

NCEP Synergy Meeting Highlights: May 28, 2019

The primary foci of the monthly NCEP synergy meeting are:

- NCO provides an update for upcoming model implementations
- EMC, ESRL, NOS, MDL, and OWP write brief updates regarding current and planned development of their respective modeling systems
- NESDIS provides any recent satellite-related information
- Centers and Regions can communicate feedback regarding operational or experimental model performance, make requests for products/output from developers, or highlight upcoming events (such as HMT experiments)

This meeting was led by Mark Klein (WPC) and attended by Justin Cooke (NCO); Eric Rogers and Geoff Manikin (EMC); Dave Rudack (MDL); Jack Settelmaier (SR); Brian Cosgrove (OWP); Bill Bua (COMET), and Josh Jankot (NESDIS)

1. NOTES FROM NCO (NCO Representative)

NWM - 30-day is ongoing... implementation expected June 19

https://www.weather.gov/media/notification/scn19-42natl_water_model.pdf

GFS/GDAS - 30-day is ongoing... implementation expected June 12

https://www.weather.gov/media/notification/scn19-40gfs_v15_1.pdf

HYSPLIT - 30-day is ongoing... implementation expected June 12

MAG - testing is ongoing... implementation expected June 12

Wsa-enlil - 30-day completed... implementation expected May 29

<https://www.weather.gov/media/notification/scn19-36wsa-enlil.pdf>

LMP/GLMP - testing is ongoing... 30-day expected to start around June 21

NOSOFS (Includes CIOFS and LMHOFS) - Testing is ongoing... 30-day expected to start by the end of this week (May 31)

2. NOTES FROM EMC

2a. Global Modeling (Global Modeling Representative):

GFSv15 will be implemented on June 12. GFSv14 will continue to run in parallel for several months - parallel and operational products will flip-flop. The operational GFS products will be filled by GFSv15, and the parallel GFS products will be

filled by v14.

2b. Mesoscale Modeling (*Mesoscale Modeling Representative*)

- FV3 development
 - Collab. development with GSD/NSSL/AOML/etc.
 - New, refreshed page for all ongoing FV3-CAM development work. Includes link to verification stats and scorecards.
 - <https://www.emc.ncep.noaa.gov/mmb/bblake/fv3/index.html>
 - Very early look, no big conclusions to be drawn from this
 - SARDA runs → Stats notably poorer than coldstart runs (SAR and FV3NEST). This is due to a LBC consistency issue following the analysis. Work is ongoing to address it.
 - Data assimilation advancement continues, interfaces for ensemble methods are now in place.
 - Very early testing with the assimilation of GOES 16 water vapor channels has begun.
 - Testing/evaluation underway at HWT and will be evaluated at HMT
 - RAPv5/HRRRv4
 - * see ESRL section below
 - HREFv3
 - Prototype is running
 - HRRR membership + FV3-SAR minus HiResW NMMB member
 - Recall plan is to switch out a poor performing member with FV3 member.
 - Tests to extend length to 48 hours are underway using HREFv3 prototype configuration
 - Link:
https://www.emc.ncep.noaa.gov/mmb/mpyle/hrefv3/00_exp_48/main_conus.php
 - [Web link may change]
 - Implementation Q4FY20
- 2DRTMA
 - v2.7
 - Dell transition code now handed off to NCO
 - v2.7 was implemented on IBM WCOSS Phase 2 machine and required transitioning
 - V2.8
 - Will share paths/info for real-time parallel once up and running
 - Work continues on enhancing assimilation of mesonet winds
 - Starting 1 week retro run
 - Investigating techniques to address discontinuities in offshore precip in MRMS/CMORPH product transition areas
 - Significant wave height analysis added to Great Lakes

- Adjustments/tuning to sky cover analysis
 - Implementation Q2/Q3 FY20
- 3DRTMA
 - Collab. with GSD + SPC/AWC
 - Joint, real-time prototype running and under evaluation at HWT
 - See below for info from GSD collaborators

2c. Marine Modeling *(Marine Modeling Representative)*

3. EARTH SYSTEM RESEARCH LAB *(ESRL representative)*

- ESRL/GSD RAPv5/HRRRv4 (now includes smoke forecasts)
 - <https://rapidrefresh.noaa.gov/RAP>
 - <https://rapidrefresh.noaa.gov/hrrr/HRRR>
 - RAPv5/HRRRv4 scope:
 - Planned:
 - Physics and DA changes
 - Storm-scale ensemble data assimilation (HRRRDAS) for HRRRv4
 - FVCOM Great Lakes dynamic SST updating (fallback to global SST analysis)
 - RAP/HRRR-smoke prediction inclusion
 - RAP/HRRR forecast length extensions (51/48 hrs at 09z/21z and 00z/12z)
 - Hourly HRRR-AK cycling
 - RAPv5/HRRRv4 implementation schedule for March 2020 (approx)
 - 6/1/19 code delivery
 - 8/15 start official evaluation
 - 10/15 evaluation ends
 - 11/1 code delivery to NCO
 - 2/10/20 start 30 day IT test
 - 3/23/20 implementation
 - Evaluation ongoing this spring/summer in HWT/HMT/AWT
- RTMA-3D
 - Prototype development with EMC
 - A prototype experimental real-time example with grids and graphics:

<https://rapidrefresh.noaa.gov/hrrr/HRRRrtma/>

- Two more years of development planned with improved analysis and post-processed products
- Evaluation ongoing this spring/summer in HWT/AWT

