An Approach to Strategic Planning for Weather

"Integration with Air Traffic Management Decision Tools"

NBAA 62nd Annual Meeting & Convention Friends and Partners of Aviation Weather

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Overview

Currently there is a limited process/capability to support aviation strategic decision making beyond 6 hours

≻Processes-

- ✓ Developing a decision framework for managing weather events
 - Systematic (defined action and level of response)
 - Repeatable (possibly reduce risk aversion in planners)
 - Incremental (adapt to dynamics of weather and traffic)

≻Capabilities-

- Developing capabilities to translate weather forecast data into operational disruption for the NAS
 - Autonomous (no human augmentation)
 - Weather is transparent to the decision maker
 - "Aviation Centric" for longer range TFM decision making



Event Potential

Action



TFM Weather Management Methodology ATCSCC issues the "Statement" as an (ATCSCC Advisory) Tac Ops "Warning" Statement Wx Event Lead Time >T-12Hrs >T-8Hrs T-6Hrs T-4Hrs TOPS: 370* Event **Potential** Indication strategic planning subsumed by tactical operations Modeling tactical scenario's to protect Action arrival/departure flows Monitor flow dynamics and impact from **AITRE** weather riahts reserved.

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TFM Weather Management Methodology

ATCSCC issues the "Statement" as an (ATCSCC Advisory)



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TFM Long Range Strategic Planning







Equates to probability of convection and % time aircraft are in the same grid



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Translating Graphical Maps for TFM Automation

Forecasted(top) and Post Analysis(bottom) of Thunderstorm Impact for all Jet Routes in ZDC 60% 7 hr Forecast 19 hr 50 % Forecast 40% 16z 04z 30 %

- Translation technique to visualize impact
- View an ARTCC's potential weather impact to its demand values
- Quantify weather/impact relationships
- Enhance system optimization



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Summary

- Framework for strategic TFM decision making. Why?
 - Utilization of weather data beyond 6 hours is limited in scope
 - No formalized process for developing long-range strategic plans
 - To promote common situational awareness among stakeholders
- Proof of concept for translating weather data for TFM long range strategic planning. Why?
 - CDM Sub-Group Flow Evaluation Team working on Collaborative Strategic Planning concept for TFM
 - Limited "aviation centric" convective forecasts for long-range strategic TFM planning
 - > autonomous translation and transparency of weather forecast data into operational disruption to the NAS



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