

How to Obtain a Good Weather Briefing



HOW TO OBTAIN A GOOD WEATHER BRIEFING

Here are some "tips" on how to get a good weather briefing. This handout complements other pilot educational material published by the Federal Aviation Administration (FAA) and other aviation organizations. Just like everything in life, practice makes perfect, or nearly so. So, practice getting a weather briefing and after just a few sessions you will be like an old pro, and know how to get a quality weather briefing.

[Ed. Note: When used in this document the generic terms "Flight Service" and "Flight Service Station" should be construed to include both Automated Flight Service Stations (AFSS) and non-consolidated Flight Service Stations (FSS). Flight Service should not be confused with "Flight Watch" which is a pseudonym for the En Route Flight Advisory Service (EFAS).]

THE "ANATOMY" OF A GOOD WEATHER BRIEFING.

A good weather briefing begins with developing a total awareness of the overall "big picture" prior to obtaining a detailed or *standard briefing*. Many pilots start by monitoring weather patterns through commercial television or TV's The Weather Channel several days before the flight. The day or evening before the flight, pilots may wish to obtain an *outlook briefing* from Flight Service, or electronically from a Direct User Access Terminal (DUAT) vendor, or downloading weather and forecast charts from the Internet. (When using DUATs don't hesitate to contact Flight Service to clarify any information you do not fully understand.) As close to departure time as possible call Flight Service or log on to DUATs for a standard briefing. (Of course, you can access high-quality weather products on the Internet or other sources, but first make sure that the menu of products are suitable for aviation use, and the products are current.) If a standard briefing was obtained several hours prior to the flight or when the weather is questionable, it is a good practice to call a Flight Service Station for an *abbreviated briefing* just prior to takeoff.

The FAA has established a universal toll-free telephone number for Flight Service Stations: 1-800 WX BRIEF (1-800-992-7433). Prior to contacting Flight Service you should have the general route-of-flight worked out. When you reach Flight Service, you will be answered by a recorded announcement, followed by instructions for both touch-tone and rotary dial telephone users. Touch-tone users can elect to speak with a briefer, listen to any of the direct-access services, or select a menu which identifies those services and their Associated codes. The direct-access services are Telephone Information Briefing Service (TIBS) for weather and aeronautical information, and "fastfile" for flight plan filing. If you are using a rotary dial or pulse-tone equipped Telephone, you will be switched automatically to a briefer, who will provide the information desired; or if requested, connect you to one of the direct-access services.

To help the briefer provide you with the best service, state your request (i.e., request: a standard, abbreviated, or outlook briefing; or to file a flight plan). So that your briefing can be tailored to your needs, provide the briefer with the following "background information":

- Your qualifications (e.g., student, private, or commercial pilot, and if instrument rated),
- The type of flight planned (e.g., VFR or IFR),
- The aircraft's N-number or Pilot's name,
- The aircraft type,
- Departure point,
- Estimated time of departure,
- Proposed flight altitude(s),
- Proposed route-of-flight, if other than direct; specify any landing en route,

- Destination, and
- Estimated time en route.

Ask the briefer to provide a standard briefing. This briefing will follow specific procedures and use standard phraseology developed by FAA flight services personnel. The briefer will first advise you of any adverse conditions along your proposed route of flight. When a VFR flight is proposed, and actual or forecast conditions make VFR flight questionable, the briefer will describe the conditions and may advise you that "VFR flight (is) not recommended." If this occurs you are still entitled to a complete briefing; however, if you feel that the weather conditions are beyond your capabilities (or that of your aircraft or equipment), you should consider terminating the briefing (and your flight). This will free the briefer to handle other incoming calls. Just because the briefer does not issue this statement does not necessarily guarantee a flight free from adverse weather effects. Phenomena such as thunderstorms, turbulence, mountain obscurations, and strong winds do not, in and of themselves, warrant this statement. Only you as pilot-in-command know your own capabilities and limitations.

Briefers will typically summarize weather reports and forecasts, unless you specifically request that they be read verbatim. Try not to interrupt the briefer unless the briefer is speaking too fast. At the conclusion of the briefing ask for any additional information you may require, or for clarification of any point you do not completely understand. The amount of detail in your weather briefing will depend upon the complexity of the weather situation. *It is both your responsibility and prerogative as a pilot to obtain a standard briefing.*

Standard Briefing.

