# ENHANCEMENTS IN CONVECTIVE WEATHER FORECASTING FOR NAS TRAFFIC FLOW MANAGEMENT FAA CONVECTIVE WEATHER RESEARCH PLANS, 2012 RESULTS OF THE 2010 AND 2011 EVALUATIONS OF COSPA





COSPA PRECIPITATION FORECAST

COSPA ECHO TOP FORECAST

## FIELD USE ASSESSMENT

CoSPA incorporated in Traffic Management Initiatives and Improved Situational Awareness

ESTIMATED ANNUAL DELAY SAVINGS R\$26.8 DF 15 DETAILED



CoSPA performed comparably to the Collaborative Convective Forecast Product (CCFP) based on weather impact metrics



CoSPA Performed better inside than outside CCFP polygons (based on Fractions Skill Score)

### COSPA, AS SEEN LEFT, IS AN AUTOMATED CONVECTIVE WEATHER FORECAST THAT: + Provides seamless forecast of precipitation and echo top heights from 0-8 hrs + Blends high-resolution numerical weather model with storm extrapolations + Maintains identical look and feel of the Corridor Integrated Weather System (CIWS) + Is interpreted like radar reflectivity + Is gridded for future integration into FAA Air Traffic Management (ATM) Decision Support Tools (DST) 2 B COSPA RATED FAVORABLY FOR USE IN STRATEGIC TRAFFIC FLOW MANAGEMENT PLANNING AND SUPPORTING CCFP DEVELOPMENT Most helpful characteristics: Airline Operation Center Resolution, animation, storm intensity, 4 Sommand Center (ATCSCC) growth & decay, and deterministic nature + JetBlue (because it requires less interpretation) + Atlanta ARTCC (ZTL) **Targeted users:** + Indianapolis ARTCC (ZI **Suggested Improvements:** + Traffic flow management planners eland ARTCC (ZOI Improve accuracy in the 4-8 hour timeframe Add forecast accuracy or trending score + Chicago TRACON (C90) 6 Add winter weather TARGETED FACILITIES AND USERS 6 Southeast Domain, 15 Z Issuance, 6 hr Lead 7 Diagnostically, higher HRRR scores at coarse resolution might indicate better bias than that of CoSPA in the Southeast.



### PERFORMANCE ASSESSMENT 2010

the typical scale of a high-altitude sector..

Gather information on Air Traffic Management (ATM) use and needs for convective weather forecast uncertainty information.

Evaluate a new process designed to support ATM decisions by manually bridging the gap between automated forecasts and the information needs of ATM planners. The process is performed by individuals with both meteorological expertise and ATM familiarity. The evaluation seeks to quantify the value added by the human meteorologist.

Continue to develop and refine CCFP-like automated polygons in response to Aviation Weather Center feedback.

Investigate possibilities to improve aircraft safety and situational awareness on oceanic routes using better predictions of storm likelihood. Conduct planning activities to develop an ensemble based 24 hour global forecast.

**Document lightning effects during airport operations and** quantify the potential benefit of improved lightning nowcasts.

Improve the scientific understanding of Convective Initiation (CI) phenomena and the performance in CI forecasting.

+ Improve the use of satellite and model based indicators

+ Develop capability to forecast large scale storm initiation

Improve convective weather forecast performance of the High Resolution Rapid Refresh (HRRR) numerical model.

