



Strategic Implementation Plan (SIP) for a Community-based Unified Forecast System

Post Processing Working Group

Presented by

Jeff Craven, NOAA/NWS/STI/MDL

Jason Levit, NOAA/NWS/EMC

Presented at SIP Coordination Meeting

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Post Processing WG *Membership*



<i>Jeff Craven</i>	<i>STI/MDL</i>	Paul Roebber	U Wisconsin Milwaukee
<i>Jason Levit</i>	<i>NCEP/EMC</i>	George Young	Penn State
<i>Brian Colle</i>	<i>SUNY Stony Brook</i>	Cliff Mass	U Washington
Huiya Chuang	NCEP/EMC	Curtis Alexander	OAR/GSD
Yuejian Zhu	NCEP/EMC	Kate Fossell	NCAR/DTC
Bo Cui	NCEP/EMC	Jamie Wolff	NCAR/DTC
Matt Strahan	NCEP/AWC	Keith Brewster	CAPS
Melissa Ou	NCEP/CPC	Israel Jirak	SPC
Mike Charles	NCEP/CPC	Mike Zuranski	College of DuPage
Bruce Veenhuis	NCEP/WPC	Zhuo Wang	Univ Illinois
Tom Hamill	ESRL/PSD		
Jerry Wiedenfled	WFO Milwaukee/Sullivan		
Peter Neilley Company	The Weather		
Roland Stull	UBC		

- *Co-Chair ***



Post Processing WG Accomplishments & Challenges



- **SIP project milestones completed/progress to date:**
 - **Develop an ensemble visualization capability - 12.2 (Jeff)**
 - **Develop/implement National Blend of Models v3.2 - 12.3 (Jeff)**
 - **Develop station-based StatPP techniques for multi-model ensemble forecasts - 12.4 (Jeff)**
 - **Transition MOS and NBM production from MOS-2K (MDL only) to WISPS community based StatPP software (Jeff)**

 - **Integrate Weather Information Statistical Post-processing System (WISPS) into NCEP Production Suite (Jason) - 12.5**
 - **Transition all NOAA Operational Post Processing packages to support FV3 - 12.1 (Jason)**
 - **Improve the accuracy of post-processed guidance through better science and better data - 12.6 (Jason)**
 - **Comparison and Validation of Post-Processing Techniques; Testbed for Post-Processing - 12.7 (Jason)**



Post Processing WG Accomplishments & Challenges



- **SIP project issues (main challenges):**
 - Staffing
 - Difficult to obtain funding to work on software
 - Post-processing changes are requiring more effort to develop, implement, and maintain
 - More variables requested by NWS and partners
 - HPC resources
 - UFS complexity and stakeholder requests for new variables will continue to increase disk space footprint
 - NBM will continue to need additional HPC resources as UFS becomes more complex



Post Processing WG Accomplishments



Threshold Scorecard NBM vs HRRR/GFS Oct 18 to Apr 19 CONUS QPF06

Day 1-3	0"	0.01"	0.10"	0.25"	0.50"	1.00"	2.00"	3.00"	5.00"+	
MAE	Green	Grey	Green	Green	Green	Green	Grey	Grey	Grey	NBM better
ME	Grey	Grey	Green	Grey	Grey	Grey	Grey	Red	Red	Similar
RMSE	Green	Grey	Green	Green	Green	Green	Grey	Green	Grey	NBM worse
POD	Grey	Red	Green	Green	Green	Grey	Grey	Grey	Grey	
FAR	Grey	Green	Green	Green	Green	Green	Grey	Grey	Grey	
CSI	Grey	Green	Green	Green	Green	Grey	Grey	Grey	Grey	
ETS	Grey	Green	Green	Green	Green	Green	Grey	Grey	Grey	
HSS	Grey	Green	Green	Green	Green	Green	Green	Grey	Grey	
Bias	Grey	Grey	Green	Grey	Grey	Green	Green	Grey	Grey	

