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PNSWSH

Service Change Notice 17-101 Updated  
National Weather Service Headquarters Silver Spring MD  
245 PM EDT Tue Mar 20 2018

To:       Subscribers:  
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          -NOAAPort  
          Other NWS Partners, Users and Employees

From:     David Ruth  
          NWS Office of Science and Technology Integration  
          Meteorological Development Laboratory

Subject: Updated: Changes to LAMP Station-based and Gridded Guidance:  
Effective January 25, 2018

Updated to inform users of unintended filename changes on TGFTP, and  
corrective action that was taken.

Starting on the implementation date of January 25, 2018, some Localized  
Aviation MOS (Model Output Statistics) Program (LAMP) files residing on  
the NWS FTP server had an inadvertent filename change. This problem was  
corrected on February 28, 2018, when filenames reverted back to their  
original naming conventions. Specifically, the LAMP ASCII Text Bulletin  
files found at:

<http://tgftp.nws.noaa.gov/SL.us008001/DF.anf/DC.lampgfs/> now have their  
original file names of:  
cy.HH.txt where HH=cycle hour

and the LAMP BUFR files at the link below:  
<http://tgftp.nws.noaa.gov/SL.us008001/DF.bf/DC.lampgfs/>  
now have their original file names of:  
cy.HH.bin where HH=cycle hour.

In addition, the intra-hour LAMP bulletins updated every 15 minutes and  
going out only three hours for ceiling, visibility, and obstruction to  
vision also were available on the NWS FTP server, which was unintentional.  
As of February 28, 2018, these files were no longer being disseminated on  
the NWS FTP server. The 15-minute products are available experimentally  
at the following site:

[https://www.weather.gov/mdl/lamp\\_experimental](https://www.weather.gov/mdl/lamp_experimental)

Original notice follows...

On or about Thursday, January 25, 2018, 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.

LAMP station-based guidance is produced at more than 1,600 stations in the Continental United States (CONUS), Alaska, Hawaii and Puerto Rico. GLMP guidance is generated on a 2.5-km Lambert Conformal grid over the CONUS. LAMP station-based forecasts and GLMP gridded observations and gridded forecasts (1- to 25-hour projections) are produced hourly. These products are disseminated on the Satellite Broadcast Network (SBN), NOAAPort, and are available in the operational National Digital Guidance Database (NDGD).

Specific changes are as follows:

- Addition of 1-hour convection and lightning gridded guidance over the CONUS. This new guidance incorporates High Resolution Rapid Refresh (HRRR) model data, Multi-Radar Multi-Sensor data, and total lightning data. The following elements will be available on the 2.5-km National Digital Forecast Database (NDFD) CONUS grid in gridded binary version two (GRIB2) format for hourly projections through 25 hours:

- 1-hour Probability of convection
- 1-hour Potential of convection occurrence (No/Low/Medium/High)
- 1-hour Probability of lightning
- 1-hour Potential of lightning occurrence (No/Low/Medium/High)

These elements will be disseminated over the SBN, NOAAPort and will be available in NDGD on the NWS ftp server. World Meteorological Organization (WMO) headers and NDGD file names for the 1-hour convection and lightning products are listed in Tables 3 and 4 below, respectively.

Comparison images for operational 2-hour guidance and experimental 1-hour guidance can be viewed at the following links:

Convection: [http://www.nws.noaa.gov/mdl/lamp/cnv1h\\_proposed.php](http://www.nws.noaa.gov/mdl/lamp/cnv1h_proposed.php)

Lightning: [http://www.nws.noaa.gov/mdl/lamp/ltg1h\\_proposed.php](http://www.nws.noaa.gov/mdl/lamp/ltg1h_proposed.php)

The new 1-hour convection and lightning gridded guidance will eventually replace the operational 2-hour gridded guidance. Dissemination of the operational 2-hour gridded guidance will continue until the 1-hour gridded products are available in the Advanced Weather Interactive Processing System (AWIPS).

- Replacement of 2-hour convection and lightning guidance with 1-hour guidance in the LAMP text bulletins (AWIPS PIL "LAV"). The format of the LAV text bulletins will change as follows:

Line for 2-hour lightning probability (labeled "LP2") will be replaced with 1-hour lightning probability (labeled "LP1"), with probabilities specified for each hour through 25 hours.

