Airport
Warmest night	26.6 °C at Oodnadatta Airport on the 31st
Warmest on average overall	25.0 °C at Moomba Airport
Coollest on average overall	13.3 °C at Mount Lofty
Wettest overall	67.4 mm at Uraidla
Driest overall	0 mm at Moomba Airport
Wettest day	47.0 mm at Coffin Bay on the 15th
Strongest wind gust	107 km/h at Mount Crawford AWS on the 15th

Some notable statistics for October were:

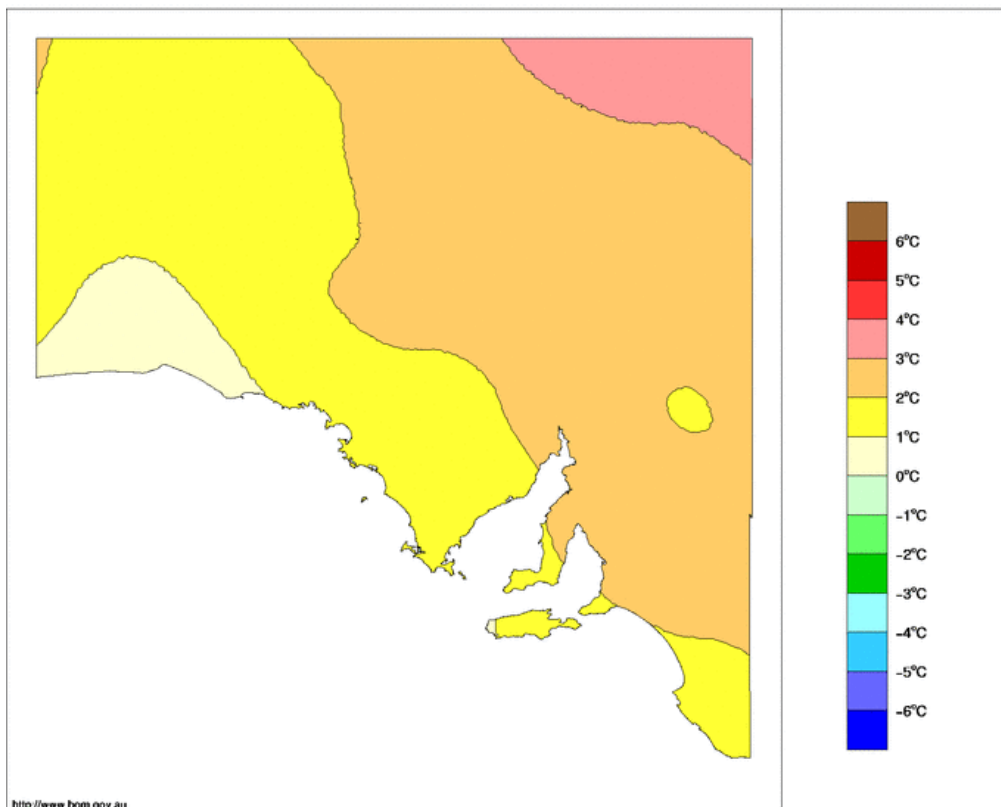
Record highest October daily rainfall

New record (mm) Old record

Years Held

Maximum Temperature Anomaly (°C) October 2018

Australian Bureau of Meteorology



Greater Adelaide in November 2018: wet with many cool days

November rainfall was above average at all sites throughout Adelaide and the Hills. Despite several days of maximum temperatures exceeding 30 °C, November was a generally cooler than average month.

Wetter than average

- Rainfall in November was above average throughout Adelaide and the Hills
- The wettest day was on the 22nd, with several locations in the Adelaide Hills recording more than 40 mm as a strong cold front and associated cloud band crossed the city
- November rainfall totals ranged from 117% of average at Adelaide (West Terrace / ngayirdapira) to 207% of average at Edinburgh RAAF
- On the 22nd, Mount Crawford had its wettest November day on record
- McLaren Value (Pirramimma Winery) had its highest total November rainfall on record and two sites had their highest total November rainfall since 1992

Cool at times

- Daytime temperatures were generally cooler than average across Adelaide and the Hills for November
- There were several warm spells during the month, with temperatures in the city exceeding 30 °C on the 1st, 11th–12th, and 18th–19th
- The hottest day throughout Greater Adelaide was on the 19th, with 37.9 °C recorded at Parafield Airport
- Mean maximum temperatures ranged from 1.9 °C cooler than average at Noarlunga to 1.0 °C warmer than average at Mount Lofty
- Night time temperatures for November were generally close to average
- Mean minimum temperatures ranged from 1.0 °C cooler than average at Noarlunga and Mount Crawford to 0.9 °C warmer than average at Mount Barker

Adelaide (West Terrace / ngayirdapira)

- Total rainfall for Adelaide (West Terrace / ngayirdapira) was 36.0 mm, which is 117% of the long-term average of 30.7 mm
- The mean daily maximum temperature for Adelaide (West Terrace / ngayirdapira) was 24.0 °C, which is 0.4 °C below the long-term average of 24.4 °C. The warmest day was 36.1 °C on the 19th, and the coolest day was on the 21st when the temperature reached 16.3 °C
- The mean daily minimum temperature for Adelaide (West Terrace / ngayirdapira) was 13.0 °C, which is 0.2 °C below the long-term average of 13.2 °C. The coldest morning was 6.5 °C on the 24th, and the warmest morning was on the 19th when the minimum temperature was 23.2 °C

Extremes in November 2018

Hottest day	37.9 °C at Parafield Airport on the 19th
Warmest days on average	25.3 °C at Parafield Airport
Coollest days on average	18.7 °C at Mount Lofty
Coldest day	9.5 °C at Mount Lofty on the 21st
Coldest night	3.1 °C at Mount Barker on the 8th

Coollest nights on average	9.0 °C at Mount Lofty
Warmest nights on average	13.4 °C at Adelaide (Kent Town)
Warmest night	24.7 °C at Parafield Airport on the 1st
Warmest on average overall	19.0 °C at Adelaide (Kent Town) and Parafield Airport
Coollest on average overall	13.8 °C at Mount Lofty
Wettest overall	110.6 mm at Uraidla
Driest overall	9.6 mm at Morphettville
Wettest day	56.6 mm at Ashton on the 22nd
Strongest wind gust	104 km/h at Outer Harbour (Black Pole) on the 21 st

Some notable statistics for November were:

Record highest November daily rainfall

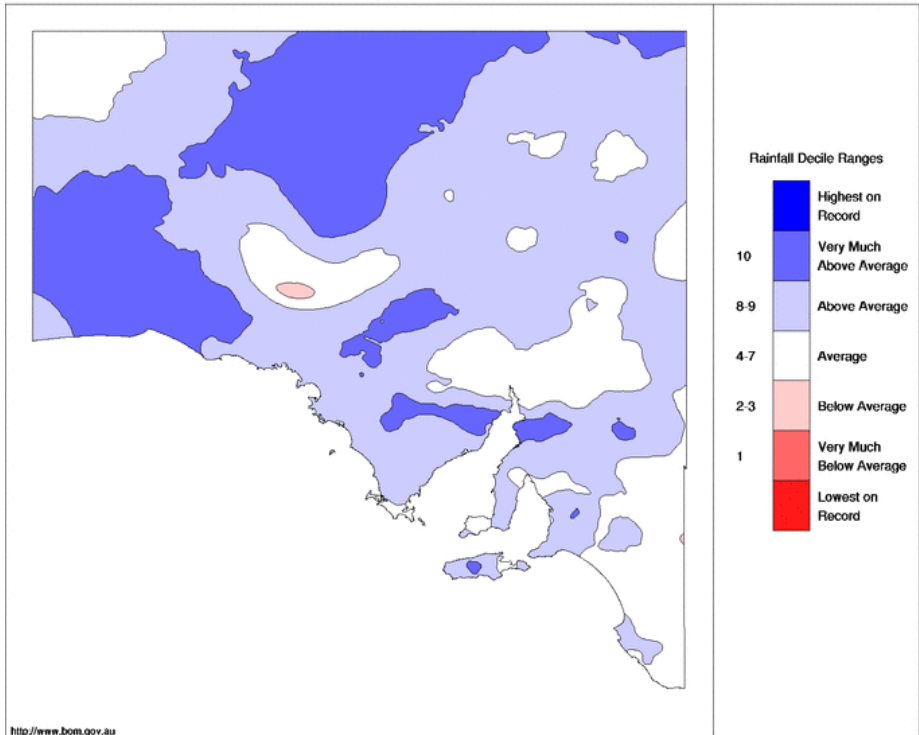
	New record (mm)	Old record	Years Held
Mount Crawford	29.2 on the 22nd	28.2 on the 13th in 2016	25

Record highest November total rainfall

New record (mm)	Old record	Years Held	November Average
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South Australian Rainfall Deciles November 2018

Distribution Based on Gridded Data
Australian Bureau of Meteorology



<http://www.bom.gov.au>

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Issued: 20/01/2019

Adelaide (West Terrace / Ngayirdapira), South Australia November 2018 Daily Weather Observations

The official site for Adelaide, having reopened in May 2017.



