

Weather Forecasts

Please note all references in the VFRG are from version 7.0 printed copy. This is designed to help you read though the VFRG section on an aerodrome forecast, and must be used in conjunction with the VFRG

Aim: To be able to obtain a meteorological forecast relevant to our flight.

Objectives:

- 1. To determine the minimum conditions (minima) required for VFR flight.
- 2. To be able to obtain a relevant forecast and decode in into plain English.
- 3. To know Preflight planning and preparation Requirements.

The forecast where we will start our focus is called a Terminal Area Forecast or TAF.

The meteorological information needs to be specific to the location or terminal for which it is produced. More air traffic movements demand a higher accuracy, this is achieved by the Bureau Of Meteorology (BOM) issuing forecasts more frequently for a busy airport. See TAF types pg. 134

The TAF follows a set format and can look quite confusing at first glance. On a lovely sunny day there may not be a lot written in a forecast, but a day where weather changes often can look like a minefield. Having the whole picture, which is given to us in the forecast, lets us make the command decision to go, or stay on the ground.

An example of a TAF at Merimbula at the time of writing.

TAF YMER 081848Z 0820/0908

03010KT 9999 SHOWERS OF LIGHT RAIN SCT 018 BKN 025

INTER 0820/0900 4000 SHOWERS OF MODERATE RAIN BKN 015

TEMPO 0900/0908 3000 SHOWERS OF MODERATE RAIN BKN 010

RMK

T 17 20 21 20 Q 1025 1026 1024 1023

You may find it easiest to print this TAF, and refer back to it as we decipher all of it's components.

1. First we need to know the weather conditions we are allowed to fly in. If we look at the information in the VFRG (Chapter 3 pg. 205), we see distances from cloud and required visibility. We also want to consider the height at which we can fly (pg. 44 populous areas and pg. 47 other areas). Now we know what we require we need to be able to decipher the TAF.
2. Pg. 135 shows the breakdown of the TAF.

Starting from the top, it's a TAF, if it had been amended due to a change that was not on the original forecast the BOM may decide to issue a TAF AMD.

The location is YMER which is the airport code, Merimbula in this case. (YCOM would be Cooma).

The next 6 figure group is the time at which the forecast was issued. It has a Z showing us that it is in Zulu time. Zulu/UTC/Universal Coordinated Time/Greenwich Mean Time are all terms that can be interchanged. While there are many time zones, the internationally accepted format of a TAF is in UTC time. We require an ability to convert this time to a local time. Only then can we accurately translate the forecast. (pg. 110 and 111 for the conversion of eastern standard time to Zulu Time.) The time of issue is not important to us as we need the time which the TAF is valid.

0820/0908 These are the numbers that are important, the validity period. 08 is the eighth day of the month (09 the ninth day). The confusing thing is, in the morning here in NSW, it was still last night in Greenwich. So while my phone tells me it's the ninth day, in Zulu time it's only the eighth. The second two numbers are the hours. 0820 is the eighth day at 20:00 UTC. Using the chart on pg.111 we can see that 20.00UTC is 0600 EST Eastern Standard time. That is the forecast is valid from 6am local time till 0908 or 6pm local time. (Please use the chart to convert 08UTC to EST.)

9999 is visibility (read pg. 138) this means a visibility of 10km or more for our TAF

The next line of the TAF we will break into sections. Pg. 35 shows the standard layout. After the validity, is the wind. 03010KT is wind from 030 degrees at 10kts. If the wind was gusting, let's say to 20kts, it would be written 03010G20KTS. (Read pg.137)

SHOWERS LIGHT RAIN is an easy one. If we look at pg. 126, we see a list of abbreviations under Phenomena, SQGR would be squalls with hail.

SCT018 BKN025. As this is a forecast for an aerodrome, the forecast must be for a height of cloud above the aerodrome level. It then makes it easy to work out if I can go for a fly and have clearance from cloud to conduct circuits etc. A height above sea level would be a confusing calculation. The amount of cloud is shown on pg. 124. Ranging between scattered and overcast. 001 is cloud at 100ft above the ground, 010 cloud at 1,000ft, 100 cloud at 10,000ft. Our TAF has scattered cloud at 1,800ft, then another layer of broken cloud at 2,500ft. (Read pg. 140)

This TAF has a few extra lines as it was not a great flying day outside. TEMPO, INTER, FM and BECMG are all significant changes in the weather. Read pg. 127. Each significant change has its own forecast to decipher. Our TAF has periods of less than 30 minutes, those period will be between 0820 and 0900, our chart on pg.111 says between 6am and 10am where the visibility decreases from 9999 meters to 4000 meters. This happens in moderate showers of rain. That means they have got heavier than light showers. The cloud will be broken at 1,500ft during those showers of rain. As well as that our TAF has a TEMPO. The tempo period starts for 10am and runs to 6pm (the end of our forecast validity period). During those times there will be periods of between 30 and 60 minutes when there will be moderate showers of rain and the visibility will drop from 9999 meters to 3000 meters and the cloud will be broken at 1000ft.

RMK read pg. 143. This area will include rainfall amounts.

T 17 20 21 20 Q 1025 1026 1024 1023, These are the temperature and QNH given in 3 hour intervals over the spacing of the forecast.

There are plenty of examples to work through on pg. 143 (be aware there are 3 separate TAF's, they do not have a space between each one!)

3. Part 91 Pre-flight planning and preparation pg.76

We also need to know when we need a forecast. If you read pg.76 it can be a little confusing as it also caters to pilots who go away from the point of departure (a private or commercial pilot). As we are looking at the RPL theory first we will keep it simple. Before you arrive at the airport where you want to land your forecast must be valid for 30 minutes before you land and 60 minutes after you land. You may need to get a second forecast if it falls outside the period your forecast is valid for. If there is a TEMPO or INTER that has "bad weather", you must allow for it to start 30 minutes before the forecast. If there was bad weather and you had a FM (from) time saying the weather will improve, you must wait another 30 minutes after the forecast improvement before you rely on the improvement. These are forecast buffer periods just in case.