Grid-Point Wind and Temperature Forecasts

Bureau of Meteorology › Aviation Meteorological Services

The Aviation Meteorological Centre Melbourne generates wind and temperature forecast charts using weather model data.

Grid-Point Wind and Temperature Forecasts

A grid-point wind and temperature (GPWT) forecast provides a text-based display of forecast wind speed, wind direction and temperature at specified heights above mean sea level. These GPWT forecasts are displayed in charts for three different volumes of airspace, known as High-level, Mid-level and Low-level Forecasts.

The Bureau's Aviation Meteorological Centre Melbourne generates these charts from data sourced from World Area Forecast Centre (WAFC) and the Bureau's Numerical Weather Prediction Model (ACCESS-R). Mid and High-level GPWT charts are produced with a 2.5 or 5 degree resolution from WAFC data. Low-level GPWT charts are produced with a 1.5 or 5 degree grid resolution from ACCESS-R data, hence the values may differ for the same location and height given that the data sources are different.

The charts are issued every six hours and valid every three hours (low-level) or six hours (mid and high level) for the next 24 hours and are valid for the time given on the chart. For operations between validity times users can interpolate the data between charts. Receipt of a forecast for a particular validity time will automatically amend and supersede any prior forecasts issued for that validity time. Both issue and validity times are given on the forecast.

High-level (FL180 – 450) charts are issued for the Australian and Tasman regions. Mid-level (5000ft – FL240) charts are issued for the Australian, Northeast, Southeast, West and Tasman regions. Low-level (1000ft – FL140) charts are issued for the Australian region and nine smaller areas (International Standard Atmosphere (ISA) temperature and pressure levels (hPa) are used in all charts). The following charts are produced:

LOW LEVEL	MID LEVEL	HIGH LEVEL
FL140 – 600hPa	FL240 – 400hPa	FL450 – 150hPa
10000ft – 700hPa	FL180 – 500hPa	FL390 – 200hPa
7000ft – 800hPa	FL140 – 600hPa	FL340 – 250hPa
5000ft – 850hPa	FL100 – 700hPa	FL300 – 300hPa
2000ft – 950hPa	FL050 – 850hPa	FL240 – 400hPa
1000ft – 975hPa		FL180 – 500hPa

The data is presented in latitude and longitude squares (either 5° by 5°, 2.5° by 2.5°, or 1.5° by 1.5°) overlaid on a geographic background.

The values given represent the wind and temperature at specific heights for the mid point of each square. They are given in the formats ddffftTT, where:

dd	gives the wind direction in degrees true to the nearest ten degrees (the final zero is truncated)
fff	gives the wind speed in knots.
t	gives the sign of the temperature (+ or -).
TT	gives the temperature in whole degrees celsius.

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Example GPWT Forecast Charts

High Level (Australia)

GRID POINT FORECASTS (FL180 - 450)

PROVIDED BY AUSTRALIAN BUREAU OF METEOROLOGY
DATA FROM WAFC LONDON

VALID: 0000 UTC 02 Jun 2017
ISSUED: 2139 UTC 01 Jun 2017

DATA FORMAT: dd fff tTT
dd: WIND DIRECTION IN DEGREES TRUE TO NEAREST 10
fff: WIND SPEED IN KNOTS
tTT: SIGN -/+ AND TEMPERATURE IN WHOLE DEGREES CELSIUS

FL	hPa	ISA T
450	150	-56
390	200	-56
340	250	-52
300	300	-44
240	400	-33
180	500	-21

Mid Level (South-East)

GRID POINT FORECASTS (FL050 - 240)

PROVIDED BY AUSTRALIAN BUREAU OF METEOROLOGY
DATA FROM WAFC LONDON

VALID: 0000 UTC 02 Jun 2017
ISSUED: 2139 UTC 01 Jun 2017

DATA FORMAT: dd fff tTT
dd: WIND DIRECTION IN DEGREES TRUE TO NEAREST 10
fff: WIND SPEED IN KNOTS
tTT: SIGN -/+ AND TEMPERATURE IN WHOLE DEGREES CELSIUS

FL	hPa	ISA T
240	400	-33
180	500	-21
140	600	-12
100	700	-05
050	850	+05

Low Level (Australia)

GPWT FORECASTS (1000FT – FL140) – AUS

PROVIDED BY AUSTRALIAN BUREAU OF METEOROLOGY

VALID: 0000 UTC 02 Jun 2017

ISSUED: 2030 UTC 01 Jun 2017

DATA FORMAT: dd fff tTT
dd: WIND DIR TENS OF DEG TRUE
fff: WIND SPEED IN KNOTS
tTT: TEMP IN DEG CELSIUS

FORECAST is valid for the centre of the box

ISA FL/FT hPa		T
140	600	-13
10000	700	-05
7000	800	+01
5000	850	+05
2000	950	+11
1000	975	+13

Low Level (WA-N)

GPWT FORECASTS (1000FT – FL140) – WA-N

PROVIDED BY AUSTRALIAN BUREAU OF METEOROLOGY

VALID: 0000 UTC 02 Jun 2017

ISSUED: 2030 UTC 01 Jun 2017

DATA FORMAT: dd fff tTT
dd: WIND DIR TENS OF DEG TRUE
fff: WIND SPEED IN KNOTS
tTT: TEMP IN DEG CELSIUS

FORECAST is valid for the centre of the box

ISA FL/FT hPa		T
140	600	-13
10000	700	-05
7000	800	+01
5000	850	+05
2000	950	+11
1000	975	+13

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 weather 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.

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