Date	Day	Temps		Rain	Evap	Sun	Max wind gust				9am				3pm						
		Min	Max				Dirn	Spd	Time	Temp	RH	Cid	Dirn	Spd	MSLP	Temp	RH	Cid	Dirn	Spd	MSLP
		°C	°C																		
1	Th	23.0	33.9	0			NW	52	12:01	26.8	36	WNW	13	1012.0	32.1	32	NW	24	1009.7		
2	Fr	19.3	24.7	2.8			SW	52	14:40	21.3	75	SW	15	1011.7	23.2	30	SW	24	1014.7		
3	Sa	15.0	20.6	0			WSW	39	02:03	16.4	56	SW	15	1020.6	19.9	48	WSW	13	1019.5		
4	Su	12.5	28.9	0			NW	28	12:12	20.0	48	N	9	1014.2	26.5	30	S	6	1010.3		
5	Mo	17.1	25.7	4.4			WSW	33	13:11	19.5	81	WNW	19	1007.4	23.9	57	NW	17	1005.9		
6	Tu	15.3	19.7	1.4			WSW	46	12:57	15.4	92	WSW	19	1007.3	19.0	46	SW	24	1009.7		
7	We	9.8	17.3	1.0			SSW	52	12:26	13.6	49	SW	20	1014.8	16.1	45	SW	20	1016.2		
8	Th	8.5	19.8	1.2			SW	28	14:46	12.8	60	N	9	1023.4	18.1	36	NNE	6	1021.8		
9	Fr	8.3	23.7	0			WSW	26	11:37	16.8	45	N	9	1020.3	22.3	25	SW	13	1018.4		
10	Sa	8.8	26.0	0			WSW	26	13:45	18.3	44	NE	2	1020.1	24.5	20	SW	17	1018.1		
11	Su	10.8	31.8	0			WNW	35	13:42	20.2	43	N	6	1019.0	29.8	22	WSW	20	1015.3		
12	Mo	20.2	34.7	0			SW	50	15:21	28.8	15	NNE	11	1012.8	33.7	9	WNW	20	1009.9		
13	Tu	18.5	24.5	0			W	37	10:53	23.2	60	WSW	19	1009.8	21.4	63	SSW	20	1011.5		
14	We	13.9	21.9	0			SW	33	15:49	16.6	70	WSW	15	1018.0	20.6	48	WSW	17	1018.5		
15	Th	11.0	23.4	0			WSW	35	15:05	16.6	46	ESE	9	1025.2	20.8	41	WSW	20	1022.1		
16	Fr	9.2	22.2	0			SW	44	16:22	18.1	48	SSW	6	1021.9	20.9	40	SW	22	1020.7		
17	Sa	10.5	25.2	0			SE	35	06:32	16.0	47	ESE	13	1024.0	23.9	23	ESE	17	1020.3		
18	Su	15.5	31.0	0			ENE	37	01:39	23.8	27	NE	11	1017.4	29.2	9	NNE	11	1013.2		
19	Mo	23.2	36.1	0			WNW	70	17:43	29.4	10	NNE	15	1009.4	34.7	9	NW	19	1005.0		
20	Tu	14.2	19.7	1.0			WSW	39	20:24	14.2	88	SSW	17	1008.6	17.3	53	SW	11	1006.5		
21	We	12.1	16.3	5.2			WNW	80	19:16	14.4	63	N	22	1000.5	12.6	64	WNW	28	1000.0		
22	Th	10.0	17.9	11.0			SW	74	23:05	13.5	63	SW	28	1007.4	16.5	46	SW	31	1010.4		
23	Fr	10.4	18.2	0.4			WSW	41	14:14	13.7	50	SSW	19	1015.2	16.3	50	SW	20	1015.3		
24	Sa	6.5	21.1	0.2			E	30	12:39	14.0	53	E	6	1013.2	19.1	44	WSW	17	1009.6		
25	Su	11.3	22.6	3.4			WSW	37	14:22	16.9	64	SE	9	1009.8	20.9	49	SW	20	1008.9		
26	Mo	8.9	22.1	0			NE	28	10:14	16.5	55	ESE	7	1009.2	20.8	49	SW	15	1007.3		
27	Tu	12.7	19.7	0.2			S	41	18:06	16.0	73	WSW	2	1007.0	17.1	62	S	20	1007.3		
28	We	13.3	20.4	3.8			SW	43	12:55	16.0	60	S	17	1014.6	19.8	49	SW	24	1014.4		
29	Th	9.4	21.3	0			WSW	30	13:48	15.4	60	N	6	1016.5	19.5	50	WSW	17	1014.5		
30	Fr	9.3	28.2	0			W	26	12:40	17.5	53	SSW	7	1015.7	22.0	35	WSW	13	1013.9		
Statistics for November 2018																					
Mean		12.9	24.0							18.1	54			12	1014.2	22.1	39		18	1013.0	
Lowest		6.5	16.3							12.8	10	#		2	1000.5	12.6	9	#	6	1000.0	
Highest		23.2	36.1	11.0			WNW	80		29.4	92	SW	28	1025.2	34.7	64	SW	31	1022.1		
Total				36.0																	

Observations were drawn from Adelaide (West Terrace / Ngayirdapira) [station 023000]
This is now the "official" site for Adelaide, having reopened in May 2017. Observations are also available from the Kent Town site (station number 023000).

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http://www.bom.gov.au/climate/dwo/IDC_IDW00000.pdf

South Australia in November 2018

Rainfall in November was above average in most areas of South Australia, with only a few isolated patches scattered across the State recording less than average. Daytime temperatures tended to be cooler than average, while night time temperatures for November were generally close to average.

Above average rainfall

- Rainfall in November was above average in many areas of the State, particularly in the north and west
- Isolated patches around Tarcoola, Mintabie, and Nullarbor had more than four times their November monthly average rainfall
- Almost one-third of the State had November totals in the top ten percent of years since 1900 (decile 10)
- Rainfall was close to average in scattered areas across the far northwest, central, and eastern districts, tending drier than average in eastern parts of the Southeast
- For the State as a whole, November rainfall was 110% more than average
- In the Mount Lofty Ranges, several sites had close to 100 mm for November, with 110.6 mm at Uraidla the highest monthly total recorded in the State
- The lowest totals were in the Northeast Pastoral district, where Marree (Witchelina Station) had 13.3 mm for the month
- The State's wettest day of the month was on the 5th, as a low pressure trough and cloud band extended across the State, bringing widespread daily totals of around 10 mm and in excess of 25 mm to parts of the Northwest Pastoral district
- Several sites had their highest November daily rainfall on record
- Numerous sites had either their highest total November rainfall on record or their highest total November rainfall for at least 20 years

