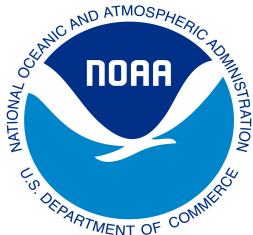
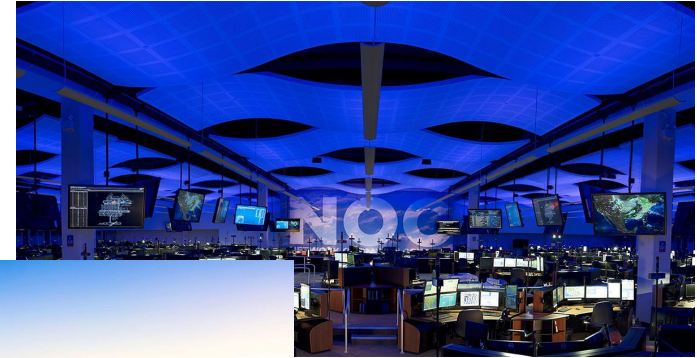


# **AWT Spring Experiment @ FPAW Spring Meeting**

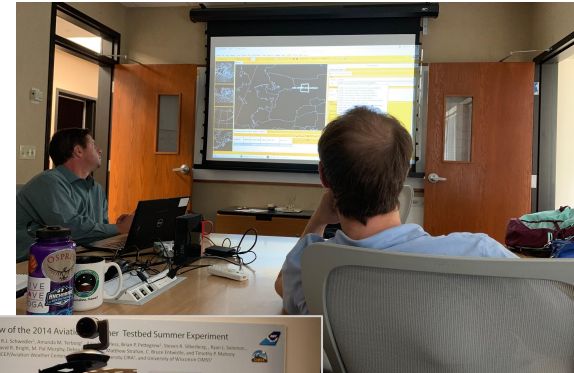
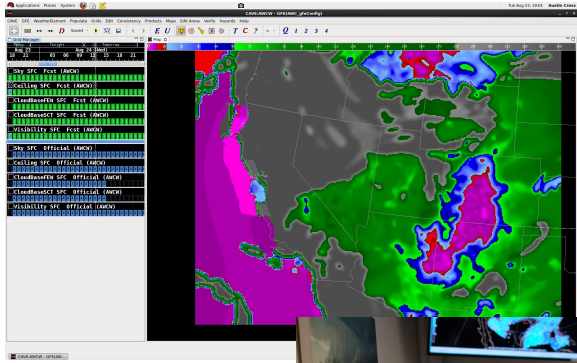
Austin Cross  
*Aviation Weather Testbed*



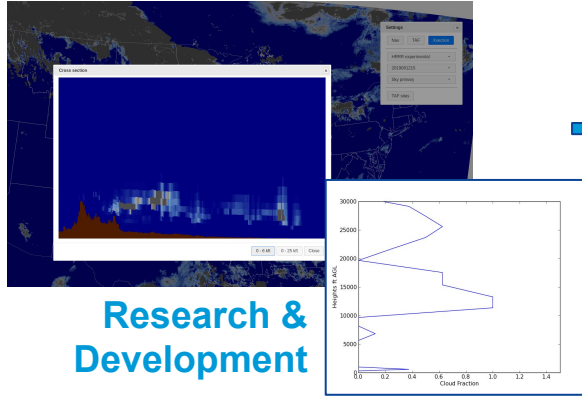
# Who Uses AWC/AWT Products?



# Aviation Weather Testbed (AWT)

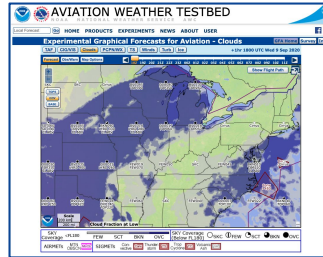


# Research to Operations



Research & Development

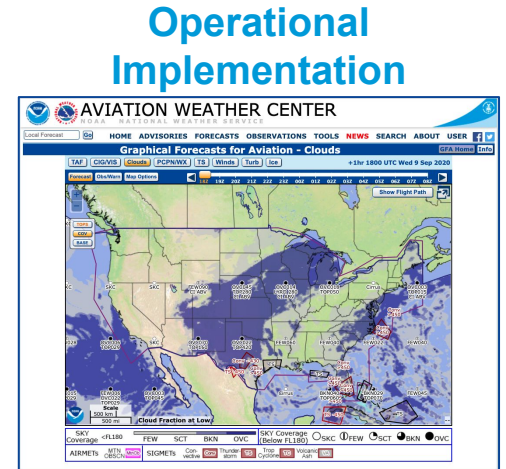
**Vision:** “A destination facility as the enterprise leader in realizing the best science, technology, and training for operational aviation meteorology.”



