NWS REQUEST FOR CHANGE FORM	1. WSH TRACKING NUMBER **DRG RC 10647**	1A. REV LEVEL	2. DATE RECEIVED 4/4/07

PART A - COVER SHEET

This form is in three parts. Submitters must complete unshaded blocks in Part A, and as much of Part B and C as possible. If there is no specific required change date, enter 60 days from date submitted. Address questions to NWS Change Management at (301) 713-1373. Submit change requests to the NWSRC mailbox (External: NWSRC@noaa.gov).

3. ORIGINATOR OFFICE	4. SUBMITTING AUTHORITY	5. COGNIZANT TECHNICAL INDIVIDUAL	6. ORIGINATOR TRACKING NUMBER	7. DATE SUBMITTED
NWS/OST/MDL	Name: Rebecca Cosgrove Routing Code: W/OST22	Name: Judy Ghirardelli Routing Code: W/OST21 Phone: (301) 713-0056 x 194	MDL2007-03	April 3, 2007

8. SYSTEMS AFFECTED BY CHANGE

☐ ASOS ☒ AWIPS ☐ CSSA ☐ CRS ☒ DATA PRODUCTS

☐ EMWIN ☐ NEXRAD ☐ RRS ☐ OTHER (specify)

9. ORD IDENTIFIER

10. TITLE OF CHANGE

Addition of cycles and stations for GFS-based Localized Aviation MOS Program (LAMP) guidance for the CONUS, Hawaii, Alaska, the Virgin Islands, and Puerto Rico (GFS-LAMP was approved in OSIP Task 05-059)

11. CATEGORY OF CHANGE

☒ RC ☐ PECP ☐ ECP

12. TYPE OF CHANGE

☐ DOCUMENTATION ONLY ☐ HARDWARE ☒ SOFTWARE ☒ DATA

13. SITES AFFECTED

All

14. STATEMENT OF REQUIREMENT, PROBLEM, OR DEFICIENCY OF EXISTING SYSTEM

For NWS forecasters to produce accurate aviation forecast products, guidance is needed on an hourly basis covering the time period of the terminal aerodrome forecast (TAF) product. Localized Aviation MOS Program (LAMP) currently provides a product in AWIPS on a 3 hourly basis, but this product is based on the Model Output Statistics (MOS) from the Nested Grid Model (NGM), and does not cover the full TAF period of 24 hours. There is a science opportunity to update this product based on the new Global Forecast Systems (GFS) MOS, to provide the guidance on an hourly basis, and to provide guidance that covers the TAF period.
(Adapted from LAMP OSIP Stage 1 Statement of Need Document)
Problem: Currently the GFS-LAMP guidance is produced 4 times a day (RC DRG 9931). More cycles need to be developed and implemented so that the guidance is produced 24 times a day.

15. KNOWN OR PROPOSED SOLUTION

Four new cycles of GFS-LAMP guidance have been created. In addition, 69 new stations are being added to the additional GFS-LAMP cycles. See http://www.nws.noaa.gov/mdl/gfslamp/docs/newsites_052007.shtml for the additional stations valid for the new cycles. This new guidance will be added to the SBN on May 8, 2007.

The GFS-LAMP guidance will continue to be disseminated in ASCII, BUFR, and GRIB2 format. The products will continue to be sent from the NCEP CCS via the SBN to AWIPS, where they will be decoded by the already existing decoders. These products will add roughly 7 MB of data to the SBN 4 times a day. This data flow amount was originally requested and approved in RC DRG 9931, however two of the BUFR messages will be slightly larger than originally estimated due to the additional stations in the new cycles (see Part A – Page 2).

In addition, due to the change in the start of the day in the NDFD (TIN 06-51), 6 additional headers will be required. DMG will have to add the following headers to the RTG:
LAUC01 KWNO LAUC03 KWNO LAUC20 KWNO LBUC01 KWNO LBUC03 KWNO LBUC20 KWNO
Our header documentation http://www.nws.noaa.gov/mdl/gfslamp/docs/lampheaders.pdf has been updated to reflect this. Prior to the official SBN implementation date, we need to send data to the testNCF.

