

DATA FILE

Byte Location , Byte Size , Explanation

Byte Location	Byte Size	Explanation
1-2	, 2	, Record identifier - dc
4-9	, 6	, Bureau of Meteorology Station Number.
11-20	, 10	, Day month year in DD/MM/YYYY format.
22-27	, 6	, Precipitation in the 24 hours before 9am (local time).
In mm.		
29	, 1	, * Quality of precipitation value.
31-32	, 2	, Number of days of rain within the days of accumulation.
34-35	, 2	, Accumulated number of days over which the precipitation was measured.
37-41	, 5	, ** Type of precipitation as a text word.
43-47	, 5	, Maximum temperature in 24 hours after 9am (local time).
In Degrees C.		
49	, 1	, * Quality of maximum temperature in 24 hours after 9am (local time).
51-52	, 2	, Days of accumulation of maximum temperature.
54-58	, 5	, Minimum temperature in 24 hours before 9am (local time).
In Degrees C.		
60	, 1	, * Quality of minimum temperature in 24 hours before 9am (local time).
62-63	, 2	, Days of accumulation of minimum temperature.
65-69	, 5	, Air temperature observation at 09 hours Local Time. In Degrees C.
71	, 1	, * Quality of air temperature observation at 09 hours Local Time.
73-77	, 5	, Air temperature observation at 15 hours Local Time. In Degrees C.
79	, 1	, * Quality of air temperature observation at 15 hours Local Time.
81-85	, 5	, Average daily temperature (calculated by averaging the max and min temperatures). In Degrees C.
87	, 1	, * Quality of average daily temperature ((min+max)/2).
89-93	, 5	, Dew point temperature observation at 09 hours Local Time. In Degrees C.
95	, 1	, * Quality of dew point temperature observation at 09 hours Local Time.
97-101	, 5	, Dew point temperature observation at 15 hours Local Time. In Degrees C.
103	, 1	, * Quality of dew point temperature observation at 15 hours Local Time.
105-109	, 5	, Average daily dew point temperature. In Degrees C
111	, 1	, * Quality of overall dew point temperature observations used.
113-117	, 5	, Wet bulb temperature observation at 09 hours Local Time. In Degrees C.
119	, 1	, * Quality of wet bulb temperature observation at 09 hours Local Time.
121-125	, 5	, Wet bulb temperature observation at 15 hours Local Time. In Degrees C.

127	, 1	, * Quality of wet bulb temperature observation at 15
hours Local Time.		
129-133	, 5	, Average daily wet bulb temperature. In Degrees C.
135	, 1	, * Quality of overall wet bulb temperature observations
used.		
137-139	, 3	, *- Relative humidity for observation at 09 hours Local
Time. In percentage %.		
141	, 1	, * Quality of relative humidity for observation at 09
hours Local Time.		
143-145	, 3	, *- Relative humidity for observation at 15 hours Local
Time. In percentage %.		
147	, 1	, * Quality of relative humidity for observation at 15
hours Local Time.		
149-153	, 5	, Number of hours of bright sunshine in the 24 hours
midnight to midnight (local time).		
155	, 1	, * Quality of sunshine information.
157-162	, 6	, Mean sea level pressure at 09 hours Local Time, in hPa.
164	, 1	, * Quality of mean sea level pressure at 09 hours Local
Time.		
166-171	, 6	, Mean sea level pressure at 15 hours Local Time, in hPa.
173	, 1	, * Quality of mean sea level pressure at 15 hours Local
Time.		
175-180	, 6	, Average daily mean sea level pressure, in hPa.
182	, 1	, * Quality of daily mean sea level pressure.
184-189	, 6	, Station level pressure at 09 hours Local Time, in hPa.
191	, 1	, * Quality of station level pressure at 09 hours Local
Time.		
193-198	, 6	, Station level pressure at 15 hours Local Time, in hPa.
200	, 1	, * Quality of station level pressure at 15 hours Local
Time.		
202-207	, 6	, Average daily station level pressure, in hPa.
209	, 1	, * Quality of daily station level pressure.
211-216	, 6	, *- Vapour pressure at 09 hours Local Time, in hPa.
218	, 1	, * Quality of vapour pressure at 09 hours Local Time.
220-225	, 6	, *- Vapour pressure at 15 hours Local Time, in hPa.
227	, 1	, * Quality of vapour pressure at 15 hours Local Time.
229-234	, 6	, *- Average daily vapour pressure, in hPa.
236	, 1	, * Quality of daily vapour pressure.
238	, 1	, # symbol, end of record indicator.

## ACCUMULATED REPORTS

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Daily elements are reported at 9am, however many Australian observers do not report over a weekend or holiday. In this case they may accumulate rainfall and other elements such as maximum temperature. Thus the rainfall total reported on a Monday morning may be the total since the previous Friday, not just for the last 24 hours. Similarly, the maximum temperature may be the highest over a period of 2 or 3 days. Where this happens, the 'days of accumulation' field gives the number of days involved.

