

Product Description Document

Aviation Impact Guidance for Convective Weather (AIGCW)

Part 1 – Mission Connection

1. Product Description: The Aviation Impact Guidance for Convective Weather (AIGCW) is a graphical forecast capability that represents the probability of convective weather impacting air traffic operations in the National Airspace System (NAS). The “weather “ portion of this product utilizes the Short Range Ensemble Forecast (SREF) Calibrated Thunderstorm output and the “air traffic” portion utilizes a 5-year sample set of historical air traffic data from 1 January 2004 through 31 December 2008. The AIGCW capability is then able to graphically illustrate the probability of convective weather impact to the “normal” albeit historical flow of air traffic in the NAS. The AIGCW was developed in conjunction with the FAA’s longer range collaborative strategic planning process which is well beyond the traditional 6hr strategic planning timeframe. AIGCW provides a convective weather impact forecast to air traffic flows for 1-hour forecast intervals through 39 hours and 3-hour intervals through 87 hours.

2. Purpose/Intended Use: The AIGCW Provides a longer range convective weather impact forecast for aviation and illustrates that impact to FAA traffic managers without requiring the interpretation of meteorological data. Currently traffic flow managers must mentally integrate most weather information after viewing numerous stand-alone weather products before developing a response. The AIGCW, when used to support longer range strategic planning provides common situational awareness and facilitates the synchronization of planning traffic management initiatives with all users.

3. Audience/Users: National Traffic Management Officers (NTMO) at the FAA Air Traffic Control System Command Center (ATCSCC), FAA Air Route Traffic Control Centers (ARTCC), Airline dispatchers/flight planners, and various private weather vendors supporting airline/FAA operations.

4. Presentation Format: Taking advantage of the temporal and spatial norms of air traffic across the NAS. The historical air traffic data is gridded and composited hourly for every day of the week (e.g., traffic positions on a Tuesday at 22 UTC). The graphical format composites of the AIGCW maps are tailored for the needs of the primary users depicting different altitude strata which include:

- Aviation Impact at “All” Flight Levels
- Aviation Impact \geq FL250 (En route Domain)
- Aviation Impact \leq FL100 (Terminal Domain)
- Aviation Impact from Convective Echo Tops \geq FL370

5. Feedback Method:

Comments and feedback will be entered into the online survey available at <http://www.weather.gov/survey/nws-survey.php?code=eaigcw>.

Opportunities for face-to-face responses will occasionally occur in the context of media workshops, public outreach events, etc.

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Part 2 – Technical Description

1. Format and Science Basis: The gridded aircraft position data used to construct the various format composites are integrated with the SREF Calibrated Thunderstorm output. The probability of convection in a SREF grid as well as the percentage of time historically an aircraft is in the same grid box produces the final probabilistic output. This creates the conversion from a traditional “weather forecast” into an “operational impact forecast” for the NAS. The gridded data is interpolated from the SREF 40 kilometer (km) output grid down to 20 km to better align with the air traffic data. 20 km was used so air traffic routes can be resolved more clearly.

2. Training:

No additional training is required to generate the product.

3. Availability:

The AIGCW is available 24/7 and updated with each 6-hourly SREF run cycle (03, 09, 15, and 21 UTC)

The AIGCW will be available via website. The website URL is below at the current example.

A current example of the AIGCW is available at:

The 3hr AIGCW is at: <http://www.spc.noaa.gov/exper/sref/specialdrb.php?run=latest>

The 1hr AIGCW is available at:

<http://www.spc.noaa.gov/exper/sref1hr/>