

Winds and Temperature Aloft Forecast (FD)

At the many shows and fly-ins CSC attends throughout the year, we are frequently asked about the Winds and Temperature Aloft Forecasts. Here are the details and how CSC DUATS can make it easier for you.

The Winds and Temperature Aloft Forecasts (FD) are computer-prepared and issued by the National Meteorological Center (NMC) in Suitland, Maryland. The wind forecasts are distributed to the Flight Service Stations, Centers, and to DUATS.

The forecasts have two observation times and three valid times for the reports that come from those observations. Observation times are at 0000Z and 1200Z daily. For each of these observation times, there are reports that are valid at 6, 12, and 24 hours after the observation time.

Levels Forecast

There are two types of forecasts - low and high. Dependent upon station elevation, FD1/2/3 wind forecasts, also known as low level, are issued for the following levels: 3, 6, 9, 12, 18, 24, 30, 34, and 39 thousand foot levels. FD8/9/10 are for the 45,000 and 53,000 foot levels. The first level for which a wind forecast is issued is 1,500 feet or more above the station elevation. Temperature is forecast for all wind levels, that are 2,500 feet or more above the station, except the 3,000 foot level. The minus signs are deleted preceding the temperatures at the 30, 34, and 39 thousand foot levels

Winds/Temperature Aloft Forecast Schedules

Type	Base Data Time	Valid For	For Use (Period)
FD1/8	0000Z	0600Z	0500-0900Z
FD2/9	0000Z	1200Z	0900-1800Z
FD3/10	0000Z	0000Z	1800-0500Z
FD1/8	1200Z	1800Z	1700-2100Z
FD2/9	1200Z	0000Z	2100-0600Z
FD3/10	1200Z	1200Z	0600-1700Z

Format

The format of the winds is as follows: HHSS(TT)

The HH is the heading for the wind rounded to the nearest 10 degrees i.e. 242 degrees would be 24.

The SS is the forecast wind speed in knots. If the forecast wind speed is less than 5 knots or light and variable then it is coded as 9900. If the forecast wind speed is 100 to 199 knots then 50 is added to the direction and 100 is subtracted from the speed, i.e., 7423 is decoded as 240 degrees 123 knots. If wind speed is forecast at 200 knots or greater, the wind group is coded as 199 knots, i.e., 7799 is decoded 270 degrees at 199 knots or greater. The TT is the temperature in whole degree Celsius for each forecast point. Temperatures are assumed to be negative above 24,000 feet.

Let's look at a sample message:

```
DATA BASED ON 010000Z
VALID 010600Z FOR USE 0500-0900Z. TEMPS NEG ABV 24000
FT 3000 6000 9000 12000 18000 24000 30000 34000 39000
MKC 2426 2726-09 2826-14 2930-21 2744-32 2751-41 275550 276050 276547
```

The sample message is decoded:

```
DATA BASED ON 010000Z
```

The DATA BASED ON time is DDZZZZ where DD is the day of the month and ZZZZ is the UTC Base Data Time. In the above sample, the forecast data is based on computer forecasts generated the first day of the month at 0000 UTC.

The next line:

```
VALID 010600Z FOR USE 0500-0900Z. TEMPS NEG ABV 24000
```

indicates the valid time of the forecast is the first day of the month at 0600 UTC. The forecast winds and temperatures are valid for use between 0500 and 0900 UTC. The last part indicates that the temperatures are negative above 24,000 feet, therefore, the minus sign (-) is no longer used for those altitudes.

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The remainder of the message:

FT 3000 6000 9000 12000 18000 24000 30000 34000 39000
 MKC 2426 2726-09 2826-14 2930-21 2744-32 2751-41 275550 276050 276547

shows the flight levels and the forecasts. 2426 is 240 degrees at 26 knots. 2726-09 is 270 degrees at 26 knots with the forecast air temperature of -9 degrees Celsius. The 30,000 foot wind is forecast to be 270 degrees at 55 knots with the air temperature forecast to be -50 degrees Celsius.