- ESRL/GSD HRRRE
 - Nine forecast members + ensemble products
 - Full-CONUS runs with:
 - 00z to 36 hrs
 - 12z to 24 hrs
 - 18z to 24 hrs
 - Leverages HRRR-TLE post-processing for product generation
 - Stochastic parameter perturbation across entire physics suite, soil moisture perturbations and EnKF data assimilation for forecast and initial condition uncertainties
 - <https://rapidrefresh.noaa.gov/hrrr/HRRRE>
 - Evaluation this spring/summer in HWT/HMT/AWT

- SAR (Stand Alone Regional) FV3
 - Collaboration with EMC, NSSL on testing/development
 - First tests with RAP/HRRR physics using CCPP interface in SAR FV3 on RAP/HRRR “grids”
 - Real-time RAP/HRRR IC/BC/CCPP physics for HWT SFE and HMT FFaIR

4. NATIONAL OCEAN SERVICE (*NOS Representative*):

5. FEEDBACK FROM MDL/OPERATIONAL CENTERS/REGIONS

5a. MDL

- Statistical Modeling Branch (SMB):
 - [SCN Sent out](#) for April 16, 2019 termination of GEFS MOS (run on IBM and won't be migrated to Dell - use EKDMOS)
 - **NCO EE Coordination Meeting for NBM V3.2 - April 29, 2019**
 - NBM v3.2 scientific evaluation form due May 31st. [NBM v3.2 Evaluation Form](#)
 - Preparing NBM v3.2 DRG request and data for AWIPS testing.
 - NBM v3.2 GRIB2 available [here](#) (including new Guam sector)
 - NBM v3.2 text files available [here](#), including new probabilistic bulletin NBP. We have added about 2,000 new stations including

- those requested by NCEP Centers (RAWS and Ocean points)
 - Verification to SSDs/collect comments - **June 14, 2019**
 - NCEP Science Director Briefing - **July 23, 2019**
 - Final Code Delivered to NCO - **July 30, 2019**
 - 30 Day IT Stability Test on WCOSS - **First week Oct. 2019**
 - NCO Implementation - **Nov. 5, 2019**
 - NBM Development Living Blog [NBM Development Living Blog](#)
 - BMOS verification of ceiling and verification grids is underway.
- Digital Forecast Services Branch (DFSB):
 - LMP/GLMP v2.2 code was handed off to NCEP/NCO in April, and is being tested on Phase 3 of WCOSS with an expected implementation date of July 30, 2019. This LAMP upgrade includes: redevelopment of ceiling (C), visibility (V), and obstruction to vision (OBV) guidance out to 38 hours; expansion of the GLMP CONUS domain for C&V&OBV to match the NBM domain in the CONUS; and the addition of 1-, 6-, and 12-h POP Gridded LAMP guidance. This upgrade also includes new guidance for KSBG and the transition from the identifier of K36U to KHCR, which are changes requested by the field.

5b. NCEP Centers

- Weather Prediction Center (WPC):
 - Flash Flood and Intense Rainfall experiment is slated to take place for 4 weeks from June 17-July 19 (off the week of July 4)
- Storm Prediction Center (SPC):
 - HWT Spring Forecasting Experiment: April 29 - May 31
 - Working to finalize participants by the end of the month, so please provide feedback/interest, if you have not already done so
- National Hurricane Center (NHC):
- Ocean Prediction Center (OPC):
- Aviation Weather Center (AWC):
 - Summer Experiment Aug 19-23
 - Finalizing experiment specifics and invite by end of month
 - Focus on C&V forecasting, GFA web eval, day 2 convection

- Climate Prediction Center (CPC):
- Space Weather Prediction Center (SWPC):

5c. NWS Regions

- Pacific Region (PR):
- Alaska Region (AR):
- Western Region (WR): No issues -- now that the shutdown is over and there is better insight into the moratorium schedule -- would be nice to get an update about the most recent WCCOS development schedule and impacts
- Southern Region (SR):
- Central Region (CR):
- Eastern Region (ER):

6. Office of Water Prediction

- NWM V2.0 in 30-day IT stability test and implementation set for June 19th.

7. NESDIS

Jason-2 out of Safe Hold:

- The Jason-2 spacecraft, which has been in hibernation since February 16, came out of Safe Hold at approximately 0900Z on May 22, 2019.
- The first Operational Geophysical Data Record (OGDR) with usable products was generated from pass 59049 starting at 1131Z.
- The data outage lasted 94 days and 20+ hours. Jason-2 will follow a hibernation cycle, 5 months on, and then 3 months in hibernation to avoid reaching critical gyro temperatures.
- The goal is to have Jason-2 available during hurricane season, which is when the Jason-2 data is critically needed. (D. Donohue, 301-683-3236)

Surface Reflectance (SR) from NOAA-20 Operational:

- On April 23, 2019, the NOAA-20 SR system was implemented successfully into operations through NESDIS/NDE data distribution.
- This implementation meets the JPSS requirements of NOAA-20 SR for downstream products, including Green Vegetation Fraction (GVF), Vegetation Indices (VI), and Surface Type. (H. Ding, 301-683-3243)

NUCAPS Sounding Operational Implementation (Skew-t Diagram Display):

- On May 10, 2019 a new version of the SkewT was implemented into operations for NOAA-20.
- NUCAPS soundings from NOAA-20, Metop-A and Metop-B are available at: <https://www.ospo.noaa.gov/Products/atmosphere/soundings/nucaps/pskewt/USACON.html>.
- Users will benefit from the increase in temporal frequency, allowing for a greater chance to observe real time soundings.