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Technical Implementation Notice 13-50 Amended
National Weather Service Headquarters Washington DC
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 -NOAA Weather Wire Service
 -Emergency Managers Weather Information Network
 -NOAAPort
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From: Tim McClung
 Chief, Science Plans Branch
 Office of Science and Technology

Subject: Amended: Changes to the Localized Aviation Model Output
Statistics Program (LAMP) Products and Addition of Convection Guidance and
Upgrade to Lightning Guidance: Effective April 8, 2014

This notice is being amended to postpone the implementation until April 8, 2014, to allow time to correct a problem found with the Binary Universal Form for the Representation of meteorological data (BUFR) data in testing.

Beginning on or about Tuesday, April 8, 2014, beginning with the 1600 Coordinated Universal Time (UTC) run, the 2.5 km LAMP convection and lightning gridded guidance in gridded binary version 2 (GRIB2) format will be available in the operational National Digital Guidance Database (NDGD) in these locations:

<ftp://tgftp.nws.noaa.gov/SL.us008001/ST.opnl/DF.gr2/DC.ndgd/GT.glmp/AR.conus/VP.001-003/>

<http://weather.noaa.gov/pub/SL.us008001/ST.opnl/DF.gr2/DC.ndgd/GT.glmp/AR.conus/VP.001-003/>

with these file names:

LAMP Lightning Probabilities, on a 2.5 km grid: ds.plt02.bin

LAMP Forecast Potential (no/low/medium/high) of lightning occurring, on a 2.5 km grid: ds.olt02.bin

LAMP Convection Probabilities, on a 2.5 km grid: ds.pcv02.bin

LAMP Forecast Potential (no/low/medium/high) of convection occurring, on a 2.5 km grid: ds.ocv02.bin

The 2.5km guidance replaces the 5 km guidance. Therefore, the following 5 km files will be removed:

Lightning Probabilities in a 2-hour period, on a 5 km grid: ds.pts02.bin

Thunderstorm Occurrence (Yes/No) in a 2-hour period, on a 5 km grid:
ds.ots02.bin from this directory:
<ftp://tgftp.nws.noaa.gov/SL.us008001/ST.opnl/DF.gr2/DC.ndgd/GT.lampgfs/AR.conus>

Note that the five km lightning guidance will still be available on NOAAPort and the Satellite Broadcast Network (SBN) until the time when the Advanced Weather Interactive Processing System (AWIPS) can be modified to use the 2.5 km lightning guidance.

The LAMP 2.5 km convection and lightning grids are being produced experimentally, and on the effective date, will become operational. At that time, the decimal scaling in the GRIB2 messages containing probabilistic guidance will change from 1 to 0.

The original notice, with revised date information, is below:

Effective on or about Tuesday, April 8, 2014, beginning with the 1600 Coordinated Universal Time (UTC) run, NWS will change the LAMP guidance to add convection and upgrade the lightning product.

On September 16, 2013, NWS solicited comments through November 15, 2013, regarding these changes:

<https://www.weather.gov/media/notification/pdfs/pns13lampcnvltg.pdf>

After the comment period ended, an error was discovered in the calculation of a lightning-based predictor associated with the guidance. The error involved a small discrepancy in the timing of the incorporated lightning strikes. A correction was implemented Monday, December 23, 2013. In addition, a webpage has been posted to show the previous and corrected guidance, which illustrates the effect of the correction for three cases:
<http://www.nws.noaa.gov/mdl/gfslamp/lmpltgfix.php>

Given this correction, NWS extended the comment period for these products to January 16, 2014.

The LAMP convection and lightning forecast guidance consists of probability forecasts and categorical forecasts (referred to as "potential") in 20 km grid boxes for 2-hour periods in the 3- to 25-hour range over the contiguous U.S. (CONUS). Convection in a grid box is defined as the occurrence of either radar reflectivity of greater than or equal to 40 dBZ or at least one cloud-to-ground (CTG) lightning strike or both during the 2-hour valid period. Lightning occurrence in a grid box is defined as at least one CTG lightning strike during the 2-hour valid period. The categorical LAMP convection and lightning forecasts consist of four objectively defined potential categories consisting of no, low, medium and high.