The standard preflight briefing will include the following elements :

- **Adverse Conditions:** Significant meteorological information that might influence you, the pilot, to alter your proposed route-of-flight, or even cancel your planned flight entirely (e.g., thunderstorms, icing, turbulence, low ceilings or visibility);

- **Synopsis:** A brief statement as to the cause of the weather (e.g., fronts or pressure systems) which are pertinent to your proposed route-of-flight;
- **Current Conditions:** When your proposed time of departure is within two hours, a summary of the current weather, including Pilot Weather Reports (PIREPs) and radar weather information applicable to your planned flight;
- **En Route Forecast:** The briefer will summarize the forecast Conditions (unless requested to read the forecasts verbatim) along your proposed route in a logical order (i.e., climb- out, en route, and descent);
- **Destination Forecast:** The destination forecast for your planned ETA will be provided, including any significant changes expected within one hour of your planned time-of-arrival ;
- **Winds Aloft:** The briefer will summarize forecast winds aloft for the proposed route. Temperature information will be provided on request; and
- **Notice to Airmen (NOTAMs):** "Current" NOTAMs pertinent to your proposed route of flight will be provided. However, information on Global Positioning System (GPS) outages, Long Range Navigation (LORAN), and military training routes and areas (e.g., Military Training Routes (MTRs) and Military Operations Areas (MOAs)), along with PUBLISHED NOTAMs must be specifically requested. (When requesting the status of MTRs and MOAs please provide the briefer with the route number identifier or MOA name.) It is always good judgment to inquire whether the briefer has access to all military activity along your proposed route, or whether you will also need to contact another Flight Service Station (on standard FSS radio frequencies) along your route-of-flight to check on the activity and status of designated military areas.

Abbreviated Briefing.

Request an Abbreviated Briefing when you need information to supplement other electronically acquired data (e.g., TIBS or DUATs), update a previous briefing, or when you need only one or two specific items. Provide the briefer with appropriate background information, the time you received the previous information, and the specific items needed. You should indicate the source of the information already received so that the briefer can limit the briefing to the information that you have not received, and provide appreciable changes in meteorological conditions or aeronautical information since your previous briefing. To the extent possible, the briefer will provide the information in the sequence used in a Standard Briefing. If you request only one or two specific items, the briefer is required to advise you if adverse conditions are present or forecast. Details on these conditions will be provided at your request. Often, and especially when doing local flying, you may want to update the weather at a specific airport. You can do this by directly dialing an automated weather system, if available, at that airport. (A more detailed description of automated observing systems can be found in the Aeronautical Information Manual Para. 7-1-10, page 7-1-9.)

Outlook Briefing.

You should request an Outlook Briefing whenever your proposed time of departure is six or more hours in the future. In this case, the briefer will provide you with available forecast data applicable to your proposed departure time. This type of briefing is provided for planning purposes only. You should obtain a Standard Briefing as close to departure as possible in order to obtain the latest current conditions, forecasts, and NOTAMs. Often, graphical weather depiction's obtained through DUATs or the Internet can provide excellent trend information and so may be used accordingly.

Inflight Briefing.

If at all possible, obtain a preflight briefing by telephone or by electronic means prior to departure. In cases when you are already in flight and you need to obtain a standard briefing or update a previous briefing inflight, you should contact Flight Watch not Service not Flight Watch. After contact, you should advise the specialist of the type of briefing you require and provide appropriate background information. You will then be provided information as specified in the above paragraphs, depending on the type of briefing requested. The FLIGHT WATCH service is not meant to provide you with a full standard briefing. Rather, rely on FLIGHT WATCH to provide you with the most current en route weather. And when using FLIGHT WATCH, always give a PIREP so other pilots may benefit from your reports of the weather, ride, etc.

Inflight Data Linked Weather.

Technology advancements now allow suitably equipped aircraft to receive textual and graphical data linked weather products and other information. However, just like weather information received over the Internet, it is imperative (and even more so in-flight) that the pilot use the most current information, not out-of-date or invalid weather products. Also remember while airborne, to judiciously spread your time between "head in the cockpit" and "outside" watching for other traffic. That is good judgment!

