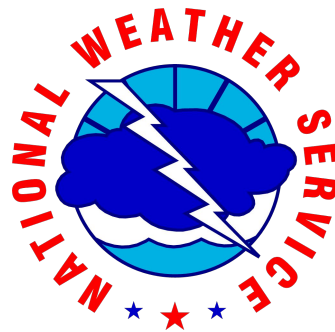
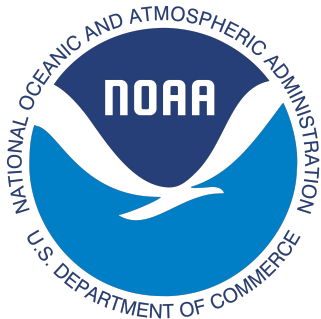


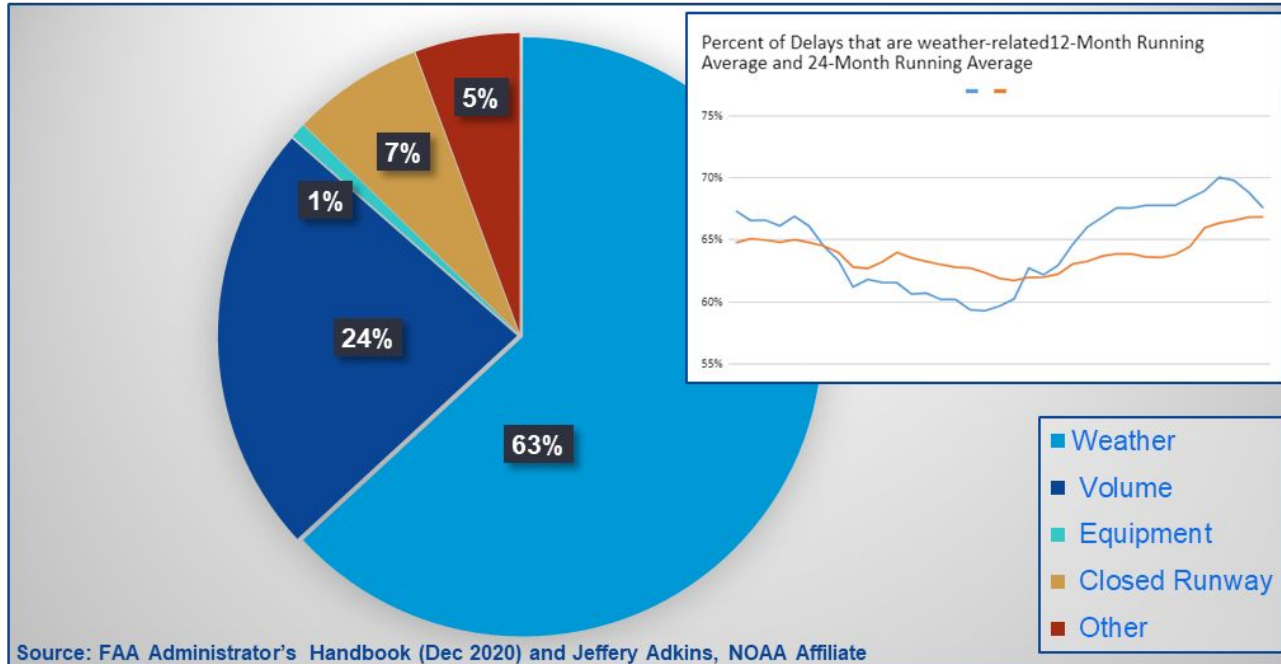
NWS Aviation Weather Center

Kansas City, MO

Ryan Connelly - Senior Aviation Meteorologist



Causes of National Airspace System Delays

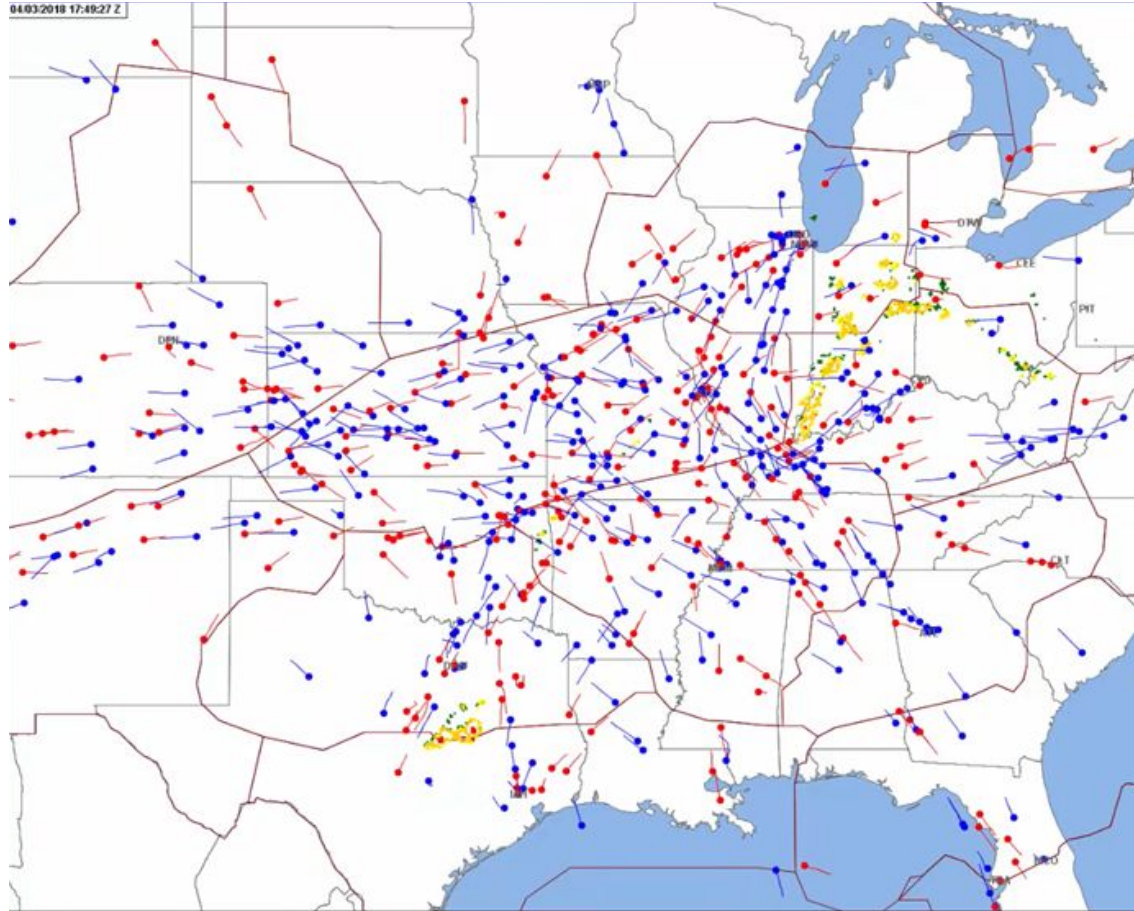


As much as 67% of the delay in the NAS can be attributed to weather, resulting in US economic losses of roughly **23,000,000,000 USD** annually.