Cool to mild temperatures

- Daytime temperatures for November were cooler than average across most of South Australia, particularly in an area north and west of the Eyre Peninsula
- The only area of the State with above average mean maximum temperatures was the southwestern half of Kangaroo Island, around Flinders Chase
- The mean maximum temperature for November was 0.55 °C cooler than average
- Night time temperatures were close to average for most of the state, but warmer than average in isolated patches of the far west, northeast, and southeast.
- Most of the State had mean minimum temperatures within 1 °C of average
- The mean minimum temperature for November was 0.35 °C warmer than average
- Between the 20th and 24th, several sites had their coldest November day (lowest maximum temperature) on record
- On the 8th, Marree Aero had its lowest November temperature on record

Strong winds at times

- Strong winds associated with the passage of cold fronts across the State saw Tarcoola Aero record 119 km/h on the 5th and 115 km/h on the 19th
- The strongest wind gust recorded in the State during November was 131 km/h at Neptune Island on the 21st, associated with a deep low pressure system that

developed southwest of Kangaroo Island

Extremes in November 2018

Hottest day	42.3 °C at Moomba Airport on the 2nd and 4th
Warmest days on average	33.2 °C at Oodnadatta Airport
Coollest days on average	18.7 °C at Mount Lofty
Coldest day	9.5 °C at Mount Lofty on the 21st
Coldest night	0.0 °C at Mount Ive on the 25th
Coollest nights on average	8.6 °C at Keith (Munkora)
Warmest nights on average	19.1 °C at Moomba Airport
Warmest night	29.4 °C at Moomba Airport on the 2nd
Warmest on average overall	26.1 °C at Moomba Airport
Coollest on average overall	13.8 °C at Mount Lofty
Wettest overall	110.6 mm at Uraidla
Driest overall	13.3 mm at Marree (Witchelina Station)
Wettest day	56.6 mm at Ashton on the 22nd
Strongest wind gust	131 km/h at Neptune Island on the 21 st

Some notable statistics for November were:

Record highest November daily rainfall

	New record (mm)	Old record	Years Held
Mintabie	37.0 on the 5th	32.2 on the 2nd in 2005	27
Tieyon	27.6 on the 5th	24.8 on the 25th in 2008	24
Tarcoola Aero	48.2 on the 6th	37.0 on the 22nd in 2009	22
Mount Crawford	29.2 on the 22nd	28.2 on the 13th in 2016	25

Record highest November total rainfall

	New record (mm)	Old record	Years Held	November Average
Mintabie	90.1	75.8 in 2008	27	26.0
McLaren Vale	69.2	61.2 in 2005	25	25.1
Tarcoola	73.8	54.6 in 2009	22	22.0
Cleve	45.0	42.0 in 2017	20	23.3

Record lowest November daily maximum temperature

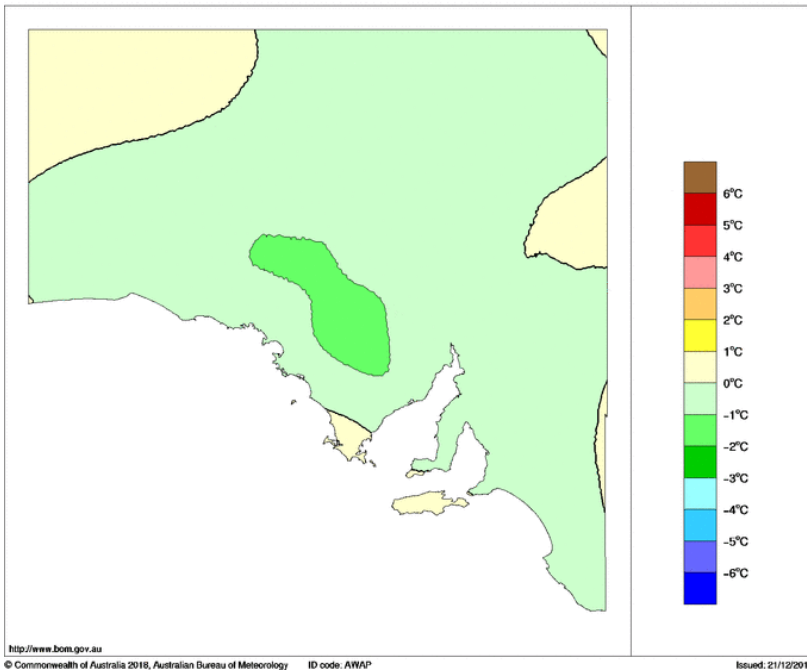
	New record (°C)	Old record	Years Held	Average
Cooper Pedy	18.7 on the 20th	19.3 on the 17th in 1997	25	32.2
Minnipa	16.0 on the 21st	16.4 on the 3rd in 2007	23	28.8
Yunta	14.3 on the 24th	14.9 on the 13th in 2010	21	28.7
Wudinna	17.0 on the 21st	17.4 on the 2nd in 2007	20	29.6

Record lowest November temperature

	New record (°C)	Old record	Years Held	Average
Marree	8.3 on the 8th	8.5 on the 17th in 2006	21	17.8

Many other rainfall records were also set in November. For more information plus a summary of statistics please see:

<http://www.bom.gov.au/climate/current/month/sa/archive/201811.summary.shtml>



Greater Adelaide in spring 2018: drier than average with warm days

Spring rainfall was less than average at sites throughout Adelaide and the Hills. Day-time temperatures for spring were generally warmer than average, while night time temperatures were cooler than average in most suburbs.

Drier than average

- Rainfall totals for spring were below average.
- The drier than average spring came despite above average rainfall across the city during November
- September was a particularly dry month, with most sites in Greater Adelaide receiving less than half their monthly average rainfall
- Spring rainfall totals ranged from 61% of average at Adelaide (West Terrace / ngayirdapira) to 85% of average at Parafield Airport

Warm days, cool nights

- Daytime temperatures were generally warmer than average across the central and northern suburbs of Adelaide, but were average or cooler than average in some southern and eastern areas
- Maximum temperatures ranged from 0.3 °C cooler than average at Noarlunga and Kuitpo Forest Reserve to 1.6 °C warmer than average at Mount Lofty
- Night time temperatures were cooler than average at most sites around Adelaide and the Hills
- Minimum temperatures ranged from 0.8 °C cooler than average at Mount Crawford to 0.2 °C warmer than average at Adelaide Airport and Mount Barker

Adelaide (West Terrace / ngayirdapira)

- Total rainfall was 76.6 mm, which is 61% of the long-term average of 125.7 mm
- The mean daily maximum temperature for was 22.1 °C, which is 0.7 °C above the long-term average of 21.4 °C. The warmest day was 36.1 °C on 19 Nov, and the coolest day was on 15 Sep when the temperature reached 13.3 °C
- The mean daily minimum temperature was 11.1 °C, which is 0.1 °C below the long-term average of 11.2 °C. The coldest morning was 3.4 °C on 3 Sep, and the warmest morning was on 19 Nov when the minimum temperature was 23.2 °C.

Extremes in spring 2018

Hottest day	37.9 °C at Parafield Airport on 19 Nov
Warmest days on average	23.2 °C at Parafield Airport
Coolest days on average	16.6 °C at Mount Lofty
Coldest day	7.2 °C at Mount Lofty on 15 Sep
Coldest night	-1.5 °C at Rosedale on 4 Sep
Coolest nights on average	7.4 °C at Mount Lofty
Warmest nights on average	11.4 °C at Noarlunga
Warmest night	24.7 °C at Parafield Airport on 1 Nov
Warmest on average overall	16.9 °C at Adelaide (Kent Town)
Coolest on average overall	12.0 °C at Mount Lofty
Wettest overall	218.8 mm at Uraidla
Wettest day	56.6 mm at Ashton on 22 Nov
Strongest wind gust	107 km/h at Mount Crawford AWS on 15 Oct

South Australia in spring 2018

Rainfall in spring was generally below average in eastern Agricultural districts, but above average in the west and across SA's northern border. Daytime temperatures were average to above average throughout South Australia, while night time temperatures were generally below average in eastern Agricultural districts.

