

December 23, 2013

MEMORANDUM FOR: NCEP Model Implementation Scientific Review Team

FROM: Chris Caruso Magee, Team Lead, Production Control
Production Management Branch, NCEP Central Operations

SUBJECT: Proposed Implementation of Short-Range Ensemble Forecast system
v6.1.2

The Environmental Modeling Center (EMC) has proposed implementation of the Short-Range Ensemble Forecast (SREF) system v6.1.2.

This upgrade of the SREF is being implemented to fix some issues raised by NCEP service centers, WFOs, and private users, with these issues related mainly to the SREF's surface wet, cold bias, and to add some a few new variables requested by the NCEP service centers, to increase the utility of forecast guidance produced by the SREF. This implementation specifically includes:

- Correction and improvement of initial conditions: a) replace GFS land states (too moist) with NDAS land states in NMM & ARW members; and b) correct inadvertent use of global initial conditions (too moist) with use of RAP for ARW members to reduce the surface wet and cold biases reported by SPC and other users;
- Fix bugs in NOAA LSM: a) eliminate negative soil moisture fractions for NMM and ARW members and b) eliminate "urban swamp" (causing too cold surface temperature over urban regions during heat wave periods) for NMMB members;
- Correct GFS physics in 2 NMMB members to produce compatible cloud & ceiling guidance with the rest of SREF members;
- Fix Post-Processor to remove use of snow in diagnosing cloud base height;
- Correct a mapping bug (eastward shift) in NMM member's pressure-grib output files

New products include:

- Add 4 winter weather variables: a) low-level Rime Factor of 21 members; b) snow depth of 21 members; c) % of frozen precipitation of 21 members and d) water equivalent accumulated snow of 7 ARW members;
- Add 2m temperature and 3-hourly accumulated precipitation of 21 SREF members from the 32km North American domain (grid 221) into AWIPS;
- Modify the clustering algorithm to preserve time-continuity within a cluster over each of the three preselected forecast periods (00-24hr, 27-51hr, 54-87hr);
- Add "Department of Homeland Security" sites in SREF bufr sounding output as well as unify the SREF bufr station list with that used in NAM and RAP.

Please see the SREF Technical Implementation Notice (details below) for specifics on the SREF v6.1.2 changes, including the bufr station changes.

Real time parallel data:

Beginning Monday, December 23, 2013 and starting with the 2100Z cycle, a consistent parallel feed of data will be available at:

HTTP:

<http://www.ftp.ncep.noaa.gov/data/nccf/com/sref/para/sref.YYYYMMDD>

FTP:

<ftp://ftp.ncep.noaa.gov/pub/data/nccf/com/sref/para/sref.YYYYMMDD>

where YYYYMMDD is the year, month, day.

Technical Implementation Notices

The Technical Implementation Notice (TIN) for the SREF update is not yet available. When it is, it will be found at:

<http://www.nws.noaa.gov/os/notif.htm>

There is a TIN for the AWIPS changes located at:

http://www.nws.noaa.gov/os/notification/tin13-44mmefs_sref.htm

Request for Evaluation

Please complete the attached “Intent to Participate” form and return it to Chris.Caruso.Magee@noaa.gov no later than January 8, 2014. NCO requires an intent form be filed by all NCEP Service Centers. SPC, WPC, and AWC are listed as being primarily responsible for this evaluation. All other Service Centers, the NWS Regions, WFOs, government agencies, or private companies not listed above are optional.

For the NCEP Service Centers, if, in your estimation, the nature of the proposed changes to the SREF would have little or no impact on the forecast process at your Service Center, simply indicate that you do not intend to participate in the subjective evaluation and return the form.

Due to the holidays and the current evaluations being done for the RTMA and RAP upgrades, NCO will be running the SREF evaluation for approximately 60 days instead of the usual 30 days. The evaluation period will start at 21Z on Monday, December 23, 2013 and run through February 9, 2014. Participants need to complete the attached “Model Implementation Subjective Evaluation Report” form and return to Chris.Caruso.Magee@noaa.gov no later than February 14, 2014. Please indicate the overall performance of the product, with any additional comments on specific cases with noteworthy positive or negative performance. Please note that NCO requires evaluators to specifically address the benefits stated in the attached form as to whether those benefits were observed or not. Any feedback you wish to provide during the evaluation period should be emailed to Chris.Caruso.Magee@noaa.gov.

A final coordination teleconference will be scheduled to review the evaluation and address any outstanding issues. Based on the outcome of that teleconference, EMC and NCO will prepare a recommendation for the NCEP Director. This teleconference has not yet been scheduled.

Points of Contact

Chris.Caruso.Magee@noaa.gov (NCO)

Jun.Du@noaa.gov (EMC)

**Intent To Participate
Model Implementation Subjective Evaluation**

Scientific Review Team Member: _____

Team Member E-mail: _____

Region/Service Center/Company Representing: _____

**(Govt Only) Authorizing Official or
Service Center Director:** _____

Intent to Participate:

____ Will Participate in the Evaluation

____ Will Not Participate in the Evaluation

Model Implementation Subjective Evaluation Report

Scientific Review Team Member: _____

Region/Service Center/Company Representing: _____

Proposed Change: SREF v6.1.2

Model Developer: Jun Du (EMC)

Real-Time Parallel Runs:

General comments: _____

Evaluation of expected benefits:

Please respond to the following questions and note if they are beneficial to you?

1. Do you notice correction/improvement in the wet/cold biases as listed on page 1 of the evaluation request letter?

2. Are the new parameters (listed on page 1 of the evaluation request letter) and additional bufr sites useful to you?

Recommendation:

Implement as proposed ____

Reevaluate after changes ____

Do not implement ____