

Update on the Status of Numerical Weather Prediction

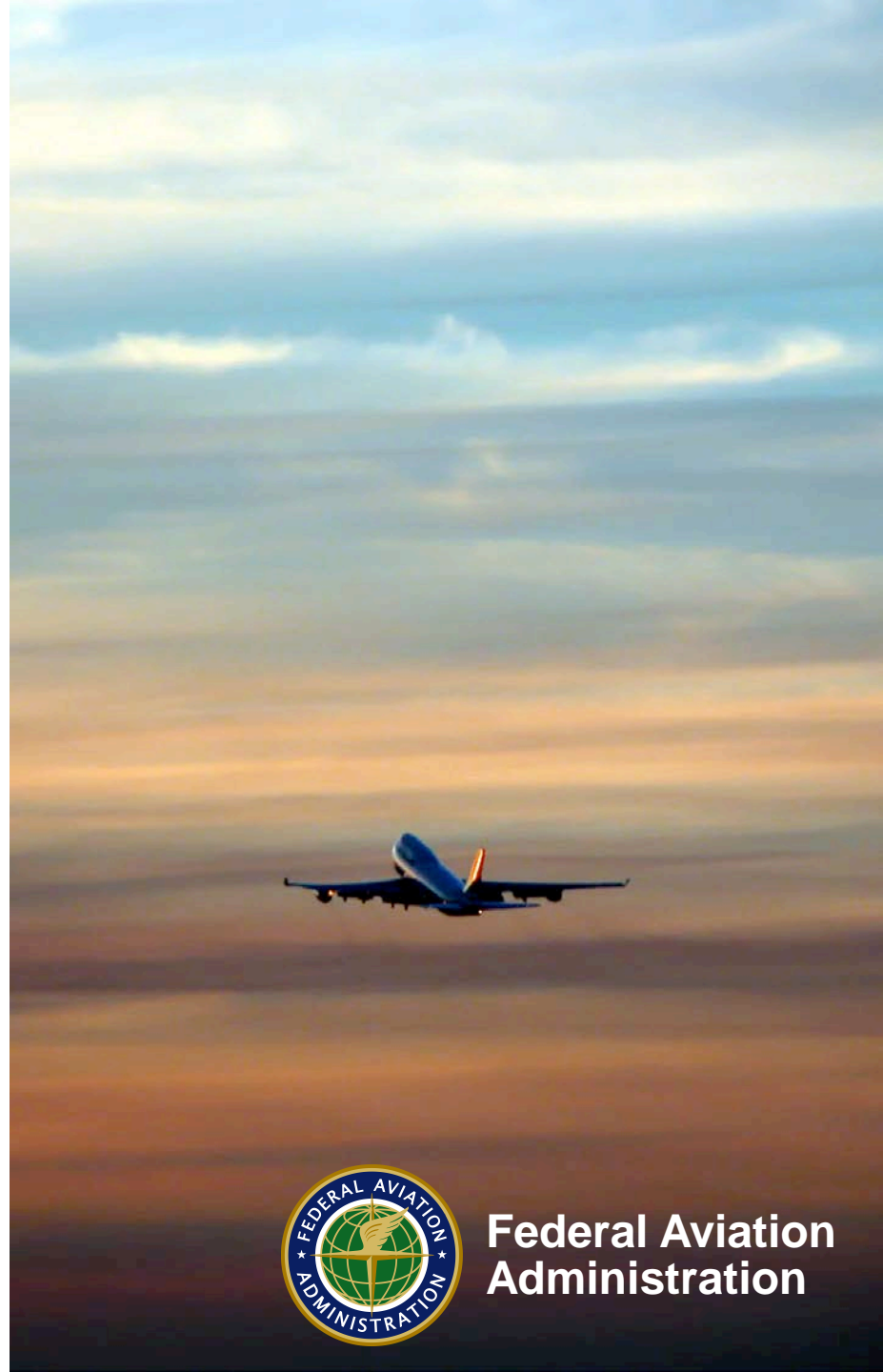
Presented to: FPAW

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Research Program

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**Federal Aviation
Administration**