Evaluation

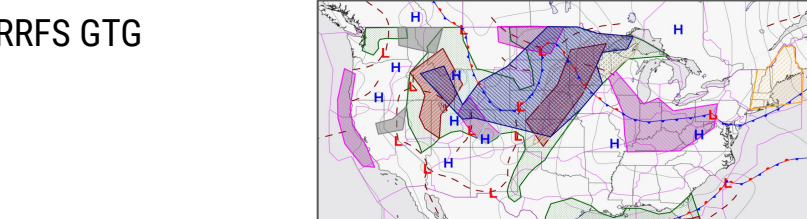
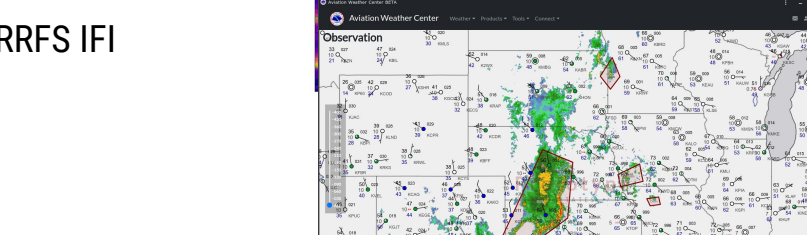
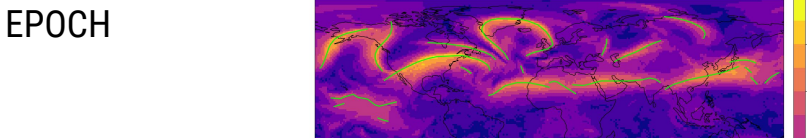
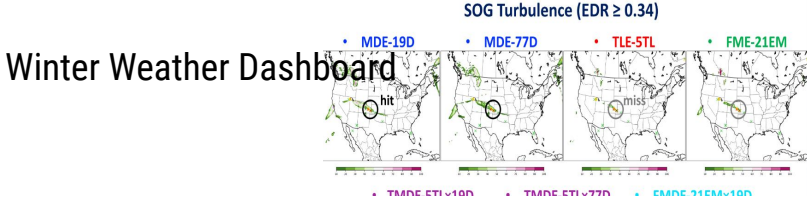
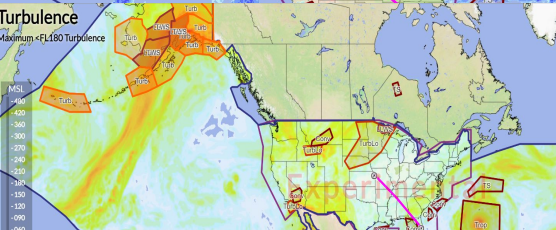
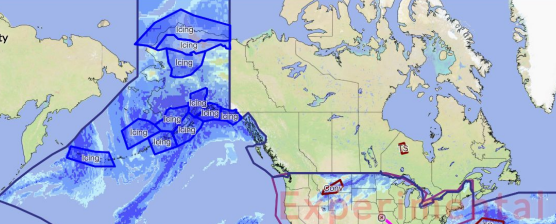
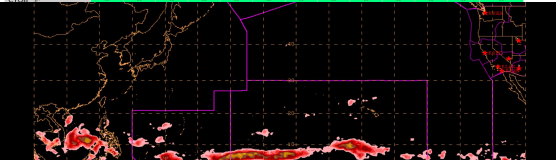
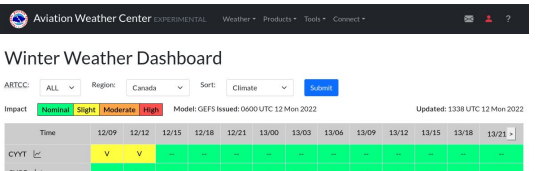


A continuous collaborative effort to develop, maintain, and integrate new products into operations.



Operational Implementation

# Recent AWT R20



Winter Weather Dashboard

EPOCH

RRFS IFI

RRFS GTG

SOG Turbulence (EDR  $\geq$  0.34)

Probabilistic GTG

SigWx objects

Redesign of AviationWeather.gov

Outlooks

# Collaborators



# Summer Experiment

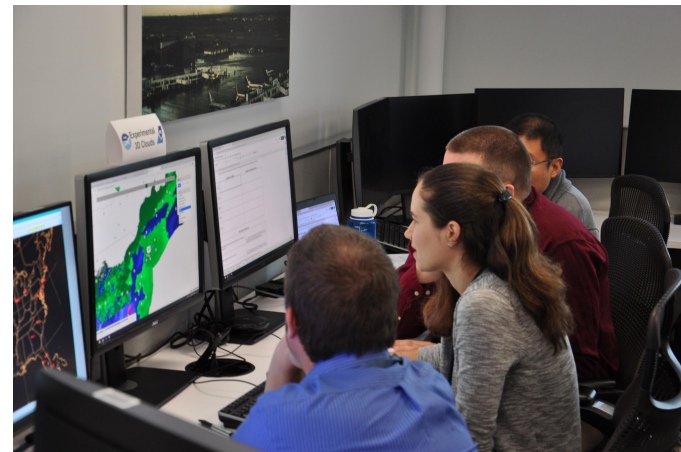
**Goal:** To evaluate experimental and prototype products and services to support aviation planning in the National Airspace System (NAS)