The experimental LAMP convection and lightning guidance contains guidance on a 2.5 km Lambert Conformal grid covering the same expanse as the National Digital Forecast Database (NDFD) CONUS grid. Grids are generated hourly.

The proposed LAMP convection guidance is a new product, while the upgraded LAMP lightning product is proposed to replace the current LAMP thunderstorm guidance. The name of the latter will change from thunderstorm to lightning, and the resolution will change from five km to 2.5 km. In addition to the 2.5 km LAMP lightning grids, corresponding grids will be produced for the current five km grid. The four-category product will be converted to a Yes/No categorical product to support users who prefer to maintain the content/format of the current lightning product.

Users can find more information about these products, as well as links to the experimental data and images, at:

http://www.nws.noaa.gov/mdl/gfslamp/docs/cnvlgtg_info.php

With this change, the LAMP text bulletin (AWIPS PIL of LAV) will change accordingly. The LAMP lightning probabilities and the four category guidance (interpolated to stations) will replace the current thunderstorm probabilities and two category guidance, respectively. Also, NWS will add the LAMP convection probabilities and four category guidance interpolated to stations. An example of the current LAMP bulletin as compared to the proposed LAMP bulletin is online:

<http://www.nws.noaa.gov/mdl/gfslamp/docs/lavtxtdiff.php>

The format of the new lightning guidance will look the same as the format of the current thunderstorm guidance in the BUFR files to support users who depend on this data and format. The Convection Guidance will be added to the BUFR file at a later time, and will be announced via a Technical Implementation Notice.

Users are encouraged to provide feedback on these experimental products via a survey/comment form available at:

<http://www.nws.noaa.gov/survey/nws-survey.php?code=LCULG>

NWS made a final decision to approve implementation of these proposed products in March 2014. This guidance will be implemented on Tuesday, April 8, 2014, at 1600 UTC and disseminated on the SBN, NOAAPort and the NWS FTP server.

A webpage outlining the LAMP products and the NWS server directory and file structure can be found online at:

http://www.nws.noaa.gov/mdl/gfslamp/docs/NWS_tgftp_server_201403.shtml

The communication identifiers for the BUFR products, merican Standard Code for Information Interchange (ASCII) products, and GRIB2 products are shown below in Tables 1-3. A complete list of gridded LAMP World Meteorological Organization (WMO) headings is at:

http://www.nws.noaa.gov/mdl/gfslamp/docs/lampheaders_201403.pdf

Table 1: Communication Identifiers for the Global Forecast System (GFS)-Based LAMP Products in BUFR Format

Listed below are the WMO headings. These headings have not changed.

WMO Heading	Region
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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

Table 2: Communication Identifier for the GFS-Based LAMP Product in ASCII Format

Listed below is the WMO heading and AWIPS identifier. This heading has not changed.

WMO Heading	AWIPS ID
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FOUS11 KWNO	LAVUSA

Table 3a: Communication Identifiers for the Upgraded 5 km GFS-Based LAMP Lightning Products in GRIB2 Format

Each GRIB2 product has a unique WMO header. Listed below are representations of the WMO headings. These headings have not changed.

WMO Heading	Element
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LAUXXX KWNO	2-Hour Probability of Lightning at 5-km
LBUXXX KWNO	2-hour Categorical Forecasts of Lightning Occurring at 5-km

Table 3b: Communication Identifiers for the New 2.5-km GFS-Based LAMP Lightning and Convection Products in GRIB2 Format

Each GRIB2 product has a unique WMO header. Listed below are representations of the WMO headings. These headings are new.

WMO Heading	Element
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LCUXXX KWNO	2-Hour Probability of Lightning at 5-km
LDUXXX KWNO	2-Hour Categorical Forecast Potential of Lightning Occurring at 2.5-km
LEUXXX KWNO	2-Hour Probability of Convection at 2.5-km
LFUXXX KWNO	2-Hour Categorical Forecast Potential of Convection Occurring at 2.5-km

If you have technical comments or questions, please contact:

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Links to the LAMP products and descriptions can found at:
<http://www.nws.noaa.gov/mdl/gfslamp/gfslamp.shtml>

National Technical Implementation Notices are online at:
<https://www.weather.gov/notification/archive>

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