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Service Change Notice 23-50 Updated
National Weather Service Headquarters Silver Spring MD
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To: Subscribers:
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From: Judy Ghirardelli
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 Meteorological Development Laboratory

Subject: Updated: Changes to LAMP Station-Based and Gridded Guidance:
Effective June 6, 2023

Updated to change the implementation date to Tuesday, June 6, 2023.

On or about June 6, 2023, beginning with the 1630 Coordinated Universal Time (UTC) model run, the NWS Meteorological Development Laboratory (MDL) will implement changes to the Localized Aviation Model Output Statistics Program (LAMP) station-based and gridded guidance. Comments/feedback on this upgrade were previously solicited publicly from December 19, 2022 through January 11, 2023 via this Public Information Statement:

https://www.weather.gov/media/notification/pdf2/pns22-72_lamp_glmp_v2.5.pdf

In the event that the implementation date is declared a Critical Weather Day (CWD), an Enhanced Caution Event (ECE), or other significant weather is occurring or is anticipated to occur, implementation of this change will take place at 1630 UTC on the next weekday not declared a CWD and when no significant weather is occurring.

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 (Advanced Weather Interactive Processing System ((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 335 stations to the LAV and LEV text bulletins and BUFR message and the

removal of 33 stations as a result of MOS guidance no longer being available at these stations. Additionally, two stations will have a change of identifier in the text and BUFR guidance:

- a. K3A1 will be changed to KCMD.
- b. KGBN will be changed to KGXF.

The full list of added and removed stations can be viewed at:

<https://vlab.noaa.gov/web/mdl/lamp-stns-add-2023>
<https://vlab.noaa.gov/web/mdl/lamp-stns-removed-2023>

2) Gridded LAMP guidance for temperature, dew point, wind speed, wind direction and wind gust has been re-tuned to incorporate the updated station guidance described above. This will include the addition of 335 stations to the GLMP analyses for temperature, dew point and winds, the removal of 33 stations that no longer have MOS guidance, and incorporating RAP model information as a first guess field in the analysis for water grid points. GLMP for these elements will continue to be available through 25 hours for public use.

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. World Meteorological Organization (WMO) headers for the LAMP BUFR messages are listed in Table 2 below.

4) This upgrade will include the following web changes:

- a. Gridded LAMP images available on the website will be prepared with operational software and may look slightly different.
- 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 or forecast grids for any element if the number of available observations is below 50% of normal. This will prevent a badly degraded analysis or forecast from being disseminated in rare instances when a large number of observations are missing.

6) The following products will be discontinued:

a. GLMP temperature and dewpoint error estimation grids.

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 will be removed from the SBN, NCEP web services and the LAMP BUFR message with this implementation.

Expected benefits of this LAMP/GLMP v2.5 upgrade include:

a. Updated station-based temperature, dew point and wind guidance to include updated Global Forecast System (GFS) MOS, incorporate the High-Resolution Rapid Refresh (HRRR) and extend forecast projections to 38 hours will benefit users of the station guidance.

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

c. 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).

Links to sample data for this upgrade can be found at the LAMP Experimental Products website: <https://vlab.noaa.gov/web/mdl/experimental-lamp>

More details about LAMP/GLMP products and this implementation can be found online at the LAMP Documentation website:

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

Changes to dissemination:

1) The LAMP text bulletins for 1-25 hours (LAVUSA) and 26-38 hours (LEVUSA) disseminated over SBN/NOAAPort under WMO headers "FOUS11 KWNO" and "FEUS11 KWNO", respectively, will increase in size due to the addition of stations to the bulletins (see change #1 above). This change will result in file size increases of 0.5 MB per cycle for the LAV message and 0.6 MB per cycle for the LEV message.

2) The LAMP BUFR messages disseminated over SBN/NOAAPort under WMO headers "JSMFii KWNO" (where ii=10-17) will increase in size due to the addition of guidance through 38 hours for some elements and due to the addition of stations to the message (see change #3 above). This change will result in a file size increase of 2.5 MB per cycle for the LAMP BUFR message.

3) LAMP 2-hour convection and lightning probability and potential guidance for the CONUS with file name "lmp_cnvltgrib2_2p5km.xtrn.tHH30z" (where HH is the LAMP cycle hour) will no longer be disseminated over SBN/NOAAPort. WMO headers for these discontinued products are listed in Table 3 below. Additionally, the following files will be removed from NCEP web services at:

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

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

lmp_cnv_potgrib2_2p5km.tHH30z

lmp_cnv_prbgrib2_2p5km.tHH30z

lmp_ltg_potgrib2_2p5km.tHH30z

lmp_ltg_prbgrib2_2p5km.tHH30z

where HH is the LAMP cycle hour.

