The Bureau of Meteorology

State-based half hourly observations (72-hour history)

User guide – version 3.2 – updated 17 June 2024

This user guide provides a summary of the state-based half hourly observations (72-hour history) available to registered users via FTP and cloud (S)FTP.

Observations in these products are updated from the same real-time database as the Latest Weather Observation tables on the Bureau of Meteorology web site (see Table 1). Data is sourced from Automatic Weather Stations, including some portable automatic weather stations (PAWS) and from some sites that are manually operated and update less frequently.

Products

Table 1 provides a list of products included in the Observations – Australia – 72-hour history (IDB00011) bundle and links to weather observation station tables and maps for each state/territory.

Product Code	State/Territory	Weather Observation Station Table	Weather Observation Station Map
IDD60910	Northern Territory (NT)	NT Station Table	NT Station Map
IDN60910	New South Wales (NSW) and Australian Capital Territory (ACT)	NSW and ACT Station Table	NSW and ACT Station Map
IDQ60910	Queensland (QLD)	QLD Station Table	QLD Station Map
IDS60910	South Australia (SA)	SA Station Table	SA Station Map
IDT60910	Tasmania (TAS)	TAS Station Table	TAS Station Map
IDV60910	Victoria (VIC)	VIC Station Table	VIC Station Map
IDW60910	Western Australia (WA)	WA Station Table	WA Station Map

Table 1 Links to weather observation station tables and maps.

File Location

Files are available in the /fwo subdirectory of Registered Users' directories.

Files are also available via anonymous FTP at: ftp://ftp.bom.gov.au/anon/gen/fwo/. Please note that use of data from anonymous FTP should be in accordance with the copyright notice and disclaimer.

File Naming Convention

Files are overwritten with each issue and file names are unchanging allowing for direct addressing. Product files conform to the following naming convention:

ID*X*60910.*NNNNN.ext* zipped as **ID*X*60910.tgz**

File-name key	
ID*X*60910	Product Code as listed in Table 1
X	represents the state/territory of origin – D for Northern Territory, N for NSW and ACT, Q for Queensland, S for South Australia, T for Tasmania, V for Victoria and W for Western Australia
NNNNN	World Meteorological Organization (WMO) number - see the site list here
ext	file-type extension (xml, axf or json)

File Update Frequency

Every half hour, at approximately x:05 and x:35.

Observation Source Types

Data shown is sourced from a number of message types. The source message from the automatic weather station (AWS) 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 2). 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 Table 2.
- ***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.

Table 2 provides a list of elements and their meanings.

Element	Meaning
air_temperature (xml) **air_temp** (json, axf)	Last valid one second sample of the temperature (in degrees Celsius) at the specified minute.
apparent_temp (xml) **apparent_t** (json, axf)	Steadman Apparent Temperature (in degrees Celsius). Calculated using temperature, relative humidity and wind speed.
dew_point (xml) **dewpt** (json, axf)	Dewpoint (in degrees Celsius) calculated from wet and dry bulb temperature (preferred), or air temperature and relative humidity.
rel-humidity (xml) **rel_hum** (json, axf)	Relative humidity (percent) calculated from 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 (xml, json, axf)	Air temperature minus wet bulb temperature (in degrees Celsius). Not included for Antarctic observations.
wind_dir (xml, json, axf)	Wind direction calculated using a trigonometric technique, given as one of 16 cardinal points. Calm conditions displayed as “CALM”. • OMD: Mean over one minute. • metar: See Appendix 3. • metar_10, synop, mdf: Mean over ten minutes.
wind_dir_deg (xml, json, axf)	Wind direction in degrees. Calm conditions displayed as “0”. • One minute: Mean over one minute. • metar: See Appendix 3. • metar_10, synop, mdf: Mean over ten minutes.
wind_spd_kmh (xml, json, axf)	Wind speed in kilometres per hour. • OMD: Mean (km/h) over one minute. • metar: See Appendix 3. • metar_10, synop, mdf: Mean (km/h) over ten minutes.
gust_kmh (xml, json, axf)	Wind gust speed in kilometres per hour. • OMD: The highest three second mean wind speed (km/h) over the one-minute period. • metar, metar_10: The highest three second mean wind speed (km/h) over the ten-minute period. • synop, mdf: Not available.
wind_spd (xml) **wind_spd_kt** (json, axf)	Wind speed in knots. • OMD: Mean (knots) over one minute. • metar: See Appendix 3. • metar_10, synop, mdf: Mean (knots) over ten minutes.