Wet in the west, dry in the east

- Spring rainfall totals were generally below average in eastern Agricultural districts, but above average in the west and across the northern border
- For the State as a whole, spring rainfall equalled the long-term average
- September was a very dry month across the whole State; South Australia's third-driest September on record
- Rainfall in October was near-average overall, but it continued to be dry in eastern Agricultural districts
- November was particularly wet in the State's west
- The State's wettest site was Uraidla , which had 218.8 mm for the season
- Two sites had their highest spring daily rainfall on record

Mild daytime temperatures and cool nights in the southeast

- Daytime temperatures for November were warmer than average throughout.

- Night time temperatures for spring were generally cooler than average across southern and eastern parts of South Australia
- Mean minimum temperatures were very much below average in isolated patches around the Riverland and Upper South East districts
- In the western half of the State and in much of the northern Pastoral districts, night time temperatures were warmer than average
- Nights were cold in September, particularly in eastern districts
- The overall mean minimum temperature for spring was 0.42 °C above average
- In September, several sites had their lowest spring temperature on record
- Snowtown had its lowest spring mean daily minimum temperature on record and Keith had its lowest spring mean daily minimum temperature since 1974

Extremes in spring 2018

Hottest day	42.3 °C at Moomba Airport on 2 Nov and 4 Nov
Warmest days on average	30.8 °C at Oodnadatta Airport
Coollest days on average	16.6 °C at Mount Lofty
Coldest day	7.2 °C at Mount Lofty on 15 Sep
Coldest night -	3.3 °C at Keith (Munkora) on 24 Sep
Coollest nights on average	5.7 °C at Keith (Munkora)
Warmest nights on average	15.4 °C at Moomba Airport
Warmest night	29.4 °C at Moomba Airport on 2 Nov
Warmest on average overall	23.0 °C at Oodnadatta Airport
Coollest on average overall	12.0 °C at Mount Lofty
Wettest overall	218.8 mm at Uraidla
Driest overall	16.2 mm at Moomba Airport
Wettest day	56.6 mm at Ashton on 22 Nov
Strongest wind gust	131 km/h at Neptune Island on 21 Nov

Some notable statistics for Spring were:

Record highest spring daily rainfall

	New record (mm)	Old record	Years Held
Tarcoola	48.2 on 6 Nov	37.0 on 22 Nov 2009	22
Coffin Bay	47.0 on 15 Oct	46.4 on 23 Nov 2017	31

Record lowest spring temperature

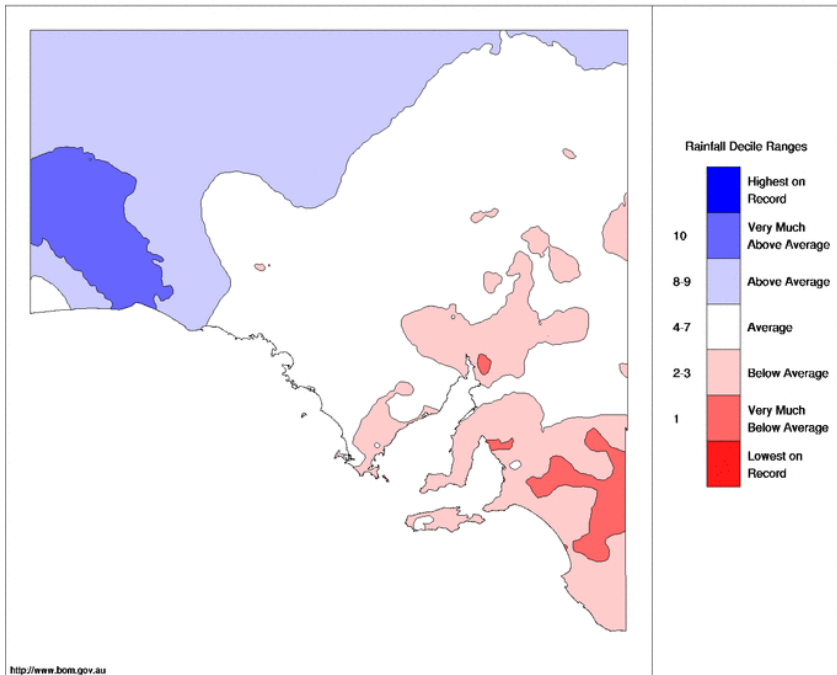
	New record (°C)	Old record	Years Held
Nuriootpa	-2.1 on 29 Sep	-1.0 on 15 Oct 2014	23
Strathalbyn	0.2 on 25 Sep	0.4 on 5 Sep 2007	23
Tarcoola	0.3 on 16 Sep	0.4 on 15 Sep 2016	22
Gluepot	-3.2 on 4 Sep-	2.2 on 11 Sep 2002	20
Wudinna	-1.8 on 29 Sep	= -1.8 on 24 Sep 2015	20

Record lowest spring mean daily minimum temperature

	New record (°C)	Old record	Years Held	Spring Average
Snowtown	6.7	= 6.7 in 2004	20	7.6

South Australian Rainfall Deciles 1 September to 30 November 2018

Distribution Based on Gridded Data
Australian Bureau of Meteorology

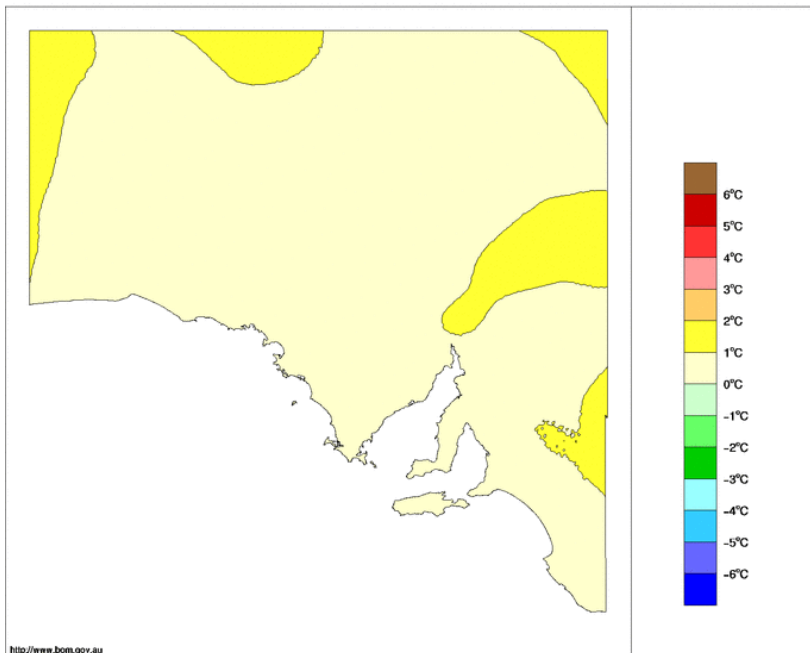


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Issued: 20/01/2019

Maximum Temperature Anomaly (°C) 1 September to 30 November 2018

Australian Bureau of Meteorology



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Issued: 21/12/2018

Greater Adelaide in December 2018: very warm days and near-average rainfall

Rainfall totals for December were close to average in Adelaide and the Hills after heavy rain in the middle of the month. Daytime temperatures were very much warmer than average for December, with night-time temperatures also warmer than average.

Near-average rainfall

- Significant rain through the middle of the month resulted in December totals that were close to average in most suburbs and higher than average in the Hills
- The highest daily rainfall total was 23.0 mm at Prospect Hill on the 14th.
- Rainfall totals ranged from 52% of average at Edinburgh RAAF to 130% of average at Mount Barker

Very warm days and nights

- Daytime temperatures were very much warmer than average across Adelaide and the Hills, with mean maximum temperatures ranging from 1.7 °C warmer than average at Kuitpo Forest to 4.6 °C warmer than average at Mount Lofty
- The hottest day was the 27th, with most sites exceeding 40 °C
- On the 27th, a few sites had their highest December temperature on record
- Night time temperatures for December were warmer than average throughout.
- There were several very warm nights during the month and on the mornings of the 7th and the 28th, overnight temperatures didn't drop below 20 °C at most sites.
- Mean minimum temperatures ranged from 1.1 °C warmer than average at Parafield Airport to 2.3 °C warmer than average at Mount Barker
- Edinburgh RAAF equalled its highest December mean daily minimum temp.