- Integral part of our Research to Operations (R2O) process
- Stakeholder engagement and collaboration
- Build relationships between multiple entities in the aviation weather enterprise



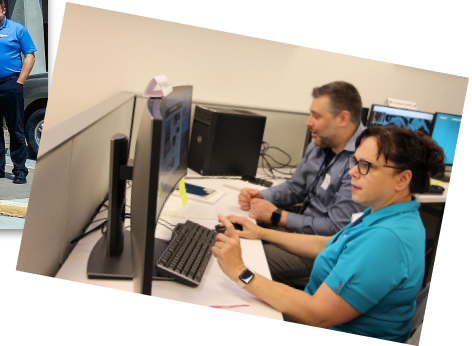
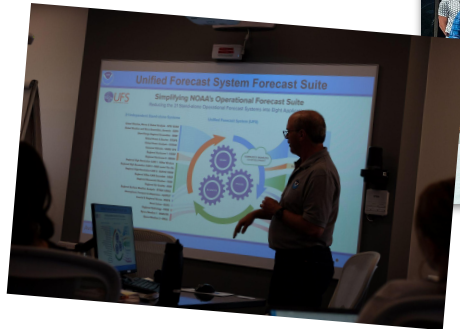
# Summer 2022 Experiment

- **TCF evolution:** testing AWIPS, evaluating RRFs for late summer convection, first test of WoFS for aviation
- **Outlook graphics:** extending general aviation forecasts through day 3, building common operating picture



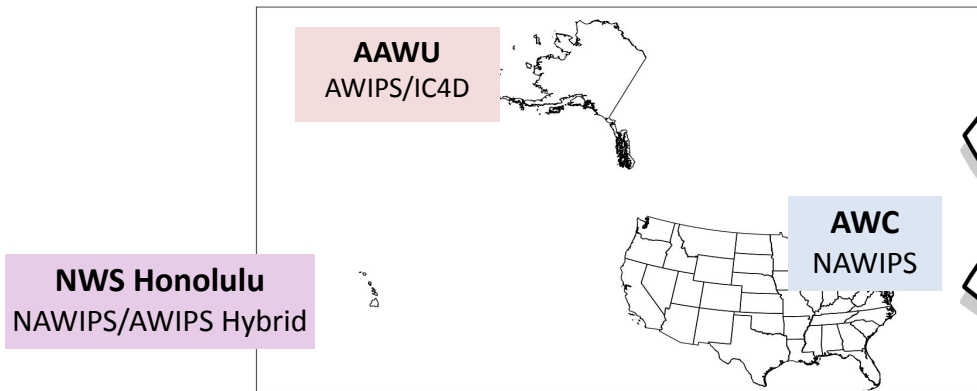
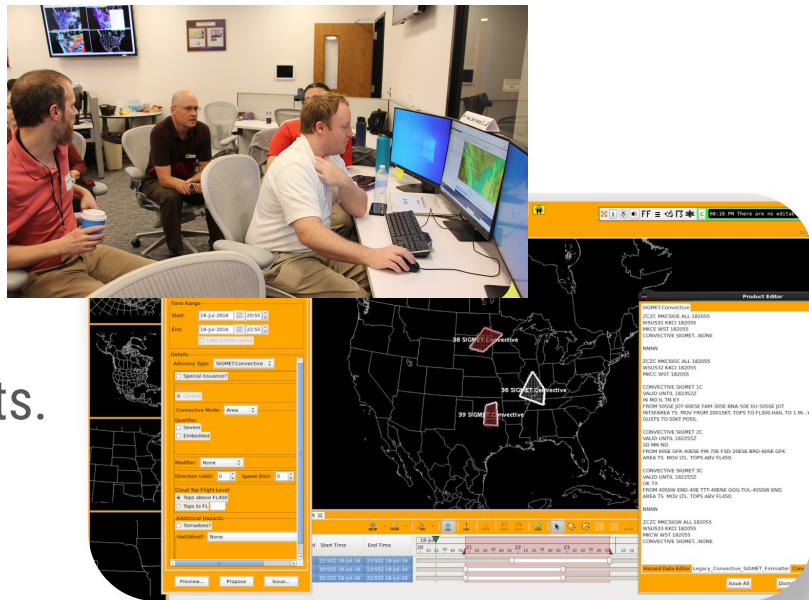


