

# AVIATION WEATHER PRODUCTS

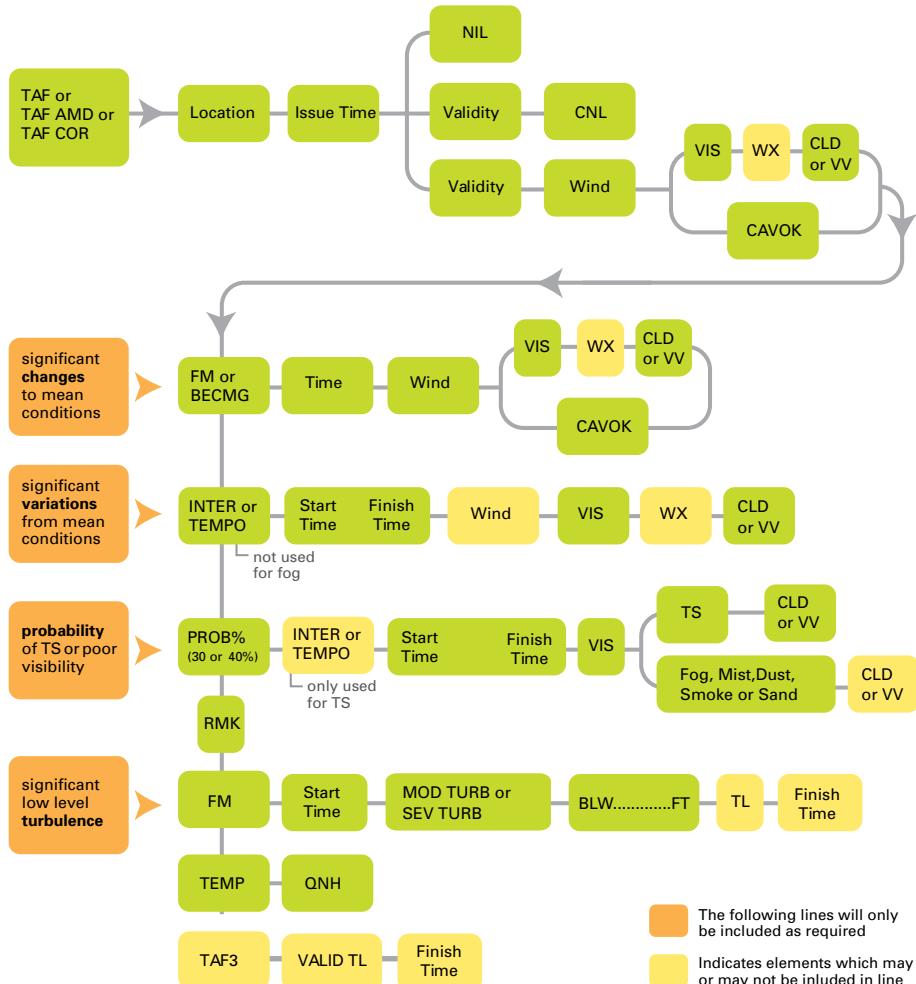
# Aerodrome Forecast (TAF)

Bureau of Meteorology › Aviation Meteorological Services



A TAF is a coded statement of meteorological conditions expected at an aerodrome and within a radius of five nautical miles of the aerodrome reference point.

The format of an Australian TAF is as follows:



```
TAF AMD YMML 292330Z 3000/3106
14008KT 9999 SCT030
FM301100 14003KT 3000 BR BKN009
FM302300 22008KT 9999 NSW SCT013
PROB40 3017/3023 0400 FG
RMK
T 14 15 17 14 Q 1016 1014 1013 1014
TAF3
```

## Explanation of TAF Elements

### Identifier

TAF	Aerodrome Forecast
TAF AMD	Amended Aerodrome Forecast
TAF COR	Corrected Aerodrome Forecast
TAF .. CNL	Cancelled Aerodrome Forecast
TAF .. NIL	Aerodrome Forecast will not be issued



Code	Weather Descriptor
BC	Patches
BL	Blowing
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
NSW	Nil significant weather
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

Prefix	Weather Intensity
+	Heavy
no prefix	Moderate
-	Light

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

Code	Cloud Type
CB	Cumulonimbus
TCU	Towering cumulus

## Location

The location is given by either an ICAO location indicator or an approved Airservices Australia abbreviation.

## Issue Time

The issue time of the TAF is expressed in a six-figure group followed by the code letter Z, e.g. 202230Z gives an issue time of 2230 on the 20th day of the month UTC.

## Validity

The period of validity is given in the format ddhh/ddhh, where dd is day of the month and hh is hour UTC, e.g. 2100/2206, which gives a 30 hour validity period from 0000 on the 21st to 0600 on the 22nd UTC.

