

Using Human Factors to Optimize Aviation Weather Products

Federal Aviation Administration's Aviation Weather Demonstration and Evaluation (AWDE) Services

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AWDE Services

The Federal Aviation Administration's AWDE Services improves the delivery of capabilities developed within the FAA's NextGen Aviation Weather Division by:

- Conducting end-user and stakeholder engagements through various forms of Cognitive Task Analysis methods.
- Planning and leading user evaluations.
- Conducting human factors research and data analysis.

AWDE Services collaborates with internal FAA stakeholders and external agencies to deliver human factors expertise to advance FAA aviation weather research and initiatives.



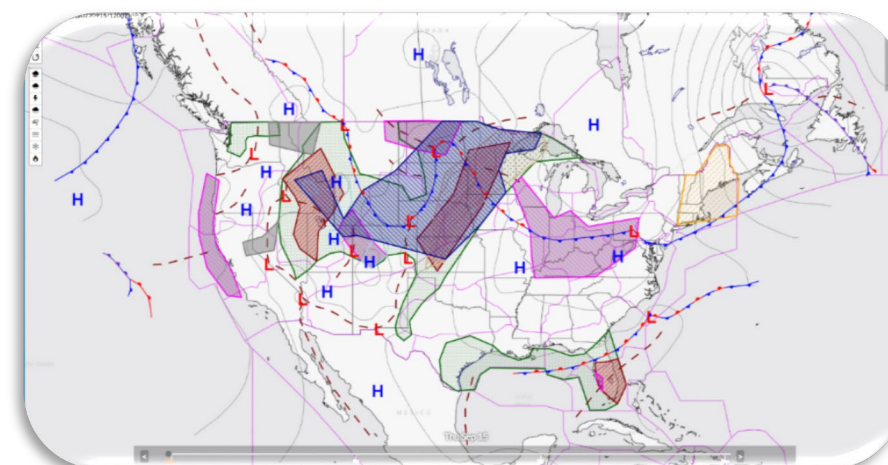
The AWDE Concept and Product Assessment Capability (CPAC) laboratory located at the William J. Hughes Technical Center.

2023 National Weather Service Aviation Weather Testbed Spring Experiment



Forecasters, developers, and stakeholders participated in the Aviation Weather Testbed to demonstrate and evaluate experimental products and concepts. The 2023 AWT focused on developing ways to display hazard services, cloud forecasting using the Rapid Refresh Forecasting System (RRFS), and ways to display probabilistic forecasting.

AWDE Services collected user feedback to better understand how the products could be used to support decision-making processes for General Aviation pilots.

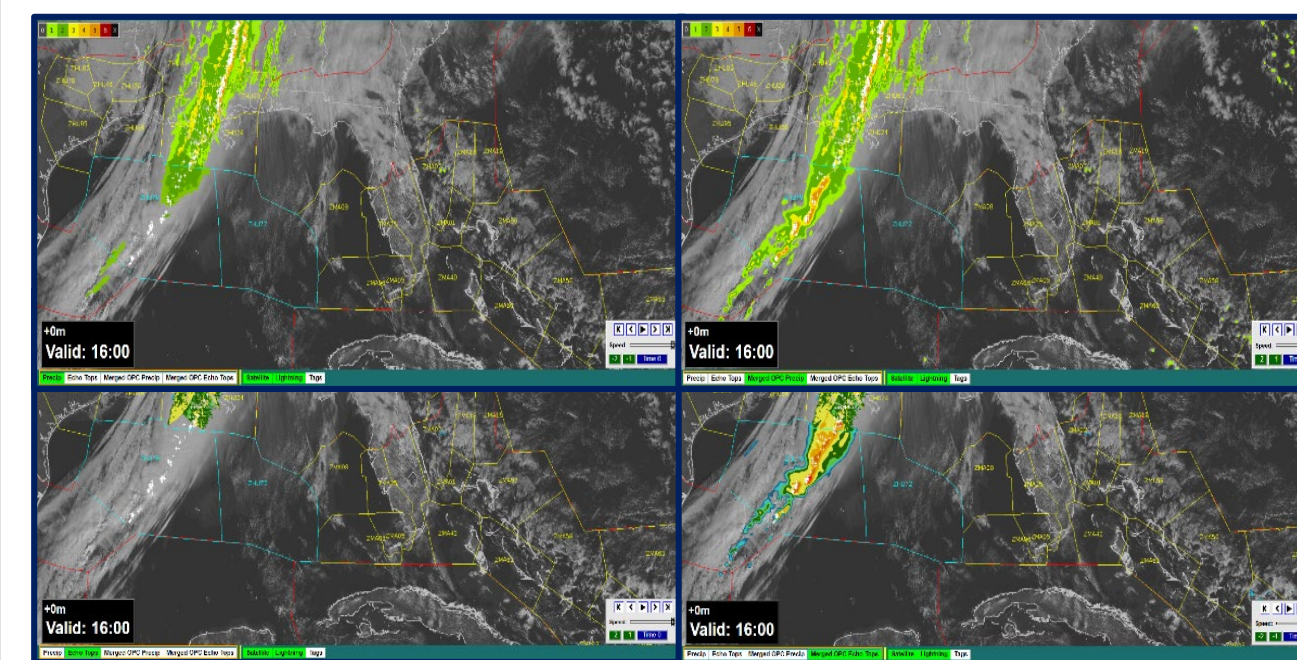


Example of an Outlook Graphic created during the experiment.