Air Traffic Refresher



Thunderstorm Impacts to Air Traffic



Organizational Structure



US Government



Executive Branch



Department of Commerce



National Oceanic and Atmospheric Administration

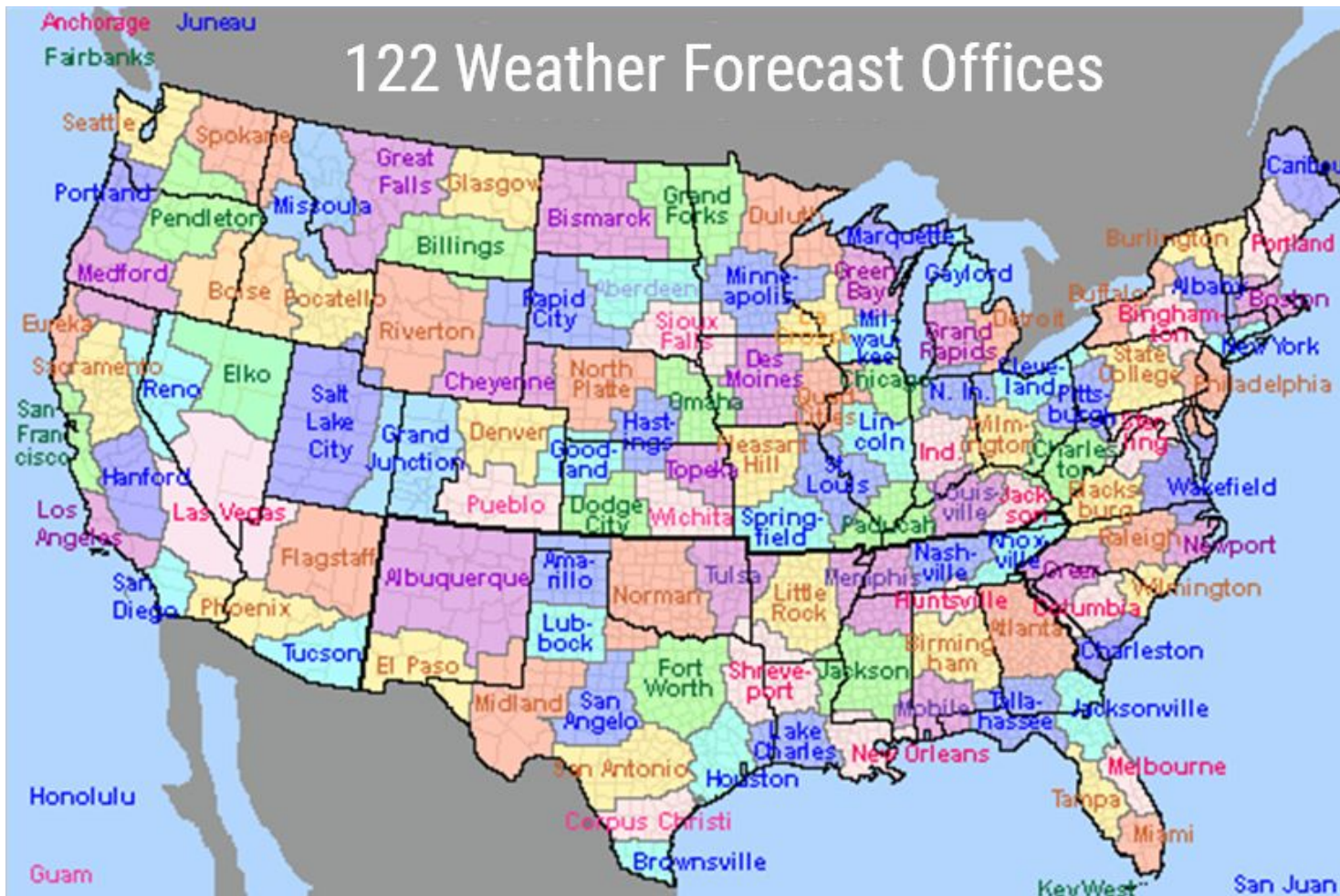


National Weather Service



- 1 national headquarters
- 6 regional headquarters
- 122 local weather forecast offices (WFO)
- 13 river forecast centers (RFC)
- 1 national water center
- 21 Center Weather Service Units (CWSU)
- 9 national centers

