RECENT ENHANCEMENTS TO THE MODEL EVALUATION TOOLS (MET)

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Thank You

Support for MET is provided by

the Developmental Testbed Center (DTC)

and

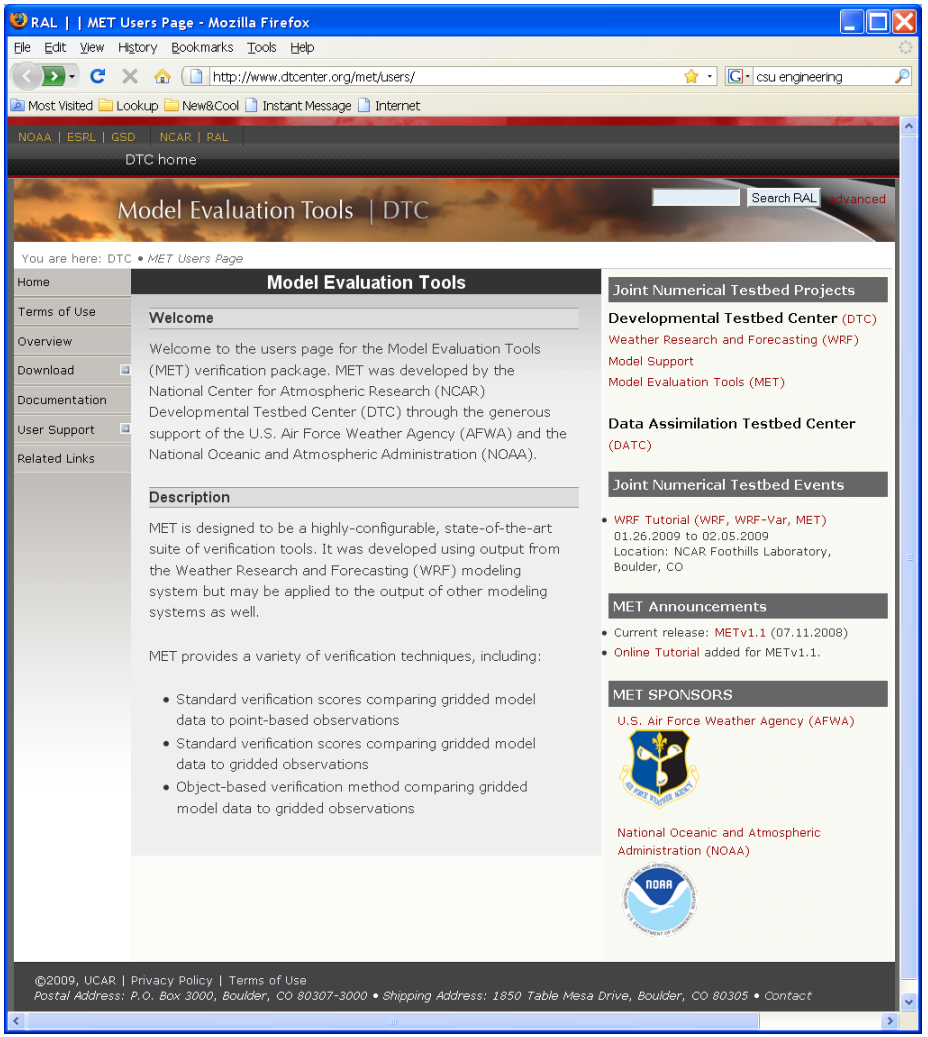
the Air Force Weather Agency (AFWA).

What's is it?

- Free and supported verification software.
  - Traditional statistics – continuous and categorical
  - Confidence intervals
  - Statistics for probability forecasts
  - Ensemble preprocessor and statistics
  - Cloud verification capability
  - Neighborhood methods
  - MODE object based verification
  - Wavelet decomposition

How do I get it?

