

# A Pilot's Guide to Aviation Weather Services



**October 1, 2020**

**National Oceanic and Atmospheric Administration (NOAA)**



## REVISION HISTORY

The table below identifies all changes that have been incorporated into this document.

Version	Draft Date	Summary of Changes
1.0	10/1/2020	Initial Release
1.01	11/5/2020	1, Removed ZOB Facebook link 2. Correction to High Level SIGWX link
1.02	11/20/2020	Added CWSU Memphis Facebook link in the Social Media section
1.03	12/4/2020	Added section 6.2 to add links to NWS office aviation web pages
1.04	9/8/2021	Update to a few office web page links in 6.2
1.05	12/9/2021	Added Aviation Weather Services webpage to section 6.2
1.06	12/21/2021	Renamed “Pre Flight” to “Mission Planning” to match standard aviation terms.  Added new link to section 10.4  Added a FAA training link to AWC Standard Briefing description on page 18.
1.07	2/15/2022	Added Tropical Products section Added Volcanic Ash Advisory section Edit updates to several sections
1.08	1/17/2023	General corrections and updates
1.09	1/27/2025	Updated links and images to account for the release of the new AviationWeather.gov website in October of 2023, as well as the automation and retirement of various products in January 2025.

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## **1 PURPOSE AND SCOPE**

This guide helps you use the National Aviation Weather System to the fullest extent possible. The information and services described here are provided by the National Weather Service (NWS), and available through the Federal Aviation Administration (FAA), as well as information service companies.

The NWS issues a wide range of aviation weather products and services for the National Airspace System (NAS). The NWS products and services are provided by the Aviation Weather Center (AWC), the Alaska Aviation Weather Unit (AAWU), Center Weather Service Units (CWSU), and Weather Forecast Offices (WFO). These offices are staffed with skilled meteorologists who analyze atmospheric conditions, develop forecasts of aviation threats, and issue advisory and warning-level products for safe and efficient flight.

Offices as well as numerous agencies across the NAS collaborate daily to keep the aviation community safe and up to date with the latest aviation weather information.

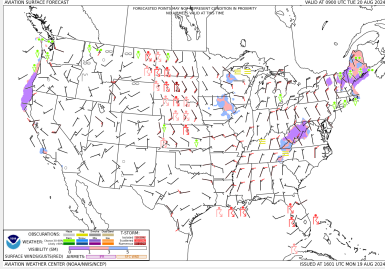
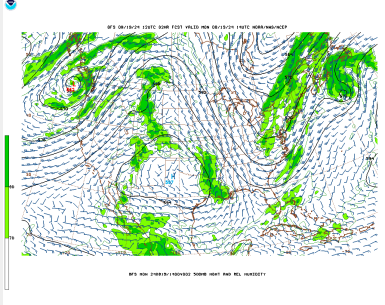
Aviation weather products and services are available to all pilots of the aviation community. The Mission Planning, Day of Departure, and En Route products portion of the guide cover services available during the aforementioned stage of flight planning. Some of these tools overlap during the decision making process, so it is important to understand how each product fits into your flying timeline. The Decision Support Tools section of the guide provides useful tools available from the Aviation Weather Center that incorporate various products into one easy to use application. The section also highlights additional web pages available for the decision making process, including social media sites.

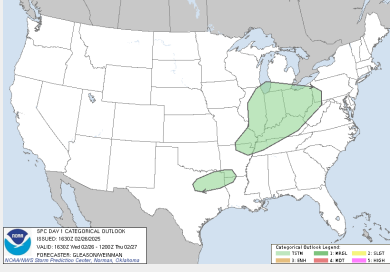
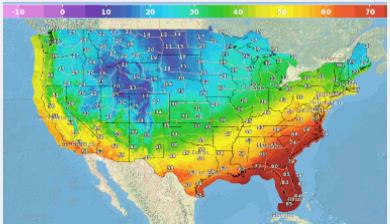
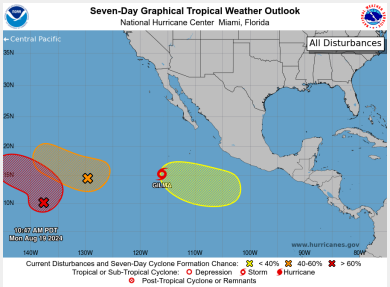
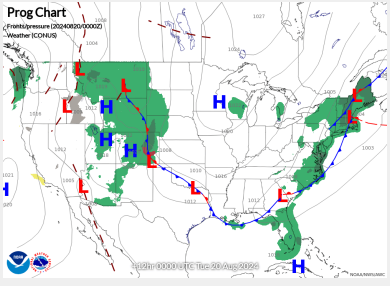


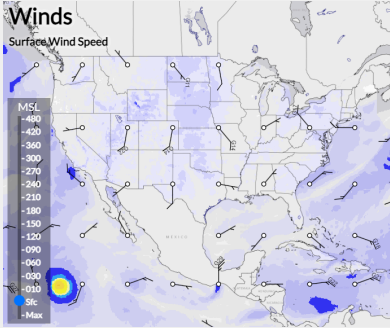
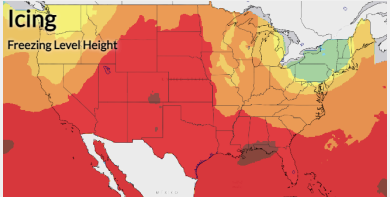
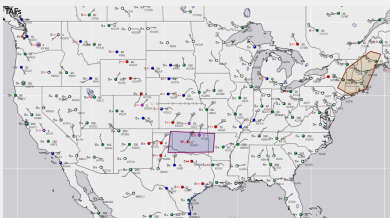
## 2 MISSION PLANNING

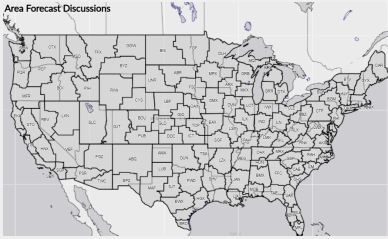
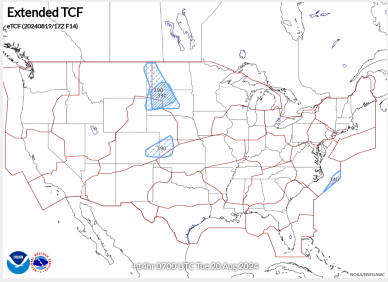
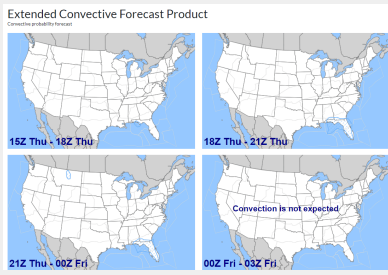


The products below will assist in flight planning and highlight any potentially hazardous weather expected in the days leading up to your expected day of departures.

<p><b><u><a href="#">AVIATION SURFACE AND CLOUD FORECAST GRAPHICS</a></u></b></p>  <p><a href="#">Help Page</a></p>	<p>The Aviation Surface Forecast and Aviation Clouds Forecast graphics are 18-hour snapshot images. These images are derived from a subset of the aviation weather forecasts valid for the continental United States (CONUS) and coastal waters. These images can be viewed by selecting GFA from the Decision Support Imagery page (linked).</p> <p><i>More detailed information is available on the <a href="#">Graphical Forecast for Aviation (GFA)</a>.</i></p>
<p><b><u><a href="#">UPPER AIR FORECASTS</a></u></b></p>  <p><a href="#">Users Guide</a></p> <p><a href="#">Product Description Document</a></p>	<p>The Model Analysis and Guidance (MAG) website displays images from weather prediction models and observational data.</p>

<p><b><u>CONVECTIVE OUTLOOK</u></b></p>  <p><a href="#">Info on SPC Products</a></p>	<p>The NWS Storm Prediction Center (SPC) provides forecasts and watches for severe thunderstorms and tornadoes over the contiguous United States.</p>
<p><b><u>NATIONAL DIGITAL FORECAST DATABASE</u></b></p>  <p><a href="#">Info on the NDFD</a></p>	<p>The National Digital Forecast Database (NDFD) is a suite of gridded forecasts of sensible weather elements.</p>
<p><b><u>TROPICAL WX OUTLOOK</u></b></p>  <p><a href="#">Info on the NHC</a></p>	<p>The NWS National Hurricane Center (NHC) provides forecasts, watches, and warnings for tropical storms and hurricanes.</p>
<p><b><u>SURFACE PROG CHARTS</u></b></p>  <p><a href="#">Info on the Surface Prog Chart</a></p>	<p>Prog Charts are forecasts for surface conditions. The Weather Prediction Center (WPC) provides an analysis updated every 3 hours plus 12 and 24 hour forecasts updated 4 times per day and a 36 and 48 hour forecast updated twice per day. WPC also issues medium range forecasts every day from 3-7 days. These forecasts are valid for the contiguous United States.</p>