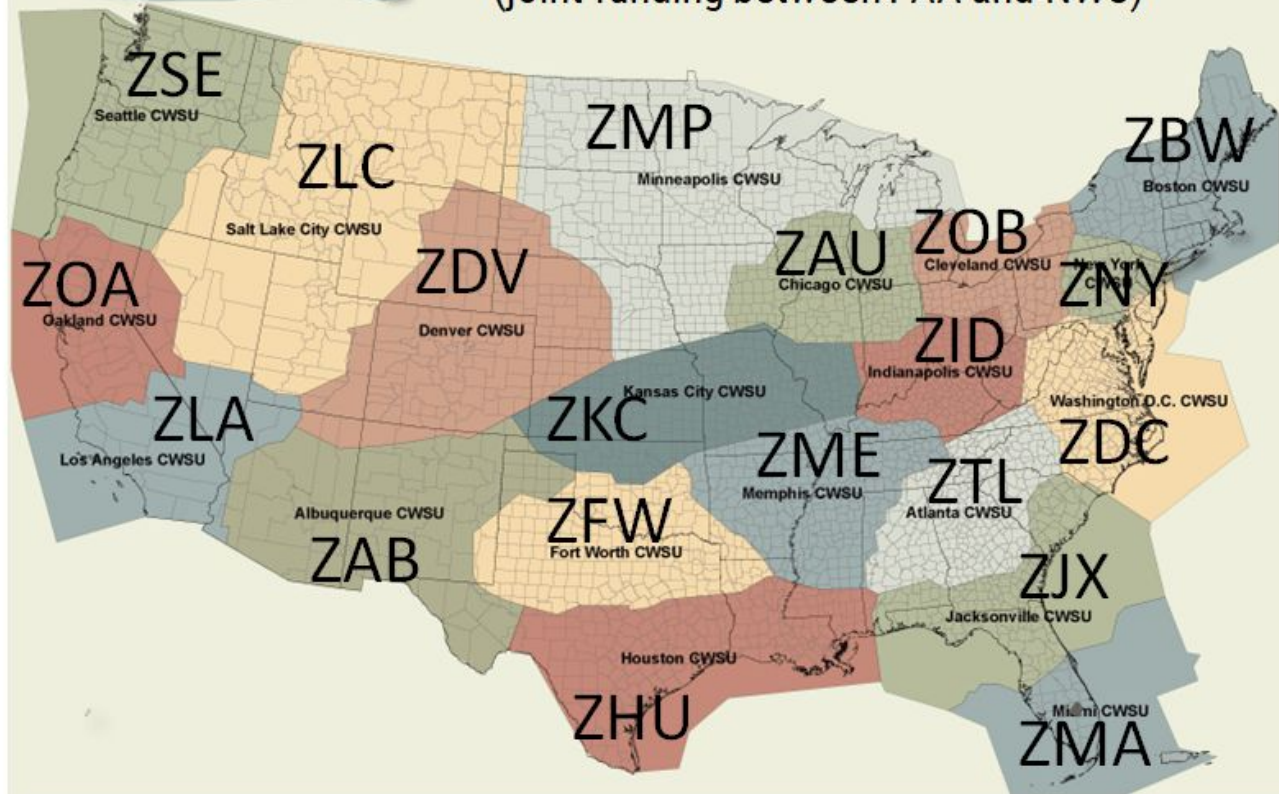
122 Weather Forecast Offices





21 Center Weather Service Units

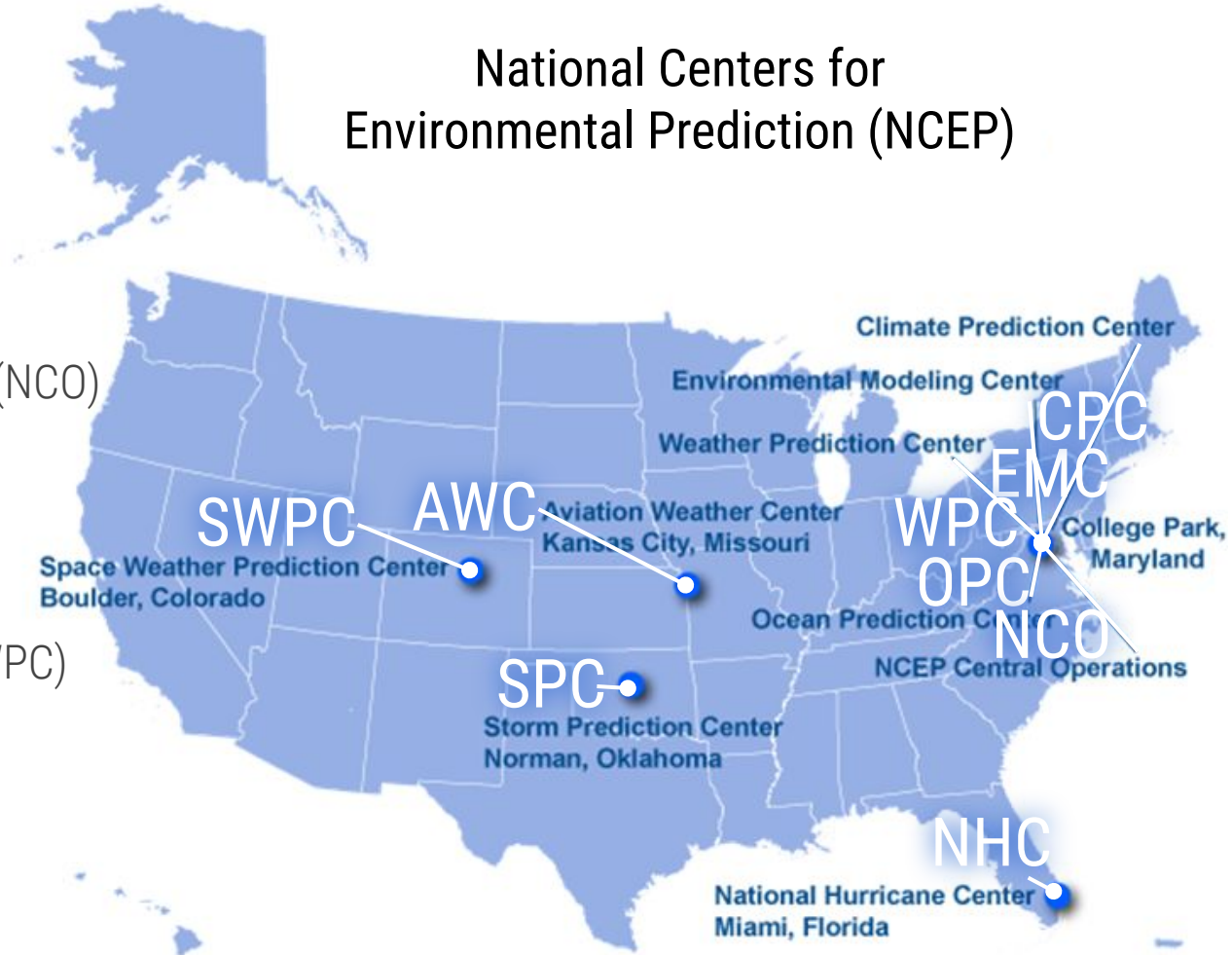
(joint funding between FAA and NWS)



National Centers for Environmental Prediction (NCEP)

9 Specialization Centers

- Climate (CPC)
- Weather modeling (EMC)
- Supercomputing & data flow (NCO)
- Hurricanes (NHC)
- Oceans (OPC)
- Severe thunderstorms (SPC)
- Space weather (SWPC)
- Precipitation and Flooding (WPC)
- Aviation (AWC)





Aviation Weather Center

www.aviationweather.gov



OUR MISSION STATEMENT

The Aviation Weather Center delivers consistent, timely and accurate weather information for the world airspace system.

We are a team of highly skilled people dedicated to working with customers and partners to enhance safe and efficient flight.

OUR VISION

To be the trusted authority and leading innovator for aviation weather information.

1961

USAF Air Weather Service issues the **first official forecast of clear air turbulence**

1977

Crash of Southern Airlines 242 in New Hope, GA kills 72. NTSB recommends “procedures for the timely dissemination of all available severe weather information by controllers”

1978

Convective SIGMET unit established within the National Severe Storms Forecast Center. NWS meteorologists stationed in **13 ARTCCs**

1981

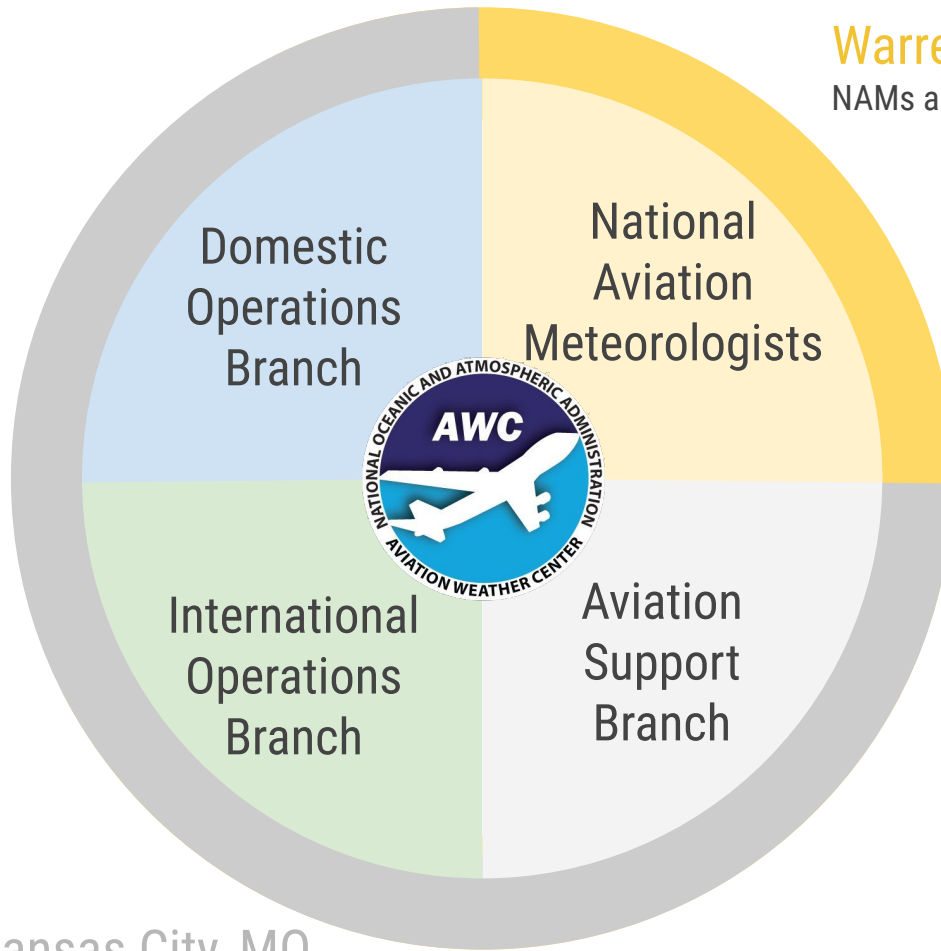
NWS meteorologists now stationed in **all 21 ARTCCs**. That partnership continues today

