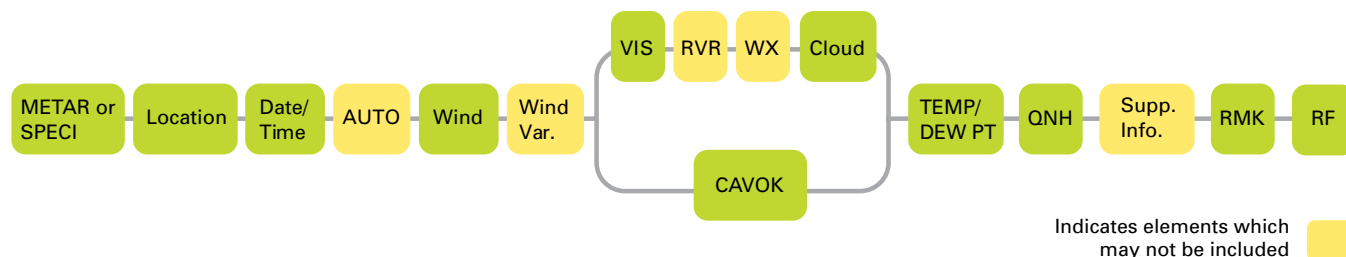


AVIATION WEATHER PRODUCTS

METAR/SPECI

Bureau of Meteorology › Aviation Meteorological Services



METAR YPPH 221130Z
28012KT 8000 1000 +SHRA
FEW005 OVC110 27/22
Q0999 RERA
RMK RF00.6/003.4

SPECI YSCB 171515Z AUTO
22015G25KT 190V250 9000
// NCD 13/09 Q1003 RMK
RF00.8/003.0

METAR/SPECI

A METAR is a routine report of meteorological conditions at an aerodrome.

A SPECI is a special report of meteorological conditions, issued when one or more elements meet specified criteria significant to aviation. SPECI is also used to identify reports of observations recorded ten minutes following an improvement (in visibility, weather or cloud) to above SPECI conditions.

Location

The location is indicated by either the ICAO (International Civil Aviation Organization) location indicator or another approved abbreviation.

Date/Time

The day of month and the time of the report is given in UTC (Coordinated Universal Time) using six figures followed by the letter Z. The first two digits are the day of the month; the following 4 digits are the time in hours and minutes, e.g. 291741Z (time of report is 1741 on the 29th of the month UTC).

AUTO

The abbreviation AUTO will be included when the report contains only automated observations.

Surface Wind

The wind direction, given in degrees true rounded to the nearest 10 degrees, is the mean value over the sampling period which is normally ten minutes. A variable wind direction is given as VRB.

The wind speed, given in knots (KT), is the mean value over the sampling period. The maximum gust during the sampling period is reported when it exceeds the mean speed by 10 knots or more. It is indicated by the letter G which is followed by the gust value.

At selected aerodromes, an additional wind group will be given when the direction varies by 60 degrees or more during the sampling period. The group gives the extreme range of directions in clockwise order, e.g. 360V090.

Visibility

The visibility is given in metres up to 9000 metres, with 9999 being used to indicate 10 kilometres or greater. When the visibility is estimated manually, two groups (the prevailing - the greatest visibility reached in at least half the horizon circle - and the minimum) will be reported when: the visibility is not the same in different directions and is not fluctuation rapidly; and the minimum visibility is not the prevailing visibility; and the minimum visibility is less than 1500 metres, or is between 1500 and 5000 metres and less than 50% of the prevailing visibility. In these cases, the prevailing visibility will be given first, followed by the minimum visibility with its direction (using one of the eight points of the compass) from the observing station e.g. 9000 2000N.

When visibility is given by an automated sensor (in fully AUTOMated reports), only one group will be reported, i.e. any variation in visibility that may exist will not be given.



Australian Government
Bureau of Meteorology

Runway Visual Range (RVR)

RVR will be reported from aerodromes with RVR instrumentation whenever the RVR or the visibility are less than 1500 metres. It will be reported in the format RDD[r]/[n] V₁V₁V₁V₁ [V[n]V₂V₂V₂][i]. The elements in [] are included only when applicable.