16. ALTERNATE SOLUTIONS

See Business Case Analysis Document for OSIP 05-059 for a discussion of alternative solutions. See https://osip.nws.noaa.gov/osip/processDocsStatus.php which requires NWS username First.Last and NWS login password. At this site, refer to OSIP Number 05-059

17. REQUIRED CHANGE DATE	18. RATIONALE FOR REQUIRED CHANGE DATE	19. PRIORITY
ASAP for testNCF May 8, 2007 for SBN transmission	Sample data should be made available on the testNCF for testing. May 8, 2007 refers to the official SBN transmission date, which corresponds to 75 days of advance notice for additional cycles and stations. May 8, 2007 is stated in TIN 07-13.	☒ ROUTINE ☐ URGENT ☐ EMERGENCY

DRG/CCB/PMC/CMB DECISION

20. DECISION AUTHORITY AND IMPACT LEVEL

☐ PMC or NWS CMB DECISION REQUIRED ☐ CCB LEVEL ONLY ☐ FAST TRACK ☐ MAJOR CHANGE ☐ MINOR CHANGE

21. CCB LEVEL DECISION

☒ APPROVED ☐ DISAPPROVED

☐ RECOMMEND APPROVAL ☐ REFERRED TO OSIP

SIGNATURE

Anthony Robinson

DATE SIGNED
5/3/07

FOR USE ONLY WHEN PMC or NWS CMB DECISION REQUIRED

22. PMC OR NWS CMB DECISION

☐ APPROVED ☐ DISAPPROVED

SIGNATURE/DATE

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PART A - DATA PRODUCTS SUPPLEMENT

This information is required for Data Products submissions.

3. INTERNAL NWS USE ONLY	4. PRODUCT SOURCE	5. AWIPS DATA TYPE
☐ YES ☒ NO	NCEP CCS	Text (ASCII), GRIB2, BUFR

6A. NOTIFICATION	6B. CHANGE NOTICE NUMBER	6C. ISSUE DATE	6D. TEST DATE	6E. IMPLEMENT DATE
SBN/NOAAPort	10647	5/3/07	Immediately	5/8/07
EMWIN				
NWWS				

7. NODE ID	8. AWIPS ID	9. WMO HEADER	10. ADD REV DEL	11. SEAS Y/N	12. CHAR PER MSG	13. FREQUENCY	14. NWSTG DISTR
	NNNXXX						
Please see attached document for complete header and product size/projection information							
AWIPS DATA TYPE: ASCII							
	LAVUSA	FOUS11 KWNO	Add	N	3M	Once per hour	SBN/NOAAPORT
AWIPS DATA TYPE: GRIB2							
		LAUxxx KWNO	Add	N	75K/grid	Once per hour	SBN/NOAAPORT
		LBUxxx KWNO	Add	N	65K/grid	Once per hour	SBN/NOAAPORT
AWIPS DATA TYPE: BUFR							
		JSMF10 KWNO	Add	N	20K	Once per hour	SBN/NOAAPORT
		JSMF11 KWNO	Add	N	400K	Once per hour	SBN/NOAAPORT
		JSMF12 KWNO	Add	N	300K	Once per hour	SBN/NOAAPORT
		JSMF13 KWNO	Add	N	700K	Once per hour	SBN/NOAAPORT
		JSMF14 KWNO	Add	N	400K	Once per hour	SBN/NOAAPORT
		JSMF15 KWNO	Add	N	275K	Once per hour	SBN/NOAAPORT
		JSMF16 KWNO	Add	N	275K	Once per hour	SBN/NOAAPORT
		JSMF17 KWNO	Add	N	200K	Once per hour	SBN/NOAAPORT

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NWS/OST/MDL/MPB/LAMP
JEG:03/30/2007

WMO Headers for GFS-LAMP products
OSIP LAMP 05-059

Note: This document has been updated (2/2007) to properly reflect the grib headers for GFS LAMP cycles of 1800, 1900, and 2000 UTC. These headers were modified in this document to conform with the NDFD change regarding at what hour the day begins. It now begins at 2200 UTC instead of the previous 1800 UTC. In addition, the final page is updated (3/2007) to reflect the newest size estimates for the BUFR messages given the additional stations for the newest cycles.