- Download from the web site.
- Compile and run.
- Read manual.
- Attend Tutorial
  - August 5-6, 2010
- Use met_help@ucar.edu



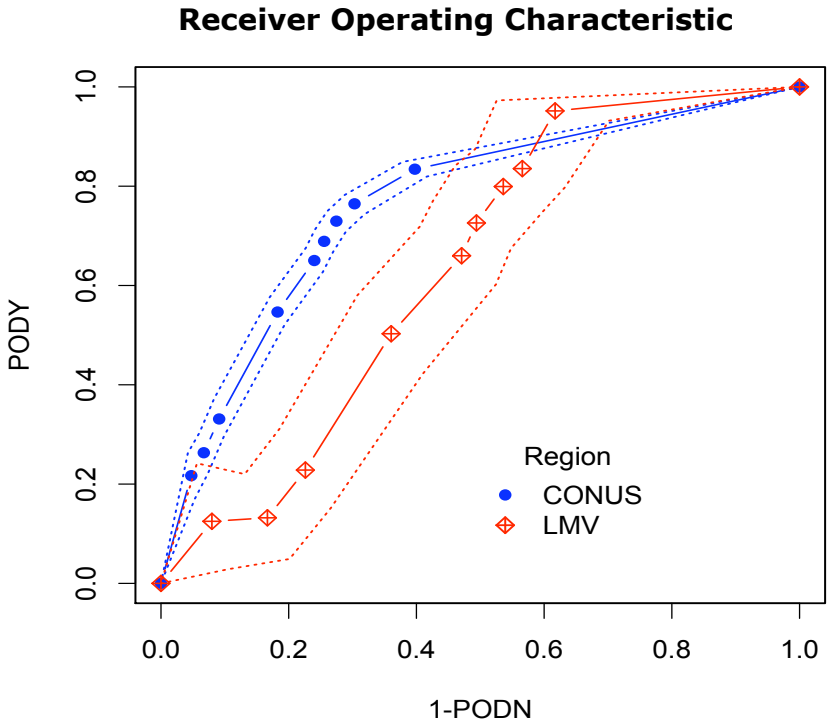
How did you decide what to put in?

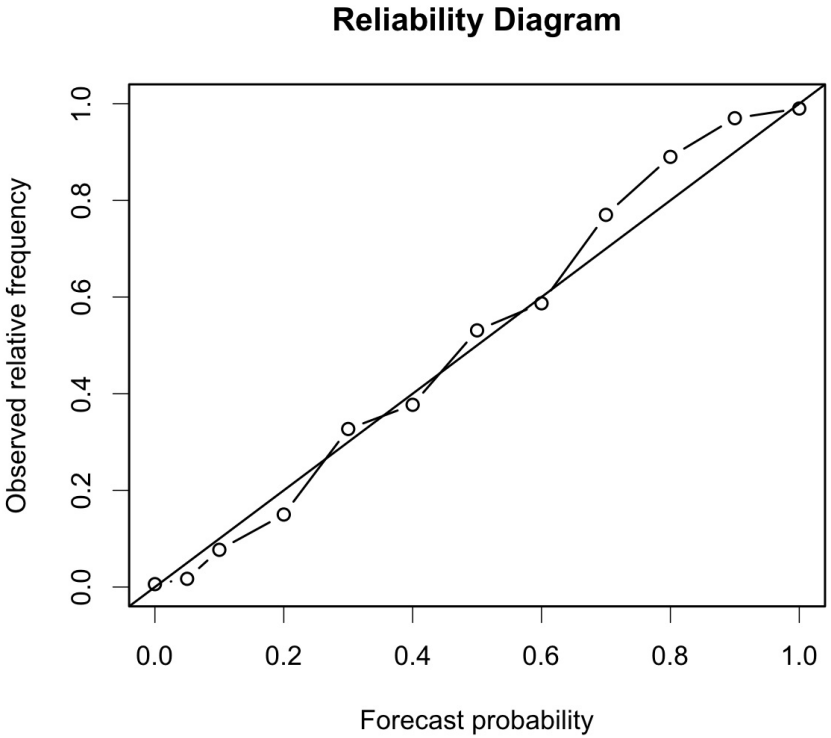
- Annual workshops (invited verification experts and practitioners)
- Semi-annual tutorials
- User feedback via email
- Sponsor direction
- Verification Advisory Group