Prefix	Weather Intensity
+	Heavy
no prefix	Moderate
-	Light

Code	Weather Descriptor
BC	Patches
BL	Blowing
DL	Distant lightning
DR	Drifting
FZ	Freezing
MI	Shallow
PR	Partial
SH	Showers
TS	Thunderstorm
VC	in the Vicinity

Code	Weather Phenomenon
BR	Mist
DU	Dust
DS	Duststorm
DZ	Drizzle
FC	Funnel cloud
FG	Fog
FU	Smoke
GR	Hail
GS	Small hail/snow pellets
HZ	Haze
PL	Ice pellets
PO	Dust devil
RA	Rain
SA	Sand
SG	Snow grains
SN	Snow
SQ	Squall
SS	Sandstorm
VA	Volcanic ash
UP	Unidentified precipitation

CODE	DESCRIPTION
R	A fixed indicator, denoting that RVR information follows.
DD	Designates runway threshold for which RVR is being reported.
r	Parallel runways will be distinguished by the letter L, C or R indicating the left, centre or right runway, respectively.
/	A fixed separator.
n	n will only be reported when the RVR is assessed to be one of the following: <ul style="list-style-type: none"> greater than 2000 metres, in which case n will be reported as P, and the group will be reported as P2000; greater than the maximum value which can be assessed by the system, and this maximum value is 2000 metres or less, in which case n will be reported as P, and VVVV will report the maximum value, e.g. P1700; less than 50 metres, in which case n will be reported as M, and the group will be reported as M0050; less than the minimum value which can be assessed by the system, and this minimum value is 50 metres or more, in which case n will be reported as M, and VVVV will report the minimum value, e.g. M0100.
V₁V₁V₁V₁	Gives the last 10-minute average RVR value, except when the RVR has varied significantly during the 10 minutes in which case it gives the minimum 1-minute average value during this period (and is followed by V[n]V ₂ V ₂ V ₂).
V	A conditional indicator, included only when RVR has varied significantly during the last 10 minutes.
V₂V₂V₂V₂	Gives the maximum one-minute average value during the last ten minutes. Only included when RVR has varied significantly during the ten minutes.
i	Gives any distinct RVR tendency over the sampling period – either U (upward), D (downward) or N (nil). Is not reported if tendency not available.

Weather

Weather phenomena are reported using the codes listed in the tables on the left. Intensity is indicated for precipitation, duststorms, sandstorms and funnel clouds by appending:

- the prefix - for light, e.g. -DZ
- the prefix + for heavy, e.g. +RA
- no prefix for moderate, e.g. SHRA

When precipitation is reported with TS, the intensity indicator refers to the precipitation, e.g. -TSRA = thunderstorm with light rain.

One or more codes may be grouped, e.g. +TSGR, -TSRASN

A report from an AWS may include information on vicinity thunderstorms (VCTS) or distant lightning (DL), where vicinity refers to 8-16 km from the aerodrome reference point and distant refers to greater than 16 km. The direction in which vicinity thunderstorms or distant lightning are detected may also be reported in the remarks section, e.g. DL-NE means distant lightning to the northeast and VCTS-E means thunderstorm in the vicinity to the east.

Cloud

Cloud information is reported from the lowest to the highest layers in accordance with the following rules:

Code	Cloud Amount
FEW	Few (1 to 2 oktas)
SCT	Scattered (3 to 4 oktas)
BKN	Broken (5 to 7 oktas)
OVC	Overcast (8 oktas)
NSC	Nil significant cloud
NCD*	Nil cloud detected

* NCD is only reported in fully automated reports when a cloud sensor detects nil cloud.

- 1st group: the lowest layer regardless of amount.
- 2nd group: the next layer covering more than 2 oktas of the sky.
- 3rd group: the next higher layer covering more than 4 oktas of the sky.
- Extra groups: for cumulonimbus and/or towering cumulus clouds, whenever observed and not reported in any of the above.

Cloud amount is described using the codes in the table on the left.

Cloud height is given as a three-figure group in hundreds of feet above the aerodrome elevation, e.g. cloud at 700 feet is shown as 007.

Cloud type is identified only for cumulonimbus and towering cumulus, e.g. FEW030CB, SCT045TCU.

When an individual layer is composed of cumulonimbus and towering cumulus with a common base, the cloud is reported as CB only.

CAVOK

The abbreviation CAVOK (Cloud And Visibility OK) is used when the following conditions are observed simultaneously:

- Visibility is 10 kilometres or more;
- No cloud below 5000 feet or below the highest 25NM minimum sector altitude, whichever is the higher, and no cumulonimbus and no towering cumulus; and
- No weather of significance to aviation, i.e. none of the weather phenomena listed in the weather table.

