

# NCEP Synergy Meeting Highlights: May 4, 2015

*This meeting was led by Mark Klein (WPC) and attended by Scott Jacobs (WPC); Steven Earle and Kelly Kempisty (NCO); Geoff DiMego (EMC); Bob Grumbine (MMAB); Richard Pasch and Andy Penny (NHC); Phil Shafer (MDL); Jeff Waldstreicher and Brian Miretzky (ER); Jack Settlermaier (SR); Brian Cosgrove and Mark Fresch (NWC)*

## 1. NOTES FROM NCO

### NAM SMARTINIT

- Implementation scheduled for June 2, 2015
- Summary of changes
  - Addition of Haines Index grids to SBN/NOAAPORT
  - The wind adjustment algorithm was corrected in regions where the terrain height is below sea level to correct erroneously large adjusted wind speeds in the vicinity of the Salton Sea in California in NAM-DNG.
  - For these and other details, please reference:  
<http://www.nws.noaa.gov/os/notification/tin15-22nam-dng-dgex.htm>

### ETSS

- 30-day evaluation concluded on April 22.
- Implementation scheduled for May 19, 2015
- Summary of changes
  - ETSS station text products for the East Coast and Gulf of Mexico will be delivered 30 minutes later than currently
  - ETSS gridded product for CONUS will also be delivered 30 minutes later than currently
  - Bias corrected total water level guidance will be provided in SHEF format over the SBN/NOAAPort
  - 5km CONUS and 6km Alaska products will be discontinued on the NCEP FTP/NOMADS servers.
  - There will also be directory and file name changes outlined in the TIN. For details, please reference: <http://www.nws.noaa.gov/os/notification/tin15-18etss.htm>

### PSURGE

- Implementation postponed to end of May

### HIRESW

- Summary of Changes
  - Updates the NMMB forecast code using a January 2015 version of the model, yet retains the microphysics from the v6.0.x code.. WRF-ARW code is updated from v3.5 to v3.6.1, but with a local modification to the microphysics. The WSM6 microphysics routine used in the WRF-ARW run was modified to expand the anvil region in clouds. This was achieved by

slowing graupel production processes, allowing more production of snow aloft.

- Number of vertical levels increased from 40 to 50 for both models.
- Adds new products for severe weather and aviation purposes
- Adds a new high resolution ensemble product generating system, which combines information from the most recent runs of the Hires Window and NAM Conus Nest
- 30-day Evaluation expected to start by next week (week of May 11)
- Implementation expected in late-June

#### HWRF and GFDL

- Canned testing in on-going
- Implementation scheduled for early June

#### GEFS

- NCO received all the code
- 30-day evaluation currently scheduled for late-May
- Implementation scheduled for early Q4

#### SREF

- Code has been delivered to NCO. 30-day evaluation currently scheduled for late May
- Implementation scheduled for early Q4

#### Other Implementations coming up for Q3:

##### ECMWF-based MOS Station Guidance

- Evaluation planned for mid-May
  - Tied to ECMWF upgrade scheduled for May 12
- Implementation planned for late June

##### NHC Guidance Suite

- Planned implementation in early June

##### RTOFS Global

- Evaluation planned early June
- Implementation planned for late July

##### AWC Graphical Turbulence Guidance (GTG)

- Evaluation planned for late May
- Implementation planned for early Q4

## 2. NOTES FROM EMC

### ***2a. Global Climate and Weather Modeling Branch (GCWMB)***

EMC is working with NCO on finalizing GEFS code/script for the coming implementation and everything is on schedule. BUFR station output is not included in this

implementation but can be done in the future. Official request from the Regions is needed before we can allocate resources to develop this capability.

## **2b. Mesoscale Modeling Branch (MMB)**

HIRESW upgrade (Q4) : See NCO notes

SREF upgrade (early Q4)

- Drop WRF-NMM members
- Increase from 21 to 26 members (13 NEMS-NMMB, 13 WRF-ARW)
- Increase # of vertical levels from 35 to 40
- More physics diversity
- Use bred vectors and global EnKF to perturb initial conditions
- NCO 30 day test starts in mid-late May
- Q4 (July) implementation

RAP/HRRR upgrade (Q4)

- RAP domain increased to match NAM domain
- forecast extensions for RAP and HRRR (length still being determined)
- HRRR will start using hybrid data assimilation
- begin assimilation of mesonet obs, radial velocities, and lightning data
- satellite radiance bias correction added to RAP assimilation
- improved assimilation of radar reflectivity in the HRRR
- Grell-Freitas shallow convective scheme (RAP only), MYNN PBL scheme modifications, and land-sfc scheme updates to reduce warm/dry bias
- begin using Thompson aerosol-aware microphysics

NAM upgrade (2016Q1, targeting early-mid December)