WEATHER JUDGMENT.

Judgment, often defined as the ability to arrive at a wise decision, is the combination of knowledge and skills, tempered by experience. Studies show that pilot judgment can, in large part, be learned, and that learning process starts with sound pilot education. You can also improve your "Go or No-Go" weather judgment by setting personal weather minimums based on your level of training and experience. For instance, using a personal minima of 2,000 and five instead of the regulatory VFR minimums of 1,000 and three.

You may then gradually reduce your personal minimums to whatever limits you find comfortable, at or above the legal limits. And while we are on the subject of pilot judgment, it is reasonably obvious that pilots can't make good decisions based upon incomplete, or missing information. Knowing what is going on around you is called situational awareness. It is the combination of situational awareness and sound pilot judgment that is the key to safe flying.

Here are some safety-related "DON'Ts" for everyone - beginner and pro alike:

- DON'T fly in or near thunderstorms. Scattered thunderstorms may be safely circumnavigated, but do not try to fly through or under one.
- DON'T continue VFR into Instrument Meteorological Conditions (IMC). Wait it out or turn around if you find en route weather lowering below your personal limits.
- DON'T forget there may be areas en route, or even near airports, which are below VFR minimums, even though reporting stations are at or near VFR minimums. Be especially cautious when the temperature and dew point spread is 3°C or less - fog may form.
- DON'T proceed "on-top," hoping to find a hole in the clouds at the other end, or hoping to get Air Traffic Control (ATC) to "talk you down" if you get caught on top. Allow more margin for weather at night. Scud, lower clouds, and even the horizon may be difficult or impossible to see on dark nights. And always stay above the highest terrain, until a safe landing is assured.
- DON'T fly into areas of rain when the air temperature is near freezing. Ice can form on the windshield impairing forward vision and/or, worse, on the wings decreasing aircraft performance. Remember, flight into known icing conditions is prohibited for all aircraft not properly certificated for flight in icing conditions or not properly equipped with anti-icing equipment.

And finally, if you do get caught in weather, *immediately* contact Flight Watch or Flight Service or any available ATC facility. They will do their utmost to assist you.

THE "GO" OR "NO GO" DECISION.

Preliminary Flight Planning - Getting the "Big Picture."

- Media:
 - TV's The Weather Channel
 - Newspaper weather maps
 - TV and radio weather reports
 - The Internet
- Recorded/Electronic Weather:
 - Telephone Information Briefing Service (TIBS)
 - Direct User Access Terminal (DUAT)
 - The Internet

To Obtain a Standard Briefing:

By telephone or by electronic means:

- A Flight Service Station
- DUAT
- The Internet

If You Decide to Go... Inflight Weather Update - Sources of Inflight weather include:

- Via radio and data link;

- En Route Flight Advisory Service (EFAS) (FLIGHT WATCH) 122.0 MHz below FL 180 and as published at FL 180 and above for the latest PIREPs, radar information, and satellite interpretation; "real-time" weather.
- Flight Service Station.
- Hazardous Inflight Weather Advisory Service (HIWAS).
- Centers and terminal area facilities will broadcast a Significant Meteorological Advisory (SIGMET) or Center Weather Advisory (CWA) alert once on all frequencies upon receipt. You can also ask the controller for PIREPs (ride, icing, etc.) received from other aircraft.
- To the extent possible, centers and terminal area facilities will issue pertinent information on weather in the immediate area an airport, and assist pilots in avoiding hazardous weather areas, when requested.
- En route weather via data link.

Destination/Terminal Area Arrival Weather can be obtained from the following sources as available:

- Via radio and/or data link from:
 - En Route Flight Advisory Service (Flight watch).
 - Flight Service or other air traffic control facilities.
 - UNICOM ("Caveat emptor").
 - Automatic Terminal Information Service (ATIS).

- Automated weather observations (AWOS/ASOS).
- Terminal area data link

If You Don't Go... Your Alternatives.

- Delay or postpone (and get a later weather briefing), or
- Cancel

WEATHER INFORMATION SOURCES USED BY BRIEFERS/PILOTS.

Weather Advisories.