Line for 2-hour lightning potential (labeled "LC2") will be replaced with 1-hour lightning potential (labeled "LC1"), with potential categories (N/L/M/H) specified for each hour through 25 hours.

Line for 2-hour convection probability (labeled "CP2") will be replaced with 1-hour convection probability (labeled "CP1"), with probabilities specified for each hour through 25 hours.

Line for 2-hour convection potential (labeled "CC2") will be replaced with

1-hour convection potential (labeled "CC1"), with potential categories (N/L/M/H) specified for each hour through 25 hours.

There will be no changes to the LAMP Binary Universal Form for the Representation of meteorological data (BUFR) message for convection and lightning. The 2-hour lightning guidance will remain in the BUFR message until such time as AWIPS decoders are modified to handle the 1-hour guidance. At that time, the 1-hour lightning guidance will replace the 2-hour lightning guidance and the 1-hour convection guidance will be added in the BUFR.

Example text bulletins containing the new 1-hour convection and lightning guidance can be viewed at the following link:

<https://sats.nws.noaa.gov/~lamp/exprlamp/bull/cy.latest.txt>

- Addition of 332 new stations to the LAMP text bulletins and BUFR files to match the stations available in the GFS MOS (MAV) text bulletins. Added stations will have guidance for ceiling height, visibility, obstruction to vision, 1-hour convection probability and potential, and 1-hour lightning probability and potential. Guidance for other elements will be added in future implementations.

A list of stations being added to the LAMP text bulletins and BUFR messages is provided at the following link:

[https://www.weather.gov/mdl/lamp\\_newsites v2.1.0](https://www.weather.gov/mdl/lamp_newsites v2.1.0)

New stations are not being added to the GLMP analysis at this time. These sites will be added to GLMP with a future implementation.

- Use the most recent METAR and special (SPECI) observations as predictors for all elements, in place of the traditional top-of-the-hour observation. This approach leverages the most recent observations that are available at the time of the LAMP run, which benefits the station LAMP forecasts and the grids that use the station forecasts, especially in the first few hours.

- Addition of station-based and GLMP guidance for ceiling and visibility produced every 15 minutes using the most recent METAR and SPECI observations. In addition to the "base" LAMP run which runs at 30 minutes past the hour out to 25 hours, guidance for ceiling, visibility, and obstruction to vision will be produced three additional times per hour at nominal runs times of 00, 15 and 45 minutes past each hour, for hourly projections out to three hours. Forecasts from the 15-minute runs out to three hours will still be valid at the top of the hour.

Prototype text bulletins containing ceiling and visibility guidance out to three hours generated every 15 minutes can be viewed at the following link:

<https://sats.nws.noaa.gov/~lamp/exprlamp/bull/cyupdate.latest.txt>

Note that the above link will show full bulletins if the most recent LAMP run was the "base" LAMP run that ran nominally at 30 past the hour. Prototype GLMP images for ceiling and visibility out to three hours generated every 15 minutes can be viewed at the following link:

[https://sats.nws.noaa.gov/~glmp/glmp\\_expr\\_v2.1.0.php](https://sats.nws.noaa.gov/~glmp/glmp_expr_v2.1.0.php)

At this time, the text bulletins and gridded output generated from the 15-minute (non-base) LAMP runs will not be disseminated over the SBN/NOAAPort due to issues with AWIPS compatibility. Instead, this guidance will be experimentally available on a webpage for user evaluation at the links provided above. The 15-minute guidance may be added to the SBN in a future implementation once AWIPS is able to ingest the 15-minute data.

Benefits of the system changes include:

- Improved spatial and temporal resolution of convection and lightning guidance over the CONUS.
- Availability of guidance for additional stations to match what is available in the GFS MOS text bulletins.
- Infusing most recent METAR and SPECI observations into the LAMP system results in improved skill primarily in the first few hours.
- Additional 15-minute (non-base) runs for ceiling and visibility leverage most recent METAR and SPECI observations, resulting in improved forecast skill for these elements through three hours.

