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),

the Air Force Weather Agency (AFWA),

and

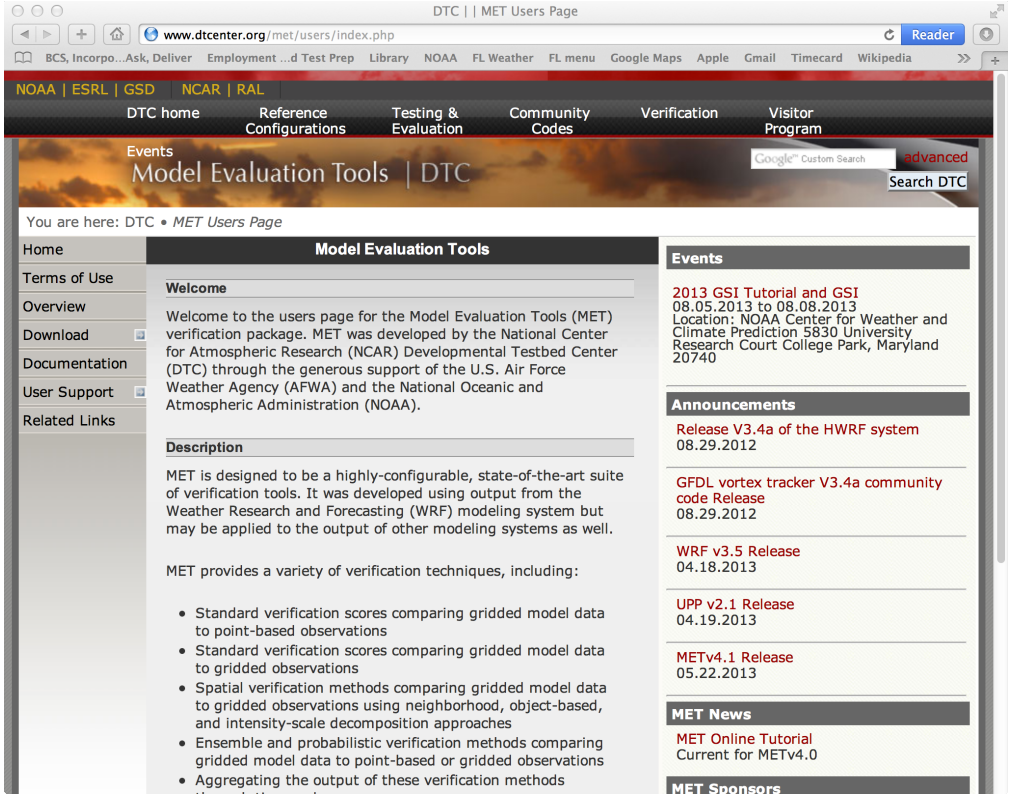
the Hurricane Forecast Improvement Project (HFIP).

What's is it?

- Free and supported model 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
  - Janurary 2014
- Use met_help@ucar.edu



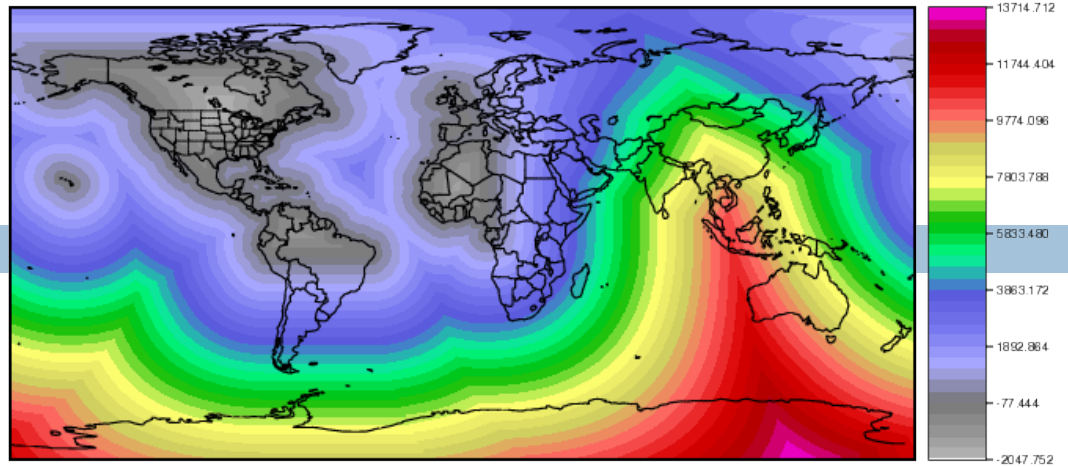
MET v4.1 – Released last month

- MET – TC to support verification of tropical cyclone forecasts
- Series analysis tool summarizes verification statistics in any series (e.g. time, height) at each grid point in domain.
- MODIS data preprocessor.
- Spread skill statistic in ensemble tool.
- little_r and SURFRAD handled in preprocessing tools.