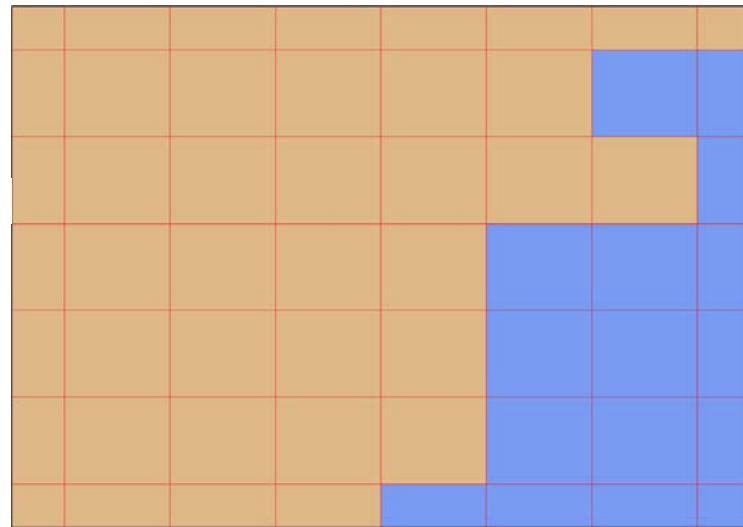
Panel Overview

- **Numerical Weather Prediction (NWP) is the basis for most forecasts**
- **Will provide an update on advances**
- **Future NOAA plans**
- **Industry trends and capabilities**
- **Q&A**



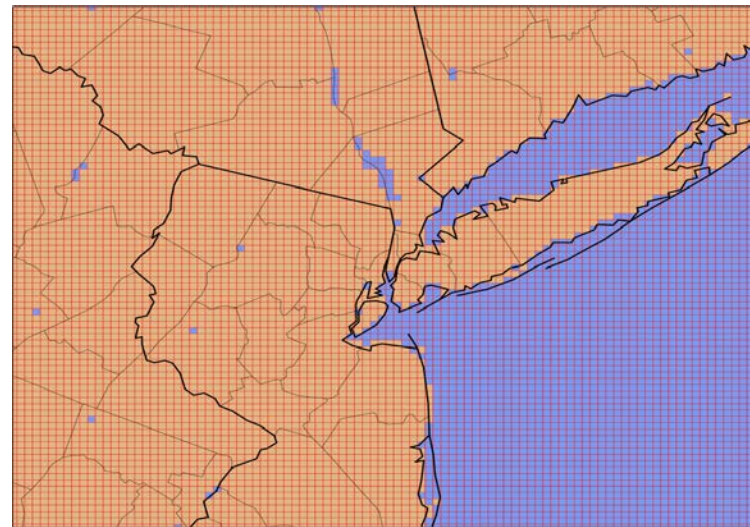
NWP Advances

40 km grid spacing in 1998

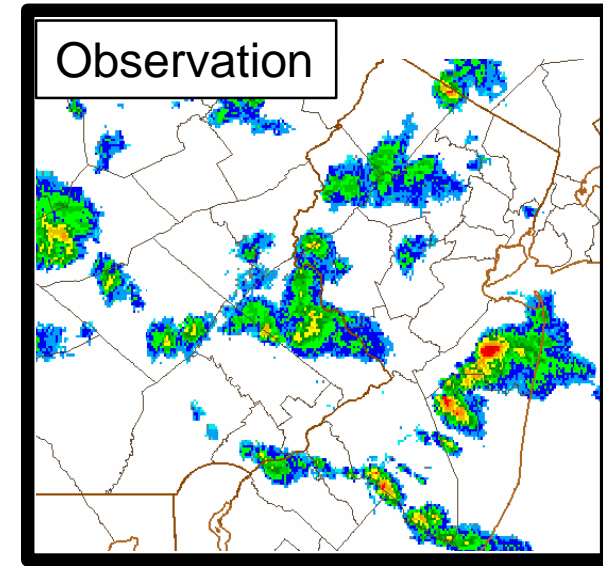
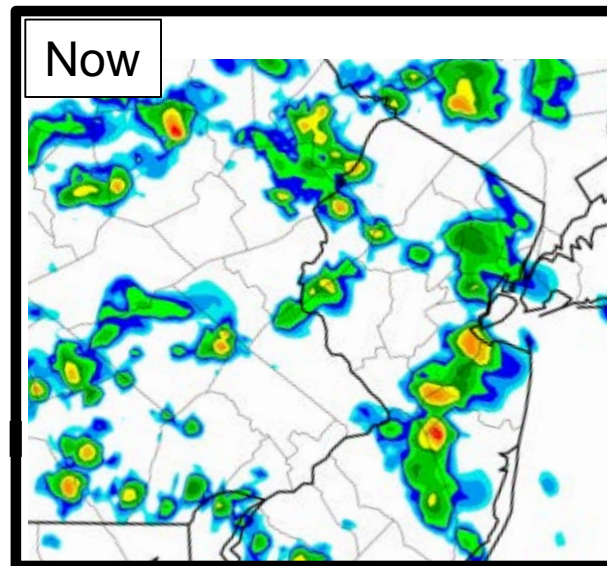
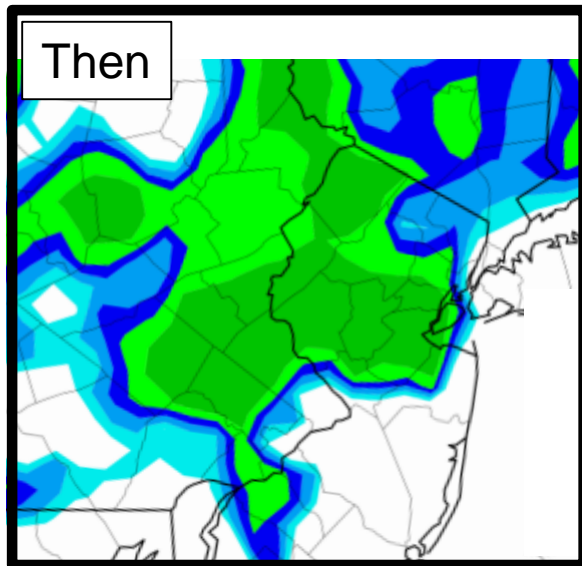