Weather Advisories consist of Airman's Meteorological Information (AIRMETs), SIGMETs, Convective SIGMETs, CWAs, and Severe Weather Forecast Alerts (AWW) commonly called Alert weather watches. These products advertise hazardous or potentially hazardous conditions (IFR conditions, turbulence, icing, thunderstorms, etc.). Typically, to be included in weather advisory, the phenomena must be widespread (i.e., covering an area 3,000 square miles or more). Therefore, pilots should always be alert to local or localized areas of hazardous weather which may not warrant the issuance of a weather advisory. The absence of an advisory does not necessarily mean the absence of hazardous weather.

The AIRMET contains hazardous weather conditions, generally but not of concern to small aircraft. SIGMETs pertain to potentially hazardous that may affect the safety of all aircraft. Convective SIGMETs and Weather Watches are issued for thunderstorm or thunderstorm-related phenomena. Center Weather Advisories are advisories of adverse weather conditions, possibly hazardous to some aircraft, which are applicable to the airspace under the control of the issuing Center. They may precede the issuance or amendment of SIGMETs and AIRMETs, or provide warnings for too small to be included in other advisories.

AIRMET Bulletins are issued on a scheduled basis every 6 hours beginning at 0145 UTC during Central Daylight Time and at 0245 UTC during Central Standard Time. Unscheduled updates and corrections are issued as necessary. Other weather advisories are unscheduled and issued as needed.

Aviation Routine Weather Report (METAR).

The international METAR and SPECI (special) weather codes replaced the North American Surface Aviation Weather Report (SA) and SP formats, in 1996. These reports are specific aviation weather observations taken at designated reporting sites throughout the United States. They communicate the actual weather conditions at the reporting location. Normally the observation sites are located on airports, but occasionally nearby outside of the airport boundaries. In some rare cases, a METAR may be reported at a remote location (mountain passes).

METAR observations are usually taken and transmitted hourly at about 50 minutes past each hour. These observations are generally available within a few minutes after the hour. Special observations are taken whenever changing weather conditions warrant.

Example of a METAR Report:

METAR KRDU 010150Z 10009KT 10SM SHRA - OVC050 23/15
A2982 RMK RAB40 FQT LTG DSNT SW SLP094

Translation: Aviation Routine Weather Report, Raleigh-Durham Airport, observation the first day of the month at 0150 ZULU, wind from 100° true at 9 knots; visibility 10 statute miles; light rain showers; ceiling 5,000 feet overcast, temperature 23°C; dew point 15 C altimeter 29.82 inches. Remarks: Rain began at 40 minutes past the hour; frequent lightning to the distant southwest; sea level pressure 1009.4 Hectopascals/ millibarH.

(Note: When providing wind information to departing or arriving aircraft, Terminal facilities will provide winds relative to magnetic North).

Pilot Weather Reports (PIREPs).

The need for objective PIREPs cannot be over emphasized. Pilot reports are presently the best source of inflight turbulence and icing; and, often the only source of weather conditions en route. Although PIREPs can be filed with any ATC facility, to the extent possible, pilots should file these reports with Flight Watch or a Flight Service Station to ensure dissemination throughout the system.

The following information should be included in a PIREP:

- Your location (ideally, in reference to a Very High Frequency (VHF) Navigation Aid (NAVAID) or airport (3 or 4 letter identifiers), or a significant geographical landmark), altitude, and type of aircraft.
- Sky cover including amount (i.e., FEW, SCT, BKN, OVC), bases and tops reports.
- Flight visibility and weather encountered.
- Outside air temperature (OAT).
- Observed winds aloft.
- Turbulence and icing.
- Other significant weather data(e.g., distant weather observed).

Example of a PIREP:

KLYH UA /OV KRIC-KLYH180010/TM 1415/FL065/TP
C152/SK SCT-BKN030 TOPS040/ OVC100/WX FV05M
HZ/TA 06/TB LGT/RM MOD TURBC SFC-045 DURGC
KRIC

Translation: Pilot report; from Richmond, VA, to 10 nautical miles south of Lynchburg, VA; time - 1415Z; altitude 6,500 feet MSL; type aircraft, Cessna 152; cloud bases 3,000 feet MSL, coverage scattered to broken, tops 4,000 feet MSL, higher cloud bases 10,000 feet MSL coverage overcast, flight visibility 5 statute miles, haze, temperature 6C; light turbulence at 6500 ft.; remarks – moderate turbulence from the surface to 4,500 feet MSL during climb-out from Richmond.