## Wind

The wind direction is given in degrees True, rounded to the nearest 10 degrees. A variable wind direction is given as VRB (used when the forecasting of a mean wind direction is not possible).

The wind speed is given in knots (KT).

The maximum wind gust is included, after the letter G, if it is expected to exceed the mean by 10 knots or more, e.g. 28020G30KT gives a wind direction of 280° True, with a mean speed of 20 knots, and a maximum gust of 30 knots.

## Visibility

The horizontal visibility is given in metres in increments of 50 metres when visibility is forecast to be less than 800 metres; in increments of 100 metres when forecast to be 800 metres or more but less than 5,000 metres; and in increments of 1,000 metres when forecast to be 5,000 or more but less than 10,000 metres. Visibility is always given in a four figure group: e.g. 500 metres is given as 0500. Forecast visibilities of 10 kilometres or more are given as 9999. Visibility is not given when CAVOK is forecast.

## Weather

Forecast weather is expressed using the abbreviations in the tables on the left. If nil significant weather is expected, and CAVOK is not appropriate, then the group is not included (however NSW – nil significant weather – may be used after a change group [FM or BECMG]).

Intensity is indicated for precipitation, duststorms, sandstorms and funnel clouds (tornadoes and water spouts). In these cases, the weather group is prefixed by - for light and + for heavy; moderate intensity has no prefix, e.g. +TSRA means thunderstorm with heavy rain; DZ means moderate drizzle; -RA means light rain.

## Cloud

Cloud information is restricted to cloud with a base below 5000 feet or the highest 25 nautical mile minimum sector altitude, whichever is greater, and cumulonimbus (CB) and towering cumulus (TCU) at any height. It is given from the lowest to the highest layers in accordance with the following rules:

- 1st group: the lowest layer regardless of amount
- 2nd group: the next layer covering more than 2 oktas
- 3rd group: the next higher layer covering more than 4 oktas
- Extra group for cumulonimbus when forecast but not at any of the layer heights given above.

Cloud amount is given using the following abbreviations in the table on the left. Cloud height is given as a three-figure group in hundreds of feet above the aerodrome, e.g. cloud at 700 feet above the aerodrome is shown as 007.

Cloud type is identified only for CB and TCU, e.g. FEW030CB.

## CAVOK

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

- Visibility is 10 kilometres or more
- No cloud below 5,000 feet or below the highest 25 nautical mile minimum sector altitude whichever is the higher; and no cumulonimbus at any height
- No weather of significance, i.e. none of the weather listed in the weather table

### **Significant Changes and Variations (FM, BECMG, INTER, TEMPO)**

Significant changes and variations will be included when the changes and variations are expected to satisfy amendment criteria. It should be noted that these changes relate to improvements as well as deteriorations.



The term **FM** is used when one set of prevailing weather conditions is expected to rapidly change to a different set of prevailing weather conditions. The indicator is the beginning of a self-contained forecast, with the new conditions applying until the end period of the forecast or until the commencement time of another FM or BECMG group.

The term **BECMG** is used when one set of prevailing weather conditions is expected to change, during the given period, to a different set of prevailing weather conditions. The indicator is the beginning of a self-contained forecast, with the new conditions applying until the end period of the forecast, or until the commencement time of another BECMG or FM group.

Following any change group (FM or BECMG) there will be information on wind, visibility, weather and cloud; except when CAVOK is given or when fog is forecast. When CAVOK is not given and there is nil significant weather expected, the abbreviation NSW is used. When CAVOK is not given and nil significant cloud is expected, the abbreviation NSC will be used.

The terms **TEMPO** and **INTER** are used to indicate significant temporary or intermittent variations from the prevailing conditions previously given in the TAF. TEMPO is used for periods of 30 minutes or more but less than 60 minutes. INTER is used for periods less than 30 minutes.

### **PROB**

The term PROB is used in a TAF if the estimated probability of occurrence is 30 or 40% (probabilities of less than 30% are not given), and is only used with reference to thunderstorms or poor visibility (less than the alternate minimum) resulting from fog, mist, dust, smoke or sand. If the estimated probability of occurrence is equal to or greater than 50%, then reference to PROB is not included. When using PROB with thunderstorms, INTER and TEMPO are also included whenever appropriate to indicate the probable duration. Where PROB is used without one of these, the likely period of occurrence will be deemed to be one hour or more. For example:

#### **PROB30 INTER 1205/1211 5000 -TSRA BKN040CB**

indicates a 30% probability of deteriorations of less than 30 minutes due to thunderstorms with light rain, between 0500 and 1100UTC on the 12th.

