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PNSWSH

Service Change Notice 20-99 Updated
National Weather Service Headquarters Silver Spring MD
1015 AM EDT Fri Mar 19 2021

To: Subscribers:
 -NOAA Weather Wire Service
 -Emergency Managers Weather Information Network
 -NOAAPort
 Other NWS Partners, Users and Employees

From: Judy Ghirardelli
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 Meteorological Development Laboratory

Subject: Updated: Changes to LAMP Station-based and Gridded Guidance:
Effective March 22, 2021

Updated to reflect the new implementation date of March 22, 2021 due to
Critical Weather Day.

In addition to the below changes, the GLMP code has been modified to
correct a post-processing error that can at times result in non-
meteorological artifacts appearing in the gridded visibility probability
fields, especially in areas of sparse station data. The impact to the
deterministic gridded visibility guidance is less to no impact. This
error was introduced in the GLMP implementation effective on October 22,
2019 and is corrected with this implementation.

On or about Monday, March 22, 2021, beginning with the 1230 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 LAMP (GLMP)
guidance. The changes noted below will all take place at this time, with
the exception of change (2) below which will contain missing values from
1230 UTC until it is fully operational at 1630 UTC on the effective date.

Background: Comments/feedback on this upgrade were previously solicited
publicly from August 24, 2020 through September 23, 2020:

https://www.weather.gov/media/notification/pdf2/pns20-81lamp_tgftp-nomads.pdf

This LAMP v2.3 upgrade will include the following enhancements in support
of the National Blend of Models (NBM) and other NWS initiatives:

- 1) Addition of GLMP ceiling height (cig) and visibility (vis) guidance for
Alaska on the NBM domain out to 38 hours. These new products extend the
"Meld" approach used over the Contiguous United States (CONUS) to Alaska,
and leverage the Rapid Refresh (RAP) model. These new gridded elements
for Alaska will be made available as input to a future version of NBM and

made available publicly on NCEP web services in Gridded Binary version two (GRIB2) format. New products that will be available include:

- a. Observations (0-hour) and forecasts (1-38 hours) of deterministic cig.
- b. Observations (0-hour) and forecasts (1-38 hours) of deterministic vis.
- c. Forecasts (1-38 hours) of probability of cig <500 feet, <1000 feet and <=3,000 feet
- d. Forecasts (1-38 hours) of probability of vis <1 mile, <3 miles and <=5 miles

2) Addition of GLMP 1-hour convection (1hcnv) and 1-hour lightning (1hltg) probability and potential guidance for Alaska on the NBM domain out to 38 hours. These new products use lightning data and Multi-Radar Multi-Sensor radar data to specify the occurrence of lightning and convection, and also leverage the RAP. These new gridded elements for Alaska will be made available as input to a future version of NBM and made available publicly on NCEP web services in GRIB2 format. New products that will be available include:

- a. Forecasts (1-38 hours) of 1-hour convection probability.
- b. Forecasts (1-38 hours) of 1-hour convection potential.
- c. Forecasts (1-38 hours) of 1-hour lightning probability.
- d. Forecasts (1-38 hours) of 1-hour lightning potential.

In addition, the 1-hour convection and lightning guidance at stations will now be available for all existing Alaska LAMP stations in the LAMP bulletins.

3) Expansion of CONUS GLMP sky cover guidance to the NBM CONUS domain and extension of forecast projections from 25 hours to 38 hours. The expanded sky cover guidance utilizes the recently-adopted "Meld" approach and incorporates the High Resolution Rapid Refresh (HRRR) model data over the CONUS and incorporates the RAP model in areas over Canada, the Gulf of Mexico and ocean areas. The expanded GLMP sky cover guidance will be made available as input to a future version of NBM and made available publicly on NCEP web services in GRIB2 format. Sky cover guidance for 26-38 hours will be added to the LEV text bulletin for CONUS and Alaska stations and will extend out to 38 hours in the full (1-38 hours) bulletin.

4) Addition of LAMP 1-hour, 6-hour and 12-hour probability of measurable precipitation (POP) and 1-hour best category Yes/No occurrence of measurable precipitation guidance for CONUS stations out to 38 hours. This will result in the following changes to the LAMP text bulletins and Binary Universal Form for the Representation of meteorological data (BUFR) messages:

- a. The 1-hour POP and Y/N guidance will be added to the LAV text bulletin for CONUS stations through 25 hours, to the extended LEV text bulletin for 26-38 hours, and the full text bulletins for 1-38 hours. This will change the format of the bulletins for CONUS stations because new lines will be added for 1-hour POP and Y/N category.

- b. The new 6-hour POP guidance will replace the current 6-hour POP guidance in the LAV text bulletins for CONUS stations through 25 hours,

and will be added to the extended LEV and full text bulletins for CONUS stations.

c. The new 6- and 12-hour POP guidance will replace the current 6- and 12-hour POP guidance in the LAMP BUFR messages for CONUS stations. The 1-hour POP and Y/N guidance will be added to the BUFR messages in a future implementation once the Advanced Weather Interactive Processing System (AWIPS) can accommodate the new expanded BUFR messages.

