

# National Convective Weather Forecast (NCWF)

Stan Trier, NCAR (trier@ucar.edu)

## 1) Description and Examples of NCWF

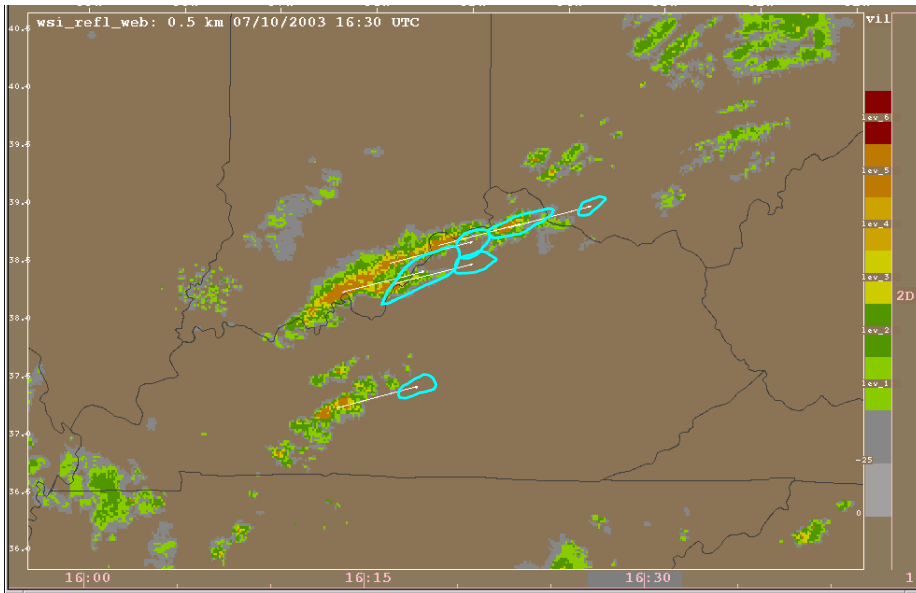
## 2) Related Ongoing and Future Developments

- [NCAR Autowcaster](#) (*J. Wilson, R. Roberts, T. Saxen, H. Cai, E. Nelson, D. Albo, S. Dettling, N. Oien*)
- [Numerical Forecast Models \(e.g., WRF\) / Observations and Model Blending](#)

