

Cloud codes

Met codes for reporting and forecasting cloud have changed, bringing Australia into line with international practice.

GEOFF SMITH & LOUIS BOKOR

SINCE JULY OF THIS YEAR, SOME critical changes to the way of reporting and forecasting cloud have occurred which affect cloud codes.

The changes implement the international standard adopted by the International Civil Aviation Organization (ICAO) and the World Meteorological Organization (WMO) in 1993.

Use of the standard in Australia has been endorsed by CASA after an analysis of the potential impact showed there would be no resulting penalty to operators.

The result for international pilots is close to world-wide uniformity in coded versions of actual and forecast weather. The format also removes unnecessary detail on cloud types.

The changes: Gone are the eighths (OKTAS) which measure cloud amount in METAR/SPECI, TTF and TAF. They are now replaced with cloud amount descriptors. (The cloud amount descriptors used in the abbreviated, plain language, low-level area forecast conform to the same standard.)

The descriptive terms now used for cloud amounts are:

- **SKC (sky clear) = no cloud.**
- **FEW (few) = 1 to 2 OKTAS.**
- **SCT (scattered) = 3 to 4 OKTAS.**
- **BKN (broken) = 5 to 7 OKTAS.**
- **OVC (overcast) = 8 OKTAS.**

(If appropriate CAVOK is used.)

Minimum conditions: To find out below minimum conditions, the amounts of forecast cloud layers below the minima must be looked at cumulatively as follows:

- FEW plus FEW is equivalent to SCT (4/8ths or less)
- FEW plus SCT is equivalent to BKN (more than 4/8ths)
- SCT plus SCT is equivalent to BKN or OVC (more than 6/8ths)

Observations: In METAR/SPECI:

- Cloud amounts are in ICAO standard descriptors.
- Only towering Cumulus (TCU) and Cumulonimbus (CB) cloud types are identified.

For TTF METAR/SPECI:

- Cloud amounts are in ICAO standard descriptors.
- Of the observed cloud reported, only towering Cumulus (TCU) and Cumulonimbus (CB) cloud types are identified.
- The statement of trend appended to the observation uses ICAO descriptors for cloud. Only forecast CB cloud type is identified.

In TAF, cloud is forecast using ICAO descriptors for cloud amount. Again, the only forecast cloud type identified is CB.

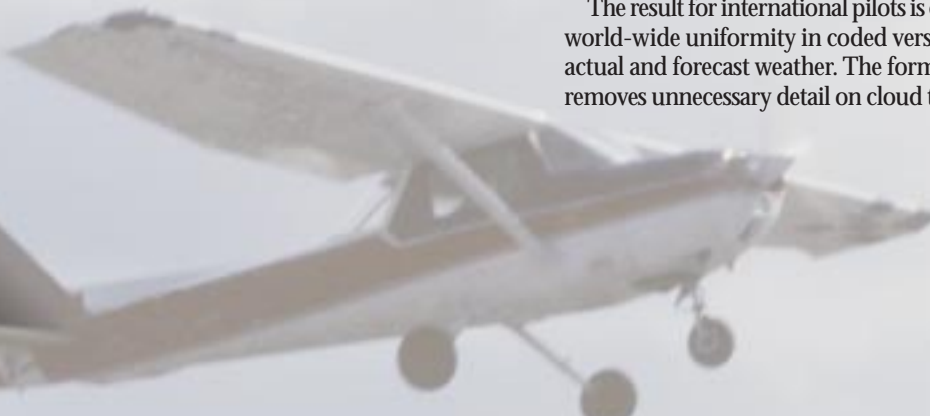
Rainfall in METAR/SPECI: At aerodromes where there is an automatic weather station (AWS), METARs and SPECIs will usually include a rainfall group. This will be included in the message in the form "RMK RF00.0/000.0"

For example:

TTF SPECI YSSY 1200Z 18010KT 9999 FEW006 BKN010 OVC100 21/21 Q1006 RMK RF00.0/002.8

TEMPO 1200/1500 3000 DZ SCT004 BKN008

Explanation: The TTF SPECI YSSY 1200Z contains the group "RMK RF00.0/002.8"



RAINFALL INTENSITY: WHAT THE REPORTED RATES MEAN

INTENSITY	RATE OF FALL	PAST 10 MINUTES	VISUAL APPROXIMATION
SLIGHT	up to 2mm/hr	00.2mm	Individual drops easily identifiable, wets dry surface slowly, puddles form very slowly, small streams may flow in gutters and down pipes.
MODERATE	2.2 – 6mm/hr	00.4 – 1mm	Individual drops not clearly identifiable, puddles form rapidly, some spray visible over hard surfaces.
HEAVY	6.2 – 50mm/hr	1 – 8.2mm	Rain seemingly falls in sheets, misty spray visible over hard surfaces, down pipes and gutters flow strongly, may make a roaring noise on roofs.
VIOLENT	>50mm/hr	>8.4mm	Gutters and down pipes overflowing, spray to a height of several centimetres over hard surfaces, may cause a loud roaring noise on roofs.

Note: Rainfall intensity is defined by the World Meteorological Organization. It may not reflect local subjective assessment

The first number RF00.0 is the amount of rain recorded in the last 10 minutes before the observation (in millimetres and tenths). In this case NIL rainfall is reported in the last 10 minutes before 1200Z.

The second number /002.8 is the amount of rainfall recorded since 9am local time and accumulates for up to 24 hours until 9am local time on the following day.

