HRRR / RAP – Mitigating Aviation Hazards for Safety and Efficiency

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RAP / HRRR: Hourly-Updated Forecasts of All Hazards

- Identification of hazardous weather for general aviation: among NTSB’s top-ten “Most Wanted” improvements (2014)
Aviation Benefits from Model Improvements

**Benefits**
- Proactive traffic management
- Better situational awareness for general aviation

**12-h Critical Success Index**
- Ceiling < 500 ft
- Visibility < 0.5 SM

**HRRR vs. RAP**

**12-h RMSE**
- **Wind**
- **Relative Humidity**

**Benefits**
- Turbulence forecasting
- Anticipation of low-level wind shear
- Route optimization, fueling requirements

**Benefits**
- Accurate cloud forecasts (horizontal, vertical coverage)
- Icing avoidance
Mitigating Aviation Hazards for Safety and Efficiency

• See poster…
  ▪ Aviation-specific applications of RAP & HRRR
  ▪ Advancements in data assimilation and physical parameterizations with aviation benefits
  ▪ Improved post-processing algorithms

• See also Session 5 (Theme 2):
  “Impact-Based Decision Support Tools for Aviation” (talk & poster)