*Collaborators: C. Mueller, J. Pinto, D. Ahijevych, D. Megenhardt, N. Rehak*

# National Convective Weather Forecast (NCWF)

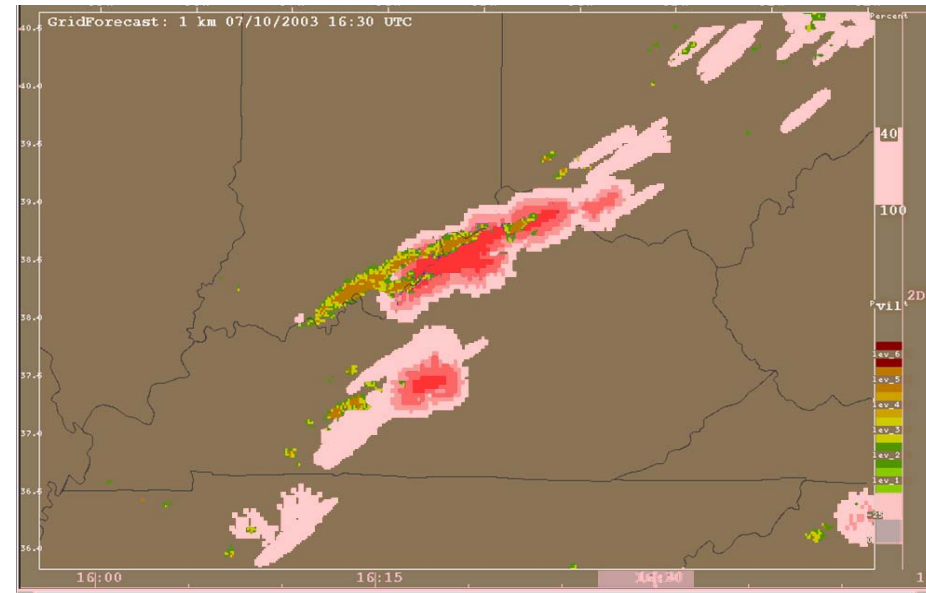
## NCWF -1



- 1 hr Extrapolation (cyan)
- Binary yes/no
- Operational Product

<http://adds.aviationweather.gov/convection>

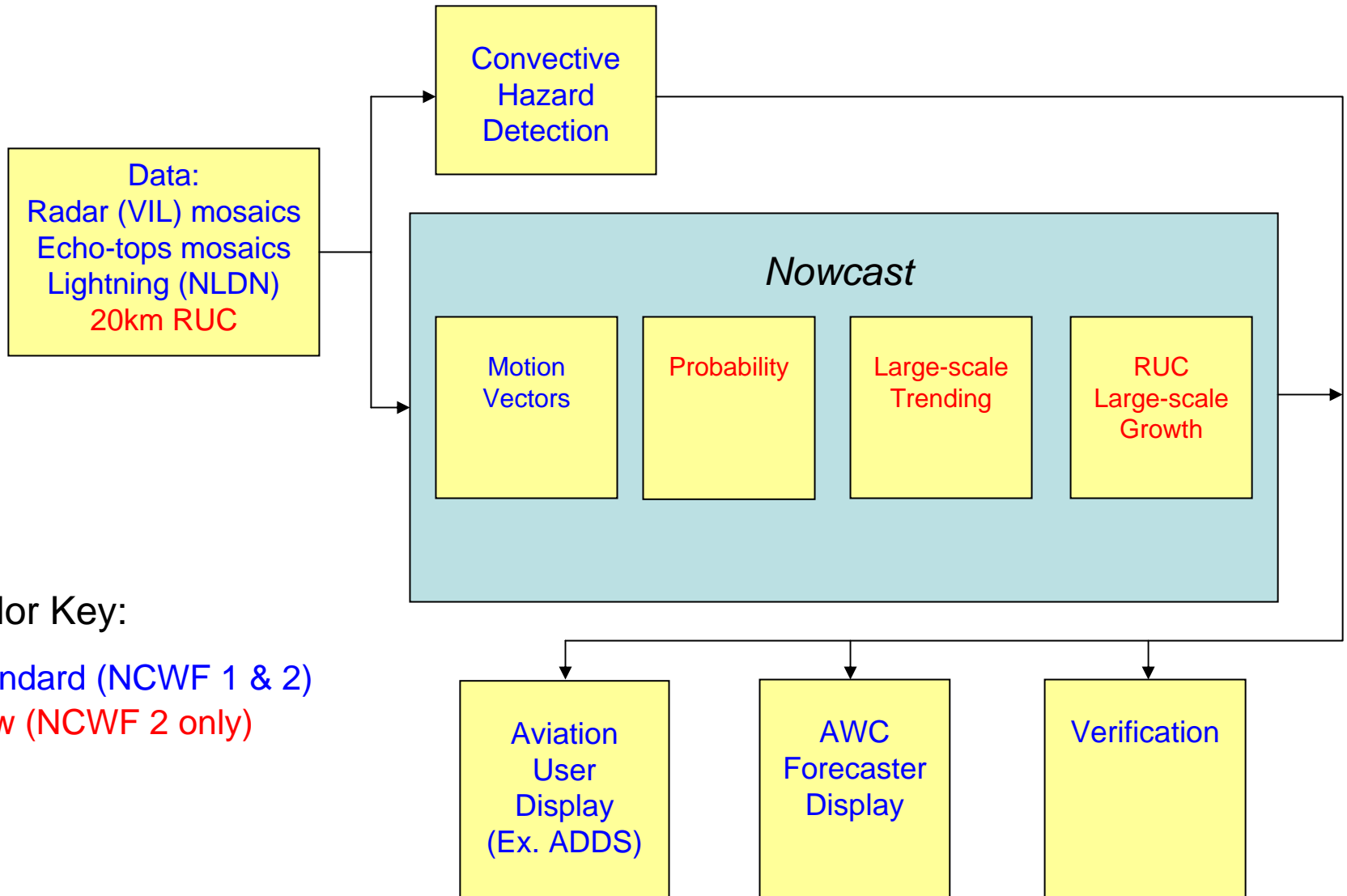
## NCWF-2



- 1 & 2 hr Probability Forecasts
- Improved Motion Vectors
- Growth & Decay
- Experimental Product

<http://weather.aero/convection>

# NCWF Processing



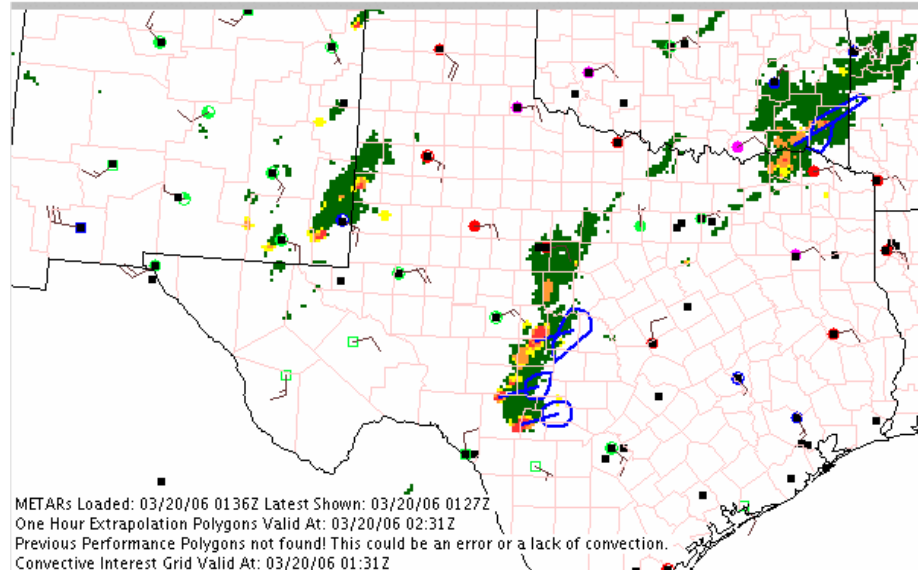
Color Key:

Standard (NCWF 1 & 2)

New (NCWF 2 only)

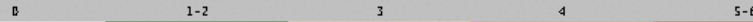
### National Convective Weather Forecast (NCWF) Java Tool

The NCWF is an automatically generated depiction of: (1) current convection and (2) extrapolated significant current convection. It is a supplement to, but does not substitute for, the report and forecast information contained in convective SIGMETs.



METARs Loaded: 03/20/06 0136Z Latest Shown: 03/20/06 0127Z  
 One Hour Extrapolation Polygons Valid At: 03/20/06 02:31Z  
 Previous Performance Polygons not found! This could be an error or a lack of convection.  
 Convective Interest Grid Valid At: 03/20/06 01:31Z

Current Convective Interest (No Units)



**Map:**

- Overview...
- Reset
- Un-zoom
- Reload

**Show Data:**

- Current Convective Interest Grid
- One-Hour Extrapolation Polygons (Blue)
- Previous Performance Polygons (Purple)
- Storm Speed (kts)/Tops (100 ft) Annotation