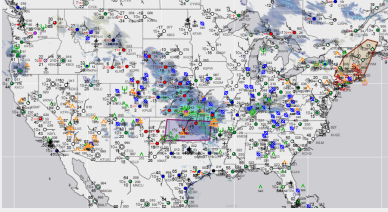
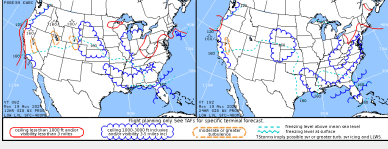
<p><a href="#">WPC Homepage</a></p>	
<p><b><a href="#">WINDS/TEMPS ALOFT</a></b></p>  <p><a href="#">Temperatures aloft</a></p> <p><a href="#">Wind/Temp Chart</a></p> <p><a href="#">Info on Wind/Temp Aloft</a></p> <p><a href="#">Info on Winds/Temp Display</a></p>	<p>The Winds/Temps pages within GFA provide 3D graphics of winds and temperatures at a multitude of altitudes from the current time to 18 hours in the future. Gridded data and wind barbs distinguishing wind speed and direction available in GFA.</p>
<p><b><a href="#">FREEZING LEVEL FORECAST</a></b></p> 	<p>The Freezing Level Forecast is an hourly graphical freezing level forecast. It goes out to 18 hours in the future. This data is embedded into the icing page within the Graphical Forecasts for Aviation, using the layer selector at the top right corner to view additional icing products.</p>
<p><b><a href="#">TAF FORECASTS</a></b></p>  <p><a href="#">Info on TAFs</a></p> <p><a href="#">Info on TAF display</a></p> <p><a href="#">How to interpret a TAF Forecast</a></p>	<p>A Terminal Aerodrome Forecast (TAF) is the international standard code format for terminal forecasts issued for airports. TAFs are valid for 24 or 30 hour time periods and are issued 4 times a day at 6 hour intervals.</p>

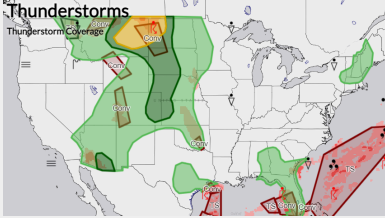
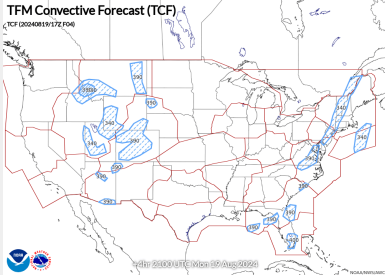
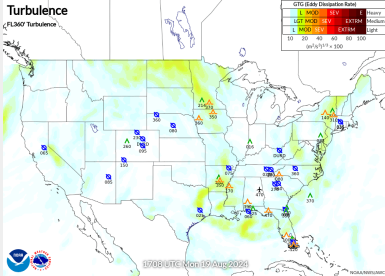
<p><b><u><a href="#">NWS WFO DISCUSSIONS</a></u></b></p>  <p>Area Forecast Discussions</p>	<p>Aviation Area Forecast Discussions (AFD) are issued by each NWS weather service forecast office (WFO) to describe the weather conditions within their region as it relates to the creation of the TAF. These discussions point out aviation related issues that cannot be encoded into the TAF. The discussion also gives some reasoning behind the forecast. AFDs are generated roughly every 6 hours and correspond to the release of the latest TAFs for that office.</p>
<p><b><u><a href="#">EXTENDED TFM CONVECTIVE FORECAST</a></u></b></p>  <p>Extended TCF TCF 0204001917Z P16</p> <p><a href="#">Extended TCF Help Page</a></p>	<p>The Extended TFM Convective Forecast (eTCF) provides a high confidence graphical representation of forecasted convection. eTCF graphics are produced every 2 hours and valid at 2 hour increments from 10 to 30-hours after issuance time.</p>
<p><b><u><a href="#">EXTENDED CONVECTIVE FORECAST PRODUCT</a></u></b></p>  <p>Extended Convective Forecast Product Convective probability forecast</p> <p>15Z Thu - 18Z Thu    18Z Thu - 21Z Thu</p> <p>21Z Thu - 00Z Fri    00Z Fri - 03Z Fri</p> <p><a href="#">ECFP Help Page</a></p>	<p>The Extended Convective Forecast Product (ECFP) Planning Tool graphically depicts the forecast probability of thunderstorms. The product shows where in the U.S. thunderstorms are likely over the next 72 hours. The ECFP is intended to enhance the TFM Collaborative Forecast (TCF). The product is not a TCF forecast (it is not forecasting the exact TCF criteria), but intended to support the long range planning for TCF type of constraints in the National Airspace System.</p>

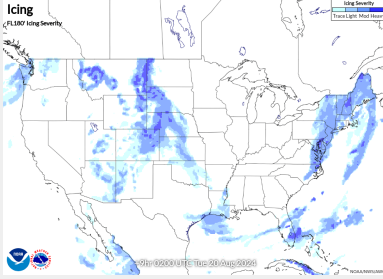
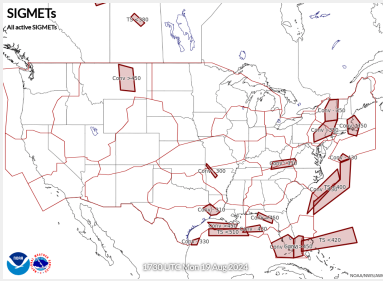
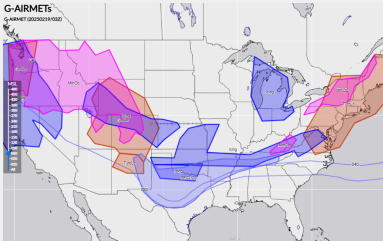
### 3 DAY OF DEPARTURE



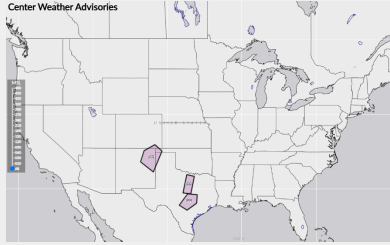
On your day of departure, review weather data found in the pre-flight section as well as the following products.

<p><b><u><a href="#">GRAPHICAL FORECAST FOR AVIATION TOOL</a></u></b></p>  <p><a href="#">GFA Help Page</a></p> <p><a href="#">Short GFA tutorial video</a></p>	<p>The Graphical Forecasts for Aviation (GFA) web page provides an interactive and customizable map of the weather that may impact flights CONUS, the Gulf of America, the Caribbean, Alaska and Hawaii, and portions of the Atlantic and Pacific Oceans.</p>
<p><b><u><a href="#">LOW LEVEL SIG WEATHER</a></u></b></p>  <p><a href="#">Low Level SigWX Chart Help</a></p>	<p>The low-level graphics product is a forecast of aviation weather hazards for 12 and 24 hrs from the valid time across the CONUS and coastal waters. This product displays forecast areas of MVFR and IFR, as well as any forecast turbulence below FL240 and expected turbulence intensity (i.e. mod or sev). The freezing level is also plotted on the chart. The low-level graphics product is issued 4 times a day at 00z, 06z, 12z, and 18z. It is primarily intended to be used as a guidance product for VFR rated pilots.</p>

<p style="text-align: center;"><b><u>THUNDERSTORM FORECAST</u></b></p> 	<p>The thunderstorm tab within GFA displays forecasted thunder from the NDFD out to +18 hours. SPC convective outlooks and Traffic Flow Management Convective Forecasts can be overlaid on the map for a more complete picture.</p>
<p style="text-align: center;"><b><u>TRAFFIC FLOW MANAGEMENT CONVECTIVE FORECAST</u></b></p>  <p><a href="#">TCF Help page</a></p>	<p>The TCF is a high confidence graphic of forecasted convection meeting specific criteria for coverage, intensity, and echo top height. The TCF graphics are produced every 2 hours and are valid at 4-, 6-, and 8- hours after issuance time.</p>
<p style="text-align: center;"><b><u>TURBULENCE PRODUCTS</u></b></p>  <p><a href="#">Turbulence Help Page</a></p>	<p>The Turbulence tab within the GFA depicts Graphical Turbulence Guidance (GTG). The turbulence grid is expressed in terms of Eddy Dissipation Rate (EDR) to the 1/3 power, i.e. <math>EDR = (m^2/s^3)^{1/3}</math>. This product forecasts turbulence from the surface to FL480 in 1-hour time intervals out to +18 hours. It is driven by, and synchronized with, NOAA's "Rapid Refresh" of the RAP forecast model.</p>
<p style="text-align: center;"><b><u>ICING PRODUCTS</u></b></p>	<p>The Icing tab within the GFA displays icing severity by expected accumulation of trace, light, moderate, and heavy icing, with supercooled large drops depicted in red. This product forecasts icing from the surface to FL 480 in 1-hour time intervals out to +18 hours. Icing probability and freezing level are also available icing products found under the layer selector on the right.</p>

 <p><b>Icing</b> FLWV Icing Severity</p> <p><a href="#">Icing Help Page</a></p>	
<p style="text-align: center;"><b><u>SIGMETs</u></b></p>  <p><b>SIGMETs</b> All active SIGMETs</p> <p><a href="#">SIGMET Help</a></p> <p><a href="#">SIGMET Display Help</a></p>	<p>A U.S. SIGMET advises of weather, other than convective activity, that is potentially hazardous to all aircraft. SIGMETs are issued (for the lower 48 states and adjacent coastal waters) for up to 6 hours. SIGMETs are issued for the following weather-related reasons:</p> <ul style="list-style-type: none"> <li>● Severe Icing</li> <li>● Severe or Extreme Turbulence</li> <li>● Dust storms and/or sand storms lowering visibilities to less than 3 miles</li> <li>● Volcanic Ash</li> </ul>
<p style="text-align: center;"><b><u>G- AIRMETS</u></b></p>  <p><b>G-AIRMETS</b> G-AIRMETS (G-AIRMETS)</p> <p><a href="#">G-AIRMET Help</a></p>	<p>A G-AIRMET is a graphical advisory of weather that may be hazardous to aircraft. This product is for conditions less severe than SIGMETs. G-AIRMETS are issued at discrete times 3 hours apart for a period of up to 12 hours into the future (00, 03, 06, 09, and 12 hours). They are issued at 03:00, 09:00, 15:00 and 21:00 UTC, with updates issued as necessary.</p> <p>The aviation hazards depicted in the G-AIRMET are Turbulence, Low Level Wind Shear, Strong Surface Winds, Icing, Freezing Level, IFR and Mountain Obscuration.</p>

### [CWSU ADVISORIES](#)



[CWSU Help](#)

[CWSU Display Help](#)

NWS Center Weather Service Units (CWSU) are co-located with FAA Air Route Traffic Control Centers (ARTCC) facilities. They issue two aviation products.