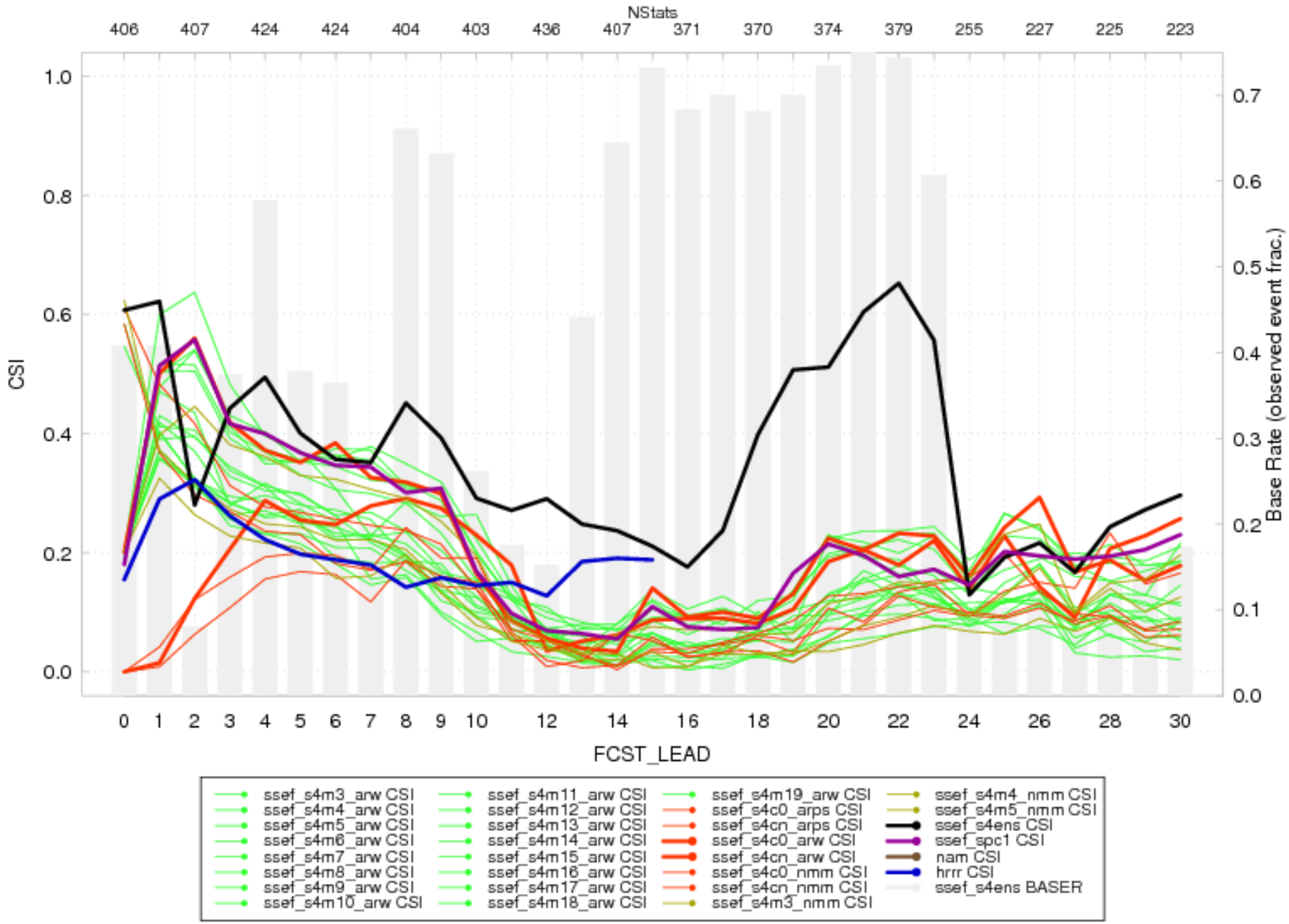
MET Statistics modules: Traditional verification measures

- Gridded and point verification
  - Multiple interpolation and matching options
- Statistics
  - **Continuous** - RMSE, BCRMSE, Bias, Correlation, etc.
  - **Categorical** - POD, FAR, CSI, GSS, Odds Ratio, etc.
  - **Probabilistic** - Brier Score, Reliability, ROC, etc.