1982

National Aviation Weather Advisory Unit (NAWAU) is formed. Renamed to **AWC** in 1995

Warrenton, VA

NAMs are embedded with the FAA at the ATCSCC



- 4 branches
- 2 locations
- ~80 people
 - Forecasters
 - Researchers/developers
 - IT staff
 - Administrative support staff
 - Managers & supervisors
 - NOAA Corps Officer

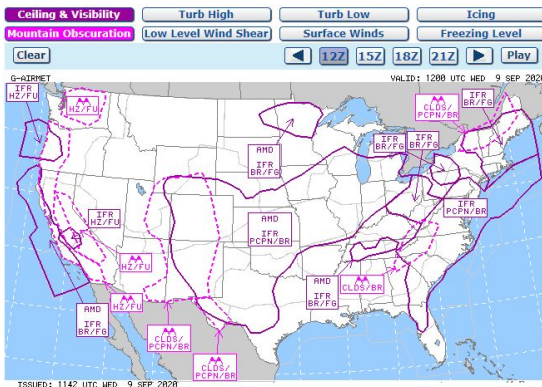
Kansas City, MO

Most AWC staff are based here

Aviation Weather Advisories and Warnings

Aviation Weather Advisories and Warnings

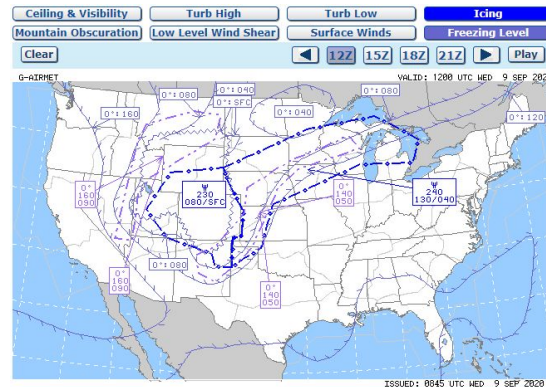
- G-AIRMETs (shown below) are advisories for hazardous weather
- Cig/Vis, Turb, Icing



Low clouds/visibility & mountain obscuration



Turbulence, strong winds & wind shear



Icing & freezing levels

Aviation Weather Advisories and Warnings

A SIGMET is a weather warning for aviation. SIGMET stands for Significant Meteorological Information.



SIGMETs are issued by the Aviation Weather Center. They're meant for aircraft in flight. SIGMETs tell pilots where to expect severe conditions such as:

Severe turbulence



Severe icing

Volcanic ash

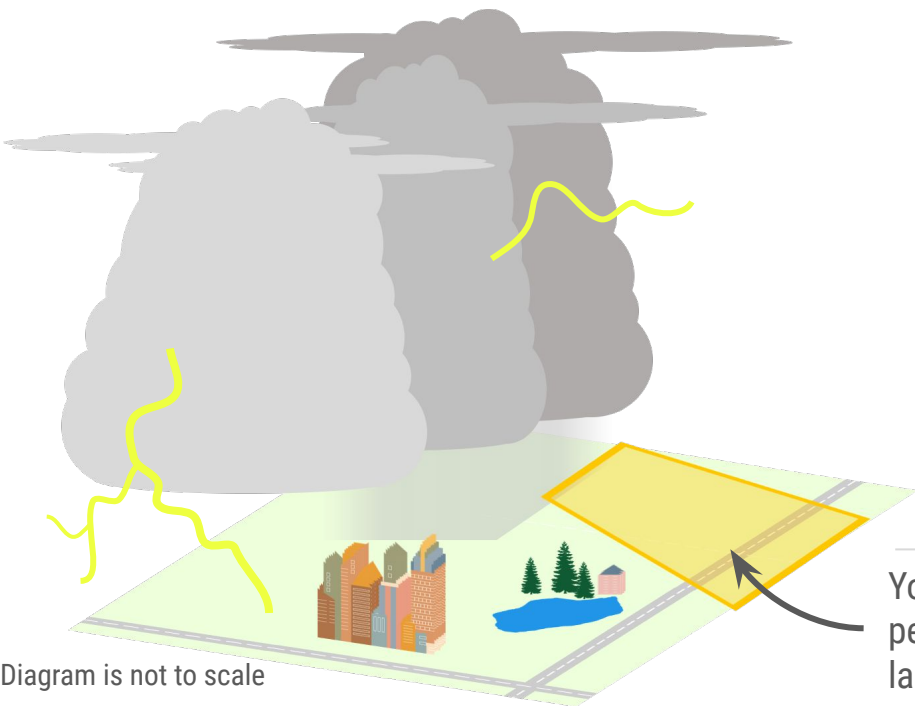


Areas of widespread sandstorms or dust storms

Areas of thunderstorms



Tropical cyclones



Your local Weather Forecast Office will issue weather warnings for people on the ground. These warnings tell people where to expect large hail, very strong wind gusts, flash flooding, or tornadoes.

Diagram is not to scale

AWC Operations

AAWU

AWC

HFO

Aviation Weather Center Operations

AVIATION WARNINGS

AVIATION FORECASTS

COLLABORATION

Aviation Weather Center Operations

Domestic Operations

AVIATION WARNINGS

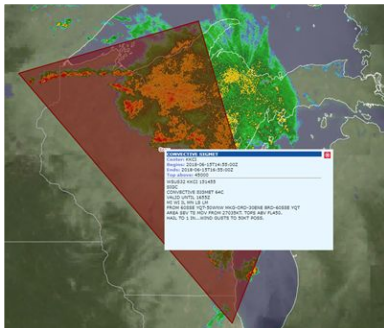
AVIATION FORECASTS

COLLABORATION

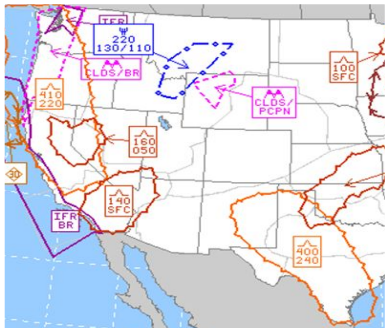
International Operations

Aviation Weather Center Operations

Domestic Operations



CONUS · coastal waters



AIRMETs · TFM convective forecast · Low-level SIGWX



CWSUs · Airlines · FAA

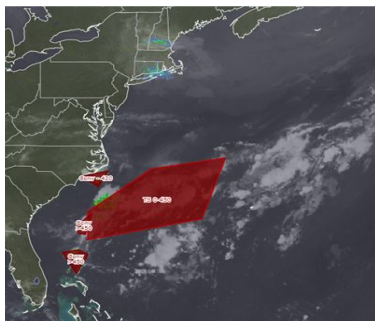
AVIATION WARNINGS

AVIATION FORECASTS

COLLABORATION

International Operations

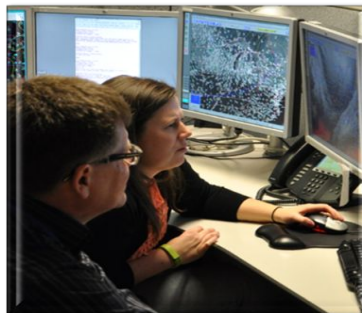
Atlantic · Pacific



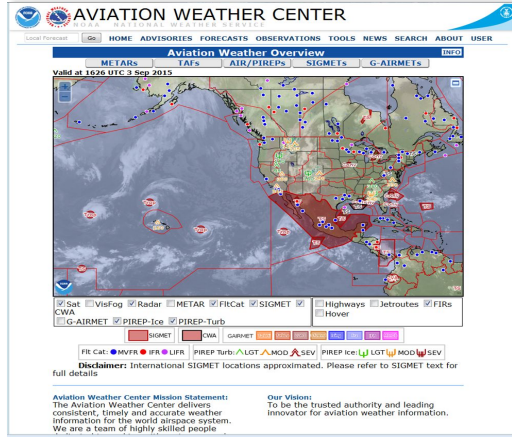
Global Significant Weather (SIGWX)
· Area Forecasts for Gulf of Mexico & Caribbean