Offshore Precipitation Capability User Assessment

The Offshore Precipitation Capability (OPC) estimates the location and intensity of precipitation in areas where radar is unavailable.

AWDE Services conducted a user assessment to gain feedback on the operational suitability and use of the OPC before transitioning to the National Airspace System (NAS) acquisition system.



Top Left: precipitation without OPC
Top Right: precipitation with OPC
Bottom Left: echo tops without OPC
Bottom Right: echo tops with OPC

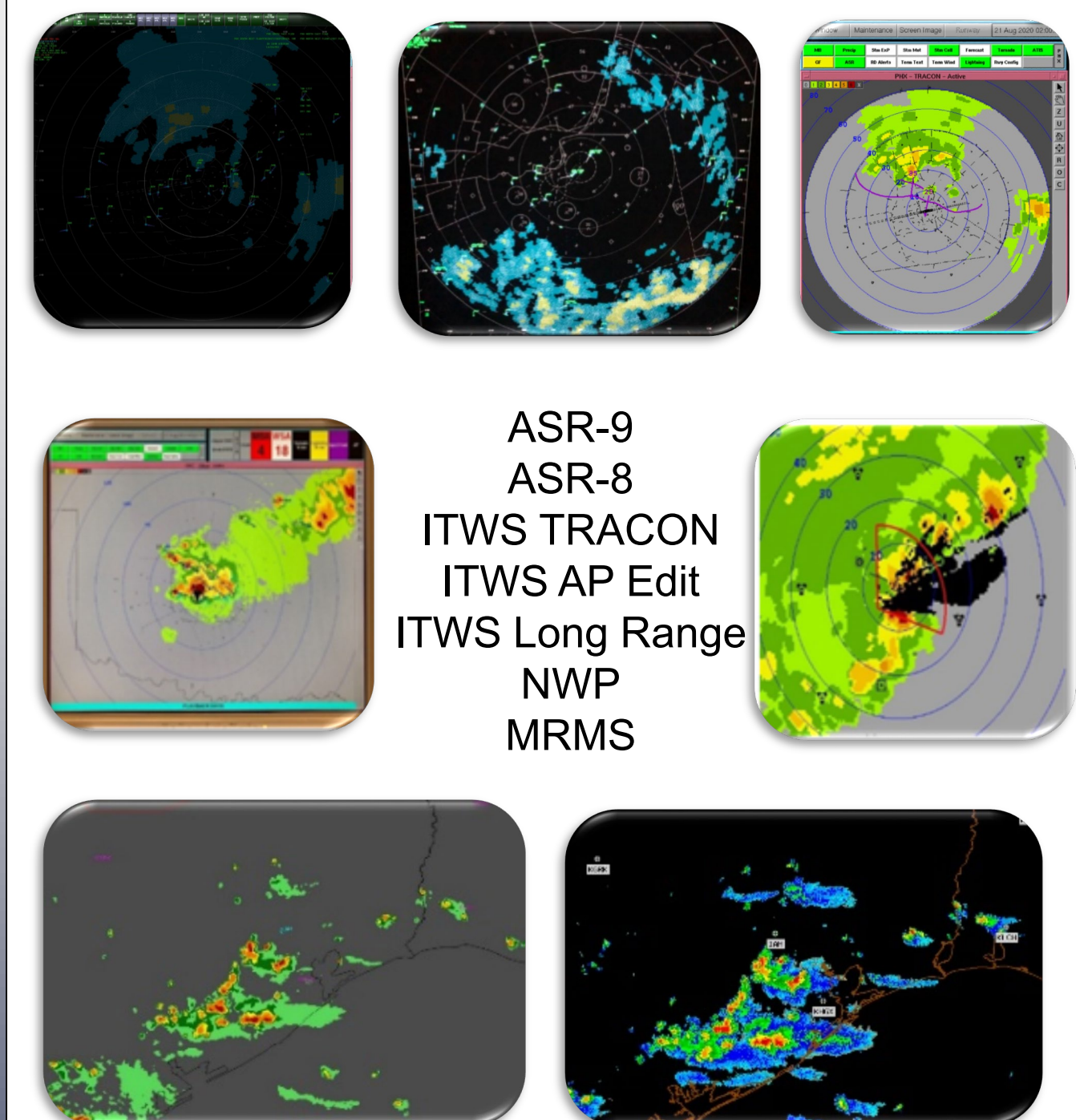
Results from the user evaluation found that:

- OPC provides the capability to plan Traffic Flow Management initiatives because there is increased situation awareness of the weather and how the weather may impact traffic.
- OPC provides the capability to be more precise when coordinating route impacts with other facilities.

Terminal Precipitation on the Glass Demonstration

The Terminal Precipitation on the Glass shortfalls analysis determined false, missing, obsolete, or rapidly changing areas of weather, specifically precipitation, on an air traffic controller's primary display may lead air traffic control to unnecessarily or inaccurately re-route traffic.

AWDE Services conducted a low-fidelity demonstration consisting of virtual interviews with participants to provide an initial review of alternate precipitation products that address these shortfalls.



ASR-9
ASR-8
ITWS TRACON
ITWS AP Edit
ITWS Long Range
NWP
MRMS



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