The Center Weather Advisory (CWA) is valid for up to two hours for conditions meeting or approaching national in-flight advisory criteria (AIRMET or SIGMET).

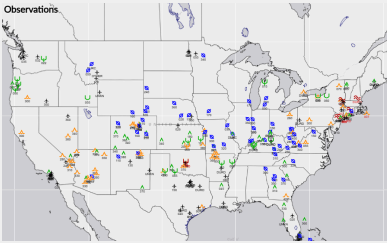
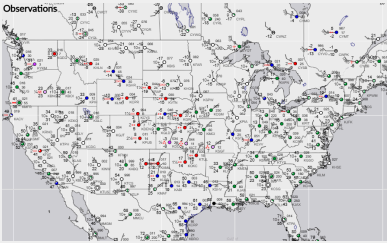
The Meteorological Impact Statement (MIS) is an unscheduled flow control and flight operations planning forecast. It is a non-technical forecast and briefing product for personnel at ARTCC, ATCSCC, TRACONS, and ATCTs who are responsible for making flow control-type decisions.

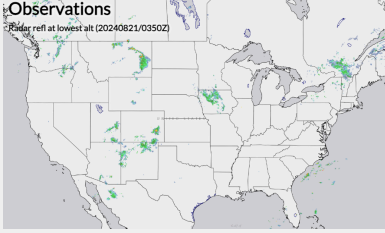
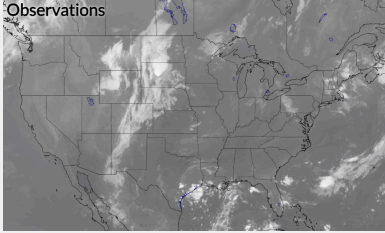


## 4 EN ROUTE PRODUCTS



The products listed in the table below can be used for pre-flight, day of departure or en-route planning.

<p style="text-align: center;"><b><u>AIRCRAFT REPORTS (PIREPS)</u></b></p>  <p><a href="#">PIREP raw data reports</a></p> <p><a href="#">Aircraft Report Help</a></p> <p><a href="#">Aircraft Report Plot Help</a></p>	<p>An Aircraft Report is a report of actual weather conditions encountered by an aircraft while in flight. There are two types of reports, AIREPS and PIREPS:</p> <p>An AIREP is a routine, often automated report of in-flight weather conditions such as wind and temperature.</p> <p>A PIREP is a pilot report detailing encounters of hazardous weather such as icing or turbulence.</p> <p>Both reports are sent in real-time via radio to a ground station.</p>
<p style="text-align: center;"><b><u>METARs</u></b></p>  <p><a href="#">Interpreting METARs plots</a></p> <p><a href="#">METAR raw Data</a></p> <p><a href="#">METAR Help Overview</a></p>	<p>Weather stations worldwide report conditions hourly using the WMO approved METAR format (see WMO code manual FM-15 and FM-16). These data are centrally collected by each country and distributed internationally by the WMO and other services.</p>

<p><a href="#">Impacts METAR Board</a> <a href="#">Impacts METARs Help</a></p>	
<p><b><a href="#">RADAR IMAGERY</a></b></p>  <p><a href="#">Radar Help Overview</a></p>	<p>There are 159 NEXRAD radars systems deployed in the United States and around the world. These radars use WSR-88D technology. The "Doppler" capability of these radars uses shifts in the phase of the reflected energy to determine the velocity of the particles towards or away from the radar. The effective detection range is between 80 and 140 nautical miles, depending on the intensity of the precipitation. In clear air mode, these radars transmit data every 10 minutes. In precip mode, they transmit every 4 to 6 minutes.</p>
<p><b><a href="#">SATELLITE IMAGERY</a></b></p>  <p><a href="#">Satellite Help Overview</a></p> <p><a href="#">NOAA Satellite Information</a></p>	<p>The satellite page contains links to national-scale and regional-scale satellite images from the GOES-17 (West) and GOES-16 (East) satellites, as well as international satellites from across the globe.</p> <p>Images are provided for three of the different wavelength sensors on the satellite: Infrared (IR), Water Vapor, and Visible/Fog.</p>

## 5 AVIATION WEATHER TOOLS

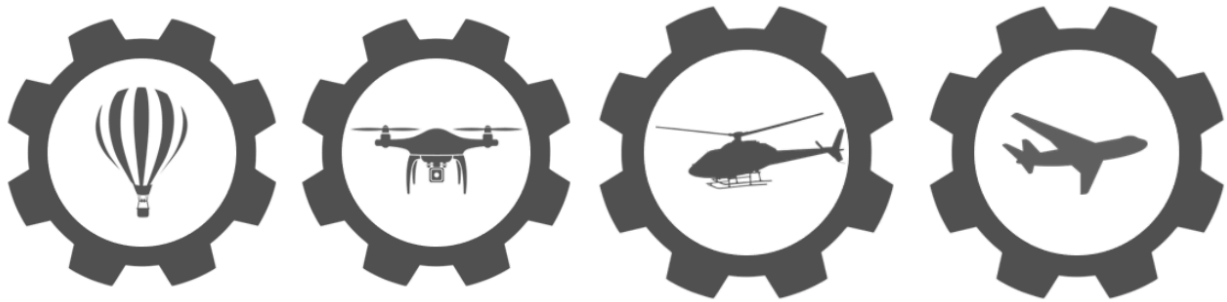


The Aviation Weather Center produces several tools that serve to help the aviation community.

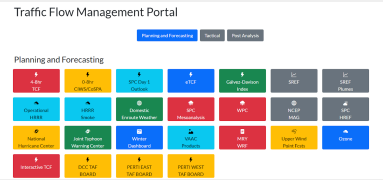
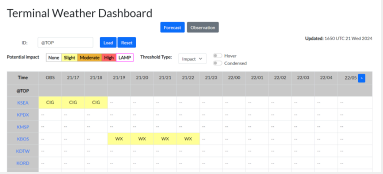
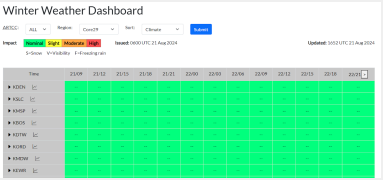
<p><b><a href="#">CROSS SECTION TOOL</a></b></p> <p><a href="#">Cross Section Tool Info</a> <a href="#">Flight Path Tool Tutorial</a></p>	<p>The Cross Section Tool is 3-dimensional representation of weather parameters along a route, embedded into the Graphical Forecasts for Aviation. You can access the Cross Section Tool by clicking on the route icon along the right side of the map within GFA. Enter a flight route along, and a magenta line will appear on the map outlining your intended route. The Cross Section Tool can overlay multiple fields of interest: temperature, wind speed, clouds, turbulence, and icing.</p>
<p><b><a href="#">GFA-LOW ALTITUDE (LA)</a></b></p> <p><a href="#">GFA LA Info</a> <a href="#">GFA LA Help</a></p>	<p>This tool is designed to show weather conditions for short-distance and low-altitude flights that are common for the helicopter emergency medical services (HEMS) community. Built into the GFA framework, select the helicopter icon from the top right corner of the map to view GFA-LA on any of the interactive maps.</p>
<p><b><a href="#">GFA-EXTENDED RANGE</a></b></p>	<p>This tool is designed to display winds and temperatures forecasted out to four days. Built into the GFA framework, select the calendar icon from the top right corner of the wind or temperature page.</p>