WMO headers have the format of $T_1T_2A_1A_2$ii CCCC

The CCCC for all GFS-LAMP products is **KWNO**.

A. **WMO Headers for LAMP station guidance in ASCII text format**

1. The T_1 designates the data type. For the GFS-LAMP ASCII text product T_1 is **F** for Forecast.

2. The T_2 further designates the data type. For the GFS-LAMP ASCII text product T_2 is **O** for Guidance.

3. The A_1A_2 designates the geographical area. For the GFS-LAMP ASCII text product the A_1A_2 is **US** for the United States of America.

4. The ii for the GFS-LAMP ASCII text product is **11** for global distribution. Data from stations in all regions of the United States of America will be contained in this ASCII text bulletin.

5. GFS-LAMP ASCII text product header = **FOUS11 KWNO**

6. The GFS-LAMP ASCII text product AWIPS identifier will be **LAVUSA**.

B. **WMO Headers for LAMP station guidance in BUFR format**

1. The T_1 designates the data type. For the GFS-LAMP BUFR product T_1 is **J** for Forecast Information - BUFR.

2. The T_2 further designates the data type. For the GFS-LAMP BUFR product T_2 is **S** for surface/sea level.

3. The A_1 further designates the data type. For the GFS-LAMP BUFR product the A_1 is **M** for Land based main synoptic reports.

4. The A_2 further designates the reference time. For the GFS-LAMP BUFR product the A_2 is **F** for 30 hours forecast.

5. The ii designates the geographical region of the data. For the GFS-LAMP BUFR product the ii is as follows:

   i. **10** Pacific Region
   ii. **11** Northeast Region
   iii. **12** Southeast Region
   iv. **13** North Central Region
   v. **14** South Central Region
   vi. **15** Rocky Mountains Region
   vii. **16** West Coast Region
   viii. **17** Alaska

6. GFS-LAMP BUFR product headers:
   i. **JSMF10 KWNO**

ii. **JSMF11 KWNO**
iii. **JSMF12 KWNO**
iv. **JSMF13 KWNO**
v. **JSMF14 KWNO**
vi. **JSMF15 KWNO**
vii. **JSMF16 KWNO**
viii. **JSMF17 KWNO**

C. **WMO Headers for LAMP gridded guidance in GRIB2 format**

1. The T_1 for the GFS-LAMP GRIB2 product is **L.**

2. The T_2 designates the weather element type. The following values are used for the GFS-LAMP GRIB2 product:

   i. **A** = 2-hr probability of thunderstorms
   ii. **B** = 2-hr categorical forecasts (yes/no) of thunderstorms occurring

3. The A_1 designates the geographical area. For the GFS-LAMP product in GRIB2 format, the A_1 is **U** for CONUS.

4. The A_2 and the ii follow the convention established in the NDFD. These three characters together represent the day and hour (UTC) for which the product is valid. Specifically for LAMP, the gridded guidance is for thunderstorms in a 2-hr period, and the valid time represents the end of the 2-h period. So a GFS-LAMP thunderstorm probability valid from 10-12 UTC would be said to be valid at 12 UTC.

   The LAMP thunderstorm guidance in a 2-h period is valid for every 2-h period ending in the first 2-6 hours after issuance (3-7 hours after the cycle time), and every subsequent 2-hr period which ends on an even UTC hour. Please see http://www.nws.noaa.gov/mdl/gfslamp/docs/Tstorm_proj_schematic.pdf for a visual depiction of the valid periods.

   i. In general, the following convention for the A_2 and the ii is used for the GFS-LAMP gridded thunderstorm products:

