

NWS Southern Region Field Perspective on Ensemble Systems



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20 images of 500 hPa heights & PW showing location of upper trough and best moisture on Day 3

BASIC

Plot of 20-member *mean* of QPF and spread on Day 3, with ensemble trend

GOOD

Calibrated, reliable probabilistic QPF information on Day 3. Probability of Exceedance information

BETTER

Deliver probabilistic estimates on whether Flash Flood Warnings will eventually be needed for the Day 3 period

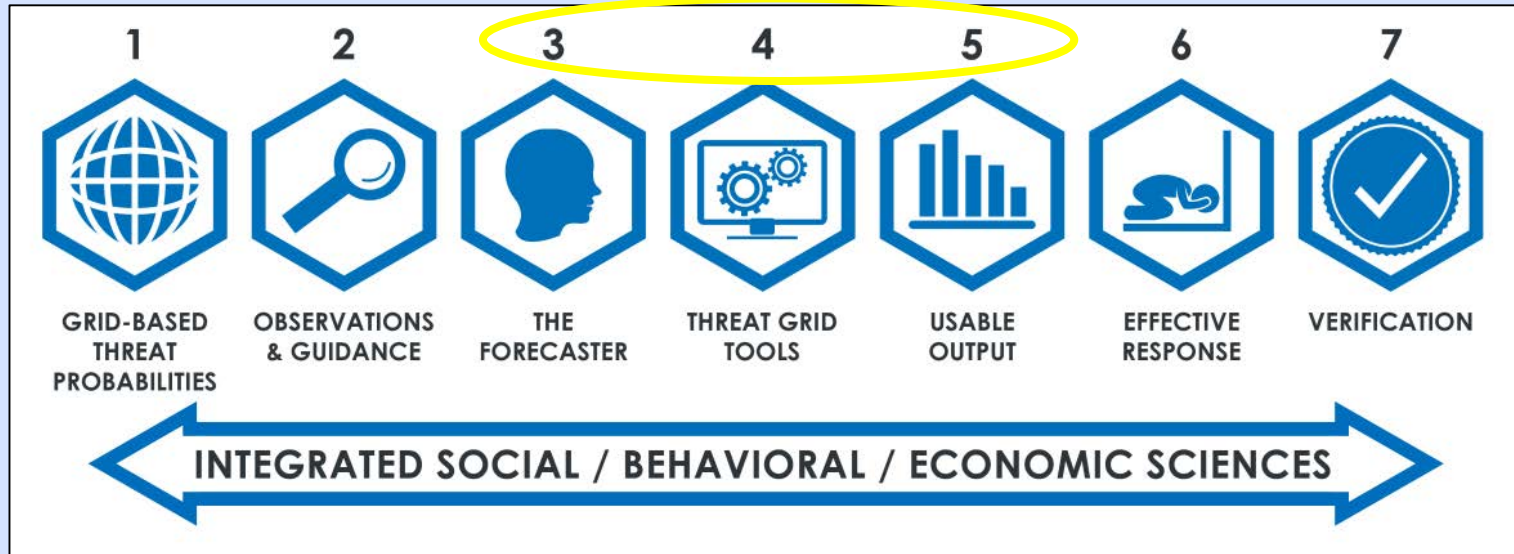
BEST

8th NCEP Ensemble User Workshop

College Park MD

August 28, 2019

FACETs - Forecasting a Continuum of Environmental Threats



NWS Operational Forecaster Perspective

....the value of any ensemble system will be maximized when the output directly *aids in forecaster messaging of potential threats....*

Example: POTENTIAL FLOODING THREAT ON DAY 3

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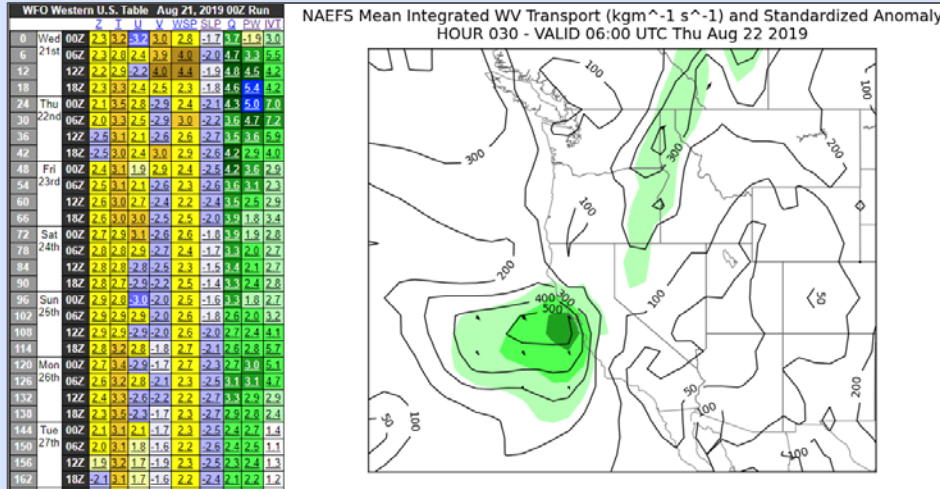
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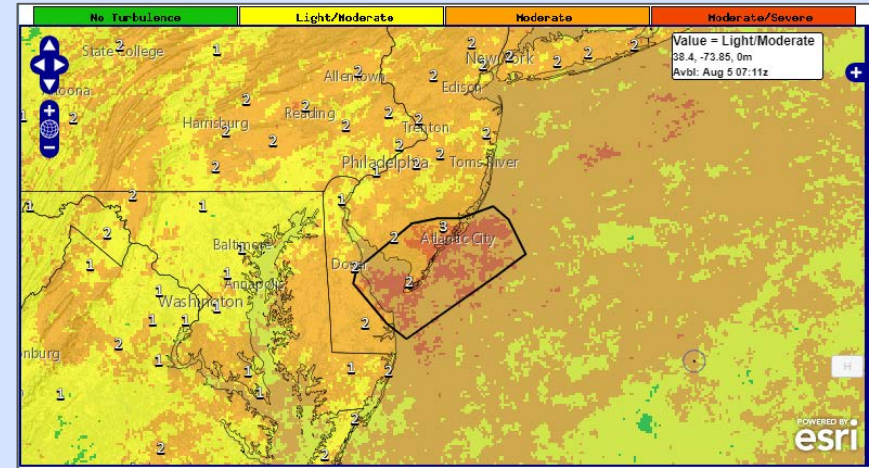
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BEST