International meteorological services



Aviation Weather Center Support Branch



PRODUCTS & SERVICES

Graphical Forecasts for Aviation (GFA)
· WAFS Internet File Service (WIFS)
· Computer models · Operational shift fill-in

DATA, TECHNOLOGY, & INFRASTRUCTURE

IT architecture & security · Production systems · Data management · Support for remote forecast operations

SCIENCE & TECHNOLOGY

Aviation Weather Testbed (AWT)
· Aviation Weather Research Program · Research initiatives

AWC Support to ATCSCC

Improve safety, efficiency, and decision making for the National Airspace System

Support Collaborative Decision Making

Balance air traffic demand with system capacity



Fully Integrated and Embedded IDSS



Collaborative Forecast Process (NWS and Industry)



Focus on weather with potential system impact

Our goal is to paint a cohesive national weather picture to the Command Center to improve safety, efficiency, and decision making.

[AviationWeather.gov](https://www.aviationweather.gov)

www.aviationweather.gov

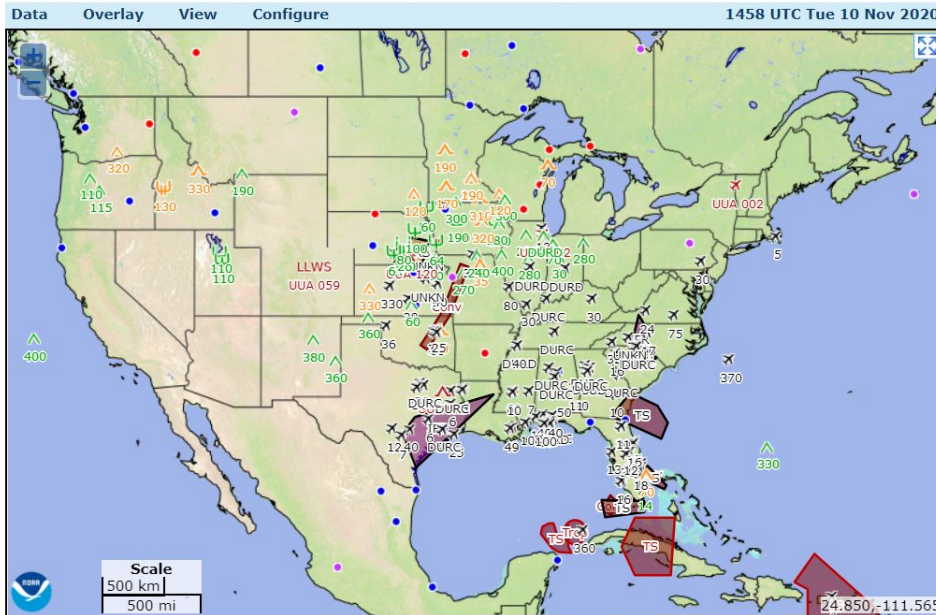


AVIATION WEATHER CENTER
 NOAA NATIONAL WEATHER SERVICE

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Aviation Weather Overview

1458 UTC Tue 10 Nov 2020



ADVISORIES FORECASTS OBSERVATIONS TOOLS

[HOME](#) [ADVISORIES](#) [FORECASTS](#)

SIGMET

G-AIRMET

Center Weather

[ASTS](#) [OBSERVATIONS](#) [TOOLS](#)

[ADVISORIES](#) [FORECASTS](#) [OBSERVATION](#)

Convection

Turbulence

Icing

Winds/Temps


[IONS](#) [TOOLS](#) [NEWS](#) [SEARCH](#)

beta.aviationweather.gov

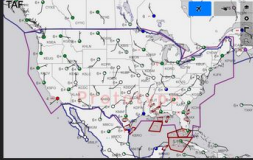
Aviation Weather Center EXPERIMENTAL Weather Products Tools Connect

What's new? Sign in
New look and feel for AWC! Try it on your phone or tablet!

Current Conditions

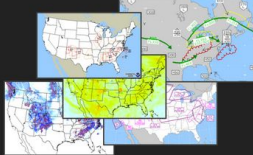


Graphical Forecasts for Aviation



Interactive maps of aviation forecasts and observations

Decision Support Services (DSS)



Static Images to embed in briefing material

Station data

IDs:

Raw Decoded Remember

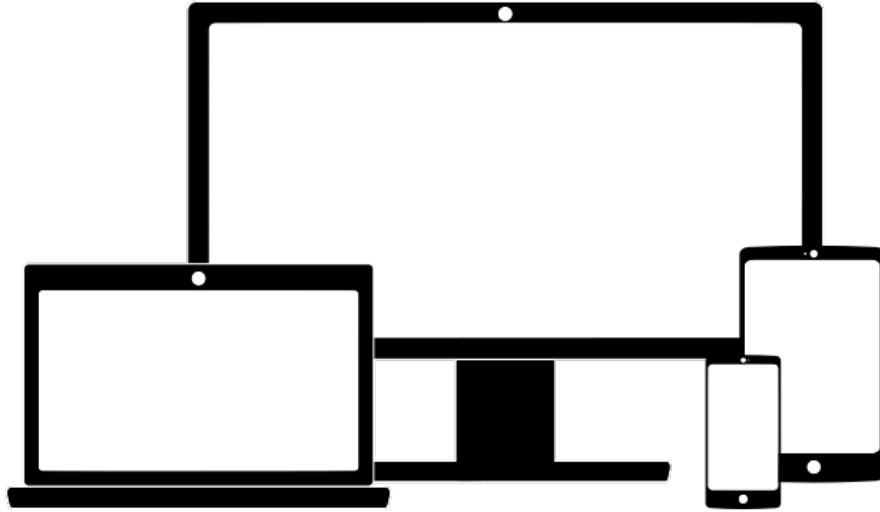
[Tweets by NWSAWC](#)