#### **PROB40 TEMPO 1102/1113 3000 TSRA BKN040CB**

indicates a 40% probability of deteriorations of 30 minutes or more but less than 60 minutes due to thunderstorms with moderate rain, between 0200 and 1300UTC on the 11th.

#### **PROB30 1005/1014 1000 +TSRA BKN040CB**

indicates a 30% probability of deteriorations of one hour or more due to thunderstorms with heavy rain, between 0500 and 1400UTC on the 10th.

### **RMK**

RMK (remarks) precedes information on Turbulence (if forecast), Temperatures, QNH and TAF3 (when applicable).

### **Turbulence**

Special reference is made in TAF to hazardous turbulence, other than that associated with CB and TCU, that may endanger aircraft or adversely affect their safe or efficient operation. The TAF contains information on commencement time (FMddhhmm), the

expected intensity (moderate [MOD] or severe [SEV]) and the vertical extent (BLW....FT). TILddhhmm is used to indicate the cessation of the turbulence when this is expected before the end of the TAF validity.

## Air Temperature

Air temperature, preceded by the letter T, is given in whole degrees celsius using two figures. If the temperature is below zero, the value is prefixed by the letter M (minus). Forecasts of air temperature are given at three-hourly intervals, for a maximum of nine hours, from the time of commencement of validity of the forecast. They are given for the times HH, HH+3, HH+6 and HH+9, where HH is the time of the commencement of the TAF validity. They are point forecasts for these times, and users should use linear interpolation to determine the forecast value between these points.

QNH

QNH, preceded by the letter Q, is given in whole hectopascals using four figures. Forecasts of QNH are given at three-hourly intervals, for a maximum of nine hours, from the time of commencement of validity of the forecast. They are given for the times HH, HH+3, HH+6 and HH+9, where HH is the time of the commencement of the TAF validity. They are point forecasts for these times, and users should use linear interpolation to determine the forecast value between these points.

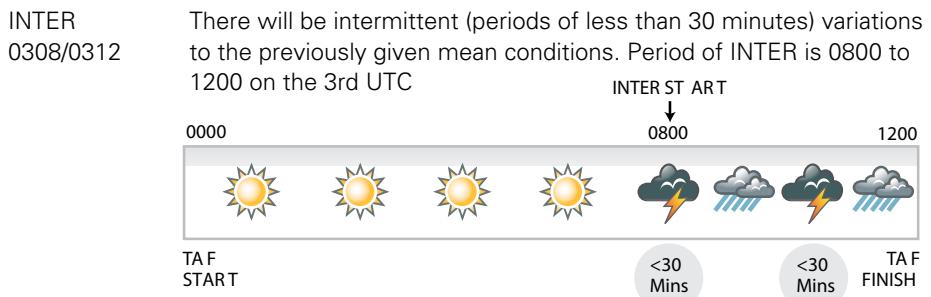
TAF3

The inclusion of TAF3, following the forecast QNH readings in the RMK section of the TAF, indicates the presence of a TAF3 service. It may also be followed by a VALID TL (till) and time stamp indicating the cessation of the TAF3 service at aerodromes offering a limited service, i.e. TAF3 VALID TL 150600. Refer to the TAF3 brochure for more information.

## TAF Examples

TAF YMAY 022230Z 0300/0312 35010KT CAVOK  
FM030800 31018KT 9999 SHRA BKN025 OVC100  
INTER 0308/0312 31020G40KT 3000 +TSRA BKN010 SCT040CB  
RMK FM030600 MOD TURB BLW 5000FT  
T 23 24 28 33 Q 1012 1013 1014 1009

FORECAST	DECODE
TAF	Aerodrome Forecast
Y MAY	Location indicator for Albury Airport
022230Z	TAF issued at 2230 on the 2nd day of the month UTC
0300/0312	Validity period of TAF is from 0000 to 1200, on the 3rd day of the month UTC
35010KT	Wind will be from the north (350 degrees True) at 10 knots
CAVOK	Cloud, visibility and weather ok
FM030800	Significant changes to the mean conditions are expected to commence from 0800 on the 3rd UTC, and to persist (at least) until the end of the forecast period.
	FM ↓ 0800
	1200
	
TA F START	
	TA F FINISH
	<p>Note that there will be intermittent variations to the new mean conditions (refer INTER below)</p>
31018KT	Wind will be from the northwest (310 degrees True) at 18 knots
9999	Visibility will be 10 kilometres or more
SHRA	Weather will be moderate showers of rain
BKN025	Cloud will be broken (5 to 7 oktas) with base at 2,500 feet above the aerodrome
OVC100	There will also be overcast cloud (8 oktas) with base at 10,000 feet