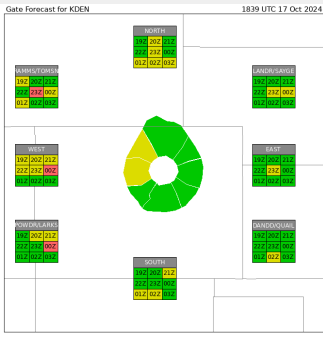
 <p><a href="#">GFA-ER Info</a></p>	
<p><b>DATA API</b></p> <p>Data API</p> <p>The data API provides machine-readable access to aviation weather information. The interface below can be used to learn more about available data, configure specific queries, and try them out. The weather database currently allows access to the previous 12 days of data.</p> <p>Please keep requests limited to single and frequently updated forecasts per query as well as rate limits to avoid frequent requests. For larger queries, consider using the <a href="#">cURL tool</a>.</p> <p>Data (Download metadata and complete documentation)</p> <ul style="list-style-type: none"> <li><a href="#">[GET] /API/AviationWeather/METEO</a></li> <li><a href="#">[GET] /API/AviationWeather/IMPACT</a></li> <li><a href="#">[GET] /API/AviationWeather/PICTURES</a></li> <li><a href="#">[GET] /API/AviationWeather/IMPACTS/IMPACTS</a></li> <li><a href="#">[GET] /API/AviationWeather/IMPACTS/IMPACTS</a></li> <li><a href="#">[GET] /API/AviationWeather/IMPACTS/IMPACTS</a></li> <li><a href="#">[GET] /API/AviationWeather/IMPACTS/IMPACTS</a></li> <li><a href="#">[GET] /API/AviationWeather/IMPACTS/IMPACTS</a></li> <li><a href="#">[GET] /API/AviationWeather/IMPACTS/IMPACTS</a></li> <li><a href="#">[GET] /API/AviationWeather/IMPACTS/IMPACTS</a></li> <li><a href="#">[GET] /API/AviationWeather/IMPACTS/IMPACTS</a></li> </ul> <p><a href="#">Data API Help</a></p>	<p>The data API provides direct and query-able access to much of the real-time data that is depicted elsewhere on the site.</p> <p>Configure specific queries and download data in raw, json, geojson, xml, or html formats.</p>
<p><b>Help Page</b></p> <p>Welcome to the Aviation Weather Center</p> <p><a href="#">Overview</a> <a href="#">Tutorial</a> <a href="#">About</a> <a href="#">Classroom</a> <a href="#">FAQ</a> <a href="#">GFA</a></p> <p>Overview</p> <p>AviationWeather.gov has a new look! Some of the goals of the new website design were to provide a consistent page layout throughout, reduce application and fix the number of pages, and achieve mobile responsiveness. The website is organized by utilizing the main page to branch to an interactive map called the Graphical Forecasts for Aviation (GFA), various impacts dashboards, a data and imagery page, and a handful of other pages that provide weather information for the world airspace system. Check out the website tutorial video to the left to get a full overview of the website.</p> <p><a href="#">AviationWeather.gov Info</a></p> <p><a href="#">GFA Help</a></p>	<p>The AviationWeather.gov website is organized by utilizing the main page to branch to an interactive map called the Graphical Forecasts for Aviation (GFA), various impacts dashboards, a data and imagery page, and several other pages that provide weather information for the world airspace system. Click on the ‘?’ icon at the top right corner of any webpage to gather additional information about the data that is displayed on the web page.</p> <p>The <a href="#">FAQ</a> button provides a list of AWC frequently asked questions as well as links to additional help pages within the website.</p> <p>Tutorial videos on how to navigate AviationWeather.gov are available on the NWS Aviation Weather Center <a href="#">youtube channel</a>.</p>

## 6 DECISION SUPPORT TOOLS



These tools are designed for specific aviation applications to aid both pilots and decision makers.

<p style="text-align: center;"><b><u>TRAFFIC FLOW MANAGEMENT PORTAL</u></b></p> 	<p>One stop shop for Traffic Flow Management decision makers.</p> <p>The webpage is broken down into three sections:</p> <ul style="list-style-type: none"> <li>● Planning and Forecasting</li> <li>● Tactical</li> <li>● Post Analysis (Archive)</li> </ul>
<p style="text-align: center;"><b><u>IMPACTS BOARD</u></b></p>  <p><a href="#">Help Page</a></p>	<p>The Impacts Board is a fully customizable time series display of past observations, current and forecast conditions, color coded to alert the user to potential impacts.</p>
<p style="text-align: center;"><b><u>WINTER WEATHER DASHBOARD</u></b></p>  <p><a href="#">Help Page</a></p>	<p>This dashboard provides a decision support tool to alert operational meteorologists and air traffic managers to potential winter weather impacts at major airports.</p>
<p style="text-align: center;"><b><u>TFM GATE FORECASTS</u></b></p>	<p>There is a need for forecasts of significant weather in arrival and</p>

 <p>Gate Forecast for KDEN 1830 UTC 17 Oct 2024</p> <p><a href="#">Help Page</a></p>	<p>departure sectors for the top airports. These sectors, also called gates, are polygonal regions which roughly follow ARTCC low level sectors where arrivals and departures to these airports will be routed. It is important to know whether significant weather, such as thunderstorms, could affect large portions of the sectors so that traffic can be rerouted to other sectors if needed.</p>
<p><b><u>AIRPORT WEATHER WARNINGS (AWW)</u></b></p> <p>Airport Weather Warning</p> <p>Click on the specific site below to view the Airport Weather Warning product(s):  <b>NWS Weather Forecast Office Identifier</b>  <a href="#">AMA - Amarillo, TX</a>  <a href="#">AUS - Austin/San Antonio, TX</a>  <a href="#">BED -</a>  <a href="#">BMX - Birmingham, AL</a>  <a href="#">BRO - Brownsville, TX</a>  <a href="#">BUF - Buffalo, NY</a>  <a href="#">CRP - Corpus Christi, TX</a>  <a href="#">CRW - Charleston, WV</a>  <a href="#">DFW - Dallas/Fort Worth, TX</a>  <a href="#">ELP - El Paso, TX</a>  <a href="#">EYW - Key West, FL</a>  <a href="#">GSP - Greer, SC</a>  <a href="#">GUM - Tiyan, Guam</a>  <a href="#">HUN - Huntsville, AL</a>  <a href="#">MFR - Medford, OR</a>  <a href="#">MHT -</a>  <a href="#">MSO - Missoula, MT</a>  <a href="#">RDD -</a>  <a href="#">SAT - Austin/San Antonio, TX</a>  <a href="#">SHV - Shreveport, LA</a>  <a href="#">SLC - Salt Lake City, UT</a>  <a href="#">TPA - Tampa Bay Area, FL</a></p>	<p>The AWW alerts airports about weather with the potential to impact ground operations. Specific warning criteria are decided by local airport management and the supporting Weather Forecast Office. The AWW complements and is consistent with existing NWS warnings and forecasts to the maximum extent possible.</p>

## 6.1 SOCIAL MEDIA

Many offices and organizations maintain accounts on social media platforms such as Twitter, Facebook, etc. where they post aviation information that's relevant to their local areas.

DO NOT RELY ON SOCIAL MEDIA FOR CURRENT AVIATION WEATHER HAZARDS OR INFORMATION. Always visit [www.weather.gov](http://www.weather.gov) or [www.aviationweather.gov](http://www.aviationweather.gov) for the latest weather observations and aviation forecasts.

Social media links		
Office	Twitter	Facebook
<a href="#">Aviation Weather Center</a> (AWC)	<a href="https://twitter.com/NWSAWC">https://twitter.com/NWSAWC</a>	<a href="https://www.facebook.com/US.NOAA.AviationWeatherCenter">https://www.facebook.com/US.NOAA.AviationWeatherCenter</a>
<a href="#">Alaska Aviation Weather Unit</a> (AAWU)	--	--
<a href="#">Hawai'i Aviation Products</a>	--	--
<a href="#">CWSU Albuquerque</a> (KZAB)	<a href="https://twitter.com/NWSCWSUZAB">https://twitter.com/NWSCWSUZAB</a>	<a href="https://www.facebook.com/CWSUAlbuquerque">https://www.facebook.com/CWSUAlbuquerque</a>
<a href="#">CWSU Anchorage</a> (PAZA)	<a href="https://twitter.com/NWSCWSUZAN">https://twitter.com/NWSCWSUZAN</a>	--
<a href="#">CWSU Atlanta</a> (KZTL)	--	--
<a href="#">CWSU Boston</a> (KZBW)	<a href="https://twitter.com/NWSCWSUZBW">https://twitter.com/NWSCWSUZBW</a>	--
<a href="#">CWSU Chicago</a> (KZAU)	--	--
<a href="#">CWSU Cleveland</a> (KZOB)	--	--
<a href="#">CWSU Denver</a> (KZDV)	--	--
<a href="#">CWSU Fort Worth</a> (KZFW)	--	--
<a href="#">CWSU Houston</a> (KZHU)	--	--
<a href="#">CWSU Indianapolis</a> (KZID)	--	--
<a href="#">CWSU Jacksonville</a> (KZJX)	--	--

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<a href="#">CWSU Kansas City</a> (KZKC)	--	--
<a href="#">CWSU Los Angeles</a> (KZLA)	--	<a href="https://www.facebook.com/NWSCWSUZLA">https://www.facebook.com/NWSCWSUZLA</a>
<a href="#">CWSU Memphis</a> (KZME)	--	<a href="https://www.facebook.com/CWSUMemphis">https://www.facebook.com/CWSUMemphis</a>
<a href="#">CWSU Miami</a> (KZMA)	--	--
<a href="#">CWSU Minneapolis</a> (KZMP)	--	--
<a href="#">CWSU New York</a> (KZNY)	--	<a href="https://www.facebook.com/NWSCWSUZNY">https://www.facebook.com/NWSCWSUZNY</a>
<a href="#">CWSU Oakland</a> (KZOA)	<a href="https://twitter.com/NWSCWSUZOA">https://twitter.com/NWSCWSUZOA</a>	<a href="https://www.facebook.com/NWSCWSUZOA">https://www.facebook.com/NWSCWSUZOA</a>
<a href="#">CWSU Salt Lake City</a> (KZLC)	<a href="https://twitter.com/NWSCWSUZLC">https://twitter.com/NWSCWSUZLC</a>	<a href="https://www.facebook.com/NWSCWSUZLC">https://www.facebook.com/NWSCWSUZLC</a>
<a href="#">CWSU Seattle, WA</a> (KZSE)	<a href="https://twitter.com/NWSCWSUZSE">https://twitter.com/NWSCWSUZSE</a>	<a href="https://www.facebook.com/NWSCWSUZSE">https://www.facebook.com/NWSCWSUZSE</a>
<a href="#">CWSU Washington</a> (KZDC)	--	--



## 6.2 NWS Aviation Webpages

The Aviation Weather Services Webpage can be used to access a wide range of aviation weather information. Sections include; NWS In Aviation, Hazards in Aviation, Aviation Partners, Supporting Offices, NWS Aviation Outreach, Aviation Technical Resources, and Aviation Careers.