Adelaide (West Terrace / ngayirdapira)

- Total rainfall was 19.8 mm, which is 75% of the long-term average of 26.3 mm (note data are missing for the 19th when at least 3 mm is estimated to have fallen)
- The mean daily maximum temperature was 30.0 °C, which is 3.2 °C above the long-term average of 26.8 °C. The warmest day was 42.2 °C on the 27th, and the coolest day was on the 13th when the temperature reached 16.5 °C
- The mean daily minimum temperature was 16.5 °C, which is 1.4 °C above the long-term average of 15.1 °C. The coldest morning was 10.6 °C on the 23rd, and the warmest morning was on the 7th when the minimum temperature was 25.8 °C

Extremes in December 2018

Hottest day	44.4 °C at Rosedale on the 27th
Warmest days on average	31.8 °C at Rosedale (Turretfield Research Centre)
Coollest days on average	24.2 °C at Mount Lofty
Coldest night	6.1 °C at Mount Lofty on the 2nd
Coollest nights on average	12.7 °C at Mount Lofty
Warmest nights on average	17.0 °C at Adelaide (Kent Town)
Warmest night	27.3 °C at Noarlunga on the 7th
Warmest on average overall	23.6 °C at Adelaide (Kent Town), Edinburgh RAAF, Parafield Airport, and Rosedale
Coollest on average overall	18.5 °C at Mount Lofty
Wettest overall	61.0 mm at Mount Lofty
Driest overall	8.2 mm at Regency Park

Adelaide (West Terrace / Ngayirdapira), South Australia December 2018 Daily Weather Observations

The official site for Adelaide, having reopened in May 2017.



Date	Day	Temps		Rain mm	Evap mm	Sun hours	Max wind gust		9am				3pm					
		Min °C	Max °C				Dirn	Spd km/h	Local	Time	Temp °C	RH %	Cid eighths	Dirn	Spd km/h	MSLP hPa	RH %	Cid eighths
1	Sa	17.3	33.2	0	0		80	14:11	28.2	23	N	20	1005.1	29.2	28	N	28	1000.2
2	Su	13.7	20.1	0.4	0		54	00:28	15.6	55	WSW	22	1011.9	18.6	43	SW	16	1012.8
3	Mo	14.9	22.6	0	0		37	01:36	17.5	66	W	19	1016.4	21.4	54	SW	17	1016.7
4	Tu	12.0	26.6	0	0		28	10:01	16.1	77	ENE	9	1019.7	23.6	52	WSW	13	1017.5
5	We	16.0	34.2	0	0		30	07:03	26.3	27	NE	13	1016.3	32.6	18	WSW	19	1013.5
6	Th	23.9	38.9	0	0		39	08:59	31.9	15	NNE	20	1012.8	37.6	10	W	15	1009.5
7	Fr	25.8	39.6	0	0		57	11:36	29.4	27	W	11	1010.4	37.1	20	NW	30	1009.0
8	Sa	18.8	23.8	0.6	0		33	04:53	20.2	84	SE	17	1016.0	23.0	69	SSW	6	1017.1
9	Su	15.9	31.3	3.8	0		31	14:11	20.4	69	S	7	1015.9	30.1	41	SW	17	1013.0
10	Mo	14.2	28.3	0	0		30	23:03	20.8	43	WNW	9	1017.9	26.8	25	SE	17	1016.4
11	Tu	16.1	34.2	0	0		31	00:13	23.7	42	ESE	6	1014.7	33.0	25	WSW	15	1010.2
12	We	21.2	35.1	0	0		46	14:51	28.5	35	NW	7	1005.2	34.0	21	NNW	15	1001.8
13	Th	13.0	16.5	3.0	0		69	13:48	15.7	50	SSW	33	1007.6	15.2	69	SSW	31	1009.0
14	Fr	10.8	22.1	10.6	0		59	23:23	16.4	92	SSW	15	1003.5	20.9	71	S	22	1004.3
15	Sa	13.9	24.5	0	0		33	14:55	19.4	67	NNE	2	1006.0	23.3	54	WSW	15	1003.8
16	Su	16.8	22.7	1.4	0		31	15:48	17.4	91	SW	11	1007.9	20.2	75	SW	13	1008.6
17	Mo	15.9	27.4	0	0		30	13:03	19.3	69	SW	4	1012.7	25.4	53	SSW	9	1011.6
18	Tu	18.5	29.4	0	0		33	22:34	22.3	65	ESE	10	1012.6	27.4	50	ESE	13	1011.8
19	We	17.5	35.3	0	0		37	14:17	24.6	50	E	17	1008.5	32.5	34	E	19	1005.4
20	Th	17.5	24.6	0	0		S		18.9	71	SSE	19	1013.3	23.3	49	S	20	1013.0
21	Fr	14.2	20.6	0	0		43	15:00	17.1	58	S	17	1016.8	20.6	41	SW	26	1016.3
22	Sa	10.8	23.8	0	0		30	12:18	18.8	60	SSE	7	1021.8	22.2	41	WSW	22	1020.1
23	Su	10.6	29.4	0	0		30	12:18	18.8	50	S	4	1021.6	26.6	30	WSW	17	1018.3
24	Mo	15.3	36.0	0	0		33	11:06	26.5	30	NNW	7	1015.9	35.1	9	NW	19	1013.3
25	Tu	16.3	36.2	0	0		26	16:34	25.8	36	SW	9	1015.5	34.4	13	WSW	15	1013.9
26	We	17.0	37.9	0	0		30	14:17	27.5	29	W	2	1013.7	37.0	13	WSW	9	1010.6
27	Th	18.0	42.2	0	0		56	17:47	29.2	26	SSW	9	1007.7	32.5	21	SW	22	1004.8
28	Fr	22.2	36.3	0	0		54	22:40	28.7	42	SE	11	1006.4	33.3	26	SSW	13	1003.5
29	Sa	22.8	30.8	0	0		33	06:55	24.4	51	E	19	1009.4	29.3	37	NNW	15	1008.8
30	Su	17.2	29.1	0	0		31	16:14	21.9	51	S	6	1013.6	27.0	39	S	17	1010.8
31	Mo	14.9	29.3	0	0		41	16:25	21.5	48	SW	4	1012.7	26.8	41	WSW	19	1009.9
Statistics for December 2018		Mean	16.5	30.0					22.3	51		11	1012.6	27.7	37		17	1010.8
	Lowest	10.6	16.5						15.6	15		Calim	1003.5	15.2	9	SSW	6	1000.2
	Highest	25.8	42.2	10.6			80		31.9	92		33	1021.8	37.6	75	SSW	31	1020.1
	Total			19.8														

Observations were drawn from Adelaide (West Terrace / Ngayirdapira) (station 023000)

This is now the 'official' site for Adelaide, having reopened in May 2017. Observations are also available from the Kent Town site (station number 023000).

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<http://www.bom.gov.au/climate/dwo/ICDJW0000.pdf>

South Australia in December 2018

December temperatures were above average throughout South Australia, with large areas of the State very much warmer than average for both daytime and night time temperatures. Overall, it was the State's second-warmest December on record. Rainfall in December was above average in the State's northwest and in some southern and eastern districts, but it was a drier than average start to summer for much of central and northeastern South Australia.