**Overlays:**

- VORs
- TAFs
- ARTCC Boundaries
- Counties
- Highways
- Rivers

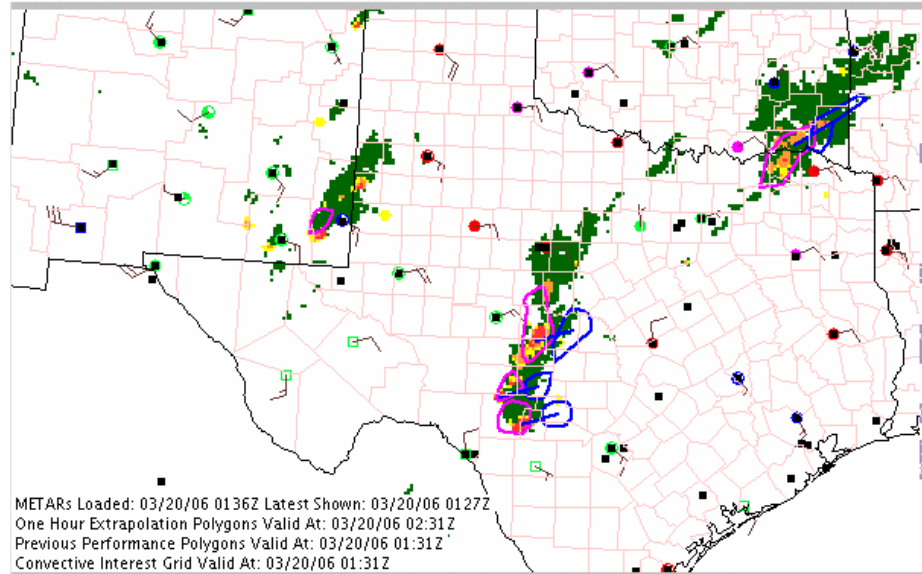
**METARs:**

- Show METARs

NCWF-1 on  
Operational ADDS  
<http://adds.aviationweather.gov>

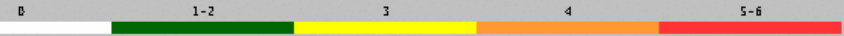
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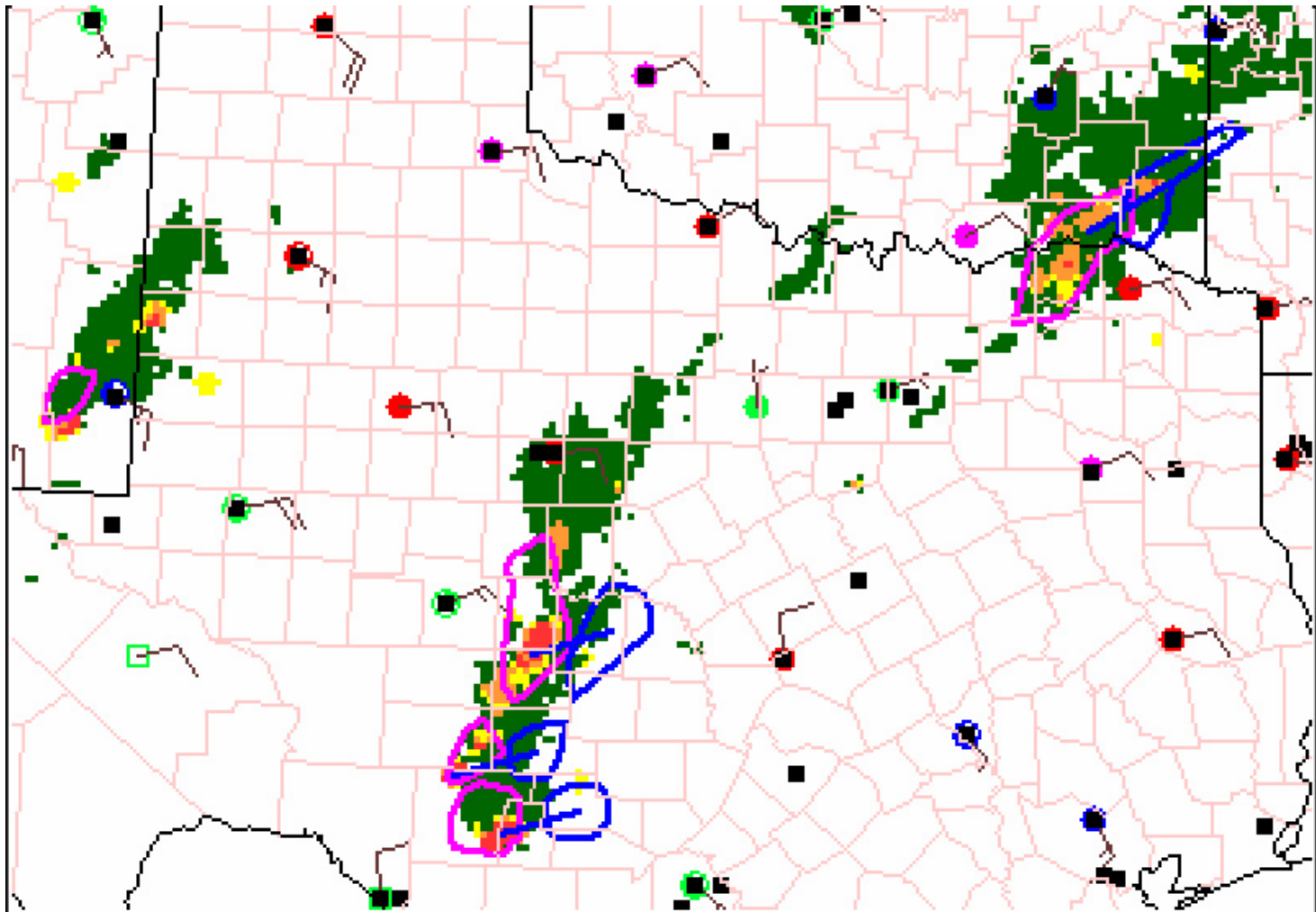
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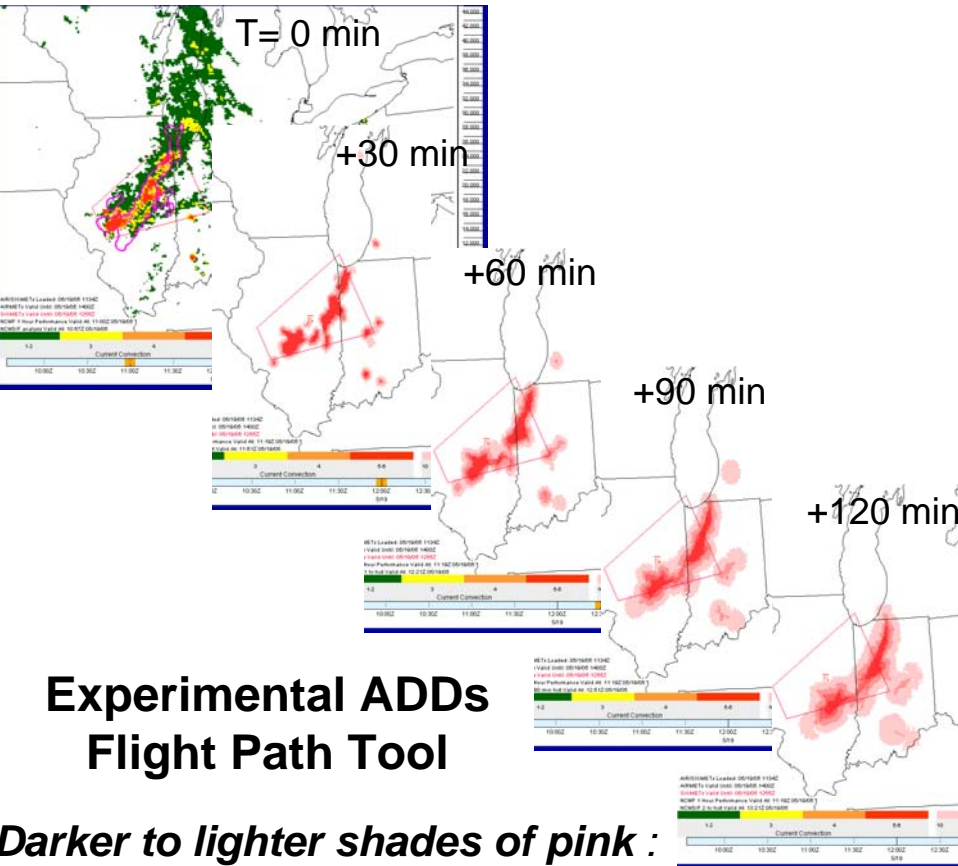
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NCWF-1 on  
 Operational ADDS  
<http://adds.aviationweather.gov>