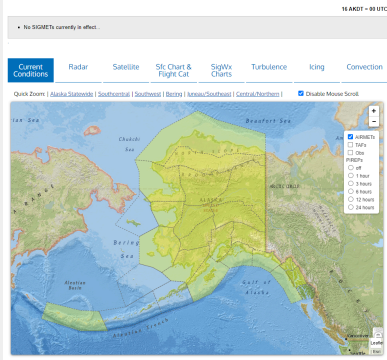
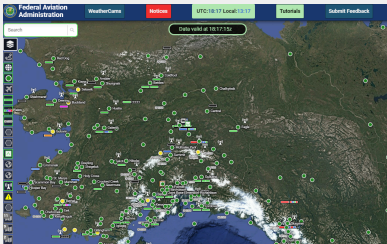
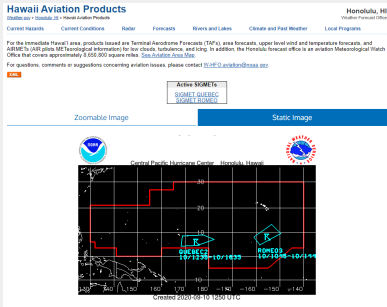
Many NWS offices have their own aviation meteorology web page. These pages are useful for local pilots to use to find pertinent information and links for their area.

NWS OFFICE		
<a href="#"><u>Aberdeen SD</u></a>	<a href="#"><u>Great Falls, MT</u></a>	<a href="#"><u>Omaha, NE</u></a>
<a href="#"><u>Albany, NY</u></a>	<a href="#"><u>Green Bay, WI</u></a>	<a href="#"><u>Paducah, KY</u></a>
<a href="#"><u>Albuquerque, NM</u></a>	<a href="#"><u>Greer, SC</u></a>	<a href="#"><u>Pendleton, OR</u></a>
<a href="#"><u>Amarillo, TX</u></a>	<a href="#"><u>Guam</u></a>	<a href="#"><u>Philadelphia, PA</u></a>
<a href="#"><u>Anchorage, AK</u></a>	<a href="#"><u>Hanford, CA</u></a>	<a href="#"><u>Phoenix, AZ</u></a>
<a href="#"><u>Atlanta, GA</u></a>	<a href="#"><u>Hastings, NE</u></a>	<a href="#"><u>Pittsburgh, PA</u></a>
<a href="#"><u>Billings, MT</u></a>	<a href="#"><u>Honolulu, HI</u></a>	<a href="#"><u>Pleasant Hill, MO</u></a>
<a href="#"><u>Binghamton, NY</u></a>	<a href="#"><u>Houston, TX</u></a>	<a href="#"><u>Pocatelo, ID</u></a>
<a href="#"><u>Birmingham, AL</u></a>	<a href="#"><u>Huntsville, AL</u></a>	<a href="#"><u>Portland, ME</u></a>

<a href="#">Bismarck, ND</a>	<a href="#">Indianapolis, IN</a>	<a href="#">Portland, OR</a>
<a href="#">Blacksburg, VA</a>	<a href="#">Jackson, MS</a>	Pueblo, CO
<a href="#">Boise, ID</a>	<a href="#">Jackson, KY</a>	<a href="#">Quad Cities, IA</a>
Boston, MA	<a href="#">Jacksonville, FL</a>	<a href="#">Raleigh, NC</a>
<a href="#">Brownsville, TX</a>	Juneau, AK	Rapid City, SD
Buffalo, NY	<a href="#">Key West, FL</a>	<a href="#">Reno, NV</a>
<a href="#">Burlington, VT</a>	<a href="#">Knoxville, TN</a>	<a href="#">Riverton, WY</a>
<a href="#">Caribou, ME</a>	<a href="#">La Crosse, WI</a>	<a href="#">Sacramento, CA</a>
<a href="#">Charleston, SC</a>	<a href="#">Lake Charles, LA</a>	<a href="#">Salt Lake City, UT</a>
<a href="#">Charleston, WV</a>	<a href="#">Las Vegas, NV</a>	<a href="#">San Angelo, TX</a>
<a href="#">Cheyenne, WY</a>	Lincoln, NE	<a href="#">San Antonio, TX</a>
<a href="#">Chicago, IL</a>	<a href="#">Little Rock, AR</a>	<a href="#">San Diego, CA</a>
<a href="#">Cleveland, OH</a>	<a href="#">Los Angeles, CA</a>	<a href="#">San Francisco, CA</a>
Columbia, SC	Louisville, KY	<a href="#">San Juan, PR</a>
<a href="#">Corpus Christi, TX</a>	<a href="#">Lubbock, TX</a>	<a href="#">Seattle, WA</a>
<a href="#">Denver, CO</a>	<a href="#">Marquette, MI</a>	<a href="#">Shreveport, LA</a>
Des Moines, IA	<a href="#">Medford, OR</a>	Sioux Falls, SD
Detroit, MI	Melbourne, FL	<a href="#">Spokane, WA</a>
Dodge City, KS	<a href="#">Memphis, TN</a>	Springfield, MO
<a href="#">Duluth, MN</a>	<a href="#">Miami, FL</a>	St Louis, MO
<a href="#">El Paso, TX</a>	<a href="#">Midland, TX</a>	<a href="#">State College, PA</a>
<a href="#">Elko, NV</a>	<a href="#">Milwaukee, WI</a>	<a href="#">Sterling, VA</a>
<a href="#">Eureka, CA</a>	<a href="#">Minneapolis, MN</a>	<a href="#">Tallahassee, FL</a>
Fairbanks, AK	<a href="#">Missoula, MT</a>	<a href="#">Tampa, FL</a>

<a href="#"><u>Flagstaff, AZ</u></a>	<a href="#"><u>Mobile, AL</u></a>	Topeka, KS
Fort Worth, TX	Northern Indiana	<a href="#"><u>Tucson, AZ</u></a>
Gaylord, MI	<a href="#"><u>Nashville, TN</u></a>	<a href="#"><u>Tulsa, OK</u></a>
<a href="#"><u>Glasgow, MT</u></a>	<a href="#"><u>New Orleans, LA</u></a>	<a href="#"><u>Wakefield, VA</u></a>
Goodland, KS	<a href="#"><u>New York, NY</u></a>	<a href="#"><u>Wichita, KS</u></a>
Grand Forks, ND	<a href="#"><u>Newport, NC</u></a>	<a href="#"><u>Wilmington, NC</u></a>
<a href="#"><u>Grand Junction, CO</u></a>	<a href="#"><u>Norman, OK</u></a>	<a href="#"><u>Wilmington, OH</u></a>
<a href="#"><u>Grand Rapids, MI</u></a>	<a href="#"><u>North Platte, NE</u></a>	

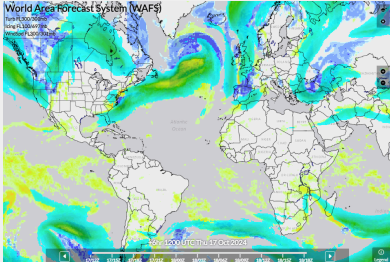
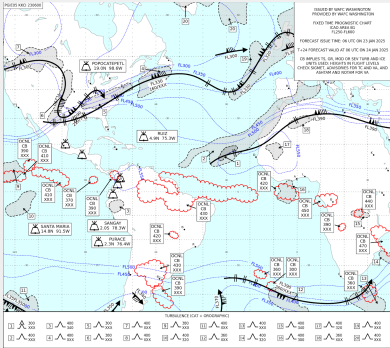
## 7 ALASKA / HAWAI'I PRODUCTS

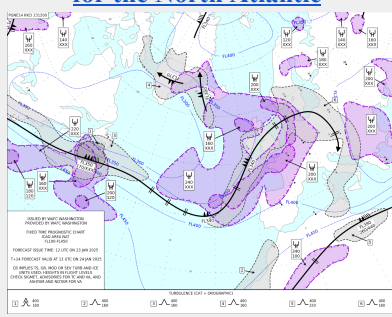
<p style="text-align: center;"><b><u>ALASKA AVIATION WEATHER UNIT (AAWU) WEBPAGE</u></b></p> 	<p>The AAWU is a one stop shop for aviation weather information for Alaska and the surrounding waters.</p> <p>The page is broken up into the following categories:</p> <ul style="list-style-type: none"> <li>● Current Conditions</li> <li>● Radar</li> <li>● Satellite</li> <li>● Surface Chart and Flight Categories</li> <li>● SigWX Charts</li> <li>● Turbulence</li> <li>● Icing</li> <li>● Convection</li> </ul>
<p style="text-align: center;"><b><u>ALASKA AVIATION WEATHER CAMERAS</u></b></p>  <p><a href="#">For Further Information</a></p>	<p>These webcams have been installed at airports throughout Alaska to provide additional weather data.</p>
<p style="text-align: center;"><b><u>HAWAI'I AVIATION PRODUCTS</u></b></p>  <p><a href="#">Forecast Area Map</a></p>	<p>Aviation products for the immediate Hawai'i area include: TAFs, area forecasts, upper level wind and temperature forecasts, and AIRMETs for low clouds, turbulence, and icing.</p> <p>In addition, the Honolulu forecast office is an aviation Meteorological Watch Office that covers approximately 8,650,800 square miles.</p>

## 8 INTERNATIONAL PRODUCTS



The AWC is one of two world area forecast centers with global responsibility. The other center is the UK Meteorological Office in Exeter, England.