Example Probability Forecast Vx Output






AGGREGATION for RETOP >=18.000 kfT CSI
OVER FCST_LEAD ENDING 20100609 – Region: DAILY
NStats
406 407 424 424 404 403 436 407 371 370 374 379 255 227 225 223
CSI
Base Rate (observed event frac.)
FCST_LEAD
ssef_s4m3_arw CSI
ssef_s4m4_arw CSI
ssef_s4m5_arw CSI
ssef_s4m6_arw CSI
ssef_s4m7_arw CSI
ssef_s4m8_arw CSI
ssef_s4m9_arw CSI
ssef_s4m10_arw CSI
ssef_s4m11_arw CSI
ssef_s4m12_arw CSI
ssef_s4m13_arw CSI
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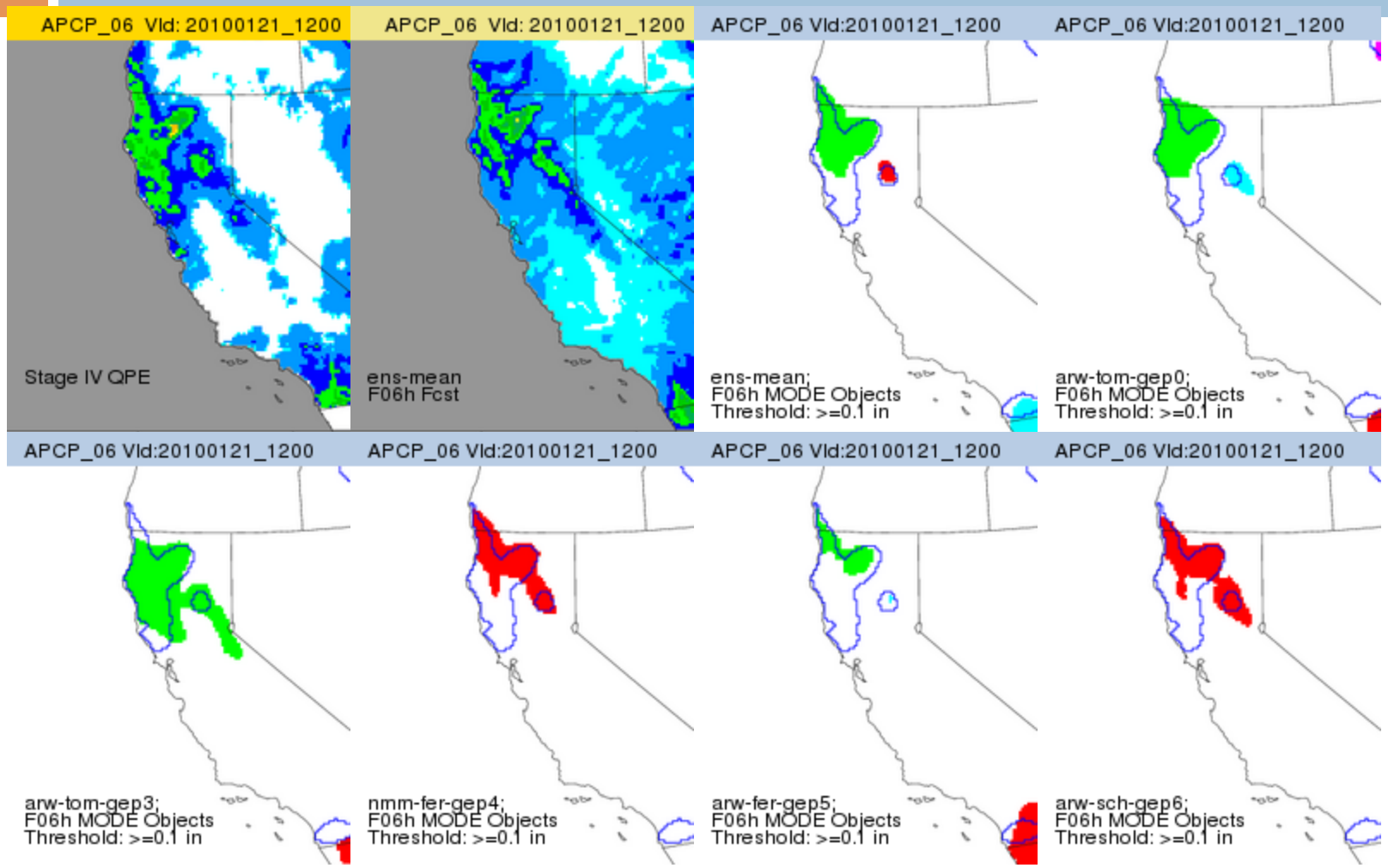
ssef_s4m17_arw CSI
ssef_s4m18_arw CSI
ssef_s4m19_arw CSI
ssef_s4c0_arps CSI
ssef_s4cn_arps CSI
ssef_s4c0_arw CSI
ssef_s4cn_arw CSI
ssef_s4c0_nmm CSI
ssef_s4cn_nmm CSI
ssef_s4m3_nmm CSI
ssef_s4m4_nmm CSI
ssef_s4m5_nmm CSI
ssef_s4ens CSI
ssef_spc1 CSI
nam CSI
hrrr CSI
ssef_s4ens BASER

