

October 19,2011

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 WSA-Enlil-Cone Model V1.0.0

The Space Weather Prediction Center (SWPC) has proposed implementation of a new physics-based numerical model (Enlil) which propagates interplanetary disturbances in the solar wind from the Sun to Earth. This model will deliver space weather alerts, watches, warnings, and forecasts to satellite operators, precision GPS users, the aviation industry, DoD, federal exploration and commercial space development mission controllers, and power distribution grid managers. Geomagnetic activity is a critical element in planning for these organizations. Enlil will benefit these users by providing days to plan reactions to pending geomagnetic storms rather than minutes. The increased warning time provided by Enlil will decrease the economic impacts of these storms by allowing sufficient time for activation of contingency plans by affected organizations.

The model includes :

1. Creation of the organizational and technological infrastructure to ensure robust delivery of accurate observational inputs to Enlil (both magnetogram data and cone CME model inputs).
2. Establishment of baseline code for specifying Enlil inner boundary conditions.
3. Warnings for solar storms extended from the current 1 hour out to 3-4 days.

Near real time parallel data:

Beginning Friday, October 21, 2011, and starting with the 1200Z cycle, a consistent parallel feed of data will be available at:

HTTP:
<http://www.swpc.noaa.gov/wsa-enlil/ambient>

Data delivery, Timing, Volume and Content changes:

The Enlil products will be produced daily every 2 hours, beginning with the 00Z cycle. Output is available at approximately CYC+1:35. Total output data volume for the output files is approximately 2.31 GB/day.

Request for Evaluation

Please complete the attached "Intent to Participate" form and return to Chris.Caruso.Magee@noaa.gov no later than October 24, 2011. NCO requires an intent form be filed by all NCEP Service Centers. 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 Friday, October 21 and run through November 20. Participants need to complete the attached "Model Implementation Subjective

Evaluation Report” form and return to Chris.Caruso.Magee@noaa.gov no later than November 29, 2011. 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 objective evaluation and address any outstanding issues. Based on the outcome of that teleconference, SWPC and NCO will prepare a recommendation for Dr. Uccellini (NCEP Director). This teleconference has not yet been scheduled.

Points of Contact

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

George.Millward@noaa.gov (SWPC)

Brent.Gordon@noaa.gov (SWPC)

**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 or Company Representing: _____

Proposed Change: WSA-Enlil Cone Model

Model Developer: George Millward

Real-Time Parallel Runs:

General comments: _____

Evaluation of expected benefits:

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

1. Warning times for solar storms have been extended from 1 hour to 3-4 days.

Recommendation:

Implement as proposed ____

Reevaluate after changes ____

Do not implement ____