<p><b><u>WORLD AREA FORECAST SYSTEM DISPLAY</u></b></p>  <p><a href="#">WAFS Data Help</a></p> <p><a href="#">WAFS Internet File Service (WIFS) Data</a> (requires username and password)</p>	<p>The World Area Forecast Center (WAFC) in Washington, DC is one of two international WAFCs.</p> <p>The WAFC produces Global Significant Weather Charts used in flight planning and dispatch; the WAFC Internet File System (WIFS); WAFC global grids, and wind and temperature charts.</p> <p>The WAFS website demonstrates how the WAFS gridded data can be displayed. The display is not approved for use by either the FAA or ICAO, though the underlying gridded data are approved for use in support of flight planning. WAFS gridded data are available on the WAFS Internet File Service to FAA approved users. For more information on how to gain access to the gridded data, see the link to the WAFS website.</p>
<p><b><u>HIGH LEVEL SIG WEATHER</u></b></p>  <p><a href="#">High Level SigWX Chart Help</a></p>	<p>High level SIGWX charts are valid at specific fixed times: 0000, 0600, 1200, and 1800 UTC. The charts show significant en-route weather phenomena over a range of flight levels from FL100 to FL600 forecast out 24 hours from the valid time. Forecast weather phenomena include jet stream location and speeds, areas of moderate or greater turbulence, thunderstorm location and intensity (Occasional and greater) as well as associated surface weather features, Tropical Cyclones, Active Volcanoes and tropopause heights.</p>

<p><b><a href="#">MID LEVEL SIG WEATHER for the North Atlantic</a></b></p>  <p><a href="#">Mid Level SigWX Chart Help</a></p>	<p>The Mid Level Significant Weather chart also covers between FL100 and FL600 and is valid at the same specific fixed times as the High Level SIGWX charts. The significant weather phenomena from the high level charts are displayed on these charts with the addition of icing to account for the high amount of transatlantic flights.</p>																														
<p><b><a href="#">VOLCANIC ASH ADVISORIES</a></b></p> <p><b>Current Volcanic Ash Advisories</b></p> <p>Advisories Last Updated: <b>Thu Oct 17 15:55:50 UTC 2024</b>          Advisories from the past 24 hours:</p> <table border="1"> <tbody> <tr> <td>FUEGO GUATEMALA</td> <td>17 Oct 2024 - 1550 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td> </tr> <tr> <td>POPOCATEPETL MEXICO</td> <td>17 Oct 2024 - 1437 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td> </tr> <tr> <td>REVENTADOR ECUADOR</td> <td>17 Oct 2024 - 1349 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td> </tr> <tr> <td>SANGAY ECUADOR</td> <td>17 Oct 2024 - 1256 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td> </tr> <tr> <td>FUEGO GUATEMALA</td> <td>17 Oct 2024 - 1002 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td> </tr> <tr> <td>REVENTADOR ECUADOR</td> <td>17 Oct 2024 - 0817 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td> </tr> <tr> <td>FUEGO GUATEMALA</td> <td>17 Oct 2024 - 0750 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td> </tr> <tr> <td>SANGAY ECUADOR</td> <td>17 Oct 2024 - 0658 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td> </tr> <tr> <td>REVENTADOR ECUADOR</td> <td>17 Oct 2024 - 0243 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td> </tr> <tr> <td>SANTA MARIA GUATEMALA</td> <td>17 Oct 2024 - 0232 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td> </tr> <tr> <td>FUEGO GUATEMALA</td> <td>17 Oct 2024 - 0211 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td> </tr> <tr> <td>SANGAY ECUADOR</td> <td>17 Oct 2024 - 0159 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td> </tr> <tr> <td>REVENTADOR ECUADOR</td> <td>16 Oct 2024 - 2057 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td> </tr> <tr> <td>SANTA MARIA GUATEMALA</td> <td>16 Oct 2024 - 2047 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td> </tr> <tr> <td>FUEGO GUATEMALA</td> <td>16 Oct 2024 - 2023 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td> </tr> </tbody> </table>	FUEGO GUATEMALA	17 Oct 2024 - 1550 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	POPOCATEPETL MEXICO	17 Oct 2024 - 1437 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	REVENTADOR ECUADOR	17 Oct 2024 - 1349 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	SANGAY ECUADOR	17 Oct 2024 - 1256 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	FUEGO GUATEMALA	17 Oct 2024 - 1002 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	REVENTADOR ECUADOR	17 Oct 2024 - 0817 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	FUEGO GUATEMALA	17 Oct 2024 - 0750 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	SANGAY ECUADOR	17 Oct 2024 - 0658 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	REVENTADOR ECUADOR	17 Oct 2024 - 0243 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	SANTA MARIA GUATEMALA	17 Oct 2024 - 0232 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	FUEGO GUATEMALA	17 Oct 2024 - 0211 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	SANGAY ECUADOR	17 Oct 2024 - 0159 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	REVENTADOR ECUADOR	16 Oct 2024 - 2057 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	SANTA MARIA GUATEMALA	16 Oct 2024 - 2047 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	FUEGO GUATEMALA	16 Oct 2024 - 2023 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	<p>Advisories are issued when an ash cloud is observed. Ash dispersion and numerical models are used to forecast a path and evolution of the ash cloud.</p> <p>Current volcanic ash advisories for the past 24 hours are available. Additional links on the web page direct users to advisories for the past 15 days as well as searching for a specific volcano. The volcanic advisories are available in several different text formats and also a graphical option.</p>
FUEGO GUATEMALA	17 Oct 2024 - 1550 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)																														
POPOCATEPETL MEXICO	17 Oct 2024 - 1437 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)																														
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SANGAY ECUADOR	17 Oct 2024 - 0658 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)																														
REVENTADOR ECUADOR	17 Oct 2024 - 0243 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)																														
SANTA MARIA GUATEMALA	17 Oct 2024 - 0232 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)																														
FUEGO GUATEMALA	17 Oct 2024 - 0211 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)																														
SANGAY ECUADOR	17 Oct 2024 - 0159 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)																														
REVENTADOR ECUADOR	16 Oct 2024 - 2057 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)																														
SANTA MARIA GUATEMALA	16 Oct 2024 - 2047 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)																														
FUEGO GUATEMALA	16 Oct 2024 - 2023 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)																														

## 9 TROPICAL PRODUCTS



The National Hurricane Center (NHC) in Coral Gables, Florida and the Central Pacific Hurricane Center in Honolulu, Hawaii Produce Tropical Cyclone Advisories (TCA) for aviation interests.

### Tropical Cyclone ICAO Aviation Advisory

Example -Tropical Cyclone ICAO (Aviation) Advisory

```

F0722 KNHC 200809
TCAPZC
TROPICAL STORM LONNELL ICAO ADVISORY NUMBER 7
NHC NATIONAL HURRICANE CENTER HGAFC FL EP172020
0000 UTC SEP 22 2008

TC ADVISORY
DTG: 200809221000Z
TCAC: KNHC
TC: LONNELL
ADVISORY NR: 20081007
OBS POS: 221000N 16300 W15154
MOV: UNK 11KT
DIRCT CHANG: NC
CI: 1000MPH
POS VNO:
FCST POS +6 HR: 221500Z 16324 W151636
FCST MAX WIND +6 HR: 060KT
FCST POS +12 HR: 222100Z 16346 W151737
FCST MAX WIND +12 HR: 060KT
FCST POS +18 HR: 222700Z 16367 W151840
FCST MAX WIND +18 HR: 050KT
FCST POS +24 HR: 223300Z 16388 W151939
FCST MAX WIND +24 HR: 050KT
RMK: THE FORECAST POSITION INFORMATION IN THIS PRODUCT IS INTERPOLATED FROM OFFICIAL FORECAST DATA VALUED AT 0000... 0600... 1200... AND 1800Z. 200809221000Z
INT PGM:
$
    
```

[TCA Product Description Document](#)

[Current TCA Advisories](#)

[Historical TCA Advisories](#)

The Aviation Tropical Cyclone Advisory is issued to provide short term tropical cyclone forecast guidance for international aviation safety and routing purposes.

The TCA lists the current TC position, motion, and intensity, and includes 3, 6, 9, 15, 21, and 27 hour forecast positions and intensities.

Issuance of the Aviation Tropical Cyclone Advisory occurs every six hours at the regular advisory issuance time of 0300, 0900, 1500, and 2100 UTC. The bulletin's information is valid at the routine advisory times (0300, 0900, 1500 and 2100 UTC) and is not anchored to the synoptic times.

TCAs for special advisories will be issued for the same circumstances that apply for a standard advisory.

World Meteorological Organization (WMO) and AWIPS (in parenthesis) headers:

FKNT21-25 KNHC (MIATCANT1-5) – Atlantic  
 FKPZ21-25 KNHC (MIATCAPZ1-5) – E. Pacific  
 FKPA21-25 PHFO (HFOTCAPA1-5) – C. Pacific

IWXXM TCA products are listed under the following WMO headers:

LKNT 21-25 – Atlantic  
 LKPZ 21-25 – E. Pacific  
 LKPA 21-25 – C. Pacific

## 10 VOLCANIC ASH ADVISORY PRODUCTS



There are two Volcanic Ash Advisory Centers (VAAC) in the United States operating within NOAA. They are located in Washington, DC, and Anchorage, Alaska.