A Few Examples that Exist Today

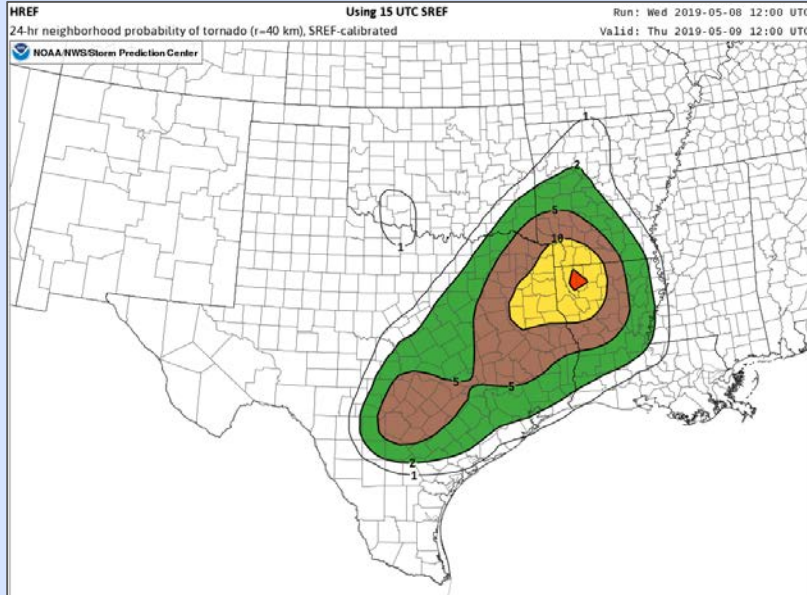


NWS standardized anomalies of mean integrated water vapor transport using NAEFS system

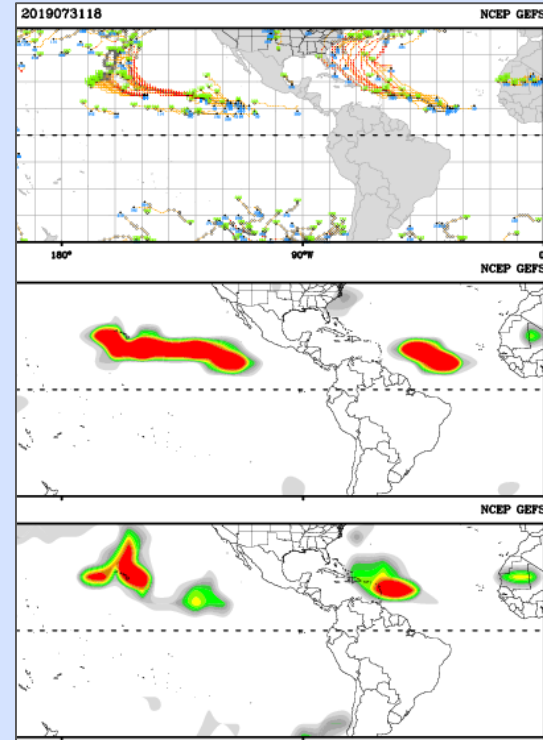


NWS National Blend of Models aviation forecast of moderate to severe Clear Air Turbulence

Examples that Exist Today



NWS Storm Prediction Center - Calibrated, neighborhood probabilities of tornadoes using HREF and SREF systems



Central Weather Bureau, Taiwan - Tropical Cyclone Tracker "heat map" using GEFS system. Used to properly message regional TC threat on Days 6-10

Summary

- The operational value of any ensemble system will be maximized when the output directly aids forecaster messaging of potential weather threats
- Ensemble Systems output should be used to inform “The Forecaster” to create “Usable Output” as outlined in the FACETs framework
- True “threat-based” probabilistic output may involve post-processing well beyond raw data techniques
 - Machine learning techniques
 - Contextualization using climatology or ensemble reanalyses

Links and Contact Information

<https://nssl.noaa.gov/projects/facets/> NSSL FACETs overview page

<https://satable.ncep.noaa.gov/naefs/#> Ensemble SA Table data

https://www.weather.gov/mdl/nbm_home National Blend of Models home page

<https://tctracker.cwb.gov.tw/> Central Weather Bureau TC Tracker page

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