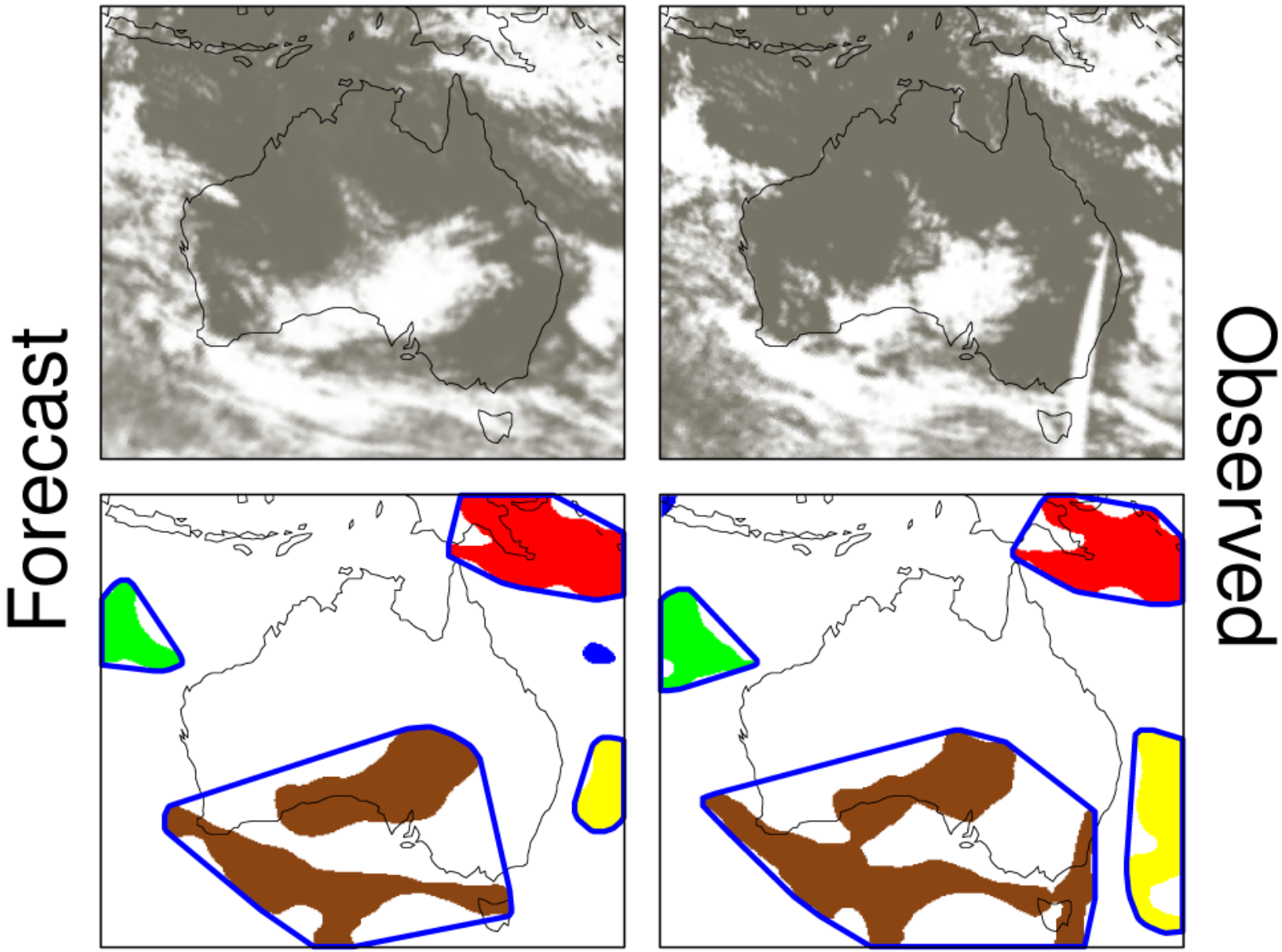
MODE Ensemble Display



4 More Plots

Cloud verification capability