Experimental

usa gov

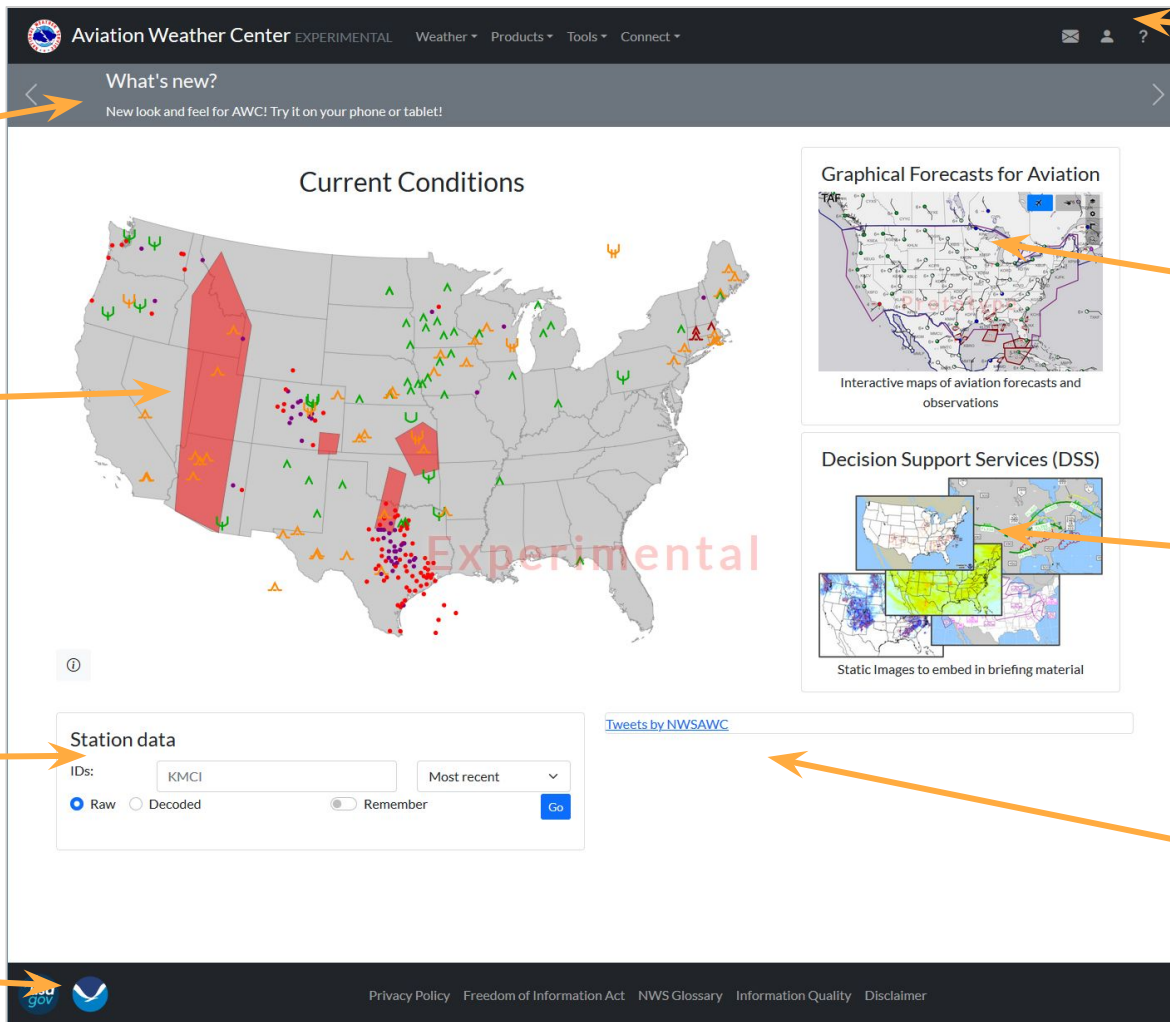
Privacy Policy Freedom of Information Act NWS Glossary Information Quality Disclaimer

Why upgrade?



Adapt to evolving internet usage patterns

- Over half of all internet traffic is now on mobile devices (cell phones & tablets)
- Existing website is difficult to use on cell phones b/c it wasn't designed for them
- New website was designed mobile-first and can gracefully accommodate varying screen sizes



Navigation bar

Messages/news (scrolling)

Quick view of aviation weather conditions (click to go to GFA)

Quick access to station data

Consolidated footer info

Link to GFA (we plan to rotate the link here, possibly seasonally)

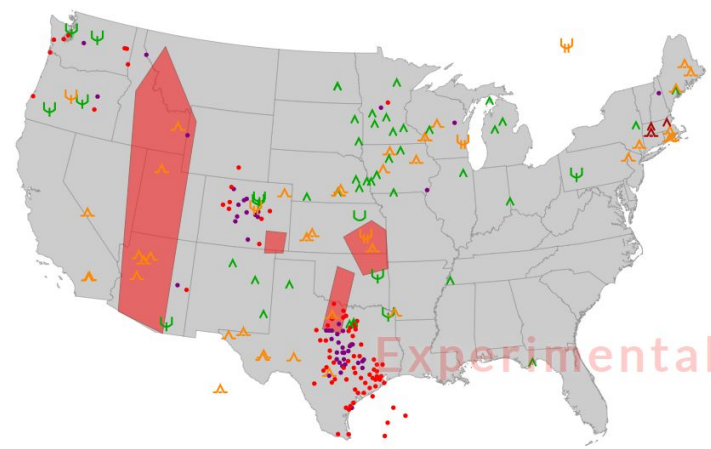
Link to dedicated DSS imagery

Recent tweets from @NWSAWC (blocked by some browser extensions, as shown here)

Important information

Alerts and warnings will appear in popups at the top of the screen.

Current Conditions

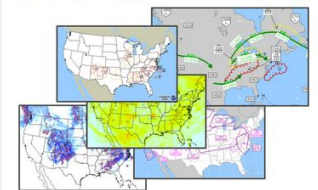


Graphical Forecasts for Aviation



Interactive maps of aviation forecasts and observations

Decision Support Services (DSS)



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Experimental

[Tweets by NWSAWC](#)

