

INCEP Synergy Meeting Highlights: February 25, 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 Steven Earle (NCO); Ben Blake, Jacob Carley and Geoff Manikin (EMC); Curtis Alexander (ESRL); Dave Rudack (MDL); Ryan Solomon (AWC); Israel Jirak (SPC); Jack Settelmaier (SR); Jeff Waldstreicher (ER); Andy Edman (WR); Brian Cosgrove (OWP); and Jason Taylor (NESDIS)

1. NOTES FROM NCO (*Steven Earle*)

GFS/GDAS - Postponed... new date is TBD

HYSPLIT - Tied to GFS... Postponed

NWM - 30-day expected to start at the end of March with implementation in early May

WSA-ENLIL - NCO just got the code delivery... expected 30-day at the end of April and implementation in early June

HSOFS - Work started again at NCO; expected implementation at the end of March, early April.

2. NOTES FROM EMC

2a. Global Modeling:

The start of the FV3GFS 30-day stability test is delayed while EMC sorts out issues with the tallying of snowfall and the increased cold bias this winter. See last Thursday's MEG presentation for more details.

2b. Mesoscale Modeling:

FV3 Convection Allowing Model development (HREFv3 and RRFS development - collab. across multiple orgs)

- Running several in-house parallels of FV3 at 3km and CONUS wide for testing
 - Both limited-area and global + 3km nest runs
 - One test run with data assimilation at 3 km
- Still early in development - plan to evaluate in HWT SFE
 - Candidate HREFv3 configurations
 - Other testbeds as well if there is interest
- Graphics from real time parallels [*all runs/graphics are subject to machine outages, are not monitored, very experimental, etc.*]:
 - [HREFv3 test run, feature one 00Z FV3-CAM member and HRRR extension\(s\) - HiResW NMMB member\(s\) removed](#)
 - [3 km FV3 with data assimilation vs 3 km NAM CONUS nest](#)
 - [This page includes:](#)
 - 3 km FV3 with data assimilation vs without data assimilation
 - 3 km FV3 standalone regional (SAR) vs. nested 3km

RTMA/URMA:

- v2.7 implemented into operations on December 4th at 12Z
- WCOSS Moratorium on most implementations due WCOSS Phase 3 Transition
 - Primary priority is porting system to new WCOSS Phase 3 -- ongoing
- v2.8
 - Status
 - WCOSS Moratorium + shutdown pushed back timeline
 - Currently targeted for late Q2FY20
 - Upgrade details
 - Last 2D Version of system
 - Wind analysis forward operator improvements for non-standard siting of mesonet wind observations
 - Expand significant wave height analysis to include Great Lakes and Guam
 - Investigating addition of lapse rate adjustment for 2m temperature
 - Increase grid resolution for PR 2.5 km --> 1.25 km
 - Consistency with NDFD grid
 - Re-tune sky cover analysis
 - Adding NOHSRC snow analysis - pending readiness
 - Possible observation quality control improvements [pending resources]
 - Stuck instrument and range checks

- 3DRTMA [collab. with GSD, SPC, AWC, FAA]
 - Full system has been built and able to run retrospectives, real-time capability forthcoming
 - Full column representation and physically consistent analysis of 3D meteorological fields
 - Will replace 2D RTMA/URMA.
 - Real time testing this spring in HWT SFE.

2c. Marine Modeling

No operational implementations after FV3GFS because of NCO's moratorium till October 2019.

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

- ESRL/GSD RAPv5/HRRRv4
 - <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)
 - More testing and discussion with EMC will follow:
 - RAP/HRRR-smoke prediction inclusion
 - RAP/HRRR forecast length extensions (51/48 hrs at 00z/12z?)
 - Increased vertical resolution (50 to 64 levels)
 - Hourly HRRR-AK cycling (three hourly forecast updates?)
 - HRRR Hawaii domain

- 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
 - Merged with experimental HRRRv4 prototype
 - <https://rapidrefresh.noaa.gov/hrrr/HRRRsmoke>
- RAPv5/HRRRv4 implementation currently scheduled for March 2020 (schedule is approximate)
 - 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
- 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 this spring/summer in HWT/AWT
- ESRL/GSD HRRRE
 - Nine forecast members + ensemble products
 - Switching to full-CONUS runs with (at least) 00z/12z forecasts to 36 hrs
 - Leverages HRRR-TLE post-processing for product generation
 - <https://rapidrefresh.noaa.gov/hrrr/HRRRE>
- SAR (Stand Alone Regional) FV3
 - Collaboration with EMC, NSSL on testing/development
 - First test pending with RAP/HRRR physics using CCPP interface in SAR FV3 on RAP/HRRR “grids”

