

# 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](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](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](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/USA\\_CON.html](https://www.ospo.noaa.gov/Products/atmosphere/soundings/nucaps/pskewt/USA_CON.html).
- Users will benefit from the increase in temporal frequency, allowing for a greater chance to observe real time soundings.