

September 5, 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 Great Lakes Wave model v3.2.0

The Environmental Modeling Center (EMC) has proposed implementation of the Great Lakes Wave Model v3.2.0.

The Great Lakes Wave system is currently run using the WAVEWATCH-III model v3.14. The wave model will be upgraded to WAVEWATCH-III v4.7.1, which introduces several new physics packages to the wave model. This new model version of WAVEWATCH-III has already been implemented as part of a recent upgrade in the global wave_multi_1 model.

The key changes for the Great Lakes system are as follows:

1. A new physics package for wave growth under wind seas
2. A new physics package to account for swell dissipation for swells propagating long distances.
3. A new physics package for wave dissipation due to wave breaking.

The new physics significantly improve model skill for wave height, especially in regions of strong storm wind forcing. This will reflect in crucial improvement in forecast performance for extreme wave prediction, a systematic problem in previous GLW/GLWN systems. Correction will boost usage of the system by Great Lakes WFOs.

With this implementation, the location of the output data on the ftp servers will be changed. Data are currently available in a general directory named "wave." With this implementation, the GLW and GLWN will be put in a directory named "glw." The full directory paths are listed below.

Real time parallel data:

Beginning Thursday, September 5, 2013 and starting with the 1200Z cycle, a consistent parallel feed of data will be available at:

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

FTP:
<ftp://ftp.ncep.noaa.gov/pub/data/nccf/com/wave/para/glw.YYYYMMDD>

where YYYYMMDD is the year, month, day.

A Technical Implementation Notice for the Great Lakes Wave update is available at:

http://www.nws.noaa.gov/om/notification/tin13-15glwfy14_2.htm

Request for Evaluation

Please complete the attached “Intent to Participate” form and return it to Chris.Caruso.Magee@noaa.gov no later than September 10, 2013. NCO requires an intent form be filed by all NCEP Service Centers. NWS WFO Detroit, WFO Marquette, NOAA/GLERL, and Environment Canada are listed as being primarily responsible for this evaluation. All NWS Service Centers are optional, as are the NWS Regions, WFOs other than Detroit and Marquette, government agencies, or private companies not listed above. For the NCEP Service Centers, if, in your estimation, the nature of the proposed change 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.

The 30-day evaluation period will start at 12Z on Monday, September 9, 2013 and run through October 8, 2013. Participants need to complete the attached “Model Implementation Subjective Evaluation Report” form and return to Chris.Caruso.Magee@noaa.gov no later than October 10, 2013. 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)

Henrique.Alves@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: GLW v3.2.0

Model Developer: Henrique Alves (EMC)

Real-Time Parallel Runs:

General comments: _____

Evaluation of expected benefits:

Do you observe the following and are they beneficial to you?

1. Do you see improvements in model skill for wave height, especially in regions of strong storm wind forcing?

2. Do you see improvements in forecast performance for extreme wave prediction ?

Recommendation:

Implement as proposed ____

Reevaluate after changes ____

Do not implement ____