4) GLMP 0-hour temperature and dewpoint error estimation grids for the CONUS with file names "glmp_hr00_tdee.co.xgb2.g.tHH30z" and "glmp_hr00_tdee.co.xgb2.g.tH30z" (where HH is the LAMP cycle hour) will no longer be disseminated over SBN/NOAAPort. WMO headers for these products are listed in Table 4 below. Additionally, the following files will be removed from NCEP web services at:

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

<https://ftpprd.ncep.noaa.gov/data/nccf/com/glmp/prod>

glmp_hr00_tee.co.gb2.g.tHH30z

glmp_hr00_tdee.co.gb2.g.tHH30z

where HH is the valid hour.

5) All remaining LAMP/GLMP products that are available on TGFTP here:

<ftp://tgftp.nws.noaa.gov/SL.us008001/ST.opnl/DF.gr2/DC.ndgd/GT.glmp> will be removed with this implementation. The removal of these products from TGFTP was originally advertised in Service Change Notice 20-99, which can be found here:

https://www.weather.gov/media/notification/pdf2/scn20-99lamp_glmpaac.pdf

Additional details can be found here:

<https://vlab.noaa.gov/documents/6609493/7858387/LAMPandGriddedLAMPv2.3DissertationChanges.pdf>

Complete lists of LAMP and GLMP WMO headers can be found here:

https://vlab.noaa.gov/documents/6609493/7858387/lampheaders_2023_v2.5.docx.pdf

https://vlab.noaa.gov/documents/6609493/7858387/glmphheaders_2023_v2.5.docx.pdf

Communication identifiers for LAMP products affected by the changes outlined in this notice are given below.

Table 1: Communication Identifiers for the GFS-based LAMP Text Bulletin Products in American Standard Code for Information Interchange (ASCII) Format. Listed below are the WMO headings and the AWIPS identifiers.

WMO Heading	AWIPS ID	Description
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FOUS11 KWNO	LAVUSA	1-25 hour bulletin
FEUS11 KWNO	LEVUSA	Extended 26-38 hour bulletin

Table 2: Communication Identifiers for the GFS-based LAMP Products in BUFR Format. Listed below are the WMO headings.

WMO Heading	Description
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JSMF10 KWNO	LAMP BUFR Pacific Region
JSMF11 KWNO	LAMP BUFR Northeast Region
JSMF12 KWNO	LAMP BUFR Southeast Region
JSMF13 KWNO	LAMP BUFR North Central Region
JSMF14 KWNO	LAMP BUFR South Central Region
JSMF15 KWNO	LAMP BUFR Rocky Mountains Region
JSMF16 KWNO	LAMP BUFR West Coast Region
JSMF17 KWNO	LAMP BUFR Alaska Region

Table 3: Communication Identifiers for the 2-hour LAMP Convection and Lightning Probability and Potential Products in GRIB2 Format to be Removed with this Implementation. Listed below are the WMO headings, where [BC] represents the valid day (B or C) and ii = 00-23 the valid hour of the forecasts.

WMO Heading	Description
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LCU[BC]ii KWNO	2-hour lightning probability
LDU[BC]ii KWNO	2-hour lightning potential
LEU[BC]ii KWNO	2-hour convection probability
LFU[BC]ii KWNO	2-hour convection potential

Table 4: Communication Identifiers for the Gridded LAMP Temperature and Dew Point Error Estimation Grids that will be Discontinued with this Implementation. Listed below are the WMO headings where ii denotes the valid hour (00-23).

WMO Heading	Description
LAUBii KMDL	Error estimate of 0-hour observed temperature
LBUBii KMDL	Error estimate of 0-hour observed dew point

A consistent parallel feed of data will be available on the NCEP parallel NOMADS site beginning at least 30 days prior to implementation at the following locations:

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

Questions concerning parallel data should be directed to the NCEP Dataflow team at: ncep.pmb.dataflow@noaa.gov.

NCEP encourages users to ensure their decoders are flexible and are able to adequately handle changes in content format (including format and order of variables) and any volume changes that may be forthcoming. These elements may change with future NCEP model implementations. NCEP will make every attempt to alert users to these changes prior to any implementations.

Questions, comments or requests regarding this change should be directed to the contacts below:

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and/or

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For questions relating to dataflow, please contact:

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Links to the LAMP products and descriptions can be found at:

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

National Service Change Notices are online at:

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

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