Previous (Current) 1-hour Hazard Forecast in Purple (Blue) Polygons



# National Convective Weather Forecast (NCWF)



Higher to lower Probabilities

## NCWF-2(hr)

- Currently available WWW
- 4 km updates every 5 minutes.
- Use by dispatchers, AOCs, and pilots (pre-flight).
- Probabilities based on spatial coverage: area size increasing with time
- Trending and growth based on NWP

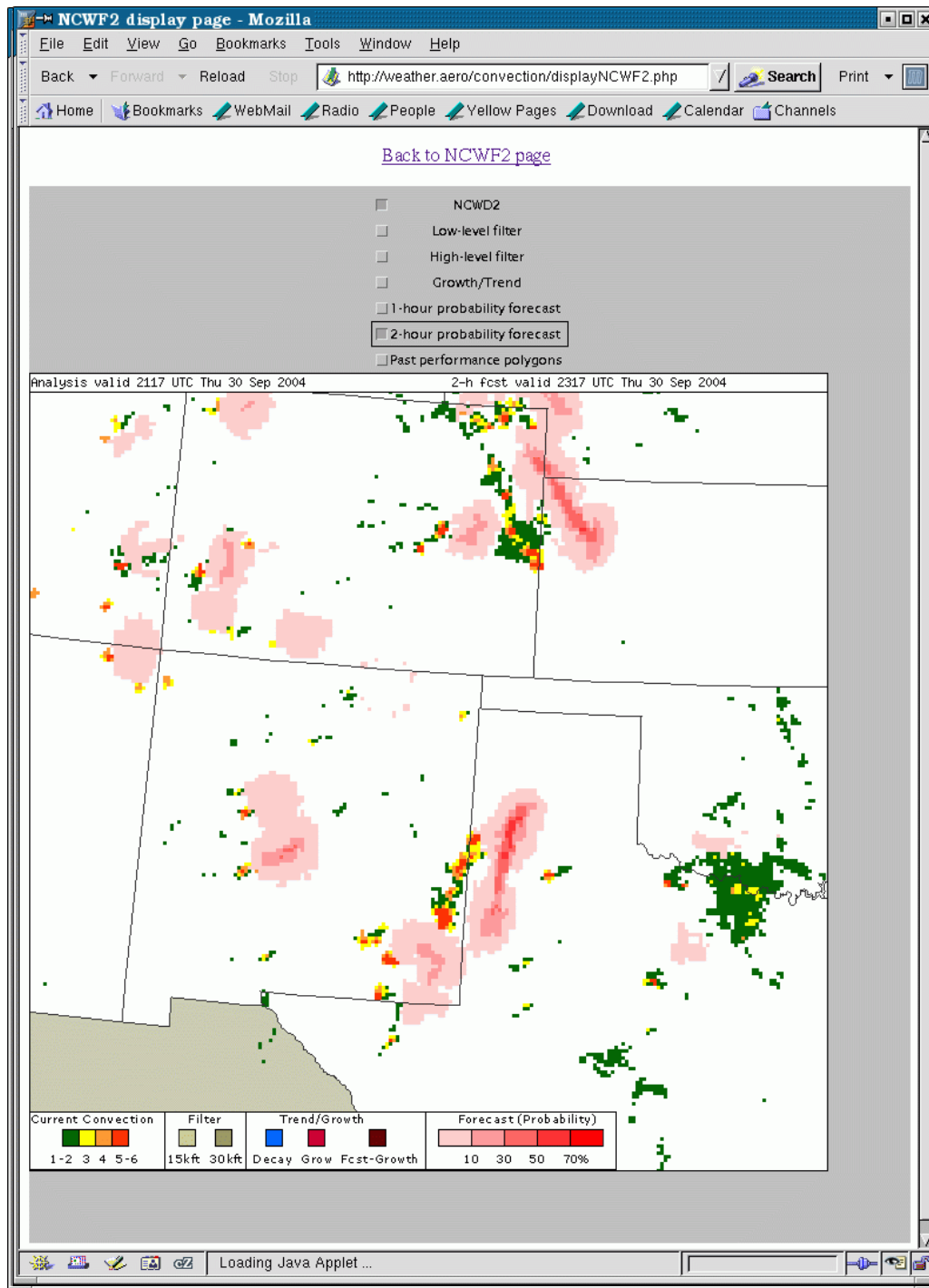
## NCWF-6(hr)