Station data

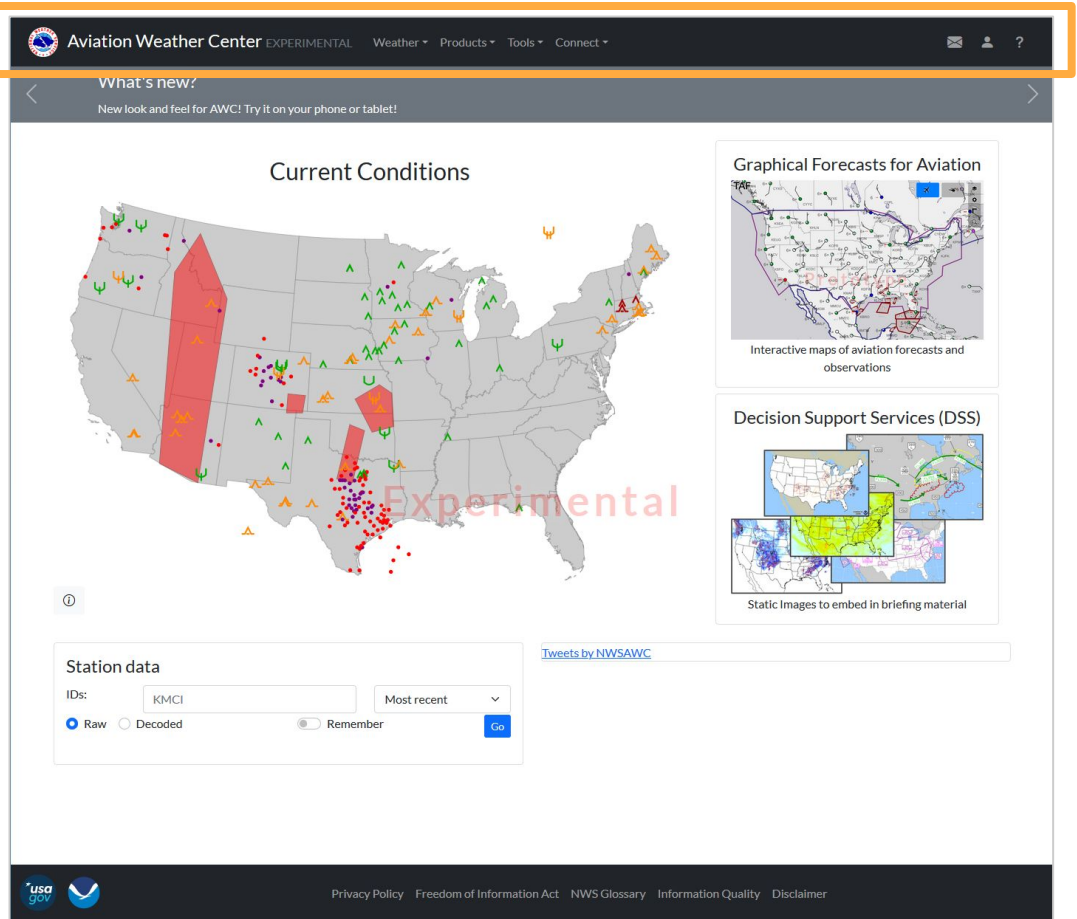
IDs: Most recent ▼

Raw Decoded Remember Go

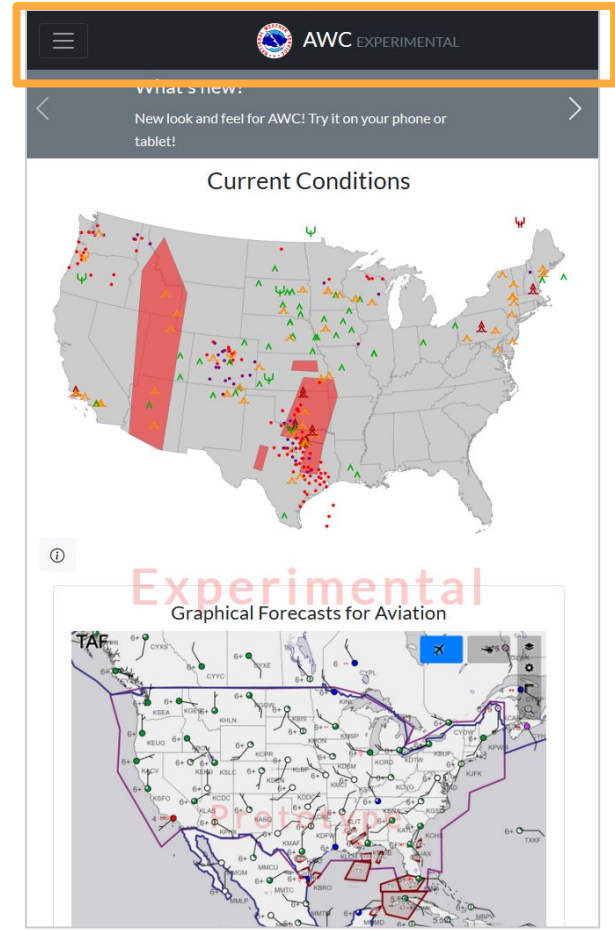
KMCI 211553Z 18019G26KT 10SM BKN100 18/01 A2999 RMK A02 PK WND 19026/1551 S

TAF:
 KMCI 211120Z 2112/2212 18012G22KT P6SM OVC150
 FM212300 15011G20KT 6SM -RA BR OVC060
 FM220200 12011G21KT 3SM -RA BR OVC015
 FM220600 11013G23KT 3SM -RA BR OVC006

Quick access to station data (METAR and TAF)



Desktops & large screens



Cell phones

Welcome!

Experimental site. Not to be used for flight planning purposes.

👤 Sign in

☀️ 🌙

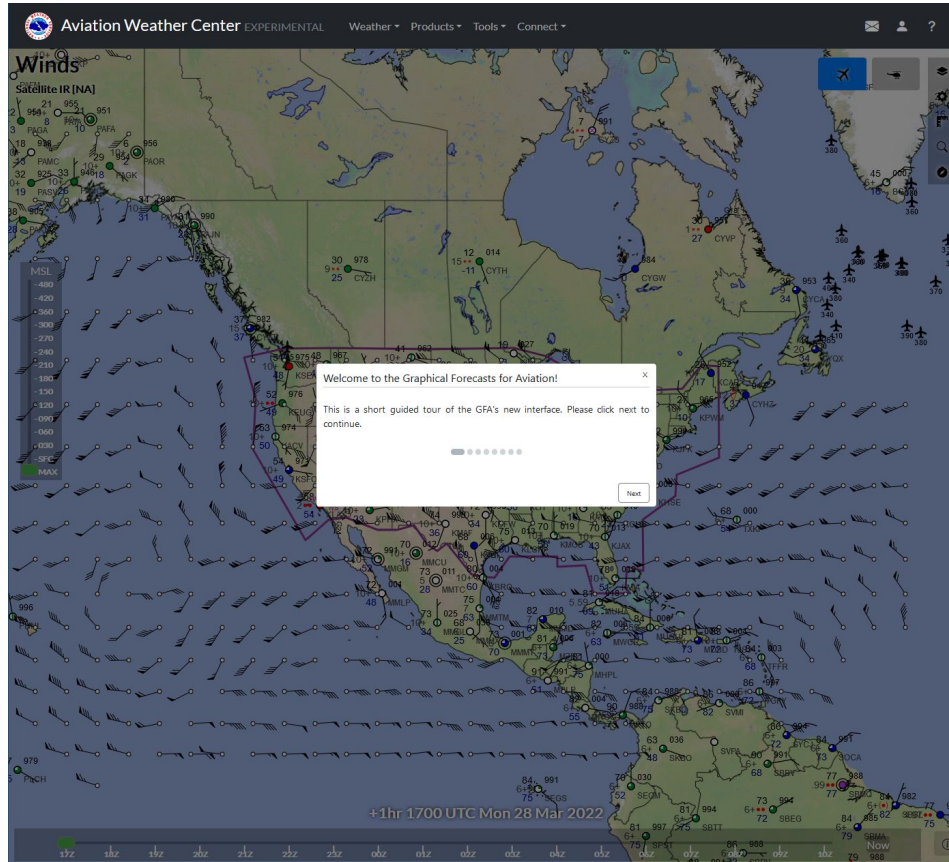
Sign in to submit PIREPs

Toggle between regular/day mode and dark/night mode

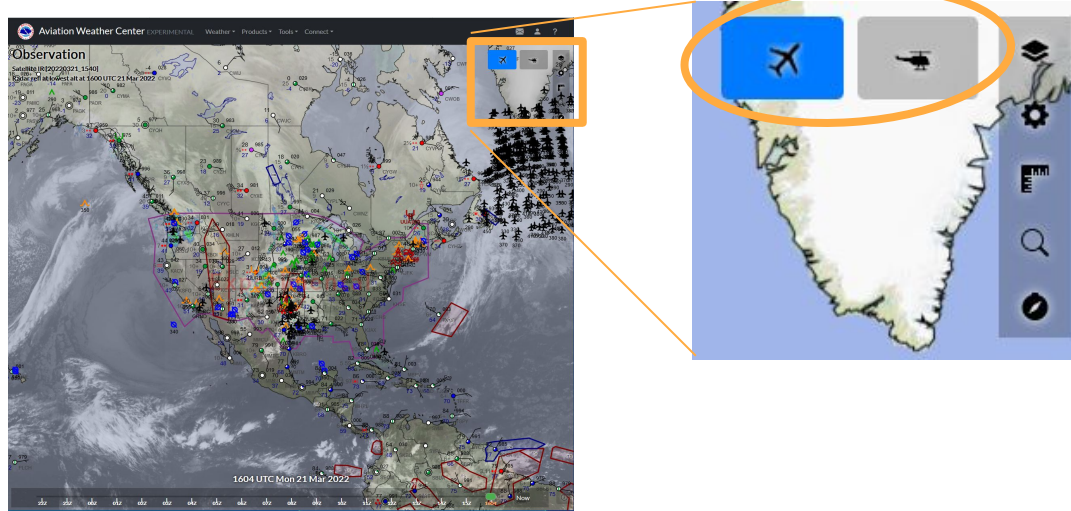
<https://beta.aviationweather.gov/>

Graphical Forecasts for Aviation

Guided Tour for First-time Visitors



New: Low-Altitude Mode in GFA



Use these icons to toggle between general aviation mode (airplane) and low-altitude mode (helicopter)