How CSC DUATS Can Help

When you request any weather briefing, enter the correct departure time, altitude, and estimated time enroute. CSC DUATS uses these parameters to select the proper set of winds, interpolate the forecast for your altitude, and display additional sets of winds if the duration of your flight goes beyond the "for use" time of the departure set of winds.

Additionally, if you select the plain language decode option, you will receive the report decoded as well as time converted to your selected time zone. For example, here is a plain language request for EST, made at 2206 UTC for an altitude of 14,000 feet with a departure time of 0530 UTC and a ETE of 0100 hours:

Winds aloft forecast based on observations taken on the 17th at 7:00am EST(1200Z). Forecast valid on the 17th at 7:00pm EST (0000Z), for use from 4:00pm EST (2100Z) to 1:00am EST (0600Z). Temperatures are negative above 24,000 feet.

FT 3000 6000 9000 12000 18000 24000 30000 34000 39000 14000
 EMI 2911 2718-04 2626-06 2732-10 2631-22 2521-35 261951 264456 265255 2631-14
 Westminster MD [EMI]

Winds aloft forecast based on observations taken on the 17th at 7:00am EST 1200Z). Forecast valid on the 18th at 7:00am EST (1200Z), for use from 1:00am EST (0600Z) to 12:00 noon EST (1700Z). Temperatures are negative above 24,000 feet.

FT 3000 6000 9000 12000 18000 24000 30000 34000 39000 14000
 EMI 2118 2524-04 2429-06 2430-11 2327-25 2332-38 235950 247955 246655 2329-15

Because the departure time was at 0530 UTC and the ETE was an hour, CSC DUATS displayed the next set of forecast winds that would cover the part of the flight taking place after 0600 UTC. Notice the extra column that CSC inserts after the 39,000 flight level column. This is the interpolated winds and temperature calculated for the requested altitude of 14,000 feet. This column will be added whether or not you request plain language decoding.

If you would like more information about Winds Aloft Forecasts, see the FAA's Advisory Circular, AC 00-45E, "Aviation Weather Services."

How the FD schedule affects flight planning

With the FD forecasts only issued twice a day, there will be times when no forecast winds will be available for the full 24 hour period that DUATS lets you plan and file flights in advance of departure. The following table shows how far in advance you can expect to get FD forecasts depending on when you request the briefing.

Req. Time	Max. Depart Time (Hrs.)	Req. Time	Max. Depart Time (Hrs.)
0000	17	1200	17
0100	16	1300	16
0200	15	1400	15
0300	14	1500	14
0400	13	1600	13
0500	24	1700	24
0600	23	1800	23
0700	22	1900	22
0800	21	2000	21
0900	20	2100	20
1000	19	2200	19
1100	18	2300	18

For example, if you log in and request a briefing at 0600 UTC, you can expect to receive the FD forecasts for departures up to 23 hours in advance. Sometimes the FDs may not have been sent, so you will see "report not available." If you requested via the flight planner, you will see no winds in your output. Remember, the winds expire at the top of the hour so if you requested a wind at 0601, the maximum departure time would be 22 hours in advance.

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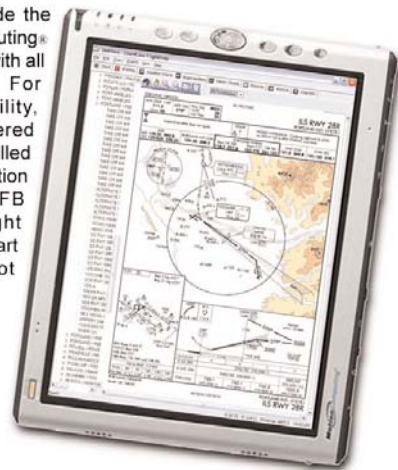
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