- Blended observation and RUC based system

# Product Availability

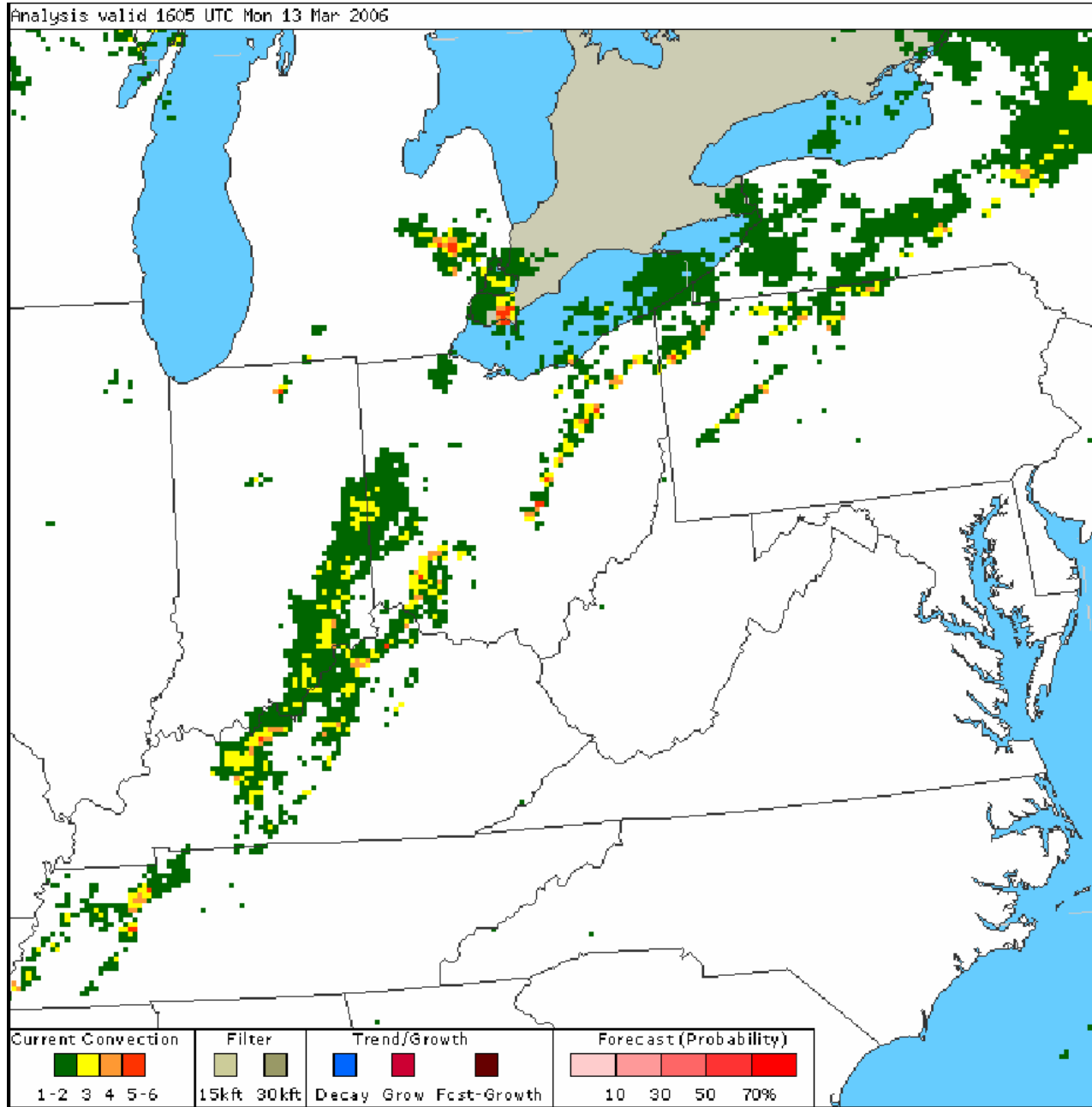
- Experimental ADDS

2 Hour Forecast

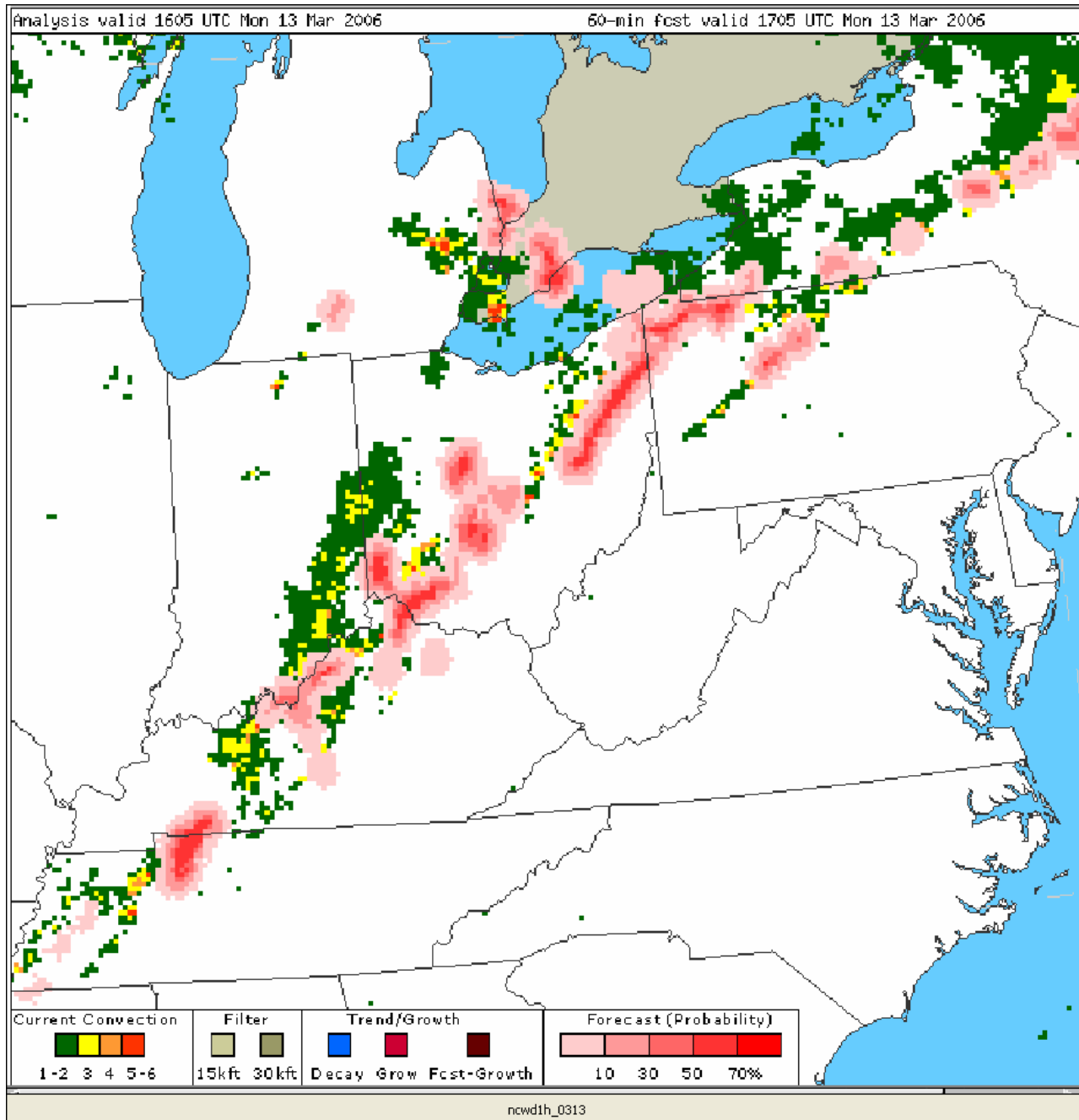




# Convective Hazard Detection (Yellow, Orange, Red Shades)

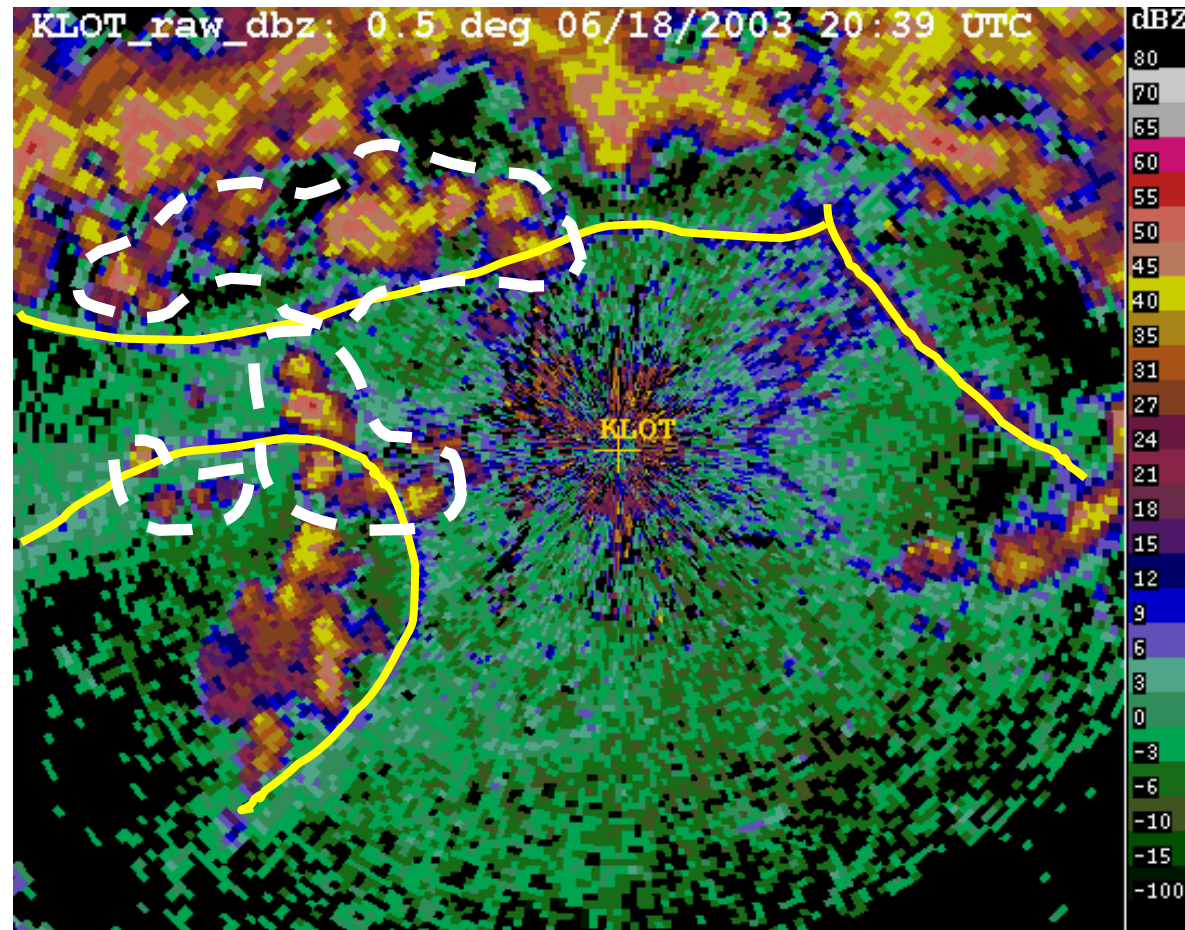