Helicopter Emergency Medical Services (HEMS) tool is now part of GFA as “low-altitude mode”

Archive View

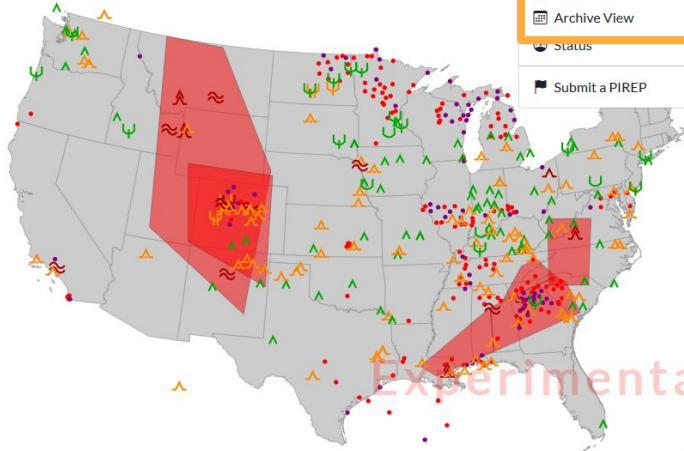


Important information

Alerts and warnings will appear in popups at the



Current Conditions



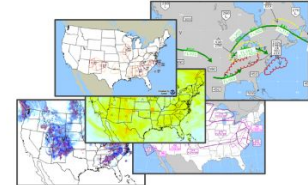
- Terminal Weather Dashboard
- Winter Weather Dashboard
- Aviation Forecast Discussions
- Decision support imagery
- Data API
- Archive View
- Status
- Submit a PIREP

Graphical Forecasts for Aviation



Interactive maps of aviation forecasts and observations

Decision Support Services (DSS)



Static Images to embed in briefing material



Station data

IDs:

Raw Decoded Remember

[Tweets by NWSAWC](#)

Experimental



Choose date and time

Archive View

To view products on the site as they appeared at a previous point in time, select a date and time using the form below. All data will displayed approximately as it would have been at that time.

◀ March 2022 ▶						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Time		
17	45	UTC
Load archive	Exit archive	

Enter/exit archive mode

Experimental



Archive

🔔 Currently in archive mode. [Return to live data.](#) ✕

To view products on the site as they appeared at a previous point in time, select a date and time using the form below. All data will displayed approximately as it would have been at that time.

◀ March 2022 ▶

Time

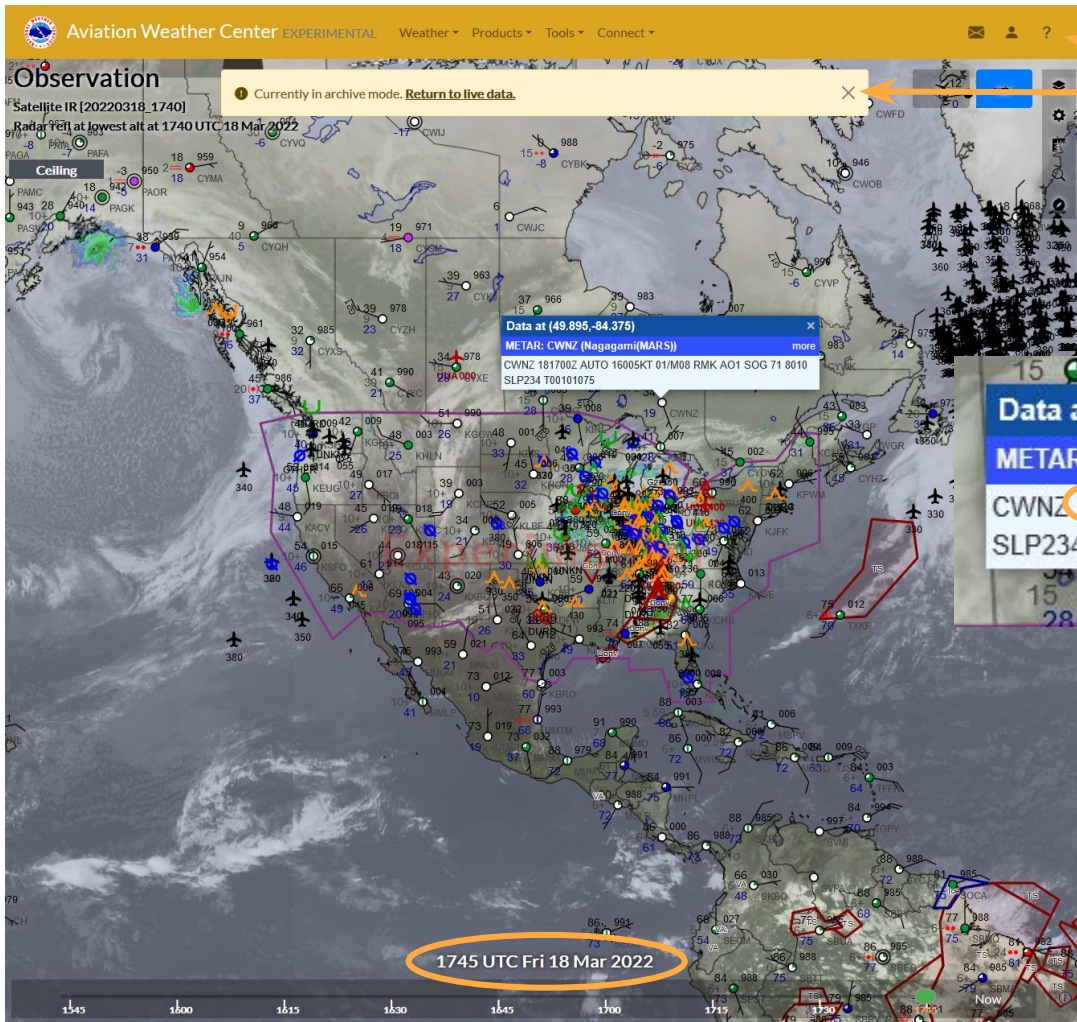
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

UTC

[Load archive](#) [Exit archive](#)

Experimental

Header bar changes color and a banner is displayed when the site is in archive mode



Header bar changes color and a banner is displayed when the site is in archive mode

Data at (49.895,-84.375) ✕

METAR: CWNZ (Nagagami(MARS)) more

CWNZ 181700Z AUTO 16005KT 01/M08 RMK AO1 SOG 71 8010 SLP234 T00101075

Current date/time on computer clock

12:56 PM
3/21/2022

<https://beta.aviationweather.gov/>



Questions?

ryan.connelly@noaa.gov

AviationWeather.gov
Beta.AviationWeather.gov
Weather.gov/Aviation