

Using Probabilistic Data for Strategic Traffic Flow Management

"How Humans Deal with Uncertainty"

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Short Range Ensemble (SREF) Forecast Utilization at the Air Traffic Control System Command Center (ATCSCC)

■ Introduction of SREF to ATCSCC:

- ✓ Prototyping weather translation and integration techniques for Nextgen
- ✓ SREF – one of the first mesoscale model systems to go from 3 to 1-hour output
- ✓ Hourly probabilistic forecast guidance out to 39 hours

■ Strategic Traffic Flow Management (TFM) Beyond 6 Hours:

- ✓ Slow paradigm shift towards longer range guidance
- ✓ SREF lag time causes trepidation, considered “old” by the time it’s utilized

■ Interpreting and Using Probabilistic Data:

- ✓ Why 50% probability for the SREF is not a “coin-flip” proposition
- ✓ Supplement for establishing flow management structure to the system
- ✓ Developing multiple strategic options to hedge against inherent forecast uncertainty

■ Looking Forward:

- ✓ Operators not solely focused on skill scores, an applied understanding of SREF has established its value
- ✓ Experience and subjective judgment remains heavily relied upon for TFM strategies

Managing Uncertainty

- **Decision-Making Utility for TFM**
 - ✓ **Determining risk (% probability and location)**
 - ✓ **Deciding how to set up the NAS to maintain system integrity**
 - ✓ **Operator self-calibration (Becoming comfortable with probability)**
 - ✓ **Handling Low probability / High risk scenarios**
 - ✓ **Interaction with human forecasters at SCC**

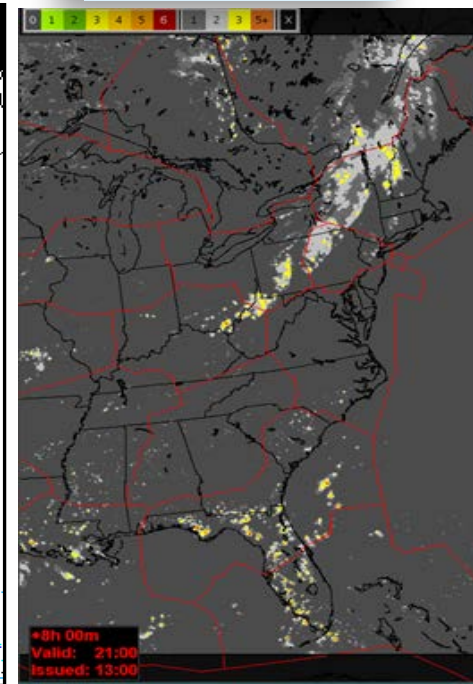
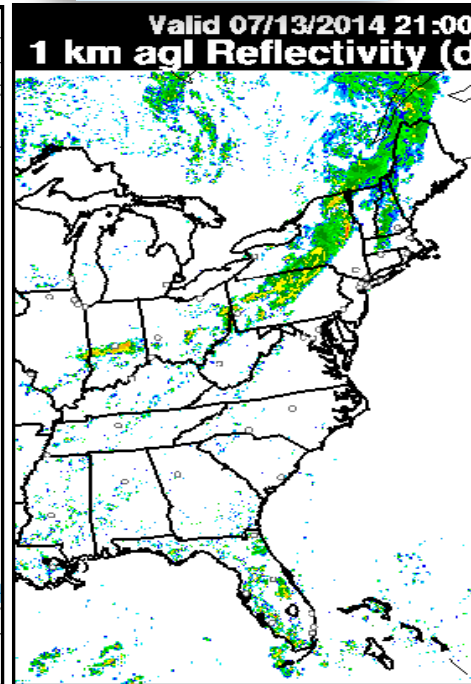
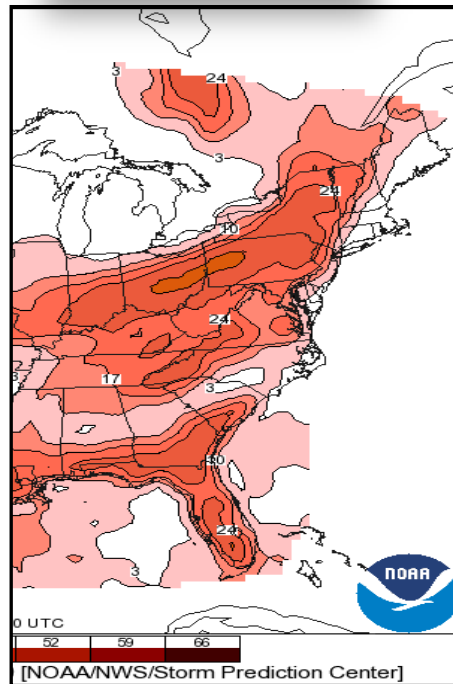
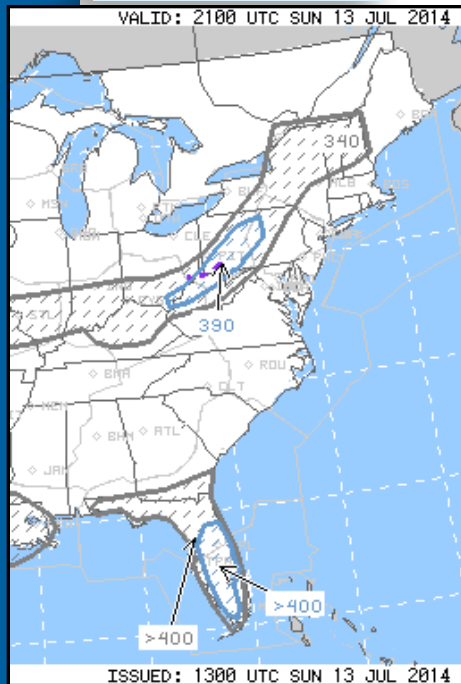
Example: Forecast Guidance Utilized for TFM

CCFP
(4hr-6hr-8hr)

Hourly SREF
(00-39hrs)

Hourly HRRR
(00-15hrs)

CoSPA
(00-8hrs)



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