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](http://www.weather.gov/mdl/lamp_docs)

Changes to Dissemination:

- The new 1-hour convection and lightning gridded guidance in GRIB2 format will be added to the SBN/NOAAPort and operational NDGD.
- The 2-hour lightning products at 5km resolution over the CONUS will be removed from the SBN/NOAAPort. A list of headers being removed is provided in Table 5 below.

Since the 2-hour products are available in AWIPS at 2.5km resolution, it is no longer necessary to disseminate the legacy 5km guidance. This removal notification was provided in Technical Implementation Notice (TIN) 13-50:

[https://www.weather.gov/media/notification/tins/tin13-50lamp\\_cnvltgaab.pdf](https://www.weather.gov/media/notification/tins/tin13-50lamp_cnvltgaab.pdf)

There are no other changes to the dissemination with this implementation. The LAMP and GLMP products will continue to be available in operational NDGD, SBN, NOAAPort and NWS file transfer protocol (ftp) server.

Details for the locations of the LAMP and GLMP products on the NWS ftp server can be found here:

[http://www.weather.gov/mdl/lamp\\_NWS\\_tgftp\\_server](http://www.weather.gov/mdl/lamp_NWS_tgftp_server)

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

LAMP headers:

[http://www.weather.gov/media/mdl/lampheaders\\_vert\\_structure\\_v2.1.0\\_05192017.pdf](http://www.weather.gov/media/mdl/lampheaders_vert_structure_v2.1.0_05192017.pdf)

GLMP headers: [http://www.weather.gov/media/mdl/glmphheaders\\_2016.pdf](http://www.weather.gov/media/mdl/glmphheaders_2016.pdf)

The communication identifiers for the LAMP text and BUFR products are shown in Tables 1 and 2 below.

Table 1: Communication Identifiers for the GFS-based LAMP Products in ASCII format. Listed below are the WMO heading and the AWIPS identifier.

| WMO Heading | AWIPS ID |
|-------------|----------|
| -----       | -----    |
| FOUS11 KWNO | LAVUSA   |

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

| WMO Heading | Region                           |
|-------------|----------------------------------|
| -----       | -----                            |
| 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 1-hour Convection and Lightning Gridded Products in GRIB2 Format. Listed below are representations of the WMO headers where xxx represents the valid day and valid UTC hour of the forecasts. Please see updated LAMP header document linked above for further details.

| WMO Header  | Element                                           |
|-------------|---------------------------------------------------|
| -----       | -----                                             |
| YGUxxx KWNO | Gridded 1-hour lightning probability              |
| YHUxxx KWNO | Gridded 1-hour lightning potential of occurrence  |
| YIUxxx KWNO | Gridded 1-hour convection probability             |
| YJUxxx KWNO | Gridded 1-hour convection potential of occurrence |

Table 4: NDGD Filenames for 1-hour Convection and Lightning Products in GRIB2 Format.

| NDGD Filename | Element                                           |
|---------------|---------------------------------------------------|
| -----         | -----                                             |
| ds.plt01.bin  | Gridded 1-hour lightning probability              |
| ds.olt01.bin  | Gridded 1-hour lightning potential of occurrence  |
| ds.pcv01.bin  | Gridded 1-hour convection probability             |
| ds.ocv01.bin  | Gridded 1-hour convection potential of occurrence |

Table 5: Communication Identifiers for the 2-h Lightning Gridded Products at 5km Resolution that will be removed from the SBN/NOAAPort. Listed below are representations of the WMO headers where xxx represents the valid day and valid UTC hour of the forecasts.

| WMO Header  | Element                                    |
|-------------|--------------------------------------------|
| -----       | -----                                      |
| LAUxxx KWNO | Gridded 2-hour lightning probability (5km) |
| LBUxxx KWNO | Gridded 2-hour lightning potential (5km)   |

A consistent parallel feed of data will be made available in the near future on the NCEP HTTP site. The data will be available at the following URLs:

<http://para.nomads.ncep.noaa.gov/pub/data/nccf/noaaport/lmp>  
<http://para.nomads.ncep.noaa.gov/pub/data/nccf/noaaport/glmp>

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:

[http://www.weather.gov/mdl/lamp\\_home](http://www.weather.gov/mdl/lamp_home)

National Service Change Notices are online at:

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

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