MET v4.0 – Released last year

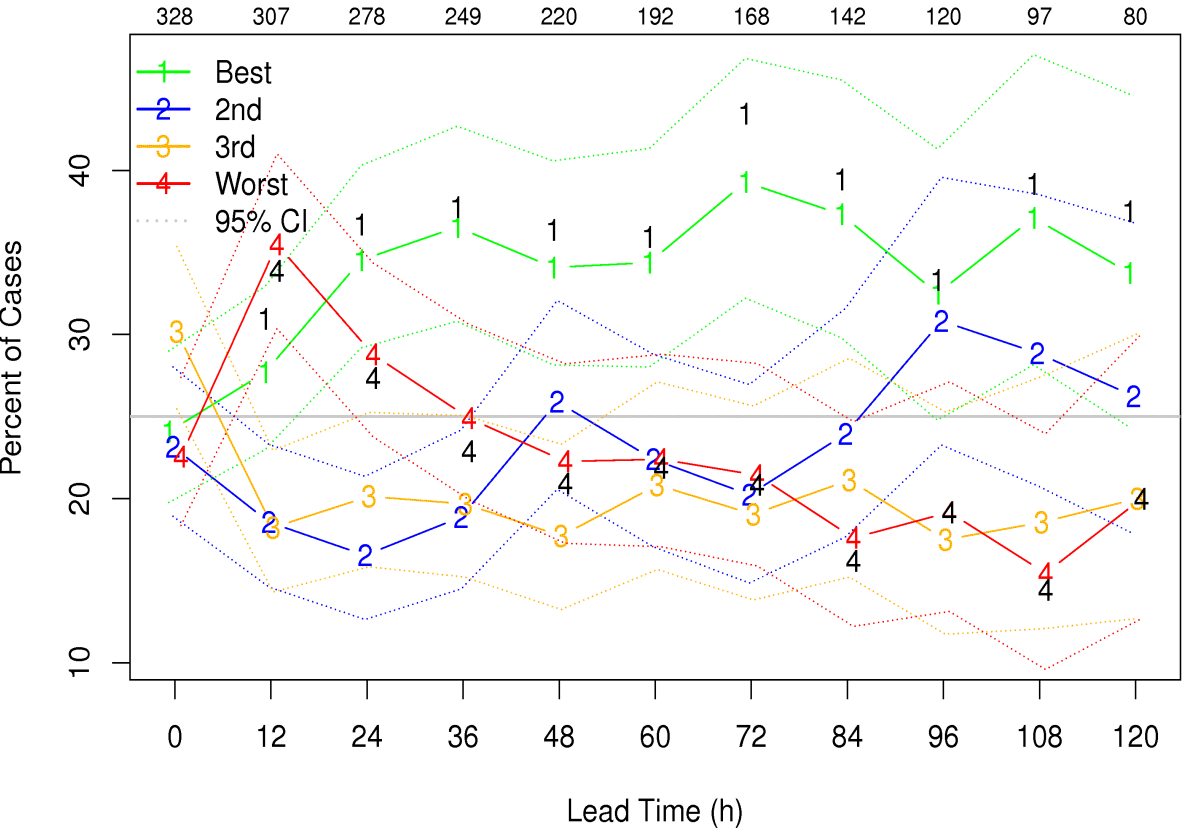
- GRIB2 support
- Plotting tools for point and gridded data
- Streamlined configuration files
- Better unit testing
- Bug fixes