- Increase resolution of CONUS nest from 4 km to 3 km; CONUS nest output grid will be the same as that from the HRRR
- Increase resolution of Alaska nest from 6 km to 3 km
- Physics changes (now being tested or under development; subject to change)
  - New shallow convection (improved 12 km NAM cool season QPF bias)
  - "Drier" soil adjustment (address winter cool/moist bias)
  - PBL changes to address maritime shallow cloudiness
- Replace 3-h NDAS (12 m domain only) with hourly cycled system (NAMRR) with 12-km parent/3 km CONUS and 3 km Alaska nest; make 18-24h forecast of 12 km parent and 3 km CONUS/Alaska nest every hour; first step towards future convection-allowing ensemble (ARW members (i.e., 3 km HRRR) + NMMB members (3 km NAM nests))

- 4-d version of hybrid GSI analysis (tentative)
- Resume use of AFWA snow depth product with envelope adjustment procedure used in global
- Use radar-derived temperature tendencies in model's diabatic digital filter
- Post-processing changes : testing changes to ceiling height computation and using a modified version of the GSD cloud fraction algorithm

RTMA/URMA upgrade (2016Q1, targeting mid-December)

- Expand CONUS domain westward to enhance support for OPC and west coast WFOs
- Add analyses for min/max temperature, cloud ceiling height, and significant wave height
- Replace GFS first guess with GFS+HiRes Window blend for Guam
- Add a GLERL-type observation adjustment and wind analysis for the Great Lakes
- Add URMA systems for Alaska, Hawaii, Puerto Rico, and Guam
- Improve depiction of channel flows in 10-m smartinit winds
- Add variational quality control for the observations
- Use EMC/GFE common terrain and land/water mask for all domains

### ***2c. Marine Modeling and Analysis Branch (MMAB)***

More robust patch for sea ice concentration analysis (based on AVHRR) implemented 14 April 2015.

Global RTOFS implementation continues ok.  
Atlantic RTOFS implementation also.

## **3. NATIONAL OCEAN SERVICE:**

## **4. FEEDBACK FROM MDL/OPERATIONAL CENTERS/REGIONS**

### **4a. MDL**

- Upcoming Implementations (not listed in NCO section above):
  - Updates to GFS-based Gridded MOS and changes to GFS MOS COOP and RFC SHEF Messages - planned 7/28/15
    - Addition of Day 8-11 Gridded MOS to support WPC ops
  - Gridded LAMP updates to T, Td, Ceiling & Vis + adding Sky Cover and Wind Speed - late July
    - 30-day parallel is planned, feedback appreciated

- ETSS v2.1-Alaska - late August
- Upgrade/Refresh NAM MOS Station Guidance - late September

#### **4b. NCEP Centers**

- Weather Prediction Center (WPC):  
HMT-WPC will be hosting the Flash Flood and Intense Rainfall (FFaIR) Experiment on 6-24 July 2015. Invitations for the Regions and EMC will be sent on Wednesday, 6 May 2015.
- Storm Prediction Center (SPC):
- National Hurricane Center (NHC): NHC has requested additional retrospective runs of the parallel GEFS for a number of Atlantic hurricanes. What is the status of this?
- Ocean Prediction Center (OPC):
- Aviation Weather Center (AWC):
- Climate Prediction Center (CPC):
- Space Weather Prediction Center (SWPC):

#### **4c. NWS Regions**

- Pacific Region (PR):
- Alaska Region (AR):
- Western Region (WR) no comment -- other than SSDs keep reminding training program of need to develop more aggressive model training plan for the field
- Southern Region (SR): - no comment

- Central Region (CR):
- Eastern Region (ER): - There seems to be some overlap in the planned evaluation periods for the SREF, GEFS, and HIRESW. I think this could overload available resources for evaluations, especially the 2 EPS evals.

I noticed on the SBN activation spreadsheet that ECMWF wave model data is planned for AWIPS-2 Build 16.1.1 (~Dec 2015 deployment). Does anyone know what the spatial resolution of these grids will be, and what the temporal resolution and extent (to what forecast projection) are planned? Thanks.

Which version of the ECMWF MOS is planned for the SBN/AWIPS? Old Version?

## 5. National Water Center

- Upcoming Implementation (not listed in NCO section above): National Water Center WRF-Hydro model targeted for implementation on WCOSS in Q3 of FY16. Coordination is ongoing with NCO and EMC.
- Hydrological Ensemble Forecast Service (HEFS) related issues:
  1. GEFS: Please let us (Mark Fresch) know when (and where) the current GEFS (v10) output is moved to a new location. **I (NCO Dataflow Kelly Kempisty) am still working on gathering all of this information. I will get back to you about this, as soon as I can.**
  2. CFS: Paperwork (DRG RC and TIN) completed and submitted for getting precip and min/max temps onto NOAAPort. Implementation date June 15, 2015. Thanks to NCO.
  3. GEFS reforecasts/model update process - working with Hendrik/Yuejian.

## 6. NESDIS

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## 7. Offline Discussions

Topic:

Lead:

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**The next Synergy Meeting is scheduled for June 1 at 2:30 pm EDT in NCWCP conference room 2890, with remote teleconferencing capability.**

Telecon: **1-866-763-1213**

Passcode: **524234#**