4. NATIONAL OCEAN SERVICE:

5. FEEDBACK FROM MDL/OPERATIONAL CENTERS/REGIONS

5a. MDL

- **SMB - NBM:**

1. The 5-week government shutdown has pushed the deliverable dates of NBM v3.2 to the right by approximately 5-weeks as well. Here are the notable updated deliverable timelines:
 - Verification to SSDs/collect comments - **Mid June 2019**
 - NCEP Science Director Briefing - **Mid July, 2019**
 - Final Code Delivered to NCO - **End of July, 2019**
 - 30 Day IT Stability Test on WCOSS - **First week Oct. 2019**
 - NCO Implementation - **First week of Nov. 2019**
2. NBM v3.2 will alter two of its primary delivery times from 00Z to 01Z and from 12Z to 13Z (00Z, 07Z, 12Z, 19Z, → 01Z, 07Z, 13Z, 19Z). This symmetric cadence of every 6 hours was requested by NCO, since the previous cadence (alternating 5 and 7 hours) is impacting the running of other model systems on WCOSS.
3. With the implementation of NBM v3.2 data will no longer be hosted on tgftp/ndgd. Only a portion of the NBM data will be sent via the SBN while all data will be hosted on NOMADS.
4. New NBM v3.2 weather elements on the Viewer ([Viewer](#)) include:
 - Oceanic PoP12/QPF06 (10th 50th 90th percentiles)
 - 30m and 80m wind speed (CONUS and OCONUS)
 - Solar radiation (CONUS and OCONUS)
 - Ellrod Index (CONUS and OCONUS)
 - Blended Lowest Cloud Base (DMO_RH methods) (CONUS and OCONUS)
 - 24h snow and ice accumulation (10th,50th,90th percentiles (CONUS and AK).

- **SMB - BMOS:**

- Development continues of ceiling and visibility grids based on GFS and NAM GMOS. Development work is expected to complete by April 1. Implementation will follow the NBM V3.2 timeline after that.
- Dissemination of GMOS grids is expected to terminate with the release of NBM V3.2.

- **LAMP:**

- Preparation continues for the implementation of the LMP/GLMP v2.2.0 upgrade which 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 KSBD and the transition from the identifier of K36U to KHCR, which are changes requested by the field. The upgraded guidance is currently available experimentally at: https://www.weather.gov/mdl/lamp_experimental

- LAMP has received an exemption from the NCEP Moratorium and will be implementing LMP/GLMP v2.2.0 and transitioning to Phase 3 simultaneously. The 5-week government shutdown has delayed the user evaluation of this implementation, and we now plan to begin the user evaluation in the late February/early March timeframe, with handoff to NCO on April 5th and implementation in July 2019.
- **P-Surge, P-ETSS, ETSS:**
 - Development continues on all models as we await the end of the WCOSS Moratorium (estimated to be November 2019).

5b. NCEP Centers

- Weather Prediction Center (WPC):
 - Winter Weather Experiment continues weekly on Tuesdays and Wednesdays from 10:30 am - noon Eastern time. Tuesdays are forecast days; Wednesdays are reserved for verification
 - In-house Winter Weather Experiment week is March 11-15
 - 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
- National Hurricane Center (NHC):
- Ocean Prediction Center (OPC):
- Aviation Weather Center (AWC):
 - Spring Experiment canceled
 - Summer Experiment Aug 19-23

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

5c. NWS Regions

- Pacific Region (PR):
- Alaska Region (AR):
- Western Region (WR): No issues, expect moratorium to stop most upgrades/enhancements by this time
- Southern Region (SR):
- Central Region (CR):
- Eastern Region (ER):

6. Office of Water Prediction

- NWM V2.0 implementation date updated to May 7th by NCO due to government shutdown. Currently being onboarded by NCO.

7. NESDIS

NOAA-20 Designation Primary PM Afternoon-Orbit Satellite

- NOAA-20 was designated as the primary afternoon (PM) satellite for supporting NOAA's environmental monitoring mission on February 12, 2019.
- This designation is used mainly for managing and prioritizing mission resources that share common services or for establishing processing priorities for production/distribution.

- As NOAA's primary afternoon polar-orbiting satellite, NOAA-20 continues continuity critical environmental observations from its LTAN 1330 orbit.
- SNPP and its functional suite of instruments have been designated as a secondary and it will continue as an operational satellite.

GOES-17 Becomes Official Operational GOES-West Satellite

- On February 12, 2019, GOES-17 became the official GOES-West satellite stationed at 137.2 degrees west and the GOES-15 LRIT broadcast has been disabled.
- GOES-17 and GOES-15 will operate in tandem from their respective locations of 137.2 degrees west and 128 degrees west through early July 2019.
- After July 2019, GOES-15 data distribution will conclude while GOES-17 data distribution will continue for the GOES-West assignment.
- Information on GOES-17 ABI performance including Loop Heat Pipe information and predictive saturation dates/times can be found at (<https://www.goes-r.gov/users/GOES-17-ABI-Performance.html>)
- Information on product mapping from GOES-15 to GOES-17 can be found on the bottom right at (<https://www.ospo.noaa.gov/Operations/GOES/transition.html>) On February 16, 2019 at 1456Z,

Jason-2 and Jason-3 Satellites in Safe Hold Mode

- Jason-2 Safe Hold Mode (SHM) was triggered by the health status of Gyro 2, immediately interrupting its measurements on February 16, 2019 at 1456Z.
- Currently, no Jason-2 products are being produced and recovery operations are underway.
- Jason-3 entered Safe Hold Mode on February 24, 2019 1035Z due to Star Tracker 1 problems which led to attitude drift.
- As a result the Advanced Microwave Radiometer (AMR) temperature limit was reached.
- Currently, no Jason-3 products are being produced and recovery operations are underway.
- Jason-2 and Jason-3 satellite data contribute to the ocean heat content surface altimetry products.

Suomi-NPP (S-NPP) ATMS Snowfall Rate (SFR) Product Operational

- On January 31, 2019, the S-NPP ATMS SFR product was implemented into operations via NDE.
 - Originally scheduled on January 3 but delayed due to the government shutdown.
- This implementation meets the JPSS requirement for ATMS SFR and will improve spatial and temporal coverage of the solid precipitation in global rainfall analysis.

The next Synergy Meeting is scheduled for March 25, 2019 at 2:30 pm EDT in NCWCP conference room 2890, with remote teleconferencing capability.

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