Drier than average overall; wet in the northwest and southeast

- Overall rainfall was 20% below average, SA's driest December since 2014
- December rainfall was above average in parts of the Northwest Pastoral district and some southeastern Agricultural districts
- Central and western Agricultural districts and the Northeast Pastoral district had below average to very much below average rainfall for the month
- Totals were highest in the far northwest and southeast of the State, with some areas recording more than double their December average rainfall
- The State's highest total for the month was 90.4 mm at Frances
- Little or no rain fell across most of the Northeast Pastoral district and several sites recorded 0.0 mm for the month
- For the State as a whole, the 13th was the wettest day as a complex low crossed the State; totals in excess of 25 mm were recorded in Pastoral districts
- Parawa had its highest December daily rainfall on record on the 14th
- Parndana and Myponga had their highest December rainfalls for at least 25 years
- Roxby Downs (Olympic Dam) recorded 0.0 mm for the month, the site's lowest total December rainfall on record, and several other sites had their lowest total December rainfall since the 1990s

Second-warmest December on record

- For overall mean temperature, SA had its second-warmest December on record (2.40 °C above average) and warmest since 2015 (+2.53 °C)
- The 27th and 28th were the State's third- and fourth-hottest December days on record respectively (behind 19 December 2013 and 19 December 1953)
- The State's mean maximum temperature was 2.89 °C warmer than average, the third-highest on record
- Andamooka had 13 days with maximum temperatures of 40 °C or more, exceeding its previous highest count in December of 11 such days in 1972
- Marree Aero had 14 nights with minimum temperatures of 25 °C or more, which exceeded its previous highest count in December of eight such nights in 2016
- The mean minimum temperature was 1.90 °C warmer than average, the fourth-highest on record
- Many sites had their highest December temperature on record late in the month, including Woomera where observations have been taken for 70 years
- In the middle of the month, a number of sites had their coldest December day on record in association with wet conditions
- Some sites had their highest December mean daily maximum temperature on record and Andamooka had its highest December mean daily maximum

- temperature since 1972
- Coober Pedy and Cleve had their warmest December night on record
- Numerous sites had either their highest December mean daily minimum temperature on record or their highest December mean daily minimum temperature for at least 20 years
- A few sites had their highest December mean temperature on record or their highest December mean temperature for at least 20 years

Extremes in December 2018

Hottest day	48.1 °C at Tarcoola Aero on the 28th
Warmest days on average	39.2 °C at Moomba Airport
Coollest days on average	22.3 °C at Cape Willoughby
Coldest day	12.6 °C at Mount Lofty on the 13th
Coldest night	3.9 °C at Naracoorte Aerodrome on the 11th
Coollest nights on average	11.5 °C at Mount Gambier Aero
Warmest nights on average	24.0 °C at Moomba Airport
Warmest night	31.6 °C at Coober Pedy Airport on the 29th
Warmest on average overall	31.6 °C at Moomba Airport
Coollest on average overall	17.9 °C at Parawa (Second Valley Forest AWS)
Wettest overall	90.4 mm at Frances
Driest overall	0 mm at Moomba Airport and Roxby Downs
Wettest day	40.2 mm at Parawa on the 14th
Strongest wind gust	113 km/h at Lameroo (Austin Plains) on the 1 st

Some notable statistics for December were:

Record highest December mean temperature

New record (°C) Old record Years Held December Average

Record highest December temperature				
	New record (°C)	Old record	Years	Average
Woomera	46.2 on the 28th	45.5 on the 18th in 2017	70	32.4
Rosedale	44.4 on the 27th	43.6 on the 19th in 2013	56	28.3
Kimba	44.6 on the 29th	44.0 on the 30th in 2005	52	29.4
Edinburgh	43.9 on the 27th	43.5 on the 19th in 2015	47	27.9
Kent Town	43.7 on the 27th	43.4 on the 19th in 2013	42	27.3
Whyalla	46.8 on the 27th	45.8 on the 19th in 2015	35	28.3
Clare	41.7 on the 28th	= 41.7 on the 19th in 2015	25	27.5
Coober Pedy	47.3 on the 28th	45.8 on the 18th in 2017	25	34.4
Nuriootpa	42.2 on the 27th	41.8 on the 30th in 2005	23	27.3
Roseworthy	45.2 on the 27th	44.8 on the 30th in 2005	22	29.5
Tarcoola	48.1 on the 28th	47.1 on the 23rd in 2012	22	34.0
Ernabella	43.4 on the 28th	42.5 on the 20th in 2013	21	33.2
Yunta	43.6 on the 27th	43.3 on the 19th in 2015	21	31.3
Gluepot	45.1 on the 27th	45.0 on the 31st in 2005	20	31.4

Record lowest December daily maximum temperature				
	New record (°C)	Old record	Years Held	December Average
Whyalla	17.7 on the 14th	18.7 on the 14th in 2016	35	28.3
Renmark	18.7 on the 13th	18.9 on the 19th in 2010	24	31.2
Cleve	15.6 on the 14th	16.0 on the 1st in 2017	23	27.4
Minnipa	15.7 on the 14th	15.9 on the 1st in 2005	23	30.5
Roseworthy	17.3 on the 13th	18.6 on the 5th in 2013	22	29.5
Gluepot	18.5 on the 13th	18.9 on the 15th in 2016	20	31.4
Wudinna	17.2 on the 14th	= 17.2 on the 1st in 2005	20	31.2

Record highest December mean daily maximum temperature				
	New record (°C)	Old record	Years Held	Average
Leigh Creek	36.6	35.9 in 1994	35	33.3
Cooper Pedy	36.9	36.7 in 2015	24	34.4
Moomba	39.2	38.9 in 2012	23	36.7
Roxby Downs	36.9	36.6 in 2015	21	34.5
Ernabella	36.1	35.6 in 2014	20	33.2
Marree	39.6*	37.9 in 2012	20	36.0

**note: there are three days of missing data at the Maree Site, but the estimated monthly mean is still higher than the old record*

Record highest December mean daily minimum temperature				
	New record (°C)	Old record	Years Held	Average
Elliston	16.5	= 16.5 in 2015	56	14.6
Edinburgh	16.4	= 16.4 in 2015	46	14.8
Leigh Creek	20.9	20.8 in 2015	35	18.7
Loxton	15.7	14.7 in 2015	34	13.1
Kingscote	12.6	12.5 in 2011	24	10.9
Renmark	16.8	16.3 in 2015	23	14.2
Cleve	15.5	14.9 in 2015	22	13.9
Minnipa	16.3	16.1 in 2015	22	14.2
Strathalbyn	14.5	14.0 in 2015	22	12.9
Marree	22.7	21.8 in 2016	20	20.3
Naracoorte	12.0	11.2 in 2010	20	10.0
Snowtown	14.7	14.1 in 2015	20	12.3

Record highest December daily rainfall

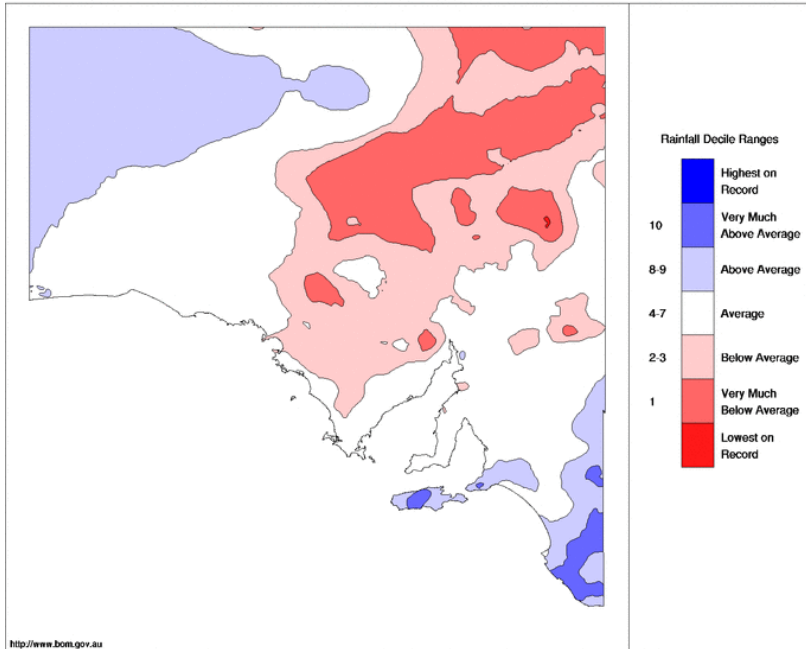
	New record (mm)	Old record	Years Held
Parawa	40.2 on the 14th	35.0 on the 8th in 2010	25