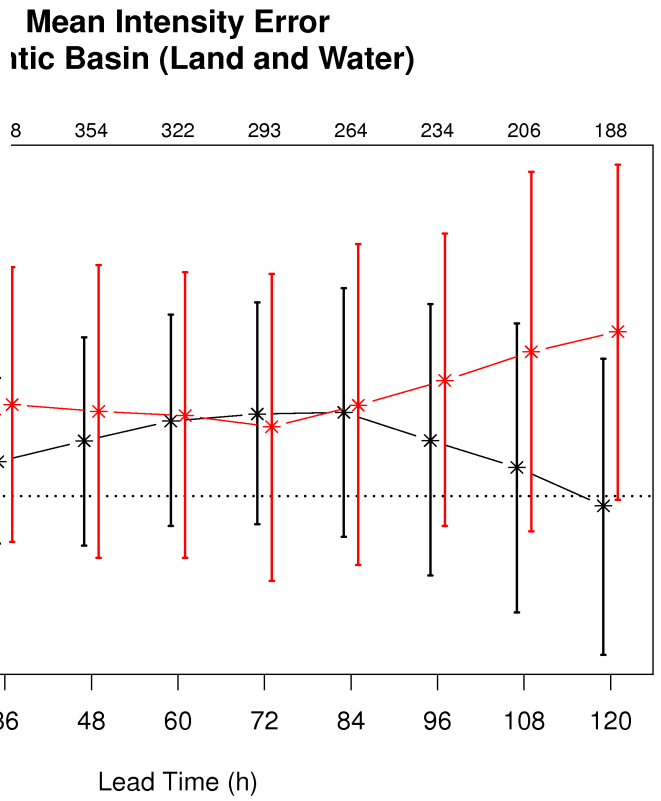
MET-TC



- Duplicates and extends NHC verification capability for A Decks and B Decks.
- Track and Intensity Errors
- Radius of Maximum winds by quadrant.
- Basic rapid intensification evaluation.
- Many R-scripts for plotting.
- See poster by Kathryn Newman for details.

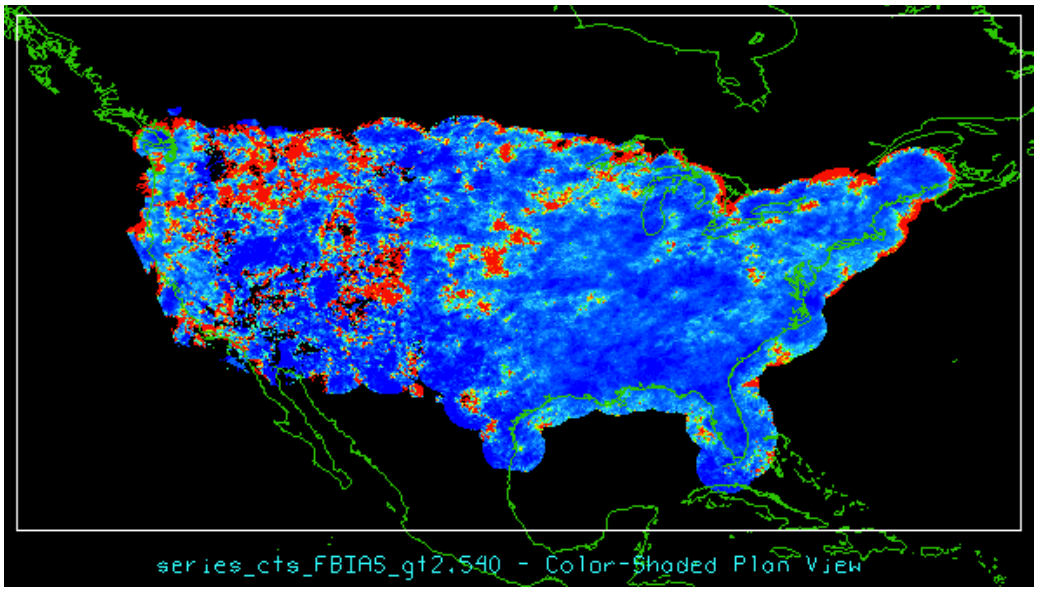
Example results from MET-TC.





