



Australian Government

Bureau of Meteorology

Registered User XML State-based Observation Files

Data shown in these files is sourced from the same database as the state observation tables on the web, e.g.

<http://www.bom.gov.au/vic/observations/vicall.shtml>

File names

IDV60920.xml – Victorian observations
IDQ60920.xml – Queensland observations
IDN60920.xml – New South Wales observations
IDT60920.xml – Tasmanian observations
IDS60920.xml – South Australian observations
IDW60920.xml – Western Australian observations
IDD60920.xml – Northern Territory observations

Update frequency

Every ten minutes, at x:00, x:10, x:20, x:30, x:40, x:50.

Observation source types

The source message from the automatic weather station determines which meteorological elements are displayed in the product.

For wind measurements, the source message also determines how the wind value is calculated (see table below). The source message type for wind information is given by the attribute *wind-src*.

Message types used at each site are determined based on the following hierarchy (most preferred to least preferred):

- *OMD*: One minute frequency messages. As far as possible, all sensors connected to an AWS are polled once per second; values are reported as per the table below.
- *metar*: METAR format, issued either half-hourly or hourly (on the hour or half-hour). Includes SPECI messages issued at non-standard times where conditions change significantly from the preceding message.
- *metar_10*: METAR format, issued either half-hourly or hourly (on the hour or half-hour). Does not include SPECI messages.
- *mdf, synop*: Sites which update only at three hourly or less frequent intervals are sourced from SYNOP messages, which are manually generated by Bureau observers. Those with the type “Non-AWS” are usually SYNOP messages.

- *TMD*: Ten minute frequency messages. This message format has been superseded and is being replaced by one minute data and METAR messages.

Heading	Meaning
Date/time	Time is given in both local time (time-local) and UTC (time-utc).
air_temperature	Last valid one second sample of the specified minute.
apparent_temp	Steadman Apparent Temperature, calculated using temperature, relative humidity and wind speed.
dew_point	Calculated from either wet and dry bulb temperature (preferred) or air temperature and relative humidity.
rel-humidity	Calculated from either wet and dry bulb temperature (preferred) or directly measured by a humidity sensing probe. Last valid one second sample of the specified minute (where directly measured).
delta_t	Air temperature minus wet bulb temperature. (Not included for Antarctic observations.)
wind_dir	Calculated using a trigonometric technique, given as one of 16 cardinal points. Calm conditions displayed as "CALM". <ul style="list-style-type: none"> • OMD: Mean over one minute. • metar: See Appendix 3. • metar_10, synop, mdf: Mean over ten minutes.
wind_dir_deg	Calm conditions displayed as "0". <ul style="list-style-type: none"> • One minute: Mean over one minute. • metar: See Appendix 3. • metar_10, synop, mdf: Mean over ten minutes.
wind_spd_kmh	<ul style="list-style-type: none"> • OMD: Mean (km/h) over one minute. • metar: See Appendix 3. • metar_10, synop, mdf: Mean (km/h) over ten minutes.
gust_kmh	<ul style="list-style-type: none"> • OMD: The highest three

Heading	Meaning
	<p>second mean wind speed (km/h) over the one minute period.</p> <ul style="list-style-type: none"> • metar, metar_10: The highest three second mean wind speed (km/h) over the ten minute period. • synop, mdf: Not available.
wind_spd	<ul style="list-style-type: none"> • OMD: Mean (knots) over one minute. • metar: See Appendix 3. • metar_10, synop, mdf: Mean (knots) over ten minutes.
wind_gust_spd	<ul style="list-style-type: none"> • OMD: The highest three second mean wind speed (knots) over the one minute period. • metar, metar_10: The highest three second mean wind speed (knots) over the ten minute period. • synop, mdf: Not available.
pres	<p>Sourced from either QNH or mean sea level pressure. Where both QNH and MSLP are available, the value shown is MSLP. Last valid one second sample of the specified minute.</p>
qnh_pres	<p>Last valid one second sample of the specified minute.</p>
msl_pres	<p>Last valid one second sample of the specified minute.</p>
rainfall	<p>Precipitation during the stated period, usually since 9am local time. Some amounts may be rounded to the nearest millimetre.</p>
rain_ten	<p>Precipitation over the ten minutes preceding the observation time (metar and metar_10 only).</p>
rain_hour	<p>Precipitation over the hour preceding the observation time (metar and metar_10 only).</p>
maximum_air_temperature	<p>The highest sampled temperature from 6am to 9pm on the current calendar day. Observed time of this</p>