Record lowest December total rainfall

	New record (mm)	Old record	Years Held	December Average
Roxby Downs	0.0	0.4 in 2002	21	15.9

South Australian Rainfall Deciles December 2018

Distribution Based on Gridded Data
Australian Bureau of Meteorology

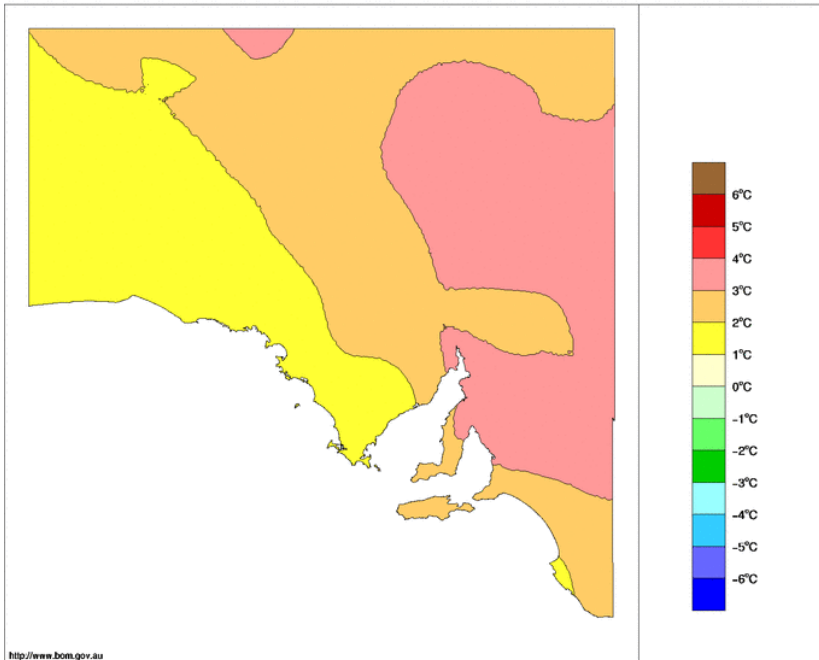


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Maximum Temperature Anomaly (°C) December 2018

Australian Bureau of Meteorology



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Issued: 21/01/2019

Greater Adelaide in 2018: drier and warmer than average

Rainfall in 2018 was below average throughout Adelaide and the Hills, despite a wetter than average November and heavy rain at times. Both daytime and night time temperatures for the year were warmer than average across Greater Adelaide.

Drier than average

- Rainfall in 2018 was below average throughout Adelaide and the Hills
- Rainfall was very much below average for the first four months of the year, with wetter than average conditions in May, August, and November
- The Greater Adelaide region as a whole had its sixth-driest September on record and driest since 1951
- Annual rainfall totals ranged from 66% of average at Edinburgh RAAF to 82% of average at Mount Barker
- Rosedale had its driest year since 1994

Very warm days

- Mean maximum temperatures for 2018 were above average throughout
- For maximum temperatures at the combined Adelaide city sites, 2018 was the eighth-warmest year on record
- The hottest day of the year at many places was on 28 January, when Mount Lofty had its highest temperature on record
- Adelaide (West Terrace / ngayirdapira) had its hottest April day on record when it reached 36.3 °C at on 11 April at the end of a week of summer-like warmth
- Monthly mean maximum temperatures for the Greater Adelaide region as a whole were in the ten warmest on record for January, April, July, and October
- Annual mean maximum temperatures for 2018 ranged from 0.5 °C above average at Noarlunga to 2.4 °C above average at Mount Lofty
- Rosedale equalled its highest mean daily maximum temperature on record
- Night-time temperatures were warmer than average throughout Adelaide and the Hills, though not as much above average as the daytime temperatures
- The monthly mean minimum temperature for the Greater Adelaide region as a whole was second-coolest on record for September (behind September 1969), while overall nights for April were warmest on record
- Annual mean minimum temperatures ranged from equalling the average at Rosedale to 1.3 °C above average at Mount Barker
- Adelaide Airport had its highest mean daily minimum temperature on record
- Adelaide (West Terrace / ngayirdapira) and Edinburgh RAAF equalled their highest mean temperature on record

Adelaide (West Terrace / ngayirdapira)

- Total reported rainfall was 364.4 mm, which is 69% of the long-term average of 528.3 mm (although there were two days of missing rainfall data at the site in July; the estimated total for the year is at least 374 mm but still well below average)
- The mean daily maximum temperature was 23.2 °C, which is 1.4 °C above the

long-term average of 21.8 °C. The warmest day was 42.3 °C on 6 January, and the coolest day was on 19 July when the temperature reached 12.2 °C

- The mean daily minimum temperature was 12.9 °C, 0.9 °C above the long-term average of 12.0 °C. The coldest morning was 2.9°C on 28 June, and the warmest morning was on 9 February when the minimum temperature was 28.7 °C

Extremes in 2018

Hottest day	44.8 °C at Rosedale on 19 Jan
Warmest days on average	24.1 °C at Parafield Airport
Coolest days on average	17.8 °C at Mount Lofty
Coldest day	5.5 °C at Mount Lofty on 6 Aug
Coldest night -	1.5 °C at Mount Barker on 26 Jun -1.5 °C at Rosedale on 4 Sep
Coolest nights on average	9.2 °C at Mount Lofty
Warmest nights on average	13.2 °C at Noarlunga
Warmest night	28.7 °C at Adelaide (Kent Town) and Adelaide (West Terrace / ngayirdapira) on 9 Feb
Warmest on average overall	18.2 °C at Adelaide (Kent Town)
Coolest on average overall	13.5 °C at Mount Lofty
Wettest overall	998.9 mm at Uraidla
Driest overall	269.2 mm at Gawler
Wettest day	65.2 mm at Lenswood and Mount Lofty (Cleland Conservation Park) on 6 Aug
Strongest wind gust	117 km/h at Mount Crawford AWS on 17 Jul

Some notable statistics for 2018 were:

Record highest temperature

	New record (°C)	Old record	Years Held	Annual Average
Mount Lofty	37.9 on 28 Jan	36.3 on 25 Jan 2003	20	15.4

Record highest annual mean daily maximum temperature

	New record (°C)	Old record	Years Held	Annual Average
Rosedale	24.0	= 24.0 in 2007	54	22.6

Record highest annual mean daily minimum temperature

	New record (°C)	Old record	Years Held	Annual Average
Adelaide Airport	12.7	12.5 in 2013	62	11.5

Record highest annual mean temperature

All the detail you could possibly want and more is available on the BoM website.

Visit <http://www.bom.gov.au/climate> and wander through the various archived

South Australia in 2018: very warm days; dry in the east, wet in the west

Rainfall for 2018 was below average for South Australia as a whole, but it was a wetter than average year in the far west and drier than average in eastern districts. Mean daytime temperatures for 2018 were very much above average throughout the State, while night-time temperatures were less extreme but still warmer than average in all districts.