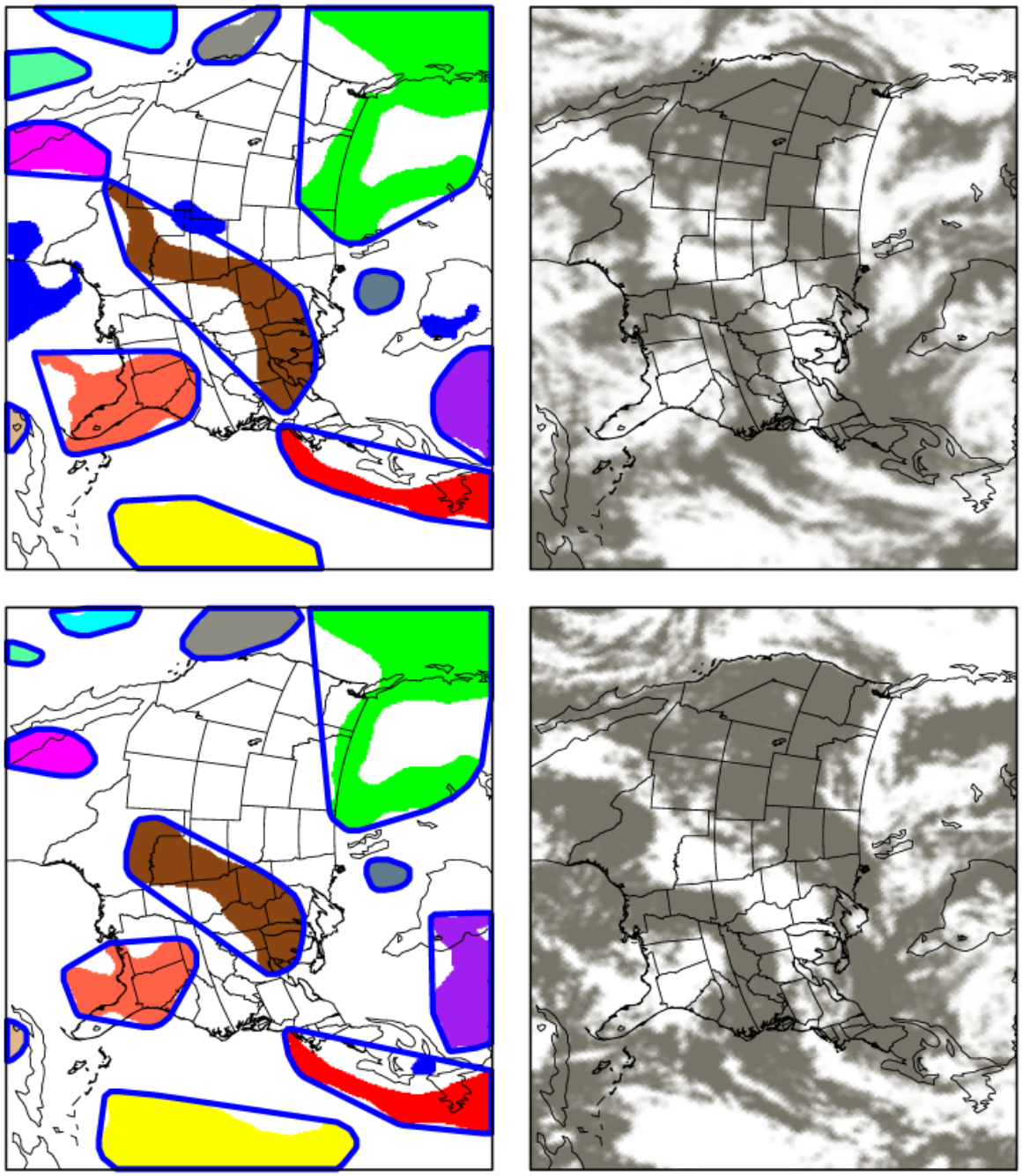
- WWMCA (World Wide Merged Cloud Analysis) tool
  - Reads
  - Regrids
  - Reformats
  - Plots WWMCA data