      1. **A** = Day 0; ii = UTC hour (**21-23**)
      2. **B** = Day 1; ii = UTC hour (**00-23**)
      3. **C** = Day 2; ii = UTC hour (**00, 02, 04, 06, 08, 10, 12, 14, 16, 18**)

   ii. Specifically, these are the exact WMO headers for the LAMP GRIB2 thunderstorm products. All headers have CCCC of **KWNO**:
      1. Projections from the 00 UTC GFS-LAMP cycle:
         a. 2-h period ending at 03 UTC: **LAUB03** and **LBUB03**
         b. 2-h period ending at 04 UTC: **LAUB04** and **LBUB04**
         c. 2-h period ending at 05 UTC: **LAUB05** and **LBUB05**
         d. 2-h period ending at 06 UTC: **LAUB06** and **LBUB06**
         e. 2-h period ending at 07 UTC: **LAUB07** and **LBUB07**
         f. 2-h period ending at 08 UTC: **LAUB08** and **LBUB08**
         g. 2-h period ending at 10 UTC: **LAUB10** and **LBUB10**
         h. 2-h period ending at 12 UTC: **LAUB12** and **LBUB12**
         i. 2-h period ending at 14 UTC: **LAUB14** and **LBUB14**
         j. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
         k. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
         l. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
         m. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
         n. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
      2. Projections from the 01 UTC GFS-LAMP cycle:
         a. 2-h period ending at 04 UTC: **LAUB04** and **LBUB04**
         b. 2-h period ending at 05 UTC: **LAUB05** and **LBUB05**
         c. 2-h period ending at 06 UTC: **LAUB06** and **LBUB06**

d. 2-h period ending at 07 UTC: **LAUB07** and **LBUB07**
e. 2-h period ending at 08 UTC: **LAUB08** and **LBUB08**
f. 2-h period ending at 10 UTC: **LAUB10** and **LBUB10**
g. 2-h period ending at 12 UTC: **LAUB12** and **LBUB12**
h. 2-h period ending at 14 UTC: **LAUB14** and **LBUB14**
i. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
j. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
k. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
l. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
m. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
n. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**

3. Projections from the 02 UTC GFS-LAMP cycle:
   a. 2-h period ending at 05 UTC: **LAUB05** and **LBUB05**
   b. 2-h period ending at 06 UTC: **LAUB06** and **LBUB06**
   c. 2-h period ending at 07 UTC: **LAUB07** and **LBUB07**
   d. 2-h period ending at 08 UTC: **LAUB08** and **LBUB08**
   e. 2-h period ending at 09 UTC: **LAUB09** and **LBUB09**
   f. 2-h period ending at 10 UTC: **LAUB10** and **LBUB10**
   g. 2-h period ending at 12 UTC: **LAUB12** and **LBUB12**
   h. 2-h period ending at 14 UTC: **LAUB14** and **LBUB14**
   i. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
   j. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
   k. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
   l. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
   m. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
   n. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
4. Projections from the 03 UTC GFS-LAMP cycle:
   a. 2-h period ending at 06 UTC: **LAUB06** and **LBUB06**
   b. 2-h period ending at 07 UTC: **LAUB07** and **LBUB07**
   c. 2-h period ending at 08 UTC: **LAUB08** and **LBUB08**
   d. 2-h period ending at 09 UTC: **LAUB09** and **LBUB09**
   e. 2-h period ending at 10 UTC: **LAUB10** and **LBUB10**
   f. 2-h period ending at 12 UTC: **LAUB12** and **LBUB12**
   g. 2-h period ending at 14 UTC: **LAUB14** and **LBUB14**
   h. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
   i. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
   j. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
   k. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
   l. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
   m. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
   n. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
5. Projections from the 04 UTC GFS-LAMP cycle:
   a. 2-h period ending at 07 UTC: **LAUB07** and **LBUB07**
   b. 2-h period ending at 08 UTC: **LAUB08** and **LBUB08**
   c. 2-h period ending at 09 UTC: **LAUB09** and **LBUB09**
   d. 2-h period ending at 10 UTC: **LAUB10** and **LBUB10**
   e. 2-h period ending at 11 UTC: **LAUB11** and **LBUB11**
   f. 2-h period ending at 12 UTC: **LAUB12** and **LBUB12**
   g. 2-h period ending at 14 UTC: **LAUB14** and **LBUB14**
   h. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
   i. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
   j. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
   k. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
   l. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
   m. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
   n. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
6. Projections from the 05 UTC GFS-LAMP cycle:

a. 2-h period ending at 08 UTC: **LAUB08** and **LBUB08**
b. 2-h period ending at 09 UTC: **LAUB09** and **LBUB09**
c. 2-h period ending at 10 UTC: **LAUB10** and **LBUB10**
d. 2-h period ending at 11 UTC: **LAUB11** and **LBUB11**
e. 2-h period ending at 12 UTC: **LAUB12** and **LBUB12**
f. 2-h period ending at 14 UTC: **LAUB14** and **LBUB14**
g. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
h. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
i. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
j. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
k. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
l. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
m. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
n. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**