Rainfall in AWIB broadcasts: The Bureau of Meteorology aerodrome weather information broadcast system (AWIB) provides the last 10 minute rainfall amount from the AWS updated every minute.

This information can be useful when taken into account with other weather information available for the site. However, rainfall information should be used with caution. The limitations of the automated rain gauge may result in no record of rain when only very slight drizzle is falling.

A report of no rain in the last 10 minutes does not indicate that there is no precipitation or any associated low cloud in the area.

METAR/SPECI: METAR/SPECI aerodrome weather reports are expected to be representative of conditions at the aerodrome and its immediate vicinity. The cloud reported in aerodrome weather observations is cloud observed over the whole of the celestial dome (horizon to horizon) from the observing location.

The weather reported as aerodrome weather is weather occurring at and/or near the aerodrome. Weather reported as being in the vicinity (coded using the term VC) is weather not at the aerodrome but within 8km (5nm) of the aerodrome perimeter.

For example, if there are showers or thunderstorms situated at some distance from the observing site but within 8km of the aerodrome, they would be reported as showers or thunderstorms in the vicinity (VCSH or VCTS).

TAF and TTF: TAF and TTF are forecasts for the aerodrome and may not be representative of the weather conditions over the

broader geographical area. By way of example, a forecaster might expect thunderstorms to develop well off the coast to the east of Sydney aerodrome and then track north-east. In such a situation the forecaster may be confident that the storms will not affect the aerodrome.

There may be no mention of thunderstorms in either the TAF or TTF forecasts. However in such a situation the METAR observation should, if possible, reflect the observed storms in remarks and also, if possible, comment on the observed movement.

The information provided in the METAR remarks section indicates that although the aerodrome is clear, some flight paths may be affected.

The following could reflect the situation:
TTF METAR YSSY 0500Z 04015KT 9999 FEW045 FEW045CB 30/21 Q1008 RMK RF00.0/000.0 THUNDERSTORMS 15 NM TO EAST MOVING TOWARDS THE NORTH EAST NOSIG

A similar situation could apply with other types of weather, with fog being a particularly common example. A fog could form over a nearby river but the fog might only be mentioned in the METAR/SPECI remarks section as "RMK FOG IN THE DISTANCE" with no mention of reduced visibility or fog at the aerodrome.

If, with good conditions reported at the aerodrome itself, the statement of trend (in the TTF) is added to indicate "NOSIG", the good conditions at the aerodrome are not expected to change significantly within the 3-hour period following the time of the report.

In this case the TAF also might indicate that the formation of fog at the aerodrome is not expected over the longer term even though the patch of fog over a nearby river area is expected to persist.

Remember that in the trend the statement

"NOSIG" means "no significant change" and does not mean "no significant weather".

Louis Bokor is the assistant national manager (aviation and defence weather services) for the Bureau of Meteorology. Geoff Smith is the regional aviation and defence manager (NSW) for the Bureau.

HOW TO GET A WEATHER FORECAST

To receive a fax forecast, register as an AVFAX user by calling 07 3866 3573.

Dial 1 800 804 166 to order a fax forecast if you have a tone dial telephone and a fax machine. Remember to have your location codes handy, as you will need them.

If you have a rotary dial telephone, with no access to a fax machine, you can get a forecast by calling 1 800 805 150. The briefing officer will read out your requested weather forecast.

To get further information after having obtained the forecast, call the numbers published in ERSa under pre-flight briefing services. Technical elaboration on forecasts is available by calling:

- Darwin 08 8982 2833
- Brisbane 07 3229 1854
- Townsville 07 4779 5999
- Sydney 02 9296 1527
- Canberra 02 6247 0411 (available 0300-1900 local daily)
- Adelaide 08 8366 2617 or 08 8362 1928
- Perth 08 9263 2253 or 08 9263 2254

The internet

Reports and forecasts are now also available on Airservices Australia web site: <http://www.airservices.gov.au> and the Bureau of Meteorology web site: <http://www.bom.gov.au>.

Test yourself on the new cloud codes

(Lowest alternate minimum at YMAY 2011ft, YSCB 1912FT)

1) SPECI YMAY 2100Z VRB03KT 8000 2000E NOSIG WX FEW002 SCT008 08/07 Q1028 RMK FOG TO EAST

Conditions at Albury at 2100Z are:

- a) Below alternate minima.
- b) Not below alternate minima.

2) TTF SPECI YSCB 0100Z 36015KT 9999 FEW005 SCT015 10/08 Q1008 NOSIG

Conditions at Canberra at 0100Z are:

a) Only reported below minima at 0100Z and forecast to immediately improve to above minimum conditions.

b) Reported to be below alternate minima and forecast to continue for 3 hours from 0100Z.

c) Not reported or forecast to be below minima.

3) TAF YSCB 270648Z 0820 02010KT 5000 LIGHT RAIN BKN008 OVC100 FM11 16015 8000 RAIN SHOWERS FEW008 SCT015 BKN030 FM18 22010KT 9999 FEW010 SCT030 INTER 1820 8000 RAIN SHOWERS FEW008 SCT015

Conditions at Canberra are forecast to be below alternate minima:

- a) Between 0800Z and 2000Z.
- b) Between 0800Z and 1100Z and for periods not exceeding 30 minutes from 1800Z TO 2000Z.
- c) Only between 0800Z and 1100Z.
- d) Only between 0800Z and 1800Z.
- e) Between 0800Z and 1800Z and for periods not exceeding 30 minutes from 1800Z TO 2000Z.

Answers:

a) (3) b) (2) c) (1)