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Public Information Statement 22-72
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From: Judy Ghirardelli
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 Meteorological Development Laboratory

Subject: Soliciting Comments on the Proposed Upgrade of GFS MOS, LAMP and Gridded LAMP Guidance through January 11, 2023

The Statistical Modeling Division (SMD) of the Meteorological Development Laboratory (MDL) is proposing to implement updated Global Forecast System (GFS)-based Model Output Statistics (MOS) guidance in early 2023. In conjunction with the GFS MOS upgrade, the Decision Support Division (DSD) of MDL is proposing to implement Localized Aviation MOS Program (LAMP) and Gridded LAMP (GLMP) Version 2.5 in spring 2023. The NWS is seeking public comments on these proposed upgrades through January 11, 2023. If approved, Service Change Notices (SCNs) will be issued at least 30 days prior to the implementation of each upgraded product with more detailed information.

The upgrade of GFS MOS was previously advertised in Public Information Statement (PNS) 22-01, which can be viewed here:

https://www.weather.gov/media/notification/pdf2/pns22-01_nbm_v4.1.pdf

This upgrade will include the addition of 337 new stations to the short-range (Advanced Weather Interactive Processing System (AWIPS) identifier "MAV") and extended-range (AWIPS identifier "MEX") GFS MOS text bulletins. Due to an insufficient development sample, guidance for 35 METAR stations, 45 marine stations and one Canadian station will be removed from the GFS MOS system with this upgrade. A list of station changes for the GFS MOS upgrade can be viewed here:

https://blend.mdl.nws.noaa.gov/mos-txt/src/stations/Dev2021_Add_Drop_List.pdf

LAMP/GLMP v2.5 will include the following enhancements/changes in support of the National Blend of Models (NBM) and other NWS initiatives:

1) Updated station-based temperature, dew point, wind speed, wind direction and wind gust guidance to incorporate recently redeveloped GFS MOS, incorporate input from the High Resolution Rapid Refresh (HRRR) model and extend forecast projections from 25 hours out to 38 hours. The

guidance also incorporates input from the Rapid Refresh (RAP) model for stations outside the contiguous U.S. (CONUS). The updated guidance will be available in the LAMP 1-25 hour (AWIPS identifier "LAV") and 26-38 hour (AWIPS identifier "LEV") text bulletins and in the LAMP Binary Universal Form for the Representation of meteorological data (BUFR) messages that are disseminated over the Satellite Broadcast Network (SBN) and available publicly on NCEP Web Services. This will include the addition of 337 stations to the LAV and LEV text bulletins and BUFR message and the removal of 35 stations as a result of MOS guidance no longer being available at these stations. See link provided above for list of added and removed stations.

2) Gridded LAMP guidance for temperature, dew point, wind speed, wind direction and wind gust will be re-tuned to incorporate the updated station guidance described above. This will include the addition of 337 new stations to the GLMP analyses for temperature, dew point and winds, and the removal of 35 stations that no longer have MOS guidance. No science changes are being proposed to the GLMP temperature, dew point and wind guidance beyond the re-tuning. GLMP for these elements will continue to be available through 25 hours for public use, but will be available internally out to 38 hours for the NBM.

3) The existing LAMP BUFR message will be replaced with an expanded BUFR message that includes the following changes:

A. Guidance for temperature, dew point, wind speed, wind direction, wind gust, ceiling height, visibility, conditional ceiling height and visibility, sky cover, and 1-hour probability of precipitation will now be available through 38 hours rather than the current 25-hour projection.

B. 1-hour convection and lightning probability and potential guidance out to 25 hours (which are currently operationally available in the LAMP bulletins) will be added.

C. Legacy 2-hour convection and lightning probability and potential products will be removed as these are being replaced with the comparable operational 1-hour products that are more skillful. See Change (6B) below for more information.

4) This upgrade will include the following web changes:

A. Gridded LAMP images available on the web site will be prepared with operational software and may look slightly different. Examples will be included in the documentation that will be linked on the LAMP Experimental webpage.

B. Legacy LAMP 0-hour analysis images available at the following link will be discontinued:

<https://www.nws.noaa.gov/mdl/gfslamp/analysis.php>

Users should instead use this link for 0-hour analysis images:

<https://www.nws.noaa.gov/mdl/gfslamp/glmp.php>

C. Most recent 24 cycles of 1-hour convection and lightning probability and potential guidance available at the following link will be discontinued:

https://lamp.mdl.nws.noaa.gov/glmp/lamp_archive_cnvtlg.php

This guidance is already available on NCEP web services here:

<https://nomads.ncep.noaa.gov/pub/data/nccf/com/lmp/prod/>

5) A change to the GLMP observational analyses to not disseminate the analysis for any element if the number of available observations is below 50% of normal. This will prevent a badly degraded analysis from being disseminated in rare instances when a large number of observations are missing.

6) The following products are proposed to be discontinued:

A. GLMP temperature and dew point error estimation grids. It is believed that these products are not widely used, and are proposed to be removed with this implementation.

B. Legacy 2-hour convection and lightning probability and potential guidance for the CONUS. These products were replaced by the 1-hour convection and lightning guidance in January 2018 (see Service Change Notice 17-101 at the following link:

https://www.weather.gov/media/notification/pdfs/scn17-101lamp2_laad.pdf).

The legacy 2-hour products continued running due to the dependence of AWIPS on these products. It was stated in the 2017 SCN that the legacy 2-hour products were planned to be discontinued once AWIPS was able to accommodate the upgraded 1-hour products. The 2-hour convection and lightning probability and potential products are proposed to be removed from the SBN, NCEP web services, and the LAMP BUFR message with this implementation.

Expected benefits of this LAMP upgrade include:

1) Updated station-based temperature, dew point and wind guidance to include updated GFS MOS, incorporate the HRRR and extend forecast projections to 38 hours will benefit users of the station guidance.

2) Updated CONUS GLMP temperature, dew point and wind guidance will support the NBM and other users of the gridded guidance.

3) Including HRRR-based predictors into the LAMP station-based and gridded guidance for temperature, dew point and winds will result in improved consistency with other LAMP elements that already incorporate the HRRR (e.g., ceiling height and visibility).

The website below contains additional information about the LAMP/GLMP v2.5 upgrade and links to sample prototype guidance:

<https://vlab.noaa.gov/web/mdl/experimental-lamp>

Note that data on the experimental LAMP webpage is subject to outages when the development Weather and Climate Operational Supercomputing System (WCOSS) machine is down for maintenance or if input data is otherwise unavailable.

For providing comments on the above changes to LAMP and Gridded LAMP guidance, please use the feedback form which can be accessed via this link:

<https://forms.gle/cjekFdyi7uEgoGHw7>

Alternatively, you can provide comments by sending an email with "Feedback on Proposed LAMP/GLMP v2.5 Upgrade" in the email subject to:

Judy Ghirardelli
Email: judy.ghirardelli@noaa.gov
Meteorological Development Laboratory
Chief, Decision Support Division
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and/or:

Phil Shafer
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The NWS and MDL will evaluate all comments on the proposed LAMP/GLMP v2.5 upgrade to determine whether to proceed with the upgrade.

Links to LAMP products and descriptions can be found at:

<https://vlab.noaa.gov/web/mdl/lamp>

National Public Information Statements are online at:

<https://www.weather.gov/notification/>

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