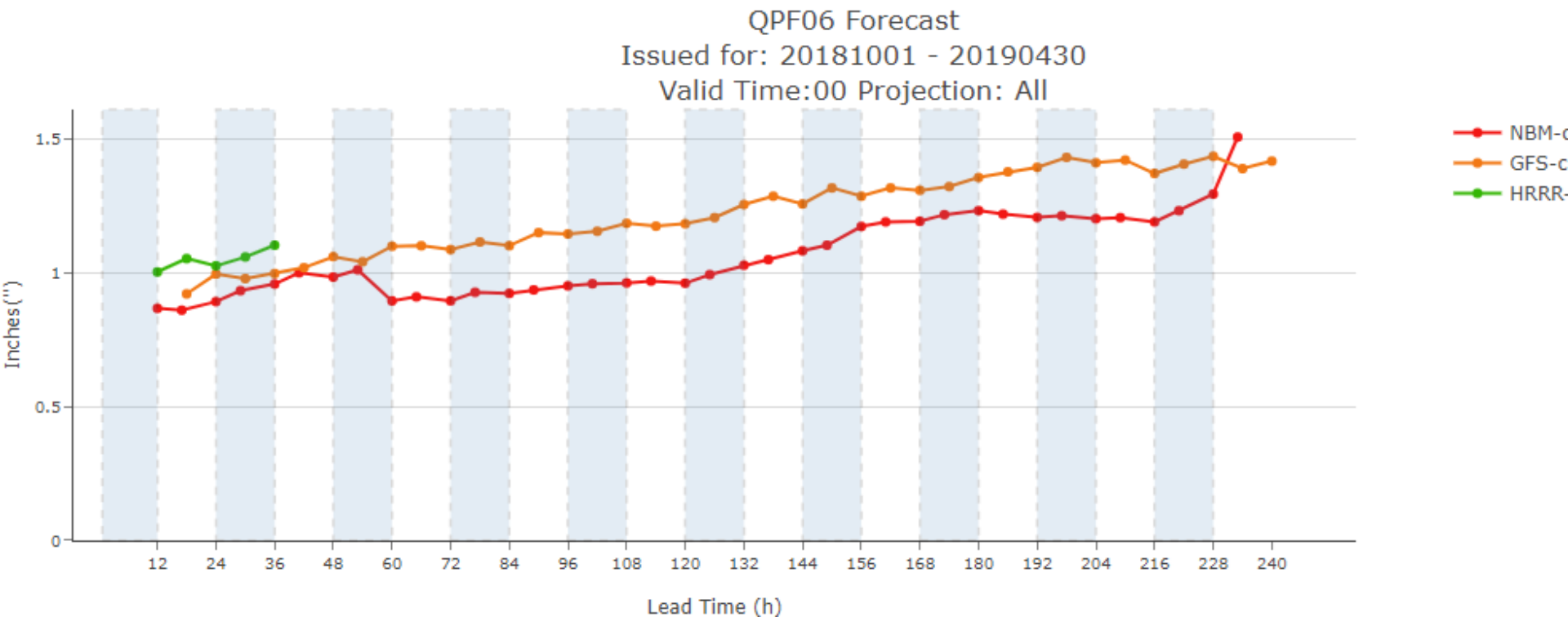
Day 4-10	0"	0.01"	0.10"	0.25"	0.50"	1.00"	2.00"	3.00"	5.00"+	
MAE	Green	Red	Grey	Green	Grey	Green	Grey	Grey	Grey	NBM better
ME	Grey	Red	Red	Red	Grey	Grey	Grey	Red	Grey	Similar
RMSE	Green	Red	Grey	Green	Red	Green	Grey	Grey	Grey	NBM worse
POD	Grey	Red	Green	Green	Green	Green	Red	Red	Grey	
FAR	Grey	Green	Green	Green	Green	Green	Green	Green	Green	
CSI	Grey	Grey	Green	Green	Green	Green	Red	Red	Grey	
ETS	Grey	Green	Green	Green	Green	Green	Grey	Grey	Grey	
HSS	Grey	Green	Green	Green	Green	Green	Green	Grey	Grey	
Bias	Grey	Green	Grey	Red	Red	Red	Green	Grey	Grey	



Post Processing WG Accomplishments



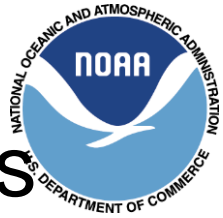
RMSE 1.00-3.00" from QPFVS via **MET!**





Post Processing WG Team Coordination and Dependencies

- Staffing issues have slowed the progress of sharing WISPS 1.0 with partners outside of MDL for feedback
- We would use additional python programmers to help get WISPS to the point where it is available to the UFS community within the next year so collaboration can begin on greater scale.
- We have struggled to keep the Post-Processing WG active, productive, and engaged. Having lots of busy people on the committee has reduced our effectiveness.



Post Processing WG

Team Coordination and Dependencies

- MDL has been accelerating use of MET software for verification including our new QPF Verification System.
- <https://veritas.nws.noaa.gov/qpfvs/>
- We have discovered that MET is most robust in deterministic verification, and we are reaching out V & V to work on improving probabilistic verification tools such as CRPS and CRPSS among others
- UPP re-engineering and coupling with METplus