# Convective Hazard Detection / 1-hr Forecast Probabilities (Pink Shades)



# The Auto-Nowcaster System

is unique in its ability to provide *nowcasts of storm initiation* by.....



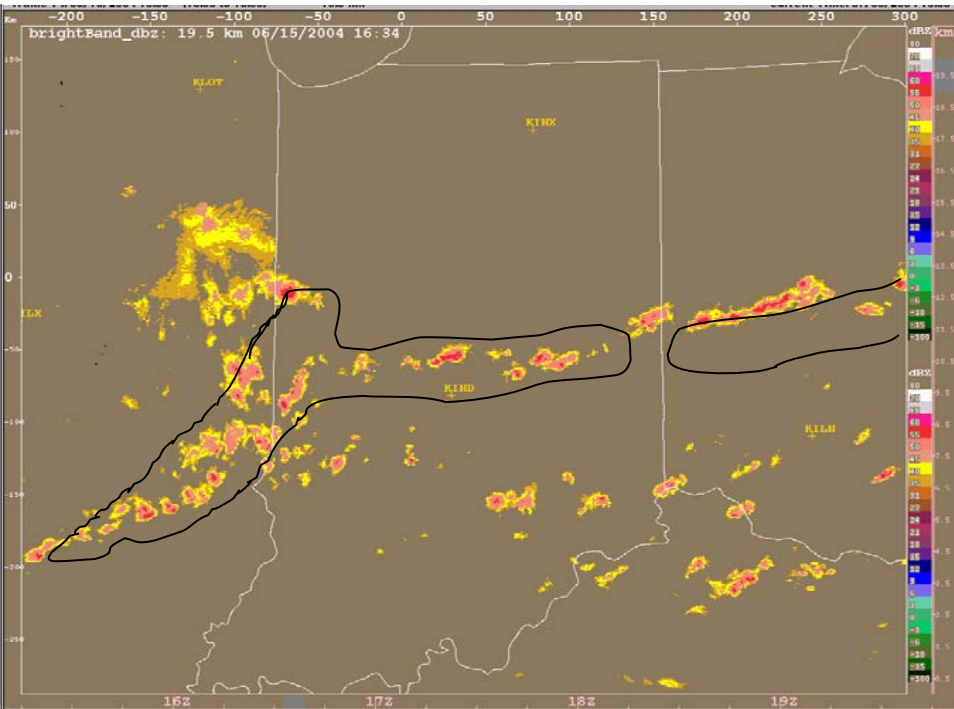
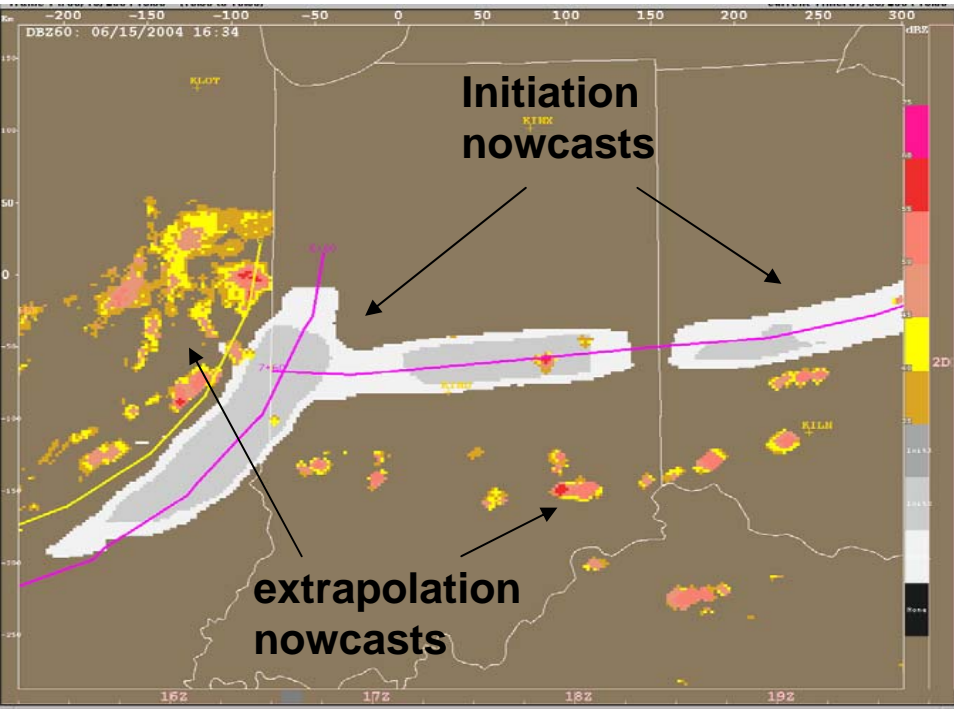
**Detection and extrapolation of surface convergence boundaries ....**