240 km/150 mi

3 km grid spacing in 2014

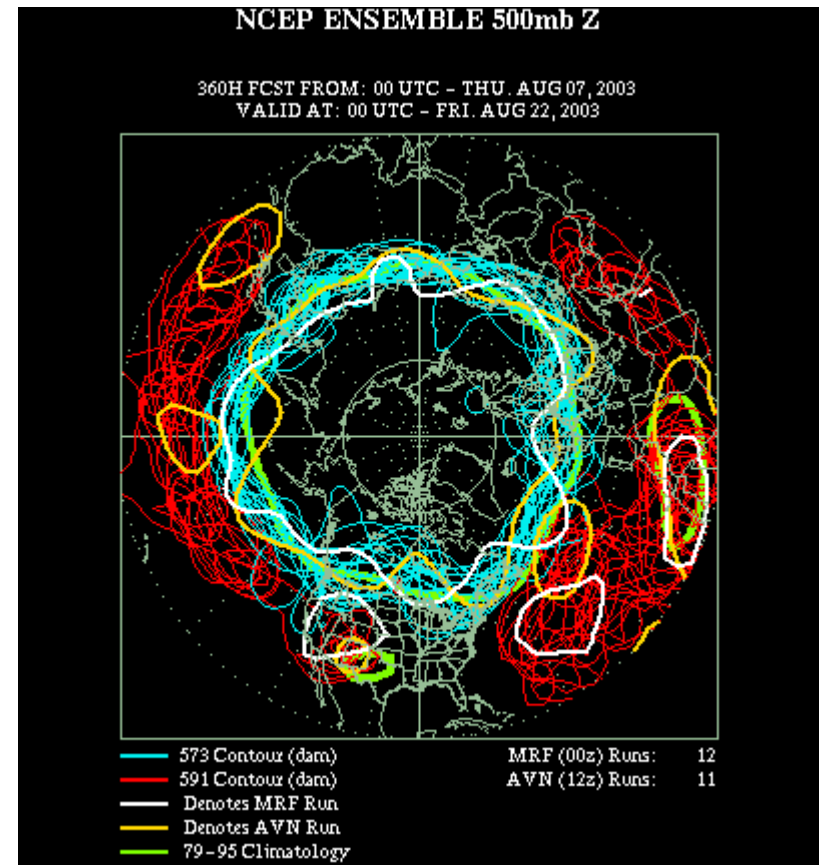


Convective Forecasts Comparison Then vs. Now

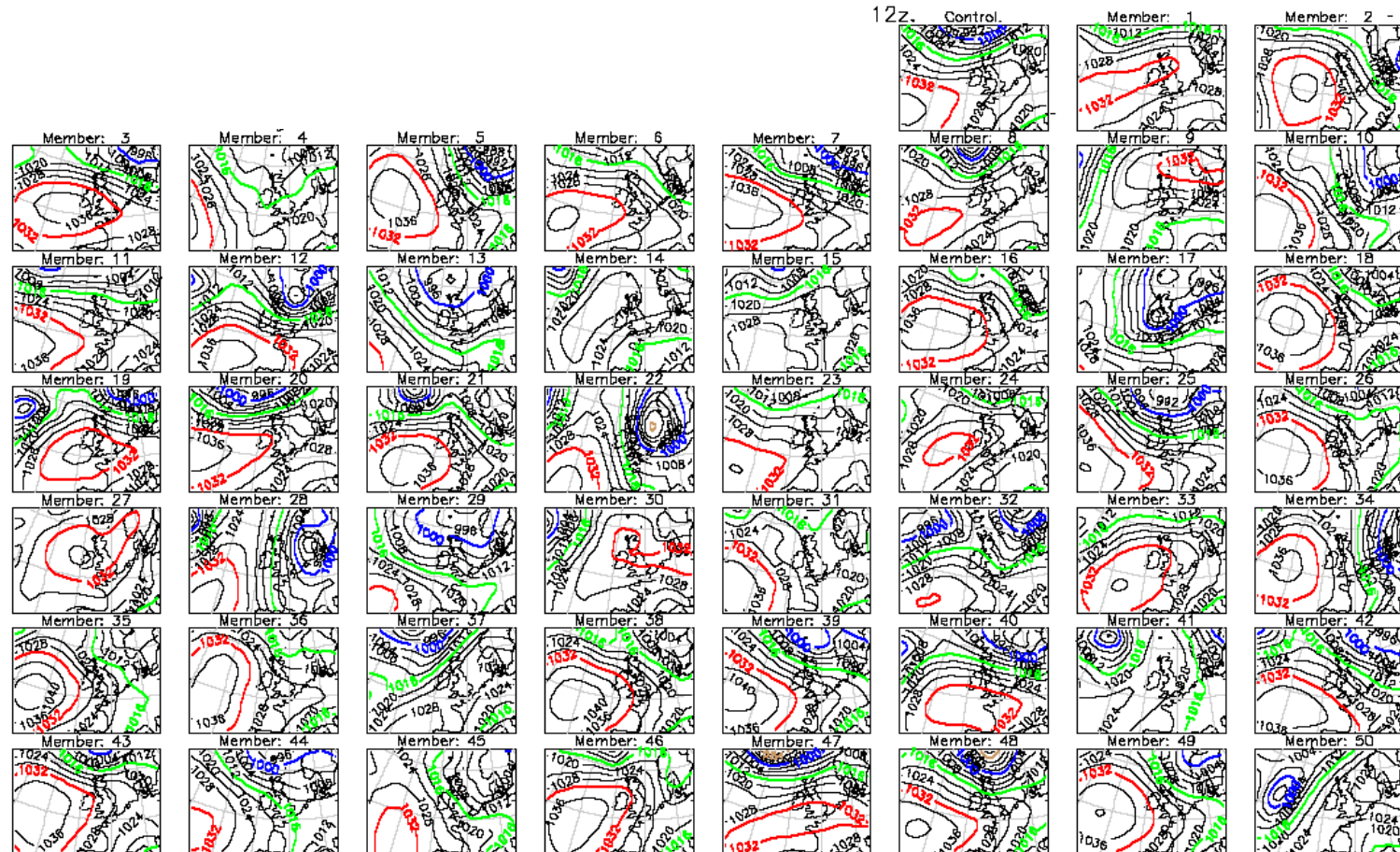


Ensembles for aviation are coming

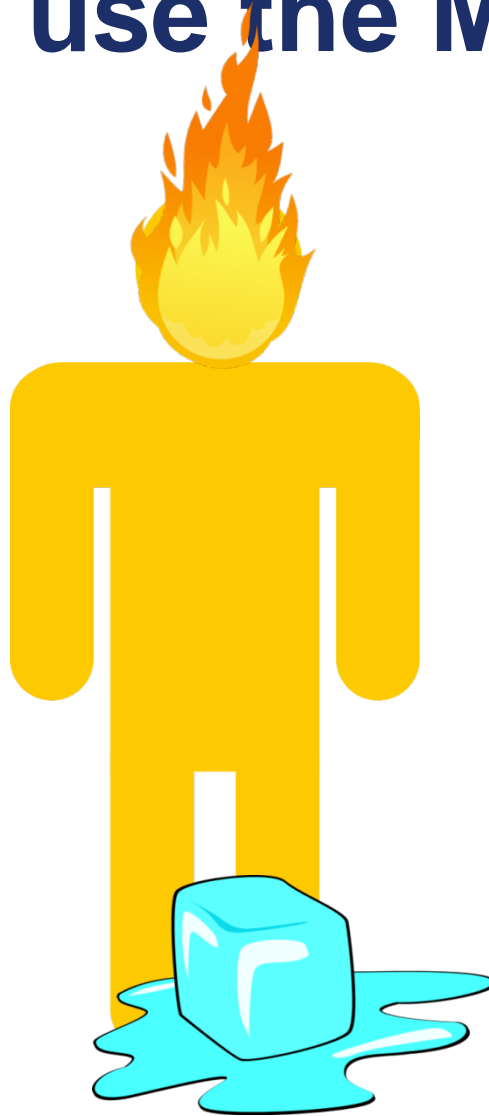
- **A collection of numerical weather forecasts**
- **Ensembles are not new**
- **Why use?**
 - Gives a range of scenarios that may occur
 - Gives confidence in a particular solution
 - Measure of uncertainty
 - Can produce probabilities
 - Can be applied to risk-based decision making



How can one use multiple forecasts?



Why not just use the Mean?



**According to
the Mean, one
might feel
pretty good**



Questions to Ponder

- **What grid spacing and resolution is needed?**
- **Is the aviation user community ready for ensembles?**
- **What is the role of NWP for human decision makers?**
- **Are decision support tools ready for ensembles?**