Temperature

Air temperature and dew point values are rounded to the nearest whole degree. Negative values are indicated by M (minus) before the numeral, e.g. 34/M04

Pressure (QNH)

The QNH value is rounded down to the next whole hectopascal and is given using four figures prefixed by Q, e.g. 999.9 is given as Q0999

Supplementary Information

Supplementary information is used to report:

- Recent Weather – significant weather observed since the last report but not at the time of observation is given after the prefix RE, e.g. RERA.
- Wind Shear – reports of wind shear experienced on take-off or landing are given after the indicator WS, e.g. WS R16.

Remarks

The Remarks section (indicated by RMK) may contain the following:

- Quantitative information on past rainfall is given in millimeters in the form RFRR.R/RRR.R e.g. RF00.2/004.2, gives the rainfall recorded in the ten minutes prior to the observation time, followed by the rainfall recorded in the period since 0900 local time.
- Information of operational significance not reported in the body of the message, for example:
 - information about significant conditions (such as bushfires and distant thunderstorms) beyond the immediate vicinity of the aerodrome,
 - any BKN or OVC low or middle cloud present at or above 5000 feet when CAVOK has been included in the body of the message,
 - CLD:SKY MAY BE OBSC may be reported in fully automated reports when the ceilometer (cloud sensor) detects nil cloud and the visibility sensor estimates horizontal visibility as being less than 1000 metres

Data Not Available

Where a data group is not available, solidi will be reported in lieu of the missing group, e.g. //// for visibility, // for weather and ///// for cloud.

SPECI Criteria

SPECI is used to identify reports of observations when conditions are below specified levels of visibility and cloud base; when certain weather phenomena are present; and when the temperature, pressure or wind change by defined amounts (outlined in the table on the right).

SPECI is also used to identify reports of observations recorded 10 minutes following an improvement in visibility, weather or cloud to METAR conditions.

Element	Criterion
Wind Direction	Changes of 30° or more, the mean speed before or after the change being 20KT or more
Wind Speed	Changes of 10KT or more, the mean speed before or after the change being 30KT or more
Wind Gust	<ul style="list-style-type: none"> Gusts of 10KT or more above a mean speed of 15KT or more Gust exceeds the last reported gust by 10KT or more
Visibility	When the prevailing visibility is below the aerodrome's highest alternate minimum visibility or 5000M, whichever is greater*
Weather	When any of the following begins, ends, changes in intensity, or is occurring at a routine reporting time: <ul style="list-style-type: none"> thunderstorm hailstorm mixed snow and rain freezing precipitation drifting snow squall fog (including shallow fog, fog patches and fog at a distance) dust storm sandstorm funnel cloud moderate or heavy precipitation
Cloud	When there is BKN or OVC cloud below the aerodrome's highest alternate minimum cloud base or 1500FT, whichever is greater*
Temperature	When the temperature changes by 5°C or more since last report
Pressure	When the QNH changes by 2hPa or more since last report
Other	<ul style="list-style-type: none"> Upon receipt of advice of the existence of wind shear The incidence of any other phenomenon likely to be significant

* Where no descent procedure is established for an aerodrome, the aerodrome's alternate ceiling and visibility are 1500 feet and 8 kilometres respectively.

METAR/SPECI Example

SPECI YMML 221945Z 14003KT 0600 R16/0600D R27/0550N FG ///// 08/08 Q1026 RMK RF00.0/001.8

REPORT	EXPLANATION
SPECI	Special meteorological observation (for wind gust).
YMML	ICAO location indicator for Melbourne Airport.
221945Z	Time of observation is 1945 on the 22nd of the month UTC.
14003KT	Average wind during sampling period (normally ten minutes) is from 140 degrees True at 3 knots.
0600	Visibility is 600 metres.
R16/0600D	Runway visual range on runway 16 threshold is 600 metres, and is trending down.
R27/0550N	Runway visual range on runway 27 threshold is 550 metres; nil trend.
FG	Present weather is fog.
/////	Cloud observation not made (as sky obscured due fog).
08/08	The air temperature and the dewpoint temperature are both 8°C.
Q1026	The QNH is between 1026 and 1026.9 hectopascals.
RMK	Remarks section follows.
RF00.0/001.8	There has been nil rain in the last 10 minutes; 1.8 mm has fallen since 0900 local time



Australian Government
Bureau of Meteorology

Airservices Australia is the official distributor of aviation forecasts, warnings and observations issued by the Bureau of Meteorology. Airservices' flight briefing services are available at www.airservicesaustralia.com. Telephone contact details for elaborative briefings are contained in Airservices' Aeronautical Information Publication Australia (AIP), which is available online through their website.

Other brochures produced by the Bureau of Meteorology's aviation meteorological services program can be found at www.bom.gov.au/aviation/knowledge-centre.

A vertical line in the margin indicates a text amendment since last update.