31020G40KT	Intermittently the wind will be from the northwest (310 degrees True) at 20 knots gusting to 40 knots
3000	Visibility will be 3,000 metres
+TSRA	Weather will be thunderstorms with heavy rain
BKN010	Cloud will be broken (5 to 7 oktas) with base at 1,000 feet above the aerodrome
SCT040CB	There will also be 3 to 4 oktas of cumulonimbus cloud with base at 4,000 feet
RMK	Remarks section follows
FM030600 TURB BLW 5000FT	From 0600 on the 3rd UTC, expect moderate turbulence below 5,000 feet
T 23 24 28 33	Forecast air temperatures at 00, 03, 06 and 09UTC are 23, 24, 28 and 33°
Q 1012 1013 1014 1009	Forecast QNH at 00, 03, 06 and 09 UTC are 1012, 1013, 1014 and 1009hPa.



Launceston Airport. Image courtesy of K. Spilling, Creative Commons.

**TAF COR YMLT 212240Z 2200/2218 31015G28KT 6000 -RA BKN010 OVC100  
TEMPO 2209/2218 2000 +TSRA BKN005 SCT040CB  
RMK  
T 25 21 18 15 Q 1014 1013 1013 1011**

TAF	DECODE
TAF	Aerodrome Forecast
COR	This TAF is a correction to the previously issued TAF
YMLT	Location Indicator for Launceston Airport
212240Z	TAF issued at 2240 on the 21st day of the month UTC
2200/2218	Validity period of TAF is from 0000 until 1800 on the 22nd of the month UTC
31015G28KT	Mean wind is expected to be from 310 degrees True at 15 knots with gusts to 28 knots
6000	Visibility will be 6,000 metres
-RA	Weather will be light rain
BKN010	Cloud will be broken (5 to 7 octas), with base at 1,000 feet above the aerodrome
OVC100	There will also be overcast cloud, with base at 10,000 feet above the aerodrome
TEMPO 2209/2218	There will be temporary variations (periods of 30 to 60 minutes), to the previously given mean conditions, during the period 0900 to 1800 on the 22nd.
2000	Visibility will be 2,000 metres
+TSRA	Weather will be thunderstorms with heavy rain showers
BKN005	There will be broken (5 to 7 oktas) cloud with base at 500 feet above the aerodrome
SCT040CB	There will also be scattered (3 to 4 oktas) cumulonimbus cloud with base at 4,000 feet above the aerodrome

RMK	Remarks section follows
T 25 21 18 15	Forecast air temperatures at 00, 03, 06 and 09UTC are 25, 21, 18 and 15°C
Q 1014 1013 1013 1011	Forecast QNH at 00, 03, 06 and 09UTC are 1014, 1013, 1013 and 1011hPa



Melbourne Airport. Image courtesy of Creative Commons.

**TAF AMD YMML 292330Z 3000/3106 14008KT 9999 SCT030**

**FM301100 14003KT 3000 HZ BKN009**

**PROB40 3017/3023 0400 FG**

**RMK**

**T 14 15 17 14 Q 1016 1014 1013 1014**

**TAF3**

<b>TAF</b>	<b>DECODE</b>
TAF	Aerodrome Forecast
AMD	This TAF amends the previously issued TAF
YMML	Location indicator for Melbourne Airport
292330Z	TAF issued at 2230 on the 29th day of the month UTC
3000/3106	Validity period of TAF is from 0000 on the 30th until 0600 on the 31st UTC
14008KT	Mean wind is expected to be from the southeast (140 degrees True) at 8 knots
9999	Visibility will be 10 kilometres or more
(nil significant weather is expected, therefore weather group not included)	
SCT030	Cloud will be scattered (3 to 4 oktas), with base at 3000 feet above the aerodrome
FM301100	Significant new mean conditions are expected from 1100 on the 30th UTC
14003KT	Mean wind is expected to be from 150 degrees True at 3 knots
3000	Visibility will be 3 kilometres
HZ	Weather will be haze
BKN009	Cloud will be broken (5 to 7 oktas), with base at 900 feet above the aerodrome
PROB40	There is a 40% probability of conditions being the following during the 3017/3023 period 1700 to 2300 on the 30th
0400	Visibility of 400 metres
FG	Fog
RMK	Remarks section follows
T 14 15 17 14	Forecast air temperatures at 00, 03, 06 and 09UTC are 14, 15, 17 and 14°C
Q 1016 1014 1013 1014	Forecast QNH at 00, 03, 06 and 09UTC are 1016, 1014, 1013 and 1014hPa
TAF3	TAF3 service provided



**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](http://www.airservicesaustralia.com). Telephone contact details for elaborate 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](http://www.bom.gov.au/aviation/knowledge-centre).

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