Heading	Meaning
	value is also given. Note: Maximum temperatures in the Bureau's climate records are measured from 9 am to 9 am and may differ from the values shown in the table.
minimum_air_temperature	The lowest sampled temperature from 6pm through to 9am on the current calendar day. Observed time of this value is also given. Note: Maximum temperatures in the Bureau's climate records are measured from 9 am to 9 am and may differ from the values shown in the table.
maximum_gust_dir	Wind direction at the time of highest wind gust, given as one of 16 cardinal points.
maximum_gust_kmh	Highest three second mean wind speed (km/h) measured from midnight to midnight for the current calendar day.
maximum_gust_spd	Highest three second mean wind speed (knots) measured from midnight to midnight for the current calendar day.
weather	Observed weather type (see Appendix 1) where manual observations are available (synop, mdf only).
cloud	<p>Cloud description (see Appendix 2) generated either from ceilometer data at aerodrome AWSs or from manual observations where available.</p> <ul style="list-style-type: none"> • OMD: Last valid one second sample of the specified minute (automated only). • metar, metar_10: Last valid one second (automated) sample of the specified minute or manual observation at the stated time. • synop, mdf: Manual observation at the stated time.
cloud_type	Observed cloud type (see Appendix 4) where manual observations are available (synop, mdf only).
cloud_type_ID	Observed cloud type ID (see Appendix 4) where manual

Heading	Meaning
	observations are available (synop, mdf only).
vis_km	<p>Visibility generated either from visibility meter data at aerodrome AWSs or from manual observations where available.</p> <ul style="list-style-type: none"> • OMD: Last valid one second sample of the specified minute (automated only). • metar, metar_10: Last valid one second (automated) sample of the specified minute or manual observation at the stated time. • synop, mdf: Manual observation at the stated time.
trend_pres	Observed weather type where manual observations are available (synop, mdf only). 'R' indicates pressure rising; 'S' pressure steady; 'F' pressure falling.
sea_height	Manual observations at coastal sites (synop, mdf only). '+' indicates 'greater than', '<' indicates 'less than'.
swell_height	Manual observations at coastal sites (synop, mdf only). '+' indicates 'greater than', '<' indicates 'less than'.
swell_period	Manual observations at coastal sites (synop, mdf only). '+' indicates 'greater than', '<' indicates 'less than'.
swell_dir	Manual observations at coastal sites (synop, mdfonly). Direction the swell comes from, given as one of eight cardinal points. 'CF' indicates confused swell, 'NS' indicates no swell.

Information on the elements themselves can be found here:
<http://www.bom.gov.au/catalogue/observations/about.shtml>

For further enquiries, please contact webreg@bom.gov.au

Appendix 1 – Weather Types

Please be aware that these values are free text entered by an observer and may include contractions or typographical errors.

Fine
Smoke
Haze
Dust
Dust whirls
Dust storm
Mist
Fog patches
Shallow fog
Lightning
Distant/nearby virga
Distant precipitation
Thunder
Squall
Funnel cloud
Recent drizzle
Recent rain
Recent snow
Recent rain and snow
Recent precipitation
Recent shower
Recent hail
Recent fog
Recent thunderstorm
Dust storm
Severe dust storm
Drifting snow
Blowing snow
Distant fog
Fog
Drizzle
Freezing drizzle
Rain
Freezing rain
Sleet
Snow
Ice prisms
Snow grains
Starlike crystals
Ice pellets
Shower
Violent shower
Snow shower
Soft hail shower
Hail shower
Thunderstorm
Thunderstorm and hail
Heavy thunderstorm
Thunderstorm and dust

Appendix 2 – Cloud Values

0 oktas: "Clear"
1-2 oktas: "Mostly clear"
3-5 oktas: "Partly cloudy"
6-7 oktas: "Mostly cloudy"
8 oktas: "Cloudy"
9 oktas: "Fog"

Appendix 3 – METAR/SPECI Wind Assessment Period (WAP)

The length of the WAP may be any value from 2 to 10 minutes. For METAR messages the WAP will be 10 minutes except when a wind discontinuity is detected during the 10 minute period preceding the observation, in which case the WAP will be 2 minutes plus the length of time expired since the discontinuity, up to a maximum of 10 minutes.