Area Ratio: 0.88

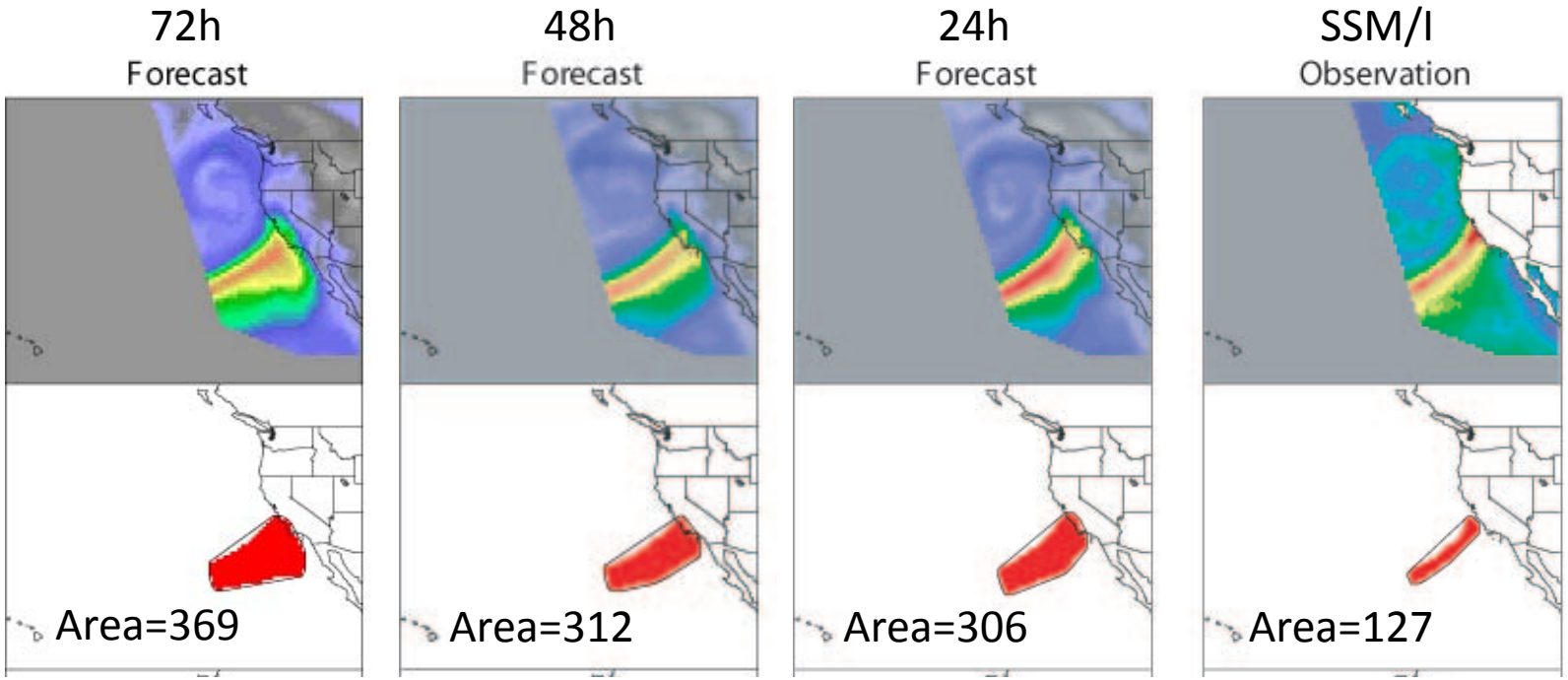
Centroid Distance: 22.5 grid squares

Forecast



Observed

MODE Object Comparison of Atmospheric River Case
GFS Forecasts with SSM/I Observation
for 25 February, 2004 (Clear Cut Case)



•Atomospheric Rivers are narrow bands of high Integrated Water Vapor related to extreme precip events
•First use of satellite data in MET

Summary and plans

- MET is a community tool for model forecast evaluation, which incorporates many of the latest methods
  - Modular architecture
  - Highly configurable
  - Extensive user support

- Coming Soon:
  - Software Release
  - Database and Display system
  - Workshop
    - Forecast Evaluation through Time
    - Cloud Verification
  - Tutorial
    - August 5-6, 2010

For more information:

http://www.dtcenter.org/met/users/