<p><b><u>VOLCANIC ASH ADVISORIES</u></b></p> <p><b>Current Volcanic Ash Advisories</b></p> <p>Advisories Last Updated: Thu Oct 17 15:55:50 UTC 2024 Advisories from the past 24 hours:</p> <table border="0"><tr><td>FUEGO GUATEMALA</td><td>17 Oct 2024 - 1550 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td></tr><tr><td>POPOCATEPETL MEXICO</td><td>17 Oct 2024 - 1437 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td></tr><tr><td>REVENTADOR ECUADOR</td><td>17 Oct 2024 - 1349 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td></tr><tr><td>SANGAY ECUADOR</td><td>17 Oct 2024 - 1256 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td></tr><tr><td>FUEGO GUATEMALA</td><td>17 Oct 2024 - 1062 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td></tr><tr><td>REVENTADOR ECUADOR</td><td>17 Oct 2024 - 0817 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td></tr><tr><td>FUEGO GUATEMALA</td><td>17 Oct 2024 - 0750 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td></tr><tr><td>SANGAY ECUADOR</td><td>17 Oct 2024 - 0658 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td></tr><tr><td>REVENTADOR ECUADOR</td><td>17 Oct 2024 - 0243 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td></tr><tr><td>SANTA MARIA GUATEMALA</td><td>17 Oct 2024 - 0232 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td></tr><tr><td>FUEGO GUATEMALA</td><td>17 Oct 2024 - 0211 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td></tr><tr><td>SANGAY ECUADOR</td><td>17 Oct 2024 - 0188 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td></tr><tr><td>REVENTADOR ECUADOR</td><td>16 Oct 2024 - 2057 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td></tr><tr><td>SANTA MARIA GUATEMALA</td><td>16 Oct 2024 - 2047 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td></tr><tr><td>FUEGO GUATEMALA</td><td>16 Oct 2024 - 2023 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)</td></tr></table> <p><b><u>Washington DC VAAC</u></b></p> <p><b><u>Anchorage VAAC</u></b></p>	FUEGO GUATEMALA	17 Oct 2024 - 1550 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	POPOCATEPETL MEXICO	17 Oct 2024 - 1437 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	REVENTADOR ECUADOR	17 Oct 2024 - 1349 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	SANGAY ECUADOR	17 Oct 2024 - 1256 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	FUEGO GUATEMALA	17 Oct 2024 - 1062 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	REVENTADOR ECUADOR	17 Oct 2024 - 0817 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	FUEGO GUATEMALA	17 Oct 2024 - 0750 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	SANGAY ECUADOR	17 Oct 2024 - 0658 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	REVENTADOR ECUADOR	17 Oct 2024 - 0243 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	SANTA MARIA GUATEMALA	17 Oct 2024 - 0232 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	FUEGO GUATEMALA	17 Oct 2024 - 0211 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	SANGAY ECUADOR	17 Oct 2024 - 0188 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	REVENTADOR ECUADOR	16 Oct 2024 - 2057 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	SANTA MARIA GUATEMALA	16 Oct 2024 - 2047 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	FUEGO GUATEMALA	16 Oct 2024 - 2023 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)	<p>Advisories are issued when an ash cloud is observed. Ash dispersion and numerical models are used to forecast a path and evolution of the ash cloud.</p> <p>Current volcanic ash advisories for the past 24 hours are available. Additional links on the web page direct users to advisories for the past 15 days as well as searching for a specific volcano. The volcanic ash advisories are available in several different text formats and also a graphical option.</p>
FUEGO GUATEMALA	17 Oct 2024 - 1550 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)																														
POPOCATEPETL MEXICO	17 Oct 2024 - 1437 UTC (XML) -- Has JPEG/KML (JPEG Only) (KML)																														
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## 11 Appendix A: Acronyms and Abbreviations

For a complete list of FAA approved acronyms, please refer to the [Active FAA Contractions Manual](#).

Acronym - Term	Purpose/Area of Responsibility
AAWU - Alaska Aviation Weather Unit	NWS aviation weather unit in Alaska.
ADDS - Aviation Digital Data Service	Text, digital, and graphical forecasts, analysis and observations of aviation related weather variables.
AFD - Aviation Forecast Discussion	Discussion of forecast conditions that may affect TAFs and aviation issued by NWS WFO offices for their areas.
AIRMET - AIRman's METeoroological Information	<p>An AIRMET is a concise description of the occurrence or expected occurrence of specified en route weather phenomena which may affect the safety of aircraft operations, but at intensities lower than those which require the issuance of a SIGMET.</p> <p>AIRMETs are intended to inform all pilots, but especially Visual Flight Rules pilots and operators of sensitive aircraft, of potentially hazardous weather phenomena. Freezing level information is included.</p> <p>AIRMETs are issued by the AWC and AAWU as soon as is practical to alert operators and aircrews of hazardous en route conditions.</p>
AIREP - Aircraft Report	A routine, often automated report of in-flight weather conditions, such as wind and temperature.
ARTCC - Air Route Traffic Control Center (ARTCC), also called "Center")	Provides air traffic control service to aircraft operating on IFR flight plans within controlled airspace, principally during the en route phase. When equipment capabilities and controller workload permit, ARTCC may provide advisory/assistance services to VFR aircraft. There are 21 ARTCCs in CONUS.
ATCSCC - Air Traffic Control Systems Command Center	The air traffic tactical operations facility responsible for monitoring and managing the flow of air traffic throughout the NAS.

ATCT - Air Traffic Control Tower	A terminal facility that provides air traffic control services to aircraft landing or taking off at a towered airport or transiting an adjoining Class D airspace.
AWC - Aviation Weather Center	<p>The AWC provides a single source for aviation warnings, advisories and forecasts over the contiguous 48 states and large portions of the Atlantic and Pacific Oceans. The center provides meteorological watch office (MWO) services issuing Sigmets and Airmets over domestic and international U.S. Flight Information Regions (FIRs) to provide warnings and advisories of hazardous weather conditions to inflight aircraft.</p> <p>The AWC also prepares Area Forecasts of weather for general aviation over the contiguous United States. Specific meteorological services are additionally provided for continuous operations of the Federal Aviation Administration's Air Traffic Control System Command Center (ATCSCC).</p> <p>The AWC serves as a World Area Forecast Center (WAFC). The WAFC functions includes the distribution of gridded upper level wind and temperature forecasts, the provision of graphical significant aviation weather for a large portion of the Northern Hemisphere, including volcanic ash dispersion after a volcano erupts.</p>
AWW - Airport Weather Warning	NWS WFO issued weather warning for impacts to ground operations at certain airports.
CIP - Current Icing Product	AWC product for current icing SIGMETs and aircraft reports.
CWA - Center Weather Advisory	CSWU advisory product.
CONUS - Continental United States	The 48 contiguous US states.
CWSU - Center Weather Service Unit	NWS weather units located in ARTCC facilities.
DSS - Decision Support Services	NWS program for providing meteorological support to emergency officials and decision makers.

ECFP - Extended Convective Forecast Product	AWC graphical representation of the forecast probability of thunderstorms. The product identifies where in the U,S, thunderstorms are likely over the next 72 hours.
FAA - Federal Aviation Administration	U.S. federal agency with the powers to regulate civil aviation.
FIP - Forecast Icing Product	AWC icing forecast product.
FPT - Flight Path Tool	AWC aviation weather tool.
Graphical-AIRMET - G-AIRMET	The Graphical-AIRMET (G-AIRMET), is a graphical forecast of en route weather hazards valid at discrete times no more than 3 hours apart for a period of up to 12 hours into the future (00, 03, 06, 09 and 12 hours). G-AIRMET is issued based on the same criteria as AIRMET.
GFA - Graphical Forecasts for Aviation	AWC tool for providing weather information.  GFA LA- Low Altitude GFA ER- Extended Range
GTG - Graphical Turbulence Guidance	AWC webpage for graphical turbulence forecasts.
ICAO- International Civil Aviation Organization	Organization that promotes the safe and orderly development of civil aviation around the world.
IFR - Instrument Flight Rules	Meteorological condition where ceilings are 500 to less than 1,000 feet above ground level and/or surface visibility is 1 mile to less than 3 miles. Areas of IFR are depicted in <b>red</b> on maps.
IWXXM-ICAO Meteorological Information Exchange Model	An information model designed for the operational exchange of meteorological aviation information.
LIFR - Low Instrument Flight Rules	Meteorological condition where ceilings are less than 500 feet above ground level and/or surface visibility is less than 1 mile. Areas of LIFR are depicted in <b>magenta</b> on maps.
MAG - Model Analysis	NWS suite of meteorological models.