For a wind direction or wind speed SPECI, the length of the wind assessment period will always be 2 minutes.

For all other SPECI messages, the length of the wind assessment period will be the time elapsed since the last occurrence of any assessment period reset event (i.e. a wind discontinuity, a wind direction SPECIAWS, or a wind speed SPECIAWS) during the 10 minute period preceding the observation, in which case the WAP will be 2 minutes plus the length of time expired since the last reset, up to a maximum of 10 minutes. If a reset event has not occurred, the wind assessment period will be 10 minutes.

Appendix 4 – Cloud Types

Possible cloud_type values are:

Cirrus
Cirrocumulus
Cirrostratus
Alto cumulus
Altostratus
Nimbostratus
Stratocumulus
Stratus
Cumulus
Cumulonimbus
Towering Cumulus

Possible cloud_type_ID values are:

0 Cirrus
1 Cirro cumulus

- 2 Cirrostratus
- 3 Altocumulus
- 4 Altostratus
- 5 Nimbostratus
- 6 Stratocumulus
- 7 Stratus
- 8 Cumulus
- 9 Cumulonimbus
- 10 No high level cloud
- 11 Cirrus fibratus, sometimes unicus, not progressively invading the sky
- 12 Cirrus spissatus in patches or entangled sheaves, which usually do not increase
- 13 Cirrus spissatus cumulonimbogenitus
- 14 Cirrus unicus or fibratus or both, progressively invading the sky
- 15 Cirrus (often in bands) and Cirrostratus or Cirrostratus alone, progressively invading the sky, but continuous cloud less than 45 degrees above the horizon.
- 16 Cirrus (often in bands) and Cirrostratus or Cirrostratus alone, progressively invading the sky, but continuous cloud more than 45 degrees above the horizon without covering the entire sky
- 17 Cirrostratus covering the entire sky
- 18 Cirrostratus not covering the entire sky and not progressively invading it
- 19 Cirrocumulus alone, or Cirrocumulus predominant
- 20 No middle level cloud
- 21 Altostratus translucidus
- 22 Altostratus opacus or Nimbostratus
- 23 Altocumulus translucidus at a single level
- 24 Patches (often lenticular) of Altocumulus translucidus, continually changing and at one or more levels
- 25 Altocumulus translucidus in bands, or one or more layers of Altocumulus translucidus or opacus, progressively invading the sky
- 26 Altocumulus cumulogenitus or cumulonimbogenitus
- 27 Altocumulus translucidus or opacus in two or more layers, or Altocumulus opacus in a single layer, not progressively invading the sky, or Altocumulus with Altostratus or Nimbostratus
- 28 Altocumulus castellanus or floccus
- 29 Altocumulus of a chaotic sky, usually at several levels
- 30 No low level cloud
- 31 Cumulus humilis, or Cumulus fractus (not of bad weather), or both
- 32 Cumulus mediocris or congestus, with or without Cumulus humilis or fractus or Stratocumulus, all bases at the same level
- 33 Cumulonimbus calvus, with or without Cumulus, Stratocumulus or Stratus
- 34 Stratocumulus cumulogenitus
- 35 Stratocumulus other than stratocumulus cumulogenitus
- 36 Stratus nebulosus or Stratus fractus (not of bad weather), or both
- 37 Stratus fractus or Cumulus fractus of bad weather or both (pannus)
- 38 Cumulus and Stratocumulus other than stratocumulus cumulogenitus, with bases at different levels
- 39 Cumulonimbus capillatus with or without Cumulonimbus calvus, Cumulus, Stratocumulus, Stratus or pannus