# Spring 2023 Experiment: May 15th-19th



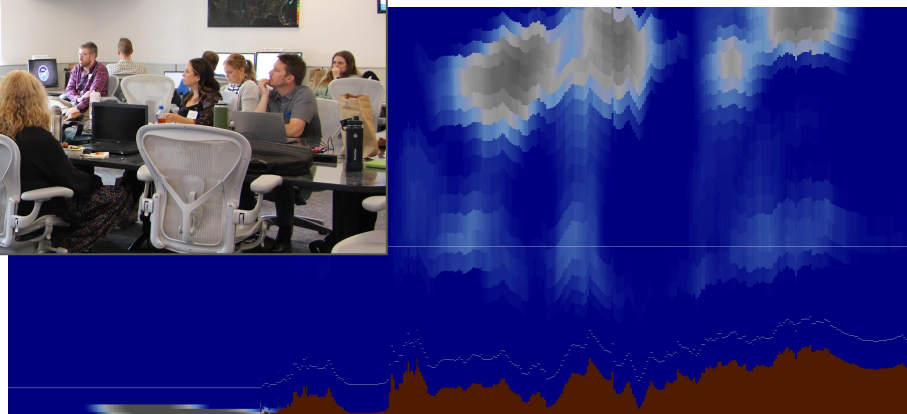
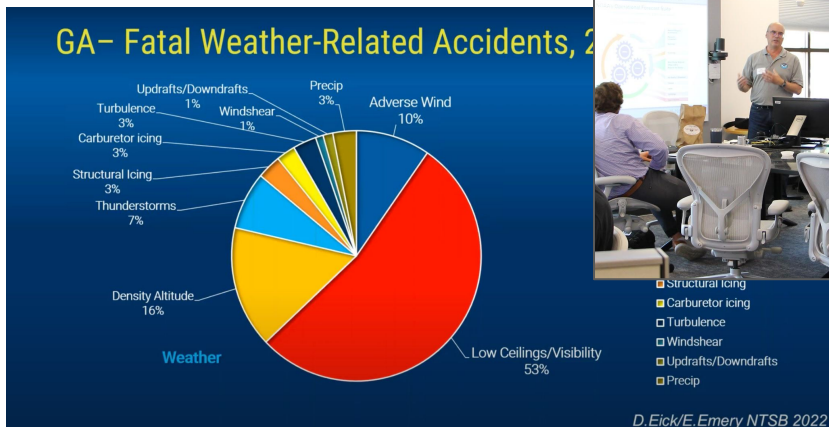
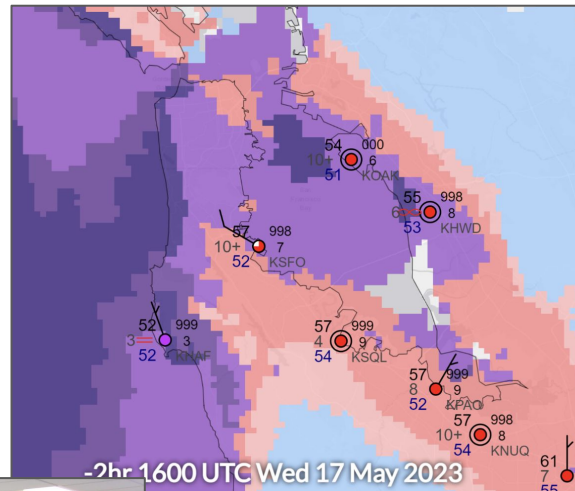
# Spring 2023 Experiment

- **Hazard Services:** evaluating Common Aviation Production Platform. AWIPS transition path for US Met Watch products. Reps from GSL, AAWU, Alaska Region.



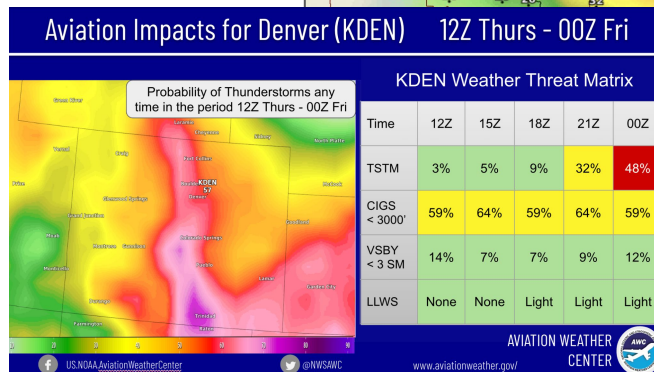
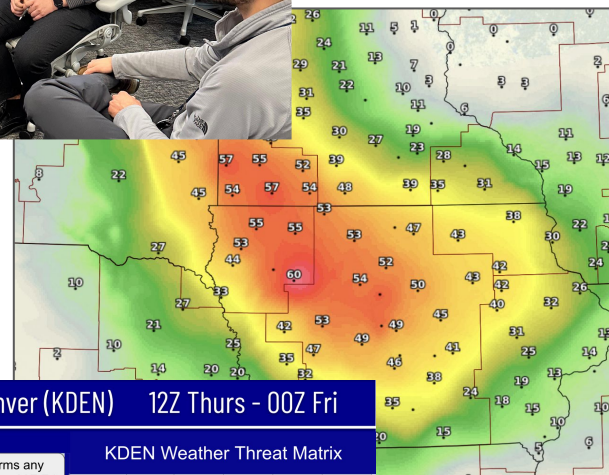
# Spring Experiment