**....that trigger thunderstorm initiation and impact storm evolution.**

# Example of Auto-Nowcaster Initiation Forecast

**1 hour forecast**

**Verification**



# Where has the Auto-nowcaster been demonstrated ?

- Weather Forecast Office Washington DC (Sterling, VA)
- Sydney Australia Forecast Office
- U. S. Army White Sands Missile Range

• Central U. S. for the FAA

Process of being transferred to:

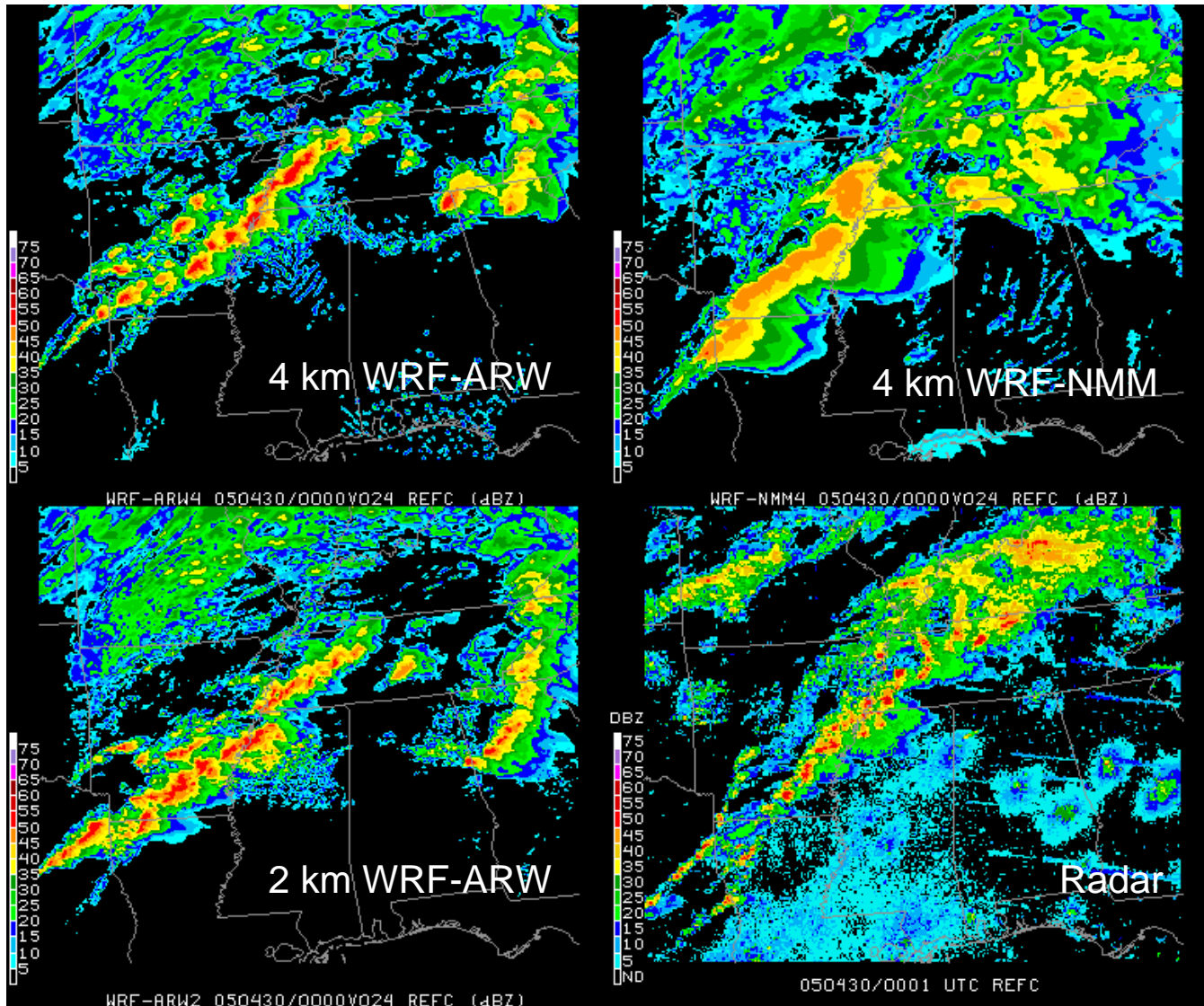
• Bureau Meteorology Beijing China

• U.S National Weather Service – Dallas/Fort Worth Weather Forecast Office

