

NCEP Synergy Meeting Highlights: Sep 24, 2018

This meeting was led by Mark Klein (WPC) and attended by Steven Earle (NCO); Eric Rogers, Jacob Carley, and Geoff Manikin (EMC); Curtis Alexander (ESRL); Robby James (MDL); Greg Patrick (SR); Jeff Waldstreicher (ER); Bill Ward (PR); Brian Cosgrove (OWP), Jason Taylor (NESDIS), and Bill Bua (COMET)

1. NOTES FROM NCO (Steven Earle)

NBM - Implementation decision briefing scheduled for October 1; Operational implementation planned for October 3, pending approval. Includes upgrades to **EKDMOS** and **GFS-MOS**.

RTMA/URMA - 30-day stability test expected to start next week with implementation in November.

HSOFS - Working through canned testing. Expected implementation is at the end of October

AQM - NCO just started work on the upgrade; Expected 30-day start in early November and implementation in December.

HYSPLIT - NCO is working this upgrade part-time; expected to start 30-day next month with implementation in November.

AWC FIP - NCO just started work on the new implementation. Expected 30-day start in early November and implementation in December.

2. NOTES FROM EMC

2a. Global Modeling (Geoff Manikin):

The formal evaluation period for the FV3GFS ended on 10 September. Official evaluations from the field are due today (24 September), with the OD briefing scheduled for 1 October. 500 mb AC scores, covering the real-time and retrospective periods, were extremely impressive, and most other synoptic metrics were generally comparable to the GFS. Concerns include cold 2m temps over Alaska, a slightly dry warm season QPF bias over CONUS, and a subjective finding that the FV3GFS runs tend to be too progressive in the medium range. See the 9/20 MEG presentation for more information.

2b. Mesoscale Modeling (Jacob Carley, Eric Rogers):

RTMA/URMA v2.7 status: 30 day IT test expected to begin on ~10/3. Implementation expected ~11/16. NCO has been given the necessary code updates to address freckling issues, grid shift, and a small fix to grid precision in downscaling [which will go in with 2.7]. EMC also provided an update to the mask for significant wave height over the Great Lakes to support a request from NBM.

RTMA/URMA v2.8 status: Development is underway. A non-exhaustive summary of items of focus for this upgrade are: replace hourly CONUS RTMA with RTMA-RU. Re-tune sky cover analysis and enforce consistency with C&V. Incorporate VIIRS LST's in AK URMA. Expand ob selection algorithm and new background error formulation for temperature to OCONUS. Improve 10m wind observation operator and add lapse rate adjustment for 2m T. Add significant wave height analysis to Great Lakes + Guam. Add NOHRSC snow to URMA (*note* NOHRSC does not yet consider the snow analysis to be obs ready). Make PR domain consistent with NDFD (2.5 to 1.25 km).

HREF v2.1 status : Tentatively scheduled for Q3FY19. Planned changes

- 1) Add extended HRRR runs
- 2) Unify products among constituent models (add 5 extra fields to NAM CONUS nest and one extra field to Hiresw)
- 3) Refine generation of probabilistic output
- 4) Add bias correction and recurrence interval QPF exceedance products

2c. Marine Modeling

3. EARTH SYSTEM RESEARCH LAB (*Curtis Alexander*)

- ESRL/GSD RAPv5/HRRRv4
 - <https://rapidrefresh.noaa.gov/RAP>
 - <https://rapidrefresh.noaa.gov/hrrr/HRRR>
 - Fractional lake ice-concentrations (GFS-based)
 - Assimilation of moisture observations above 300mb
 - Change to revised albedo/land use from MODIS
 - CLM lake-model for in-land lake SSTs
 - Remove mosaic snow building/trimming for 2mT < -2C
 - Update cloud water number concentration from RAP to HRRR initialization (default value that is too low)

- WRFv3.9.1 code base with revised physics:
 - Improved EDMF mixing length
 - Improved explicit and sub-grid clouds including improved effective radii for SW attenuation
 - Improved aerosol handling
 - Reduced 6th order diffusion (more widely-scattered lighter precip and retention of clouds)
- RAPv5/HRRRv4 scope meeting with EMC on 25 September 2018
- ESRL/GSD HRRRE
 - Nine forecast members + ensemble products
 - 12z half-CONUS forecasts to 36 hrs
 - 00z full-CONUS forecasts to 36 hrs
 - Leverages HRRR-TLE post-processing for product generation
 - <https://rapidrefresh.noaa.gov/hrrr/HRRRE>
- ESRL/GSD HRRR-Smoke runs:
 - Run every six hours out to 36 hrs over CONUS and Alaska
 - Produces smoke plume estimates from VIIRS fire data
 - Merging with experimental HRRRv4 prototype (underway)
 - <https://rapidrefresh.noaa.gov/hrrr/HRRRsmoke>

4. NATIONAL OCEAN SERVICE:

5. FEEDBACK FROM MDL/OPERATIONAL CENTERS/REGIONS

5a. MDL (*Robby James*)

- **NBM:** NBM V3.1 Parallel is scheduled to be implemented Wednesday, October 3rd. Development work continues on NBM V3.2 which will continue to populate NWS Program service gaps such as Tropical, FireWx, Aviation, Marine, and Water Resources. Early testing of the “tropical wind” is already running and we were able to do a bit of adjustment during Hurricane Florence on adding the NHC gridded TCM onto the NBM v3.2 first guess that includes HWRF/HMON. A new NBM sector in Guam is also planned for V3.2, currently planned for July, 2019. Additional Probabilistic information will be added to V3.2 (i.e., PQPF, Snow Amount Exceedance, MaxT/MinT). We expect an NBM V3.2 cron to be stood up

in October containing new weather elements and existing weather elements back-filled with additional models (BoM ACCESS-G for example). These new weather elements will be posted on the Viewer at that time. Verification for those weather elements will also likely commence in the month of October. We have also begun (beginning in September) saving NBM input models to HPSS for future NBM scientific testing.