- **Cloud forecasting with RRFs & LAMP:** evaluating evolution of important aviation guidance products, for AWC and field offices



# Spring Experiment

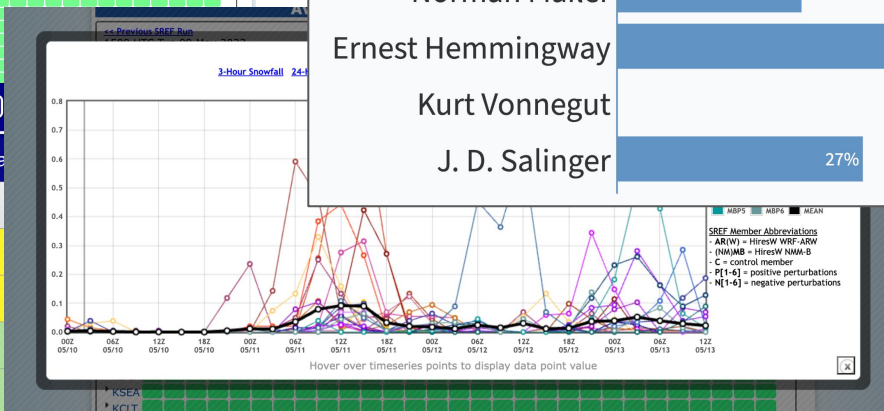
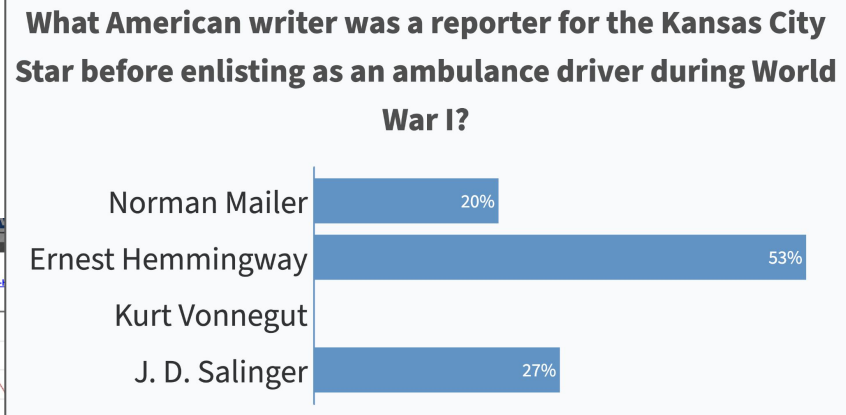
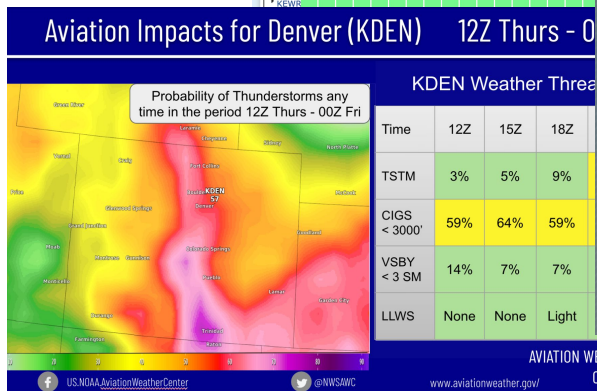
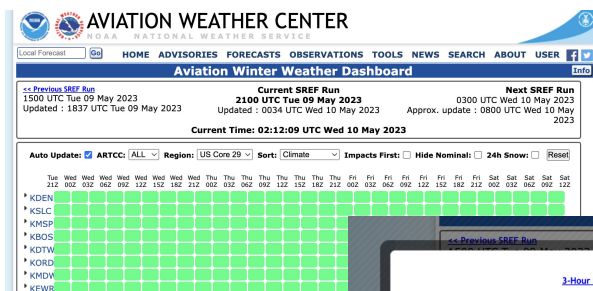
- **Probabilistic forecasting:** evaluating probabilistic forecast process and messaging. Partnering with AWDE and FPAW to start establishing baseline of user understanding and decision making from different communication methods.