Element	Meaning
wind_gust_spd (xml) **gust_kt** (json, axf)	Wind gust speed in knots. • 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 (xml) **press** (json, axf)	Atmospheric pressure 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.
msl_pres (xml) **press_msl** (json, axf)	Mean sea level atmospheric pressure in hectopascals. Last valid one second sample of the specified minute.
qnh_pres (xml) **press_qnh** (json, axf)	QNH atmospheric pressure in hectopascals. Last valid one second sample of the specified minute.
trend_pres (xml) **press_tend** (json, axf)	Trend in pressure since the last observation that has been corrected for diurnal variation; two peaks and troughs in pressure each day. Manual observation sites only (R rising, F falling, S steady).
rainfall (xml)	Precipitation since 9am (mm)
rain_trace (json, axf)	Precipitation during the stated period, usually since 9am local time. Some amounts may be rounded to the nearest millimetre.
rain_ten (xml, json, axf)	Precipitation over the ten minutes preceding the observation time (OMD, metar and metar_10 only).
rain_hour (xml, json, axf)	Precipitation over the hour preceding the observation time (metar and metar_10 only).
weather (xml, json, axf)	Observed weather type (see Appendix 1) where manual observations are available (synop, mdf only).
cloud (xml, json, axf)	Cloud description (see Appendix 2) generated either from ceilometer data at aerodrome AWSs or from manual observations where available. • 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_base_m (xml, json, axf)	Cloud base height above station height in metres.
cloud_oktas (xml, json, axf)	Cloud cover in oktas.

Element	Meaning
cloud_type_id (xml, json, axf)	Observed cloud type ID (see Appendix 4) where manual observations are available (synop, mdf only).
cloud_type (xml, json, axf)	Observed cloud type (see Appendix 4) where manual observations are available (synop, mdf only).
vis_km (xml, json, axf)	Visibility generated either from visibility meter data at aerodrome AWSs or from manual observations where available. • 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.
swell_height (xml, json, axf)	Manual swell height in metres at coastal sites (synop, mdf only). '+' indicates 'greater than', '<' indicates 'less than'.
swell_period (xml, json, axf)	Manual swell period in seconds at coastal sites (synop, mdf only). '+' indicates 'greater than', '<' indicates 'less than'.
swell_dir (xml) **swell_dir_worded** (json, axf)	Manual observations at coastal sites (synop, mdf only). Direction the swell comes from, given as one of eight cardinal points. 'CF' indicates confused swell, 'NS' indicates no swell.
sea_state (xml, json, axf)	Manual observations at coastal sites (synop, mdf only). Refers to the combination of sea and swell waves.

Table 2 List of elements and meanings.

Additional Information

Information on the elements themselves can be found here: About latest weather observations (bom.gov.au).

Historical Data

Please note that a subscription to the Observations – Australia – 72-hour history (IDB00011) bundle, or any of the products included in this bundle, provides real-time data only. All Registered User FTP customers have a products_list.txt file in their home directory, which is updated daily at approximately 10:10 am AEST (0010 UTC). This lists all products which will appear in a user's directory and includes the delete time from FTP (in hours) for each product.

For enquiries about historical data please email climatedata@bom.gov.au

Contact us

For enquiries about real-time data please email 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

Altocumulus

Altostratus

Nimbostratus

Stratocumulus

Stratus

Cumulus

Cumulonimbus

Towering Cumulus

Table 3 provides a list of possible **cloud_type_ID** values and cloud descriptions.

Cloud Type ID	Cloud Description
0	Cirrus
1	Cirrocumulus
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

Cloud Type ID	Cloud Description
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

Cloud Type ID	Cloud Description
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 nebulosis 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

Table 3 cloud_type_IDs and descriptions.