Area Forecasts (FA).

Area Forecasts are 12-hour aviation forecasts plus a 6-hour categorical outlook giving general descriptions of VFR sky and weather conditions that affect aircraft operations. The Area Forecast is not a "stand alone" product and must be used in conjunction with the AIRMET Bulletins Specifically, AIRMETs SIERRA (IFR and mountain obscurations), TANGO (turbulence), and ZULU (icing and freezing levels) which are issued on a scheduled basis.

Heights of cloud bases are referenced to height above mean sea level (MSL), unless otherwise noted as above ground level (AGL) or ceilings (CIG). Cloud tops are always given in MSL.

Categorical outlook terms, describing general ceiling and visibility conditions for outlook planning purposes, are defined as follows :

- LIFR - Ceilings less than 500 feet and/or visibility less than 1 statute mile.
- IFR – Ceilings less than 1,000 feet and/or visibility less than 3 statute miles.
- MVFR (Marginal VFR) - Ceilings between 1,000 to 3,000 feet and/or visibility 3 to 5 statute miles, inclusive.

- VFR - Ceilings greater than 3,000 feet and visibility greater than 5 statute miles.

The causes of IFR or MVFR are indicated by either ceiling or restrictions to visibility, or both. The contraction CIG (for ceiling) and/or weather and obstruction to visibility symbols are used. If winds of 30 knots or greater are forecast for the outlook period, the word WIND is also included for all categories, including VFR.

Example: LIFR CIG - Low IFR due to a low ceiling.

Example: IFR FG - IFR due to visibility restricted by fog.

Example: MVFR CIG HZ FU -- Marginal VFR due both to ceiling and to visibility restricted by haze and smoke.

Example: IFR CIG RA WIND - IFR due both to low ceiling and to visibility restricted by rain; the surface wind is expected to be 30 knots or greater.

Area Forecasts, each covering a broad geographical area are issued three times a day in the contiguous United States, and four times a day in Alaska and Hawaii.

Issuance times differs from geographic area-to-area. Specific schedule times for your location can be obtained by calling the nearest FSS. These forecasts are amended as required.

Aerodrome Forecasts (TAF).

Aerodrome Forecasts are issued for specific airports and are valid for a 5-statute mile radius from the center of the runway complex. They contain information on the expected surface winds, visibility; weather, obstructions to vision, and cloud coverage and heights. They are valid for a 24-hour period.

Aerodrome Forecasts are formatted in the following order:

- Station identifier.
- Issuance and valid times.
- Surface wind reported in degrees from true north and in knots. (Note: Wind direction indicates the direction from which the wind is blowing.)
- Visibility is reported in statute miles.
- Weather and obstructions to visibility are displayed using standard weather symbols.
- Cloud layers are stated in ascending order of height.
- Cloud heights are always reported in hundreds of feet AGL. This differs from area forecasts which may forecast bases of clouds in feet above MSL.
- Remarks.

Aerodrome Forecasts are issued four times a day. Each forecast is amended according to prescribed criteria, as required.

Example of an Aerodrome Forecast:

TAF
 KBOS 041145Z 1212 34015G25KT 5SM SHSN- SCT010
 BKN018 TEMPO 1215 1/2SM SHSN VV008 BECMG 15-17
 33012G22KT P6SM BKN050

Translation: Boston Aerodrome Forecast for the 4th day of the month, valid time 12Z-12Z. Surface wind from 340° at 15 knots with peak gusts to 25 knots; visibility 5 statute miles; light snow showers; scattered clouds at 1,000 feet AGL; ceiling 1,800 feet broken AGL; occasionally, visibility one-half mile in moderate snow showers; indefinite ceiling 800 feet (an indefinite ceiling represents a surface-based phenomena obscuring the whole sky). Becoming

between 15Z and 17Z surface wind from 330° at 12 knots with gusts to 22 knots; visibility greater than 6 miles; ceiling 5,000 feet broken AGL.

Wind and Temperatures Aloft Forecasts (FD).