# This Session

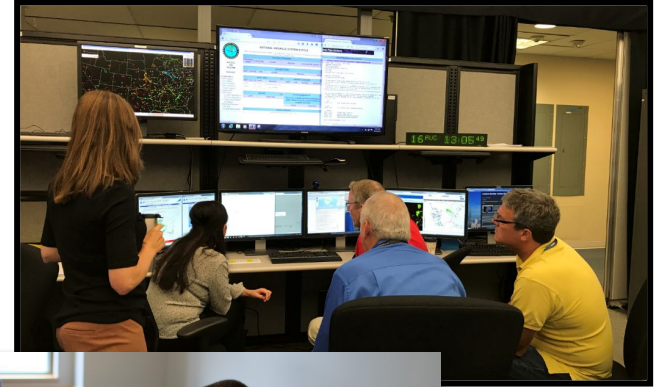
- Probabilistic forecasting and communication
- Speakers
  - Chad Gravelle, NWS
  - Craig Hartsough, NOAA GSL
- Exercises:
  - Aviation Winter Weather Dashboard
  - Exploring non-deterministic communication concepts
  - Moving beyond day one

# Interactive Polling and Discussion



# AWDE

- Collaborating with the FAA Aviation Weather Demonstration and Evaluation
- Human factors and meteorology experts
- Evaluations of products, services, workflows, and more
- Helps reduce risk from changes in aviation weather



# Probabilistic Weather Themes

End-user facing products: clear enough for direct interpretation

Forecaster in/over the loop: role of interpretation and communication



# **Non-deterministic NWS Aviation Products**

# TAFs

## 5.11.2.11.2 TEMPO (YYGG/YeYeGeGe) Group.

The change-indicator group **TEMPO YYGG/YeYeGeGe** is used to indicate temporary fluctuations to forecast meteorological conditions that are expected to:

- Have a high percentage (greater than 50 percent) probability of occurrence;
- Last for one hour or less in each instance; and
- In the aggregate, cover less than half of the period **YYGG** to **YeYeGeGe**.