• AWIPS

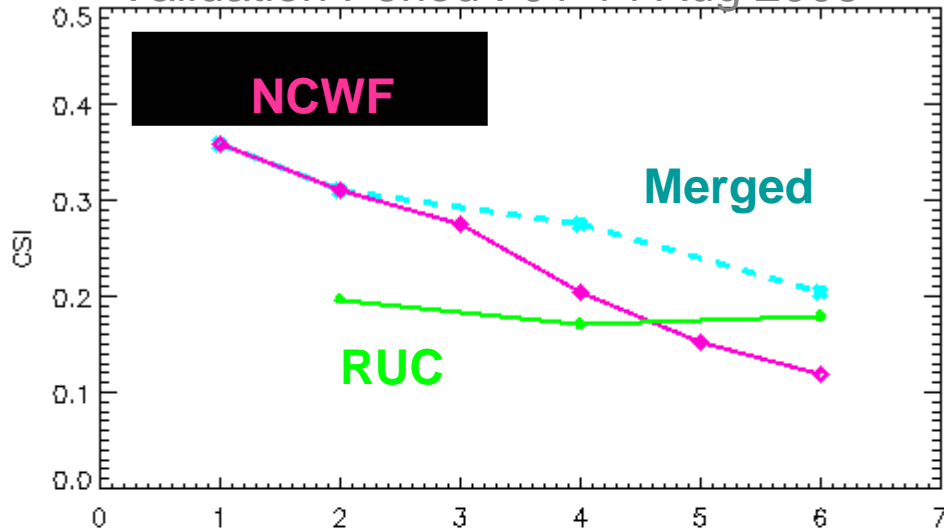


# 24 h Reflectivity Forecast valid 4-30-05 00Z

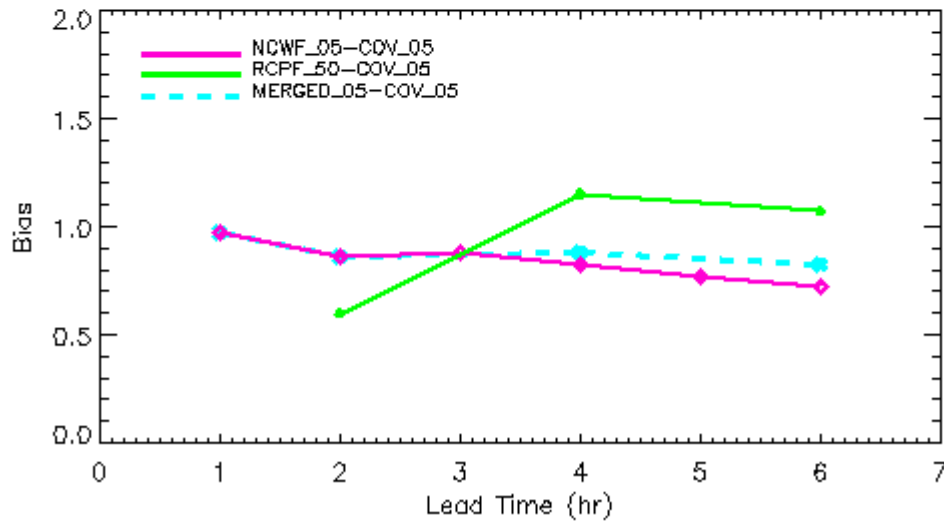


# Statistical Evaluation

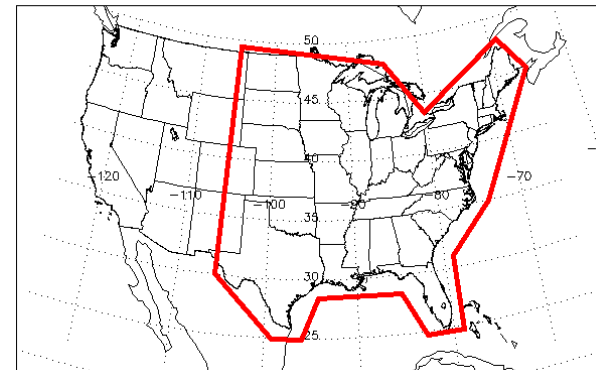
Validation Period : 01-14 Aug 2005



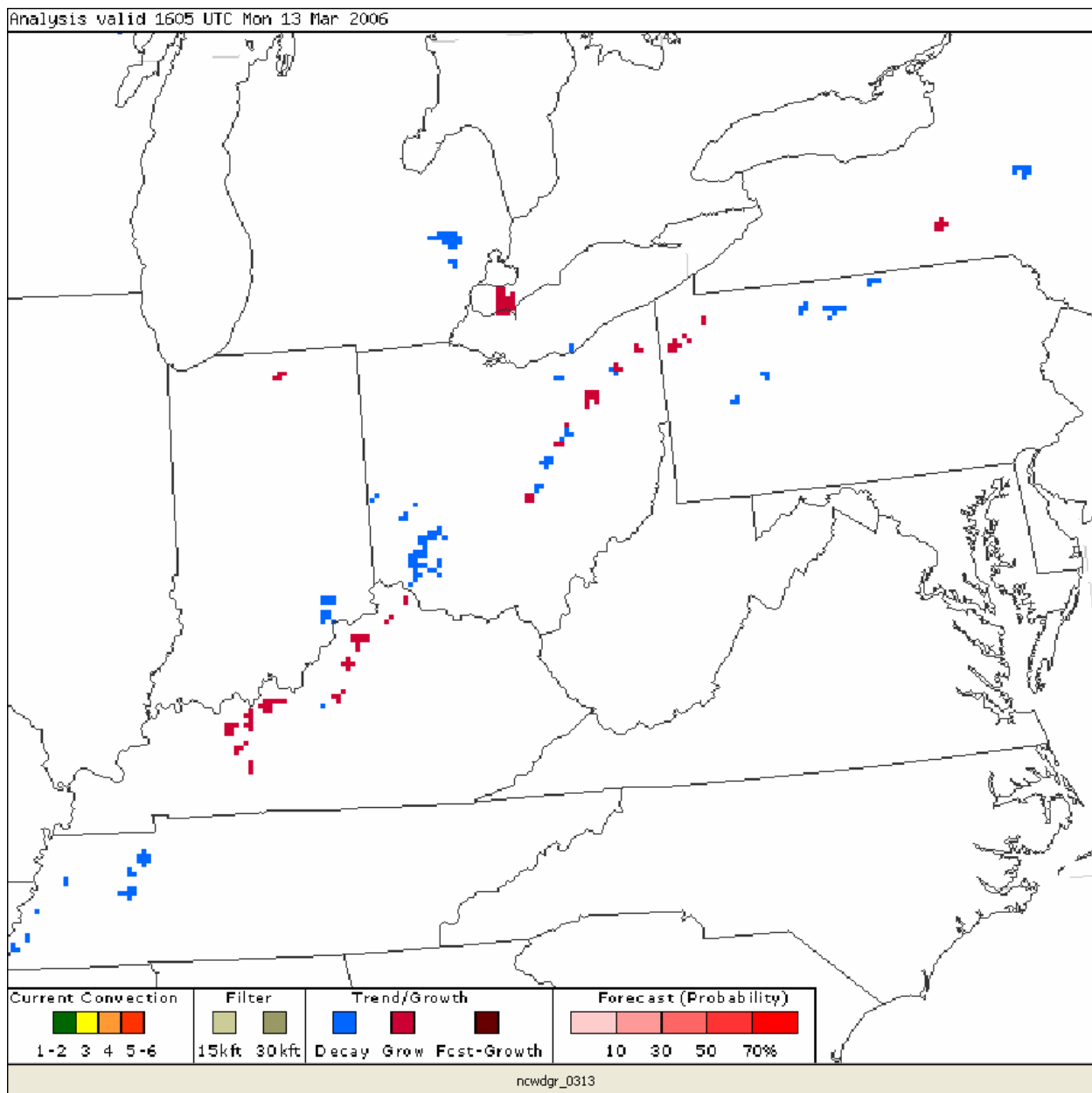
*Comparing NCWF05-05,  
RCPF50-05, Merged05-05*



Validation Region



# Previous 1-hour Growth (Forecast Growth) and Decay of Convective Hazard





# Convective Hazard Detection / Previous 1-h Forecast Validation (Purple Polygons)