Dry in the east, wet in the west

- Rainfall for 2018 was 24% below average for South Australia as a whole, but with significant contrasts between the east and west
- Most of the eastern half of South Australia had below average rainfall, including large areas that were very much drier than average
- Western areas of the Northwest Pastoral and West Coast districts had a wetter than average year
- South Australia had its third-driest September on record and driest since 1938
- Only three months during the year had above average rainfall for South Australia as a whole: January, August, and November
- Some sites in the eastern half of the State had either their lowest total rainfall on record or their lowest total rainfall for at least 20 years

Very warm days

- For mean maximum temperature, 2018 ranks as the State's second-warmest year on record
- Maximum temperatures were very much above average across all areas of South Australia, with several sites having their highest mean daily maximum temperature on record
- SA's annual mean maximum temperature was 1.79 °C warmer than average
- South Australia had its warmest April on record for mean and maximum temperatures
- Summer-like heat in the second week of April saw large numbers of sites exceed April temperature records
- November 2018 was the first month since October 2016 to have a below average mean maximum temperature for the State as a whole
- There were very hot days in both mid-January and late December, with 48.1 °C at Tarcoola Aero on 28 December the hottest temperature recorded in the State during the year
- For the year as a whole, nights were still warmer than average for most areas of the State
- South Australia's annual mean minimum temperature was 0.70 °C warmer than average, the highest since 2016 and the eleventh-warmest on record
- Marree Aero had its warmest night (highest daily minimum temperature) on record on 29 January
- The mean minimum temperature for September was the State's coolest since 1985; frost led to crop damage across eastern parts of South Australia
- The coldest nights were in June and July, with -5.5 °C at Yunta Airstrip on 21

- June the coldest temperature recorded in the State during the year
- For overall mean temperatures, 2018 ranks as the fourth-warmest year on record
- Mean temperatures were above average in all areas, with SA's annual mean temperature 1.25 °C warmer than average
- Adelaide Airport had its highest mean daily minimum temperature on record.
- Even though temperatures were above average across South Australia, Eudunda was the only site to exceed its highest mean temperature on record, with a few other sites equalling their previous record

Extremes in 2018

Hottest day	48.1 °C at Tarcoola Aero on 28 Dec
Warmest days on average	30.8 °C at Oodnadatta Airport
Coollest days on average	7.8 °C at Mount Lofty
Coldest day	5.5 °C at Mount Lofty on 6 Aug
Coldest night	-5.5 °C at Yunta Airstrip on 21 Jun
Coollest nights on average	8.1 °C at Keith (Munkora)
Warmest nights on average	15.8 °C at Moomba Airport
Warmest night	34.2 °C at Marree Aero on 29 Jan
Warmest on average overall	23.1 °C at Moomba Airport
Coollest on average overall	13.5 °C at Mount Lofty
Wettest overall	998.9 mm at Uraidla
Driest overall	51.2 mm at Roxby Downs (Olympic Dam Aerodrome)

Some notable statistics for 2018 were:

Record highest temperature

	New record (°C)	Old record	Years Held	Annual average
Mount Lofty	37.9 on 28 Jan	36.3 on 25 Jan 2003	20	15.4

Record highest daily minimum temperature

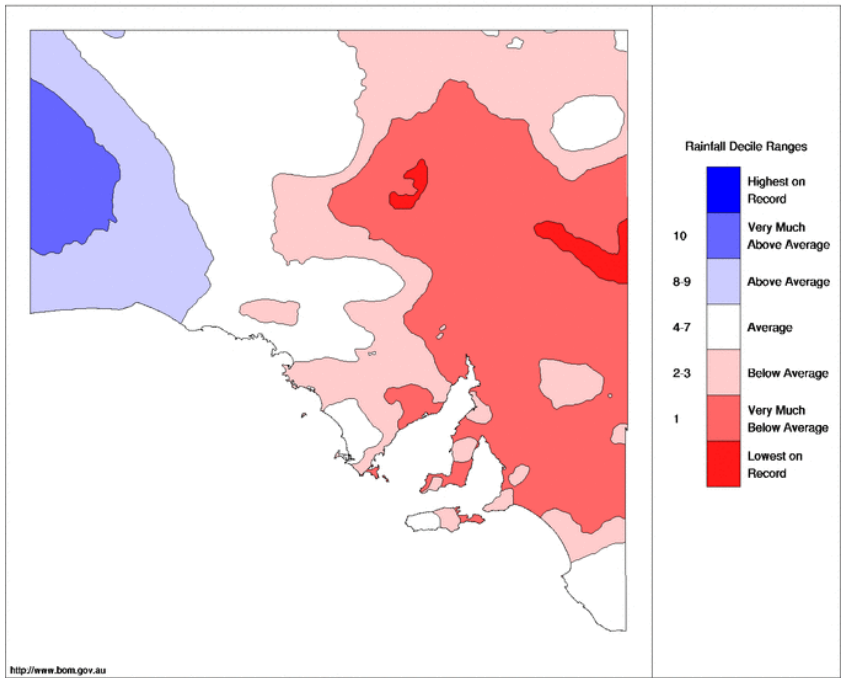
	New record (°C)	Old record	Years Held	Annual Average
Marree	34.2 on 29 Jan	32.7 on 30 Dec 2003	21	14.0

Record highest annual mean daily minimum temperature

	New record (°C)	Old record	Years Held	Annual Average
Adelaide Airport	12.7	12.5 in 2013	62	11.5

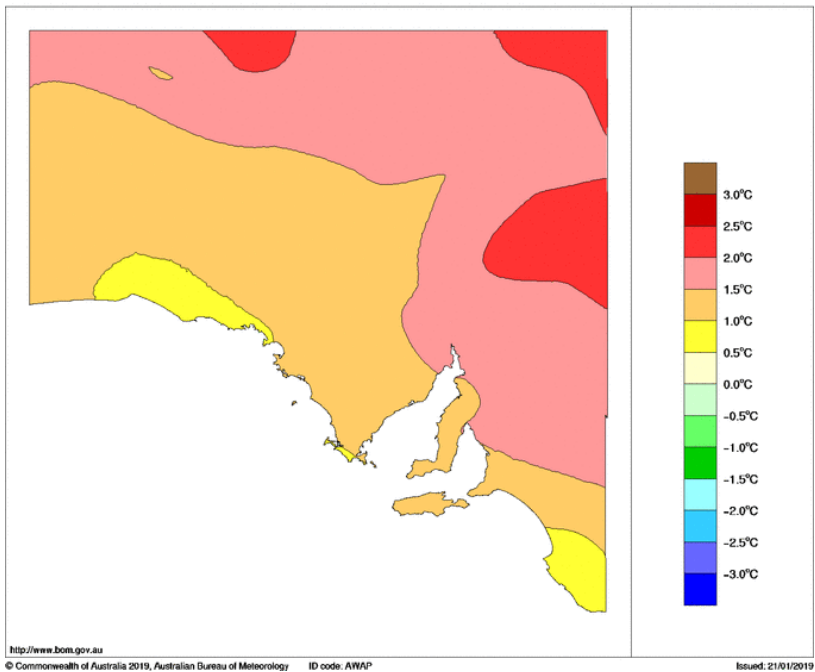
Record highest annual mean temperature				
	New record (°C)	Old record	Years held	Average
West Terrace	18.1	= 18.1 in 1914	91	16.9
Eudunda	16.3	16.2 in 2013	53	15.2
Edinburgh	17.8	= 17.8 in 2013	45	16.9
Clare	15.8	= 15.8 in 2014	23	15.2

Distribution Based on Gridded Data
Australian Bureau of Meteorology



Maximum Temperature Anomaly (°C) 1 January to 31 December 2018

Australian Bureau of Meteorology





Australian Meteorological Association Inc (AMeta)
www.ameta.org.au

NEXT MEETING

6.00 PM TUESDAY 19 February 2019

Bureau of Meteorology South Australian Office

Level 4 431 King William st, Adelaide (cnr Sth Tce / King William)

Note: Please meet in ground floor lobby 15 minutes prior

Topic: Home weather stations

Speakers: Jon Lethbridge and Mark Little

Home weather stations provide you the opportunity to monitor your local weather and share that information via Citizen Science portals such as the Bureau of Meteorology (BoM) and the Weather Observations Website (WOW).

We may be experiencing record summer temperatures but it will soon be time to start thinking about monitoring rain in the autumn and winter seasons. The two home weather experts will review a diverse range of rain gauges from a simple tube to complex electronic and physical configurations. A working Citizen Science rain gauge installation will be described with an explanation of how Bureau web resources can be used get a better understanding of the rainfall in your area.

Included is a review of Adelaide's recent weather and the climate outlook for the next 3 months by Darren Ray.

Please also note that subscriptions for 2018/2019 (\$15) are now due

Secretary:	Darren Ray
Phone:	8366 2664
Fax:	8366 2693

Inquiries or suggestions, please contact the Secretary on the phone number listed above.