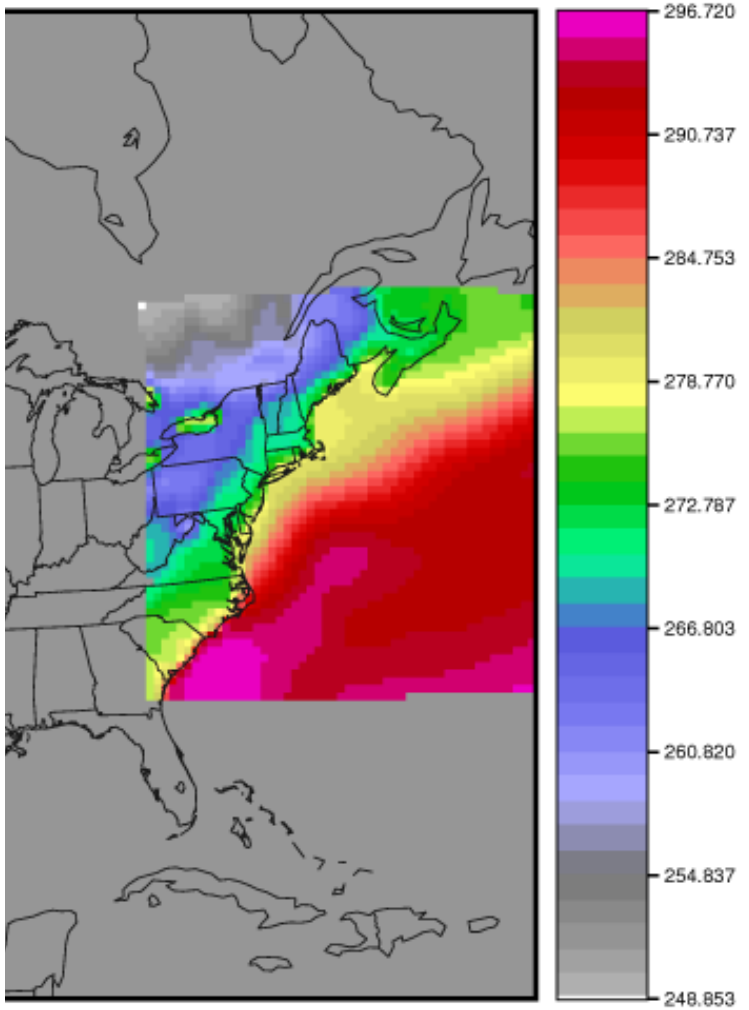
Ability to represent verification results spatially

- Ability to accumulate statistics at each grid location over some series.
  - Time
  - Height
  - User-specified
- Produces NetCDF file.