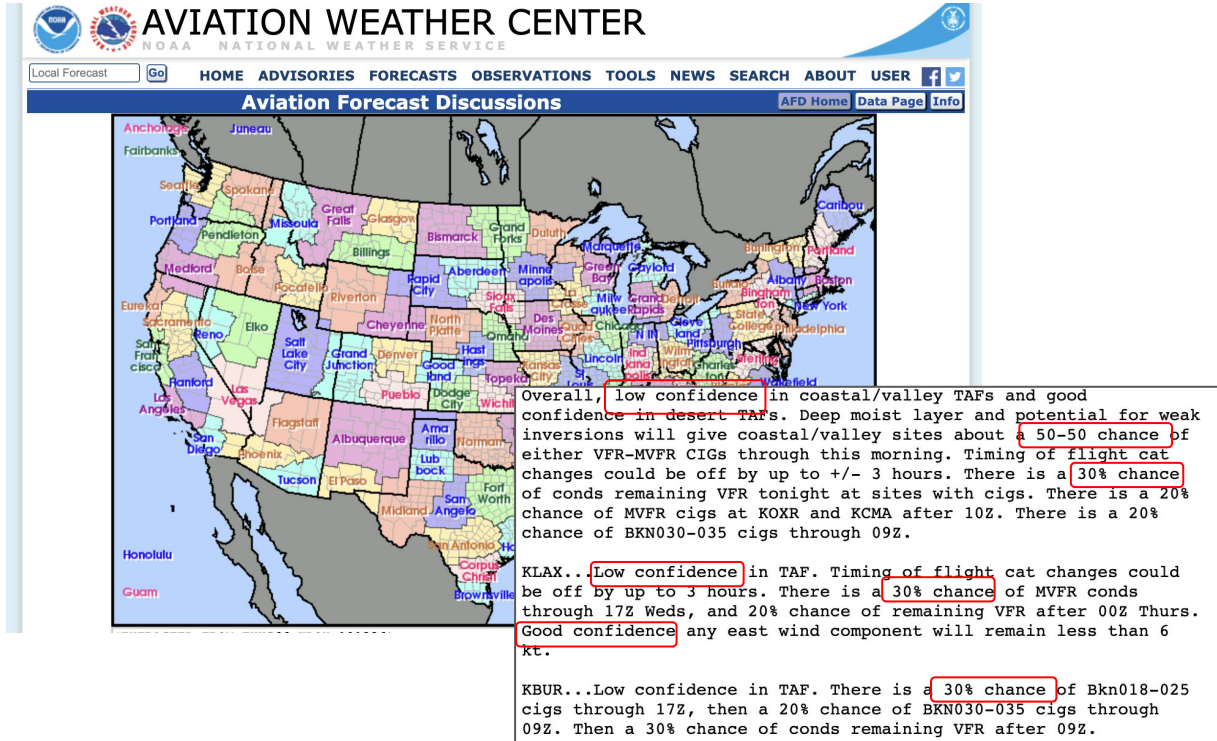
PROB30: low probability

TEMPO: high probability, intermittent

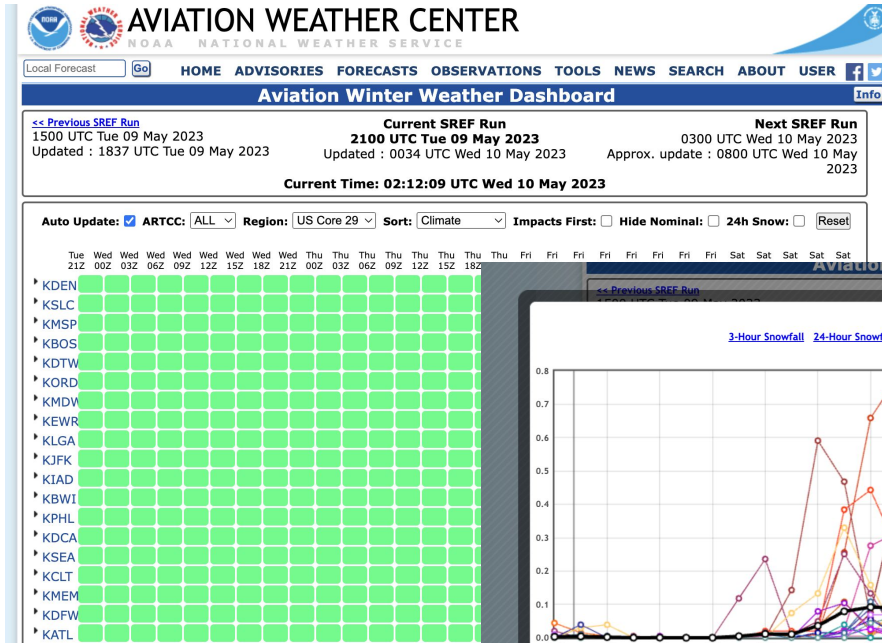
## 5.11.2.11.3 PROB30 (YYGG/YeYeGeGe) Group.

The probability group, **PROB30 YYGG/YeYeGeGe**, is only used by NWS forecasters to forecast a low probability occurrence (30 percent chance) of a thunderstorm or precipitation event and its associated weather and obscuration elements (wind, visibility, and/or sky condition) at an airport.