- **MOS/GMOS/EKDMOS:** GFS MOS aviation elements and Gridded MOS and EKDMOS updates are bundled with NBM v3.1 and now also will be implemented on October 3.
- **LAMP:** The LAMP v2.2 redevelopment to upgrade ceiling and visibility guidance to cover the 38-h period, expand the Gridded LAMP domain to match the NBM CONUS domain, and add 1-, 6-, and 12-h Probability of Precipitation continues to be worked on, with a user evaluation expected in October and implementation in February 2019.

5b. NCEP Centers

- Weather Prediction Center (WPC):

Winter weather desk officially starts up again on September 27.

- Storm Prediction Center (SPC):
- National Hurricane Center (NHC):
- Ocean Prediction Center (OPC):
- Aviation Weather Center (AWC):
- Climate Prediction Center (CPC):

- Space Weather Prediction Center (SWPC):

5c. NWS Regions

- Pacific Region (PR):
- Alaska Region (AR):
- Western Region (WR):
- Southern Region (SR):
- Central Region (CR):
- Eastern Region (ER):

6. Office of Water Prediction (*Brian Cosgrove*)

- NWM V2.0 entered official Science Evaluation period 9/20. Assessment will last 30-days through 10/22, with NCEP Director's briefing scheduled for 11/13. RFCs and WPC are listed as evaluators, though all input is welcome.

7. NESDIS

Jason-3 in AWIPS-II: On July 17, distribution of Jason-3 wave/altimetry through the Satellite Broadcast Network (SBN) / Advanced Weather Interactive Processing System (AWIPS) was activated. Only Jason-3 is included, partly because of bandwidth limitations and partly because of the long-term viability of Jason-3 versus Jason-2. (D. Donahue, 301-683-3236)

The GOES-16 ABI L2 product, Volcanic Ash, achieved Provisional Validation Maturity on July 20, 2018: The Volcanic Ash product is declared fit for operational usage and is available to subscribers of PDA and CLASS. The Washington DC Volcanic Ash Advisory Center (VAAC) in the OSPO Satellite Analysis Branch (SAB) utilize the GOES-16 Volcanic Ash product as do other global VAACs, FAA, and it is

available as a standard product in the NWS AWIPS forecaster system interface. (M. Seybold, 301-286-6286)

Planned Termination of NOAA's U.S. DOMSAT Meteosat Second Generation

(MSG) Broadcast Service: In coordination with EUMETSAT, NOAA/NESDIS plans to terminate its U.S. DOMSAT direct broadcast of MSG 0 degree Prime satellite data (currently Meteosat-11) in the mid-November 2018 time frame. This service termination issue is in large part due to obsolete equipment, limited distribution capacity and other factors such as the availability of robust data delivery systems. In parallel with the U.S. DOMSAT service, NOAA/NESDIS has Meteosat-11 HRIT data available for its authorized users from its Product Distribution and Access (PDA) system (24x7 support) and from STAR FTP services (best effort support). In preparation for the loss of the U.S. DOMSAT MSG broadcast service, 24x7 operational users can access the MSG data from the NESDIS PDA or for non-operational users, from NESDIS STAR. Please contact "nesdis.data.access@noaa.gov" for additional information to acquire MSG 0 degree Prime satellite data (currently Meteosat-11) from the NESDIS PDA or from the NESDIS STAR server. Following further coordination with EUMETSAT, in the early fall 2018 time frame, NESDIS will provide the specific November 2018 date of U.S. DOMSAT MSG service termination.

Satellite Ocean Heat Content Suite inclusion of Sentinel-3 Sea Surface Height

Anomalies: As of September 12, 2018 the operational Satellite Ocean Heat Content (OHC) Suite of products are using Sentinel-3 Sea Surface Height Anomalies as input in addition to Jason-2, Jason-3, SARAL/AltiKa, and Cryosat-2 Sea Surface Height Anomalies. Links to all basins can be found on the Satellite Ocean Heat Content Suite home page: http://www.ospo.noaa.gov/Products/ocean/ocean_heat.html

5km Global Blended Sea Surface Temperature: On September 18, the 5km global blended sea surface temperature analyses began ingesting sea surface temperature retrievals from Meteosat-8 into the analyses. This was implemented to fill a long-standing gap in our geostationary satellite SST coverage over the Indian Ocean. This will allow much better temporal coverage and better accuracy in that region for all customers and downstream applications using the blended SST, including the Coral Reef Watch application. (J. Sapper, 301-683-3234)

The next Synergy Meeting is scheduled for Monday, October 29 at 2:30 pm EDT in NCWCP conference room 2890, with remote teleconferencing capability.

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