5) Refresh of conditional ceiling height and conditional visibility guidance at stations to incorporate the HRRR and extension to 38 hours. This updated guidance at stations will replace the current guidance in the 1-25 hour period in the LAV text bulletins and the LAMP BUFR messages. The new guidance for 26-38 hours will be added to the LEV text bulletins (26-38 hours) and the full (1-38 hours) bulletin.

6) Addition of cig, vis, lhcnv, and lhltg guidance for 76 remote stations in Alaska. A separate LAMP text bulletin will be made available on NCEP web services for these 76 remote Alaska stations containing guidance for these four elements only. A map and list of the 76 remote stations is available at the link below:

https://www.weather.gov/mdl/lamp_newguidance_v2.3.0

Expected benefits of this LAMP v2.3 upgrade include:

a. Addition of GLMP ceiling, visibility, convection, and lightning over Alaska will support the NBM and benefit aviation and wildfire management users.

b. Expansion of CONUS sky cover and extension of forecast projections to 38 hours will support the NBM and benefit aviation users and the general public.

c. Addition of CONUS 1-hour POP will benefit aviation users, the general public and users of the station guidance.

d. Conditional ceiling and visibility will leverage the HRRR and benefit users of the station guidance as well as users of the NWS Aviation Forecast Preparation System (AvnFPS).

e. Ceiling and visibility guidance will now be available for 76 new, remote stations in Alaska, which may be used for the NWS Alaska Aviation Guidance (AAG). More elements will be added to these stations in a future implementation.

Links to sample data for this upgrade can be found at the LAMP Experimental Products website:

https://www.weather.gov/mdl/lamp_experimental

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

http://www.weather.gov/mdl/lamp_docs

Product Delays:

Due to the above changes, all products at cycles 0130, 0730, 1330, and 1930 UTC will be about seven minutes delayed. The following GLMP products will be delayed for all HH:30 cycles where HH=the hour in UTC: GLMP ceiling and visibility grids will be delayed by 7-8 minutes; GLMP temperature and dewpoint grids will be delayed 5-9 minutes, GLMP wind grids will be delayed 6-12 minutes, GLMP Sky Cover grids will be delayed 11-15 minutes, with all other products delayed by less than five minutes in general.

Changes to dissemination:

1) The LAMP text bulletins for 1-25 hours (LAVUSA), disseminated over the Satellite Broadcast Network (SBN)/NOAAPort under World Meteorological Organization (WMO) header "FOUS11 KWNO" will increase in size due to the addition of 1-hour POP and 1-hour Y/N precipitation occurrence category for CONUS stations, and the addition of lhcnv and lhlgt guidance for Alaska stations.

2) The extended LAMP text bulletins for 26-38 hours (LEVUSA), disseminated over SBN/NOAAPort under WMO header "FEUS11 KWNO" will increase in size due to the additional elements through 38 hours.

3) Due to SBN bandwidth limitations, the products that are new with this implementation will not be disseminated over SBN/NOAAPort at this time, but will be made available on NCEP web services. Details about new products can be found here:

<https://vlab.ncep.noaa.gov/documents/6609493/7858387/LAMPandGriddedLAMPv2.3DisseminationChanges.pdf/8c4e859b-c93c-fedaa074-ff238c0869fe?t=1608737351353>

4) LAMP/GLMP products that are available on both TGFTP and NCEP web services will be removed from TGFTP with this implementation. LAMP/GLMP products that are available only on TGFTP will be moved to NCEP web services with this implementation. Details about the products being removed or moved from TGFTP can be found here:

<https://vlab.ncep.noaa.gov/documents/6609493/7858387/LAMPandGriddedLAMPv2.3DisseminationChanges.pdf/8c4e859b-c93c-fedaa074-ff238c0869fe?t=1608737351353>

5) Additionally, beginning on the change date, GLMP products presently residing on NCEP web services will have a change in filename to indicate the coverage domain. Details about the filename changes can be found here:

<https://vlab.ncep.noaa.gov/documents/6609493/7858387/LAMPandGriddedLAMPv2.3DisseminationChanges.pdf/8c4e859b-c93c-fedaa074-ff238c0869fe?t=1608737351353>

Webpage Changes:

The webpage that hosts the GLMP images will move from the current location on or about the effective date:

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

to:

<https://weather.gov/mdl/gfslamp/glmp.php>

The LAMP and GLMP WMO headers are unchanged with this upgrade. Complete lists of LAMP and GLMP WMO headers can be found here:

LAMP headers:

https://www.weather.gov/media/mdl/lampheaders_vert_structure_v2.2.0.pdf

GLMP headers:

https://www.weather.gov/media/mdl/glmphheaders_2016.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 ASCII Format. Listed below are the WMO heading 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

A consistent parallel feed of data will be available on the NCEP parallel NOAA Operational Model Archive and Distribution System (NOMADS) site beginning at least 30 days prior to implementation at the following locations:

<https://para.nomads.ncep.noaa.gov/pub/data/nccf/com/lmp/para>
<https://para.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 contact below. We will review feedback and decide whether to proceed.

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

https://www.weather.gov/mdl/lamp_home

National Service Change Notices are online at:

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

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