## \*- MOISTURE EQUATIONS

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The following formulas have been used:

Vapour pressure =  $\exp(1.8096 + (17.269425 * \text{Dew\_Point}) / (237.3 + \text{Dew\_Point}))$

Saturated Vapour pressure =  $\exp(1.8096 + (17.269425 * \text{Air\_Temperature}) / (237.3 + \text{Air\_Temperature}))$

Relative Humidity = Vapour pressure / Saturated vapour pressure \* 100

#### \* QUALITY FLAG DESCRIPTIONS

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Y: quality controlled and acceptable

N: not quality controlled

W: quality controlled and considered wrong

S: quality controlled and considered suspect

I: quality controlled and inconsistent with other known information

X: no quality information available

#### GAPS AND MISSING DATA

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Very few sites have a complete unbroken record of climate information. A site may have been closed, reopened, upgraded to a full weather site or downgraded to a rainfall only site during its existence causing breaks in the record for some or all elements. Some gaps may be for one element due to a damaged instrument, others may be for all elements due to the absence or illness of an observer.

#### INSTRUMENTS AND OBSERVATIONAL PRACTICES

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Historically a nearby site (within about 1 mile in earlier days) may have used the same site number. There may have been changes in instrumentation and/or observing practices over the period included in a dataset, which may have an effect on the long-term record.

In recent years many sites have had observers replaced by Automatic Weather Stations, either completely or at certain times of the day.

#### TIME

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For a part of the year some Australian States adopt Daylight Savings Time (DST), and observers continue to take observations according to the local clock. Times provided with this data are Local Time, unless otherwise noted.

Care needs to be taken when comparing values from year to year or month to month, because for some elements the effect of one hour can be marked, for example air temperature often rises

sharply between 8am and 9am.

Daylight Savings has been used in many Australian states since 1973. The changeovers occur almost always in October and March, but exact dates vary from State to State and year to year. More information can be found at: <http://www.bom.gov.au/climate/averages/tables/daysavtm.shtml>

#### ROUNDING

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The primary way of sending current weather information around the world is via a coded message known as a SYNOP. This message only allows some measurements to be sent as rounded values.

Once manuscript records have been sent in many of these values are typed in with greater precision (normally to one decimal place). This usually occurs within a few months.

If consecutive values all have a zero in the decimal place, then it is almost certain that rounding was used earlier. A new type of message format is progressively being introduced to overcome this situation.

#### COPYRIGHT

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#### LIABILITY

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While every effort is made to supply the best data available this may not be possible in all cases. We do not give any warranty, nor accept any liability in relation to the information given, except that liability (if any), that is required by law.

#### IF DATA IS NOT AS REQUESTED

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If the data provided are not as requested, the data will be repeated at no extra

cost,  
provided that:

- a) the Bureau is notified within 60 days.
- b) the printout/disc/data file is returned to the Bureau for checking.
- c) there has been a fault or error in providing the data.

Where there has been no fault or error of provision, the cost involved in requested corrective action such as resending the data or providing alternative sites will be charged for as necessary.

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SITE DETAILS FILE

This file contains the details for the current site or are those which applied when the site was closed. Many sites have been moved, downgraded, upgraded etc over the years.

Byte Location , Byte Size , Explanation

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1-2	, 2	, Record identifier - st
4-9	, 6	, Bureau of Meteorology Station Number.
11-14	, 4	, Rainfall district code
16-55	, 40	, Station Name.
57-63	, 7	, Month/Year site opened. (MM/YYYY)
65-71	, 7	, Month/Year site closed. (MM/YYYY)
73-80	, 8	, Latitude to 4 decimal places, in decimal degrees.
82-90	, 9	, Longitude to 4 decimal places, in decimal degrees.
92-106	, 15	, Method by which latitude/longitude was derived.
108-110	, 3	, State.
112-117	, 6	, Height of station above mean sea level in metres.
119-124	, 6	, Height of barometer above mean sea level in metres.
126-130	, 5	, WMO (World Meteorological Organization) Index Number.
132-135	, 4	, First year of data supplied in data file.
137-140	, 4	, Last year of data supplied in data file.
142-144	, 3	, Percentage complete between first and last records.
146-148	, 3	, Percentage of values with quality flag 'Y'.
150-152	, 3	, Percentage of values with quality flag 'N'.
154-156	, 3	, Percentage of values with quality flag 'W'.
158-160	, 3	, Percentage of values with quality flag 'S'.
162-164	, 3	, Percentage of values with quality flag 'I'.
166	, 1	, # symbol, end of record indicator.

LATITUDES AND LONGITUDES

Latitudes and Longitudes are given to 4 decimal places, but in many cases will not be accurate to 4 decimal places. This is because in the early days the positions of stations were estimated from maps. Gradually the network of open stations is being checked

(and if necessary corrected) using GPS (Global Positioning System). The method used is given in the site details file.

#### WMO INDEX NUMBER

This is the number assigned to a site that makes international weather reports every day.

The number is not actively used in the climate archive, and only a few hundred such numbers are assigned at any time. These are not perpetual but may be reassigned where a site no longer makes the international reports (synops); thus a particular number cannot be regarded as unique and exclusive to any particular site.

#### PERCENTAGE INFORMATION

In some cases the percentage completeness will be overestimated. This will occur if the database has incomplete information about the element being selected. In cases where several elements are selected, rows with a least one of the elements available are considered complete. Where only a limited amount of data is available and the percentage completeness is less than 0.5%, an "\*" has been used.

An "\*" is also used if the percentage of values with a particular quality flag is non zero and less than 0.5%.