Winds and temperatures aloft forecasts provide wind direction, speed, and temperature for selected locations. Winds between forecast points can be calculated by interpolation. Winds and temperatures aloft forecasts are 6-hour, 12-hour, and 24-hour forecasts to the nearest 10 degrees, relative to true north, wind speed in knots, and temperature in degrees Celsius for selected altitudes. No forecasts are provided for reporting levels within about 1,500 feet (or less) of the surface. Temperature is omitted for the first 3,000-foot level (or at any level within 2,500 feet of the surface).

Forecasts are generated twice daily from 0000Z and 1200Z radiosonde upper air observations. These forecasts are available about 4 hours after each observation.

Example and Format of a Winds and Temperatures Aloft Forecast:

Altitude	3,000	6,000	9,000
JFK	2925	283300	293004

Partial Translation: Kennedy Airport, at 6,000 feet MSL, the forecast winds are from 280° true at 33 knots with a temperature of 0 °C.

Summary.

To the extent possible, begin your weather planning several days prior to your flight. You can use commercial television, newspapers, TV's The Weather Channel, or the Internet. The day or evening before the flight, obtain an *outlook briefing* from Flight Service, DUATs, or from the Internet. As close to your departure time as possible, with your preliminary flight planning complete (i.e., basic route, altitudes, preliminary alternates selected) call Flight Service or log onto DUATs or the Internet for your *standard briefing*. If your standard briefing is several hours old or the weather is questionable, again contact Flight Service just prior to takeoff for an *abbreviated briefing*.

Briefings should be obtained by phone or electronically. However, if there is no other alternative, request the briefing by radio or data link once airborne. *It is far better to obtain the briefing once airborne by electronic means, than no briefing at all.*

When contacting a Flight Service Station, state your request, followed by the appropriate *background information*. The briefer will use this information to tailor the briefing to your proposed flight. The briefer will interpret and summarize the weather data to the extent possible, and present the information in the sequence designed for the type of briefing requested. When the briefing has been completed do not hesitate to ask for clarification of any point you did not understand, or for any additional information you require.

The briefer may state: "VFR flight not recommended." This statement, in and of itself, should not necessarily cause you to cancel or postpone your flight. However, it does mean that in the opinion of the briefer the flight cannot be conducted safely in Visual Meteorological Conditions (VMC), and it indicates that poor weather conditions exist or are forecast. If the weather appears beyond your capability or personal minimums, you should consider changing your plans. On the other hand, the absence of this statement does not necessarily ensure the absence of adverse weather. Thunderstorms, turbulence, and strong winds, when considered individually, do not necessarily warrant this statement.

Whether VFR or IFR, the absence of a "Weather Advisory" does not guarantee a flight free from adverse weather conditions. Remember there are limitations to the weather products available to the briefer. Weather warnings are not always issued for each occurrence of hazardous weather.

Updated weather should be routinely obtained en route, through a Flight Service Station, Flight Watch, or via data link. Flight Watch has the latest reports and forecasts, near real-time radar and satellite imagery, and can help you interpret the data. Additionally, Flight Watch is a central clearing house for PIREPs. The need for PIREPs cannot be overemphasized. PIREPs can be given to any ATC facility, however, to the extent possible they should be filed with a Flight Service Station or Flight Watch. Even when flying IFR, controllers most often can approve switching to Flight Watch for a weather update. But, whether flying VFR or IFR you need to obtain weather updates far enough in advance to be acted upon. This must be done before adverse weather is encountered or fuel runs low.

As a popular aviation saying puts it: *"Aviation in itself is not inherently dangerous, but to an even greater degree than the sea, it is terribly unforgiving of any carelessness, incapacity or neglect."*

As a result: *"When in doubt, wait it out..."*

The Aviation Safety Program
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Flight Standards Service
800 Independence Avenue S. S.,
Washington, D.C. 20591
[http:// www.faa.gov/avr/](http://www.faa.gov/avr/)
202/267-8194



This is a Back
To Basics,
Aviation Safety
Program Product.



Federal Aviation Administration
Aviation Safety Program (AFS-820)
800 Independence Avenue S. W.
Washington, D. C. 20591

Contact your local FAA Flight Standards District
Office's Safety Program Manager for more safety
Information.



U.S. Department of Transportation
Federal Aviation Administration
Washington, D.C.