and Guidance	
METAR - Meteorological Terminal Air Report	A format for reporting weather information worldwide.
MIS - Meteorological Impact Statement	CWSU forecast product.
MVFR - Marginal Visual Flight Rules	Meteorological condition where ceilings are 1,000 to 3,000 feet above ground level and/or surface visibility is between 3 and 5 miles. Areas of MVFR are depicted in <b>blue</b> on maps.
NAS - National Airspace System	The common network of U.S. airspace; air navigation facilities, equipment and services, airports or landing areas.
NDFD - National Forecast Digital Database	Seamless mosaic NWS gridded forecasts of sensible weather elements, mainly produced by NWS WFOs.
NHC - National Hurricane Center	<p>The National Hurricane Center (NHC) has been delegated overall national responsibility for providing hurricane forecast and warning services for the general public, the public sector, and all branches of the U.S. Government including the Department of Defense (DOD), Department of Commerce (DOC), and Department of Transportation (DOT).</p> <p>Similar responsibilities exist under the auspices of the World Meteorological Organization (WMO) to provide forecast and guidance products concerning tropical cyclones for the international community for the Atlantic, Caribbean, Gulf of America, and Eastern North Pacific region. Many facets of data acquisition, from reconnaissance aircraft, satellites, ships, surface and upper air stations, radar, etc. and their analyses and interpretation, as well as interactive communication with the user communities are involved in this process.</p>
NOAA - National Oceanic and Atmospheric Administration	Scientific agency within the U.S. States Department of Commerce.
NWS - National Weather Service	Scientific agency within NOAA tasked with providing weather forecasts, warnings of hazardous weather, and other weather-related products to organizations and the public for

	the purposes of protection, safety, and general information.
PIREP - Pilot Report	A report by a pilot to indicate encounters of hazardous weather such as icing or turbulence.
SPC - Storm Prediction Center	The Storm Prediction Center (SPC) is part of the National Weather Service (NWS) and the National Centers for Environmental Prediction (NCEP). Their mission is to provide timely and accurate forecasts and watches for severe thunderstorms and tornadoes over the contiguous United States. The SPC also monitors heavy rain, heavy snow, and fire weather events across the U.S. and issues specific products for those hazards. SPC uses the most advanced technology and scientific methods available to achieve this goal. Their very specialized mission requires meteorologists with a high level of expertise in convective storm forecasting, as well as excessive precipitation, winter weather, and conditions leading to high fire dangers.
SIGMET - Significant Meteorological Information	<p>A SIGMET is a concise description of the occurrence or expected occurrence of specified en route weather phenomena which is expected to affect the safety of aircraft operations. SIGMETs are intended for dissemination to all pilots in flight to enhance safety.</p> <p>SIGMETs are issued by the AWC and AAWU as soon as is practical to alert operators and aircrews of hazardous en route conditions.</p>
TAF - Terminal Aerodrome Forecast	A forecast product issued by NWS WFO offices for local airfields.
TCF - TFM Convective Forecast	A high confidence graphical representation of forecasted convection meeting specific criteria of coverage, intensity, and echo top height.
TFM - Traffic Flow Management	The collaborative planning of air traffic to avoid exceeding airport and airspace capacity while making effective use of available capacity.
TRACON - Terminal Radar Approach Control	A terminal air traffic control facility that uses radar and non-radar capabilities to provide approach control services to

Facility	aircraft arriving, departing, or transiting airspace controlled by the facility.
UTC - Coordinated Universal Time	The time standard used in aviation.
VFR - Visual Flight Rules	Meteorological condition where ceiling is greater than 3,000 feet and visibility is greater than 5 miles. Areas of VFR are depicted in <b>green</b> on maps.
WAFS - World Area Forecast Systems	WAFS provides the worldwide aviation community with operational meteorological forecasts and information about meteorological phenomena required for flight planning and safe, economic, and efficient air navigation.
WFO - NWS Weather Forecast Office	A local NWS office that issues forecasts and warnings for its specific area of responsibility. There are 122 WFOs.
WMO - World Meteorological Organization	Agency within the United Nations responsible for developing meteorological standards.
WPC - Weather Prediction Center	The Weather Prediction Center (WPC) interprets advanced numerical weather predictions in the preparation of forecast guidance products out to 10 days. These products along with the numerical predictions and their derivatives form the basis of forecasts issued by the field forecast offices of the NWS, other governmental offices and private weather services to the general public and other users of meteorological information. They also monitor the operations of communications computers and large scale computers and alerts users of NMC products of status or problems.

## 12 Appendix B: Products and Associated Links

### 12.1 Pre-Flight Products

<b>AVIATION SURFACE AND CLOUD FORECAST GRAPHICS</b> <a href="https://aviationweather.gov/graphics">https://aviationweather.gov/graphics</a>
<b>UPPER AIR FORECASTS</b> <a href="https://mag.ncep.noaa.gov/">https://mag.ncep.noaa.gov/</a>
<b>CONVECTIVE OUTLOOK</b> <a href="https://www.spc.noaa.gov/products/outlook/">https://www.spc.noaa.gov/products/outlook/</a>
<b>NATIONAL DIGITAL FORECAST DATABASE</b> <a href="https://digital.weather.gov/">https://digital.weather.gov/</a>
<b>TROPICAL WX OUTLOOK</b> <a href="https://www.nhc.noaa.gov/gtwo.php?basin=atlc&amp;fdays=5">https://www.nhc.noaa.gov/gtwo.php?basin=atlc&amp;fdays=5</a>
<b>SURFACE PROG CHARTS</b> <a href="https://aviationweather.gov/gfa/#progchart">https://aviationweather.gov/gfa/#progchart</a>
<b>WINDS/TEMPS ALOFT</b> <a href="https://aviationweather.gov/gfa/#winds">https://aviationweather.gov/gfa/#winds</a>
<b>FREEZING LEVEL FORECAST</b> <a href="https://aviationweather.gov/gfa/?tab=ice&amp;prodType=frzlvl">https://aviationweather.gov/gfa/?tab=ice&amp;prodType=frzlvl</a>
<b>TAF FORECASTS</b> <a href="https://aviationweather.gov/gfa/#taf">https://aviationweather.gov/gfa/#taf</a>
<b>NWS WFO DISCUSSIONS</b> <a href="https://aviationweather.gov/gfa/#afd">https://aviationweather.gov/gfa/#afd</a>
<b>EXTENDED TCF</b> <a href="https://aviationweather.gov/tcf/extended/">https://aviationweather.gov/tcf/extended/</a>
<b>EXTENDED CONVECTIVE FORECAST</b> <a href="https://aviationweather.gov/ecfp/">https://aviationweather.gov/ecfp/</a>

### 12.2 Day of Departure

<b>GRAPHICAL FORECAST FOR AVIATION</b> <a href="https://aviationweather.gov/gfa/#obs">https://aviationweather.gov/gfa/#obs</a>
<b>LOW LEVEL SIG WEATHER</b> <a href="https://aviationweather.gov/graphics/">https://aviationweather.gov/graphics/</a>
<b>THUNDERSTORM FORECAST</b> <a href="https://aviationweather.gov/gfa/?tab=thunder">https://aviationweather.gov/gfa/?tab=thunder</a>
<b>TRAFFIC FLOW MANAGEMENT CONVECTIVE FORECAST</b> <a href="https://aviationweather.gov/tcf">https://aviationweather.gov/tcf</a>
<b>TURBULENCE PRODUCTS</b> <a href="https://aviationweather.gov/gfa/#turb">https://aviationweather.gov/gfa/#turb</a>
<b>ICING PRODUCTS</b> <a href="https://aviationweather.gov/gfa/#ice">https://aviationweather.gov/gfa/#ice</a>

**SIGMETS** <https://aviationweather.gov/gfa/#sigmet>

**G- AIRMETS** <https://aviationweather.gov/gfa/#gairmet>

**CWSU ADVISORIES** <https://aviationweather.gov/gfa/?tab=obs&layers=cwa>

### 12.3 En Route

**AIRCRAFT REPORTS (PIREPS)** <https://aviationweather.gov/gfa/?tab=obs&layers=airep>

**METARs** <https://aviationweather.gov/gfa/?tab=obs&layers=metar>

**RADAR IMAGERY** <https://aviationweather.gov/gfa/?tab=obs&layers=rad>

**SATELLITE IMAGERY** <https://aviationweather.gov/gfa/?tab=obs&layers=sat>

### 12.4 Aviation Weather Tools

**CROSS SECTION TOOL** <https://aviationweather.gov/gfa/>

**GFA-LOW ALTITUDE TOOL** <https://aviationweather.gov/gfa/?mode=la>

**GFA-EXTENDED RANGE TOOL**  
<https://aviationweather.gov/gfa/?tab=winds&mode=er&er=1>

**DATA API** <https://aviationweather.gov/data/api/>

### 12.5 Decision Support Tools

**TRAFFIC FLOW MANAGEMENT PORTAL** <https://aviationweather.gov/trafficflowmgmt/>

**IMPACTS BOARD** <https://aviationweather.gov/impactboard/>

**WINTER WEATHER DASHBOARD** <https://aviationweather.gov/winterboard/>

**TFM GATE FORECASTS** <https://aviationweather.gov/graphics/>

**AIRPORT WEATHER WARNINGS (AWW)**  
[https://forecast.weather.gov/product\\_sites.php?site=NWS&product=AWW](https://forecast.weather.gov/product_sites.php?site=NWS&product=AWW)



## 12.6 Alaska / Hawai'i Products

**ALASKA AVIATION WEATHER UNIT (AAWU) WEBPAGE** <https://www.weather.gov/aawu/>

**ALASKA AVIATION WEATHER CAMERAS** <https://weathercams.faa.gov/map/>

**HAWAI'I AVIATION PRODUCTS** <https://www.weather.gov/hfo/aviation>

## 12.7 International Products

**WORLD AREA FORECAST SYSTEM DISPLAY** <https://aviationweather.gov/wafs>

**HIGH LEVEL SIG WEATHER** <https://aviationweather.gov/graphics/>

**MID LEVEL SIG WEATHER FOR THE NORTH ATLANTIC**  
<https://aviationweather.gov/graphics/>

**VOLCANIC ASH ADVISORIES**  
<https://www.ospo.noaa.gov/products/atmosphere/vaac/messages.html>

## 12.8 Tropical Products

**TROPICAL CYCLONE ICAO AVIATION ADVISORY**  
[https://forecast.weather.gov/product\\_sites.php?site=NWS&product=PWS](https://forecast.weather.gov/product_sites.php?site=NWS&product=PWS)

## 12.9 Volcanic Ash Advisory Products

**VOLCANIC ASH ADVISORIES**  
<https://www.ospo.noaa.gov/products/atmosphere/vaac/messages.html>