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Public Information Statement 22-67 Updated
National Weather Service Headquarters Silver Spring MD
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From: Avichal Mehra
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 NCEP/Environmental Modeling Center

Subject: Updated: Soliciting Comments on the Upgrade of the Great Lakes
 Waves-Unstructured Forecast System (GLWU) to Version 2.0.0
 through December 23, 2022

Updated to remove reference to the Great Lakes Forecast System.

The Environmental Modeling Center (EMC) is proposing to upgrade the NWS operational Great Lakes Waves-Unstructured Forecast System (GLWU) to v2.0.0 in April 2023. The upgrade will provide improved forecast guidance over the existing model domain of the five Great Lakes, as well as extend this capability to Lake Champlain in the Weather Forecast Office (WFO) Burlington region.

The proposed GLWU upgrade includes the following:

1. Expansion of the model to include Lake Champlain

Lake Champlain will be added to the existing GLWU model configuration as an unstructured mesh component with horizontal resolution ranging from 400 m to 50 m. Wind forcing will be provided by the 1-hourly High-Resolution Rapid Refresh (HRRR) out to 18z and the Global Forecast System (GFS) out to 144 hours. Sea ice concentration analysis data will be provided by the WFO Burlington Ice Desk.

2. Increase in Sea Ice Concentration Resolution

The horizontal resolution of daily sea ice concentration data will increase from 5km to 500m. This is expected to improve the accuracy of modeled wave-ice interactions in the Great Lakes' coastal regions.

3. Upgrade to Wave Model Core

GLWUv2 will also introduce a new version of the WAVEWATCH III wave model core. This version features improvements in the physics, new capabilities for pre- and post-processing utilities, increased efficiency on high-performance computing platforms, and includes multiple bug fixes.

This upgrade does not involve moving, renaming or removing any forecast products produced from the Great Lakes Waves-Unstructured System (GLWU) on the National Centers for Environmental Prediction (NCEP) Operational Model Archive and Distribution System (NOMADS). The following three forecast products will be added for Lake Champlain on NOMADS:

1. Output on model's native unstructured mesh (netcdf).
2. Integrated output on a 2.5km Lambert Conformal grid (grib2).
3. Integrated output on a latitude/longitude regular grid at 500m resolution (grib2).

In addition to the new outputs on NOMADS, an Advanced Weather Interactive Processing System (AWIPS) file would be made available via the Satellite Broadcast Network (SBN) for Lake Champlain:

- Integrated output on a 2.5km Lambert Conformal grid (AWIPS file).

Please send comments on the science aspects of this proposed upgrade to:

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For questions on the dataflow aspects, please contact:

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The NWS will evaluate all comments to determine whether to proceed with this upgrade. If approved, a Service Change Notice will be issued giving a minimum of 30 days' notice of the implementation date.

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