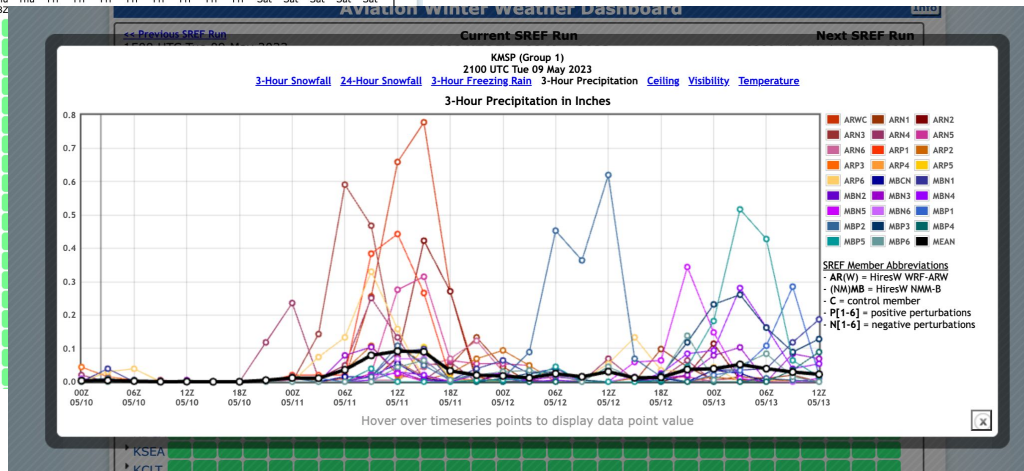
# Area Forecast Discussion



# Winter Weather Dashboard



Dashboard decision support tool show probability of impactful weather

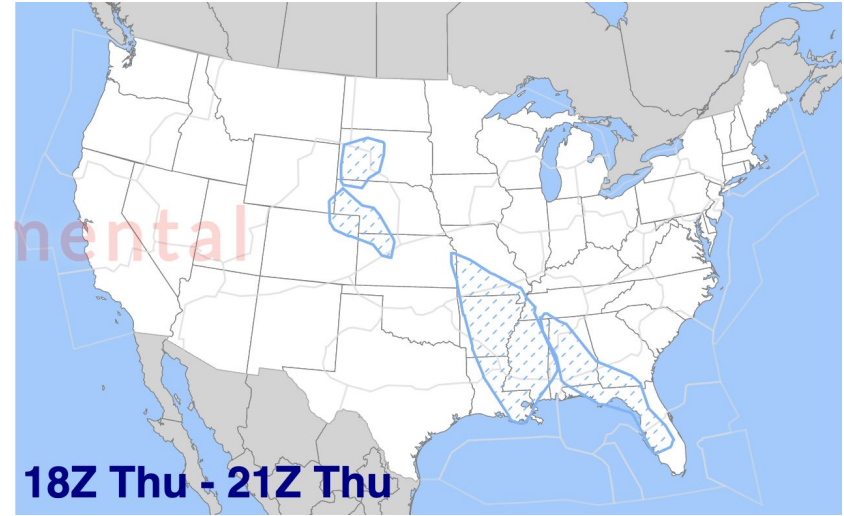


# Extended Convective Forecast Product (ECFP)

Thunderstorm probability forecast for  
Traffic Flow Management community

Augments TCF and eTCF convective  
forecasts (no overlap)

Designed to mimic TCF look and feel



# Icing Probability

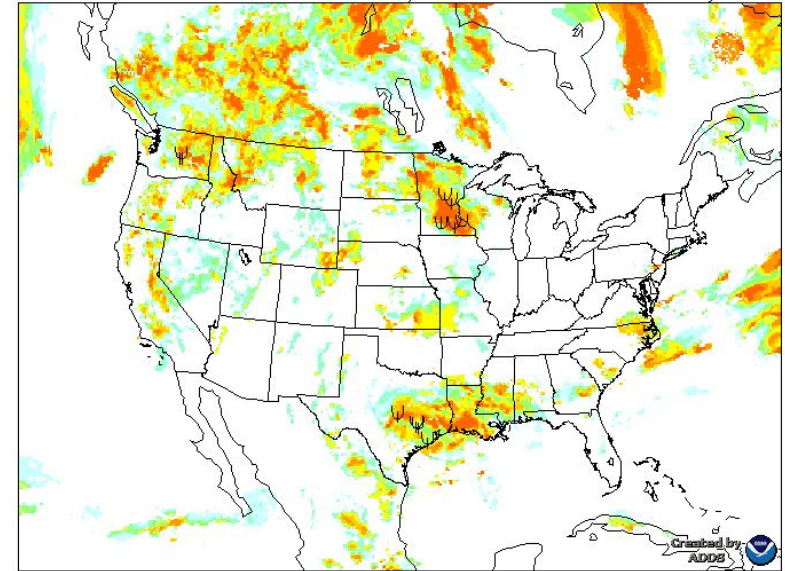
Calibrated probability of any severity icing for deterministic state

Presented alongside deterministic severity and SLD potential forecast

Icing probability positively correlated with severity

Maximum icing probability (1000 ft. MSL to FL300)

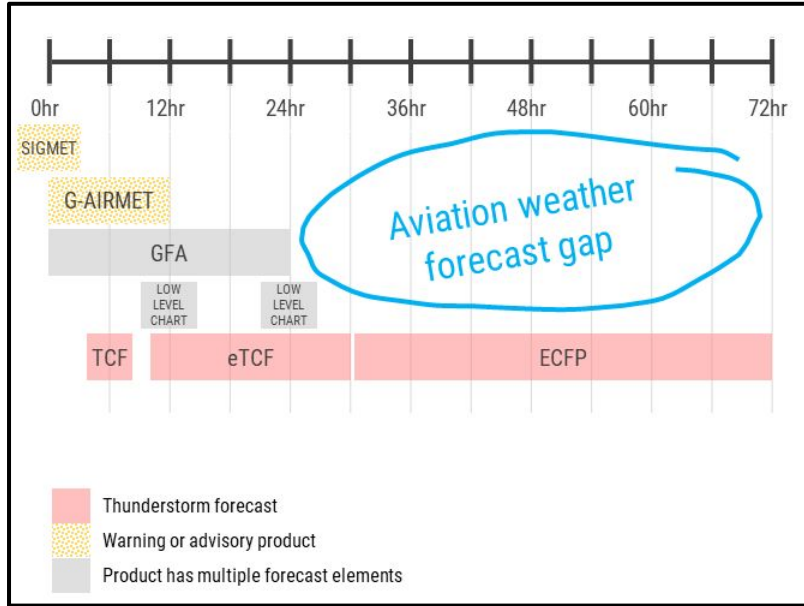
Analysis valid 0100 UTC Wed 10 May 2023



5 15 25 35 45 55 65 75 (percent)



# Extended Range



- Current (non-convective) AWC products generally do not go beyond 24 hours
- Additional guidance for GA pilots is needed
- Exploring both forecaster-in-the-loop and automatically generated