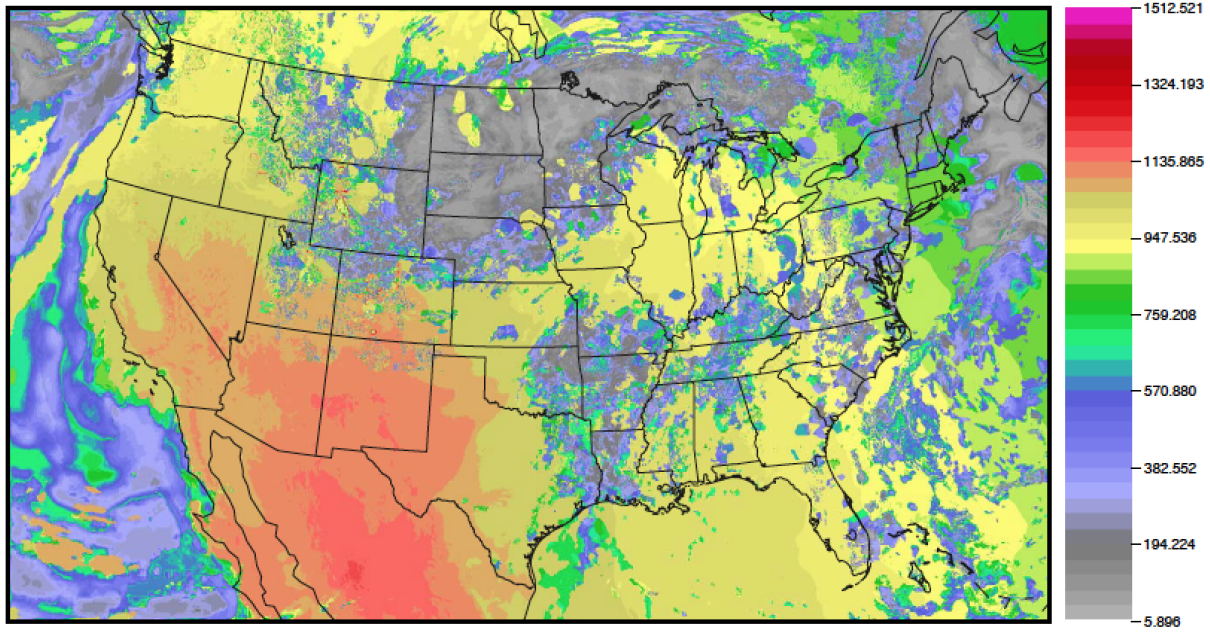


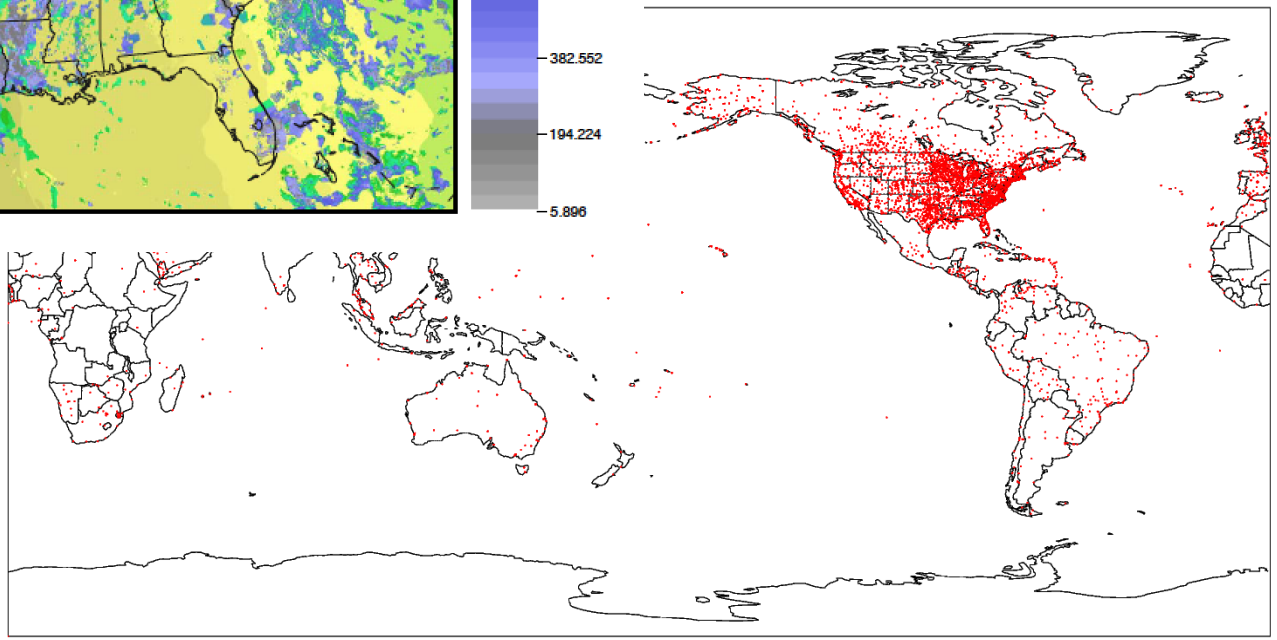
MODIS data preprocessor

- HDF-EOS files converted into MET NetCDF.
- Allows use of MODIS products as observations for verification.
- Developed and tested on Level 2 cloud product.
- http://ladsweb.nascom.nasa.gov/



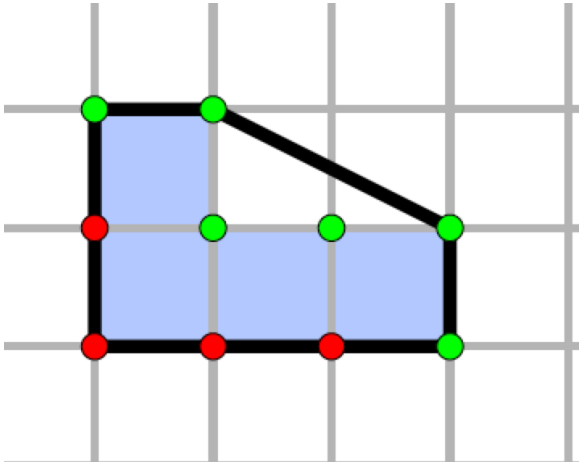
Example plots from plotting scripts





Bug fixes

- MODE areas
  - Previous versions overestimated areas somewhat
  - Larger objects less affected



- Prepbufr virtual temperature coded as temperature.
  - Results may show false cold bias.
- Other small bug fixes.

Summary

- MET is a community tool for model forecast evaluation, which incorporates many of the latest methods
  - Modular architecture
  - Highly configurable
  - Extensive user support
- New tropical cyclone verification
- New spatial / series verification
- Additional satellite observation preprocessor.
- Little-r and SURFRAD observations preprocessed by existing tools.
- More graphics support.

For more information:

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