7. Projections from the 06 UTC GFS-LAMP cycle:
   a. 2-h period ending at 09 UTC: **LAUB09** and **LBUB09**
   b. 2-h period ending at 10 UTC: **LAUB10** and **LBUB10**
   c. 2-h period ending at 11 UTC: **LAUB11** and **LBUB11**
   d. 2-h period ending at 12 UTC: **LAUB12** and **LBUB12**
   e. 2-h period ending at 13 UTC: **LAUB13** and **LBUB13**
   f. 2-h period ending at 14 UTC: **LAUB14** and **LBUB14**
   g. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
   h. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
   i. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
   j. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
   k. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
   l. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
   m. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
   n. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**
8. Projections from the 07 UTC GFS-LAMP cycle:
   a. 2-h period ending at 10 UTC: **LAUB10** and **LBUB10**
   b. 2-h period ending at 11 UTC: **LAUB11** and **LBUB11**
   c. 2-h period ending at 12 UTC: **LAUB12** and **LBUB12**
   d. 2-h period ending at 13 UTC: **LAUB13** and **LBUB13**
   e. 2-h period ending at 14 UTC: **LAUB14** and **LBUB14**
   f. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
   g. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
   h. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
   i. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
   j. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
   k. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
   l. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
   m. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**
   n. 2-h period ending at 08 UTC: **LAUC08** and **LBUC08**
9. Projections from the 08 UTC GFS-LAMP cycle:
   a. 2-h period ending at 11 UTC: **LAUB11** and **LBUB11**
   b. 2-h period ending at 12 UTC: **LAUB12** and **LBUB12**
   c. 2-h period ending at 13 UTC: **LAUB13** and **LBUB13**
   d. 2-h period ending at 14 UTC: **LAUB14** and **LBUB14**
   e. 2-h period ending at 15 UTC: **LAUB15** and **LBUB15**
   f. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
   g. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
   h. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
   i. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
   j. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
   k. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
   l. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**

m. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**
n. 2-h period ending at 08 UTC: **LAUC08** and **LBUC08**

10. Projections from the 09 UTC GFS-LAMP cycle:
    a. 2-h period ending at 12 UTC: **LAUB12** and **LBUB12**
    b. 2-h period ending at 13 UTC: **LAUB13** and **LBUB13**
    c. 2-h period ending at 14 UTC: **LAUB14** and **LBUB14**
    d. 2-h period ending at 15 UTC: **LAUB15** and **LBUB15**
    e. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
    f. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
    g. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
    h. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
    i. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
    j. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
    k. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
    l. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**
    m. 2-h period ending at 08 UTC: **LAUC08** and **LBUC08**
    n. 2-h period ending at 10 UTC: **LAUC10** and **LBUC10**
11. Projections from the 10 UTC GFS-LAMP cycle:
    a. 2-h period ending at 13 UTC: **LAUB13** and **LBUB13**
    b. 2-h period ending at 14 UTC: **LAUB14** and **LBUB14**
    c. 2-h period ending at 15 UTC: **LAUB15** and **LBUB15**
    d. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
    e. 2-h period ending at 17 UTC: **LAUB17** and **LBUB17**
    f. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
    g. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
    h. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
    i. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
    j. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
    k. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
    l. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**
    m. 2-h period ending at 08 UTC: **LAUC08** and **LBUC08**
    n. 2-h period ending at 10 UTC: **LAUC10** and **LBUC10**
12. Projections from the 11 UTC GFS-LAMP cycle:
    a. 2-h period ending at 14 UTC: **LAUB14** and **LBUB14**
    b. 2-h period ending at 15 UTC: **LAUB15** and **LBUB15**
    c. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
    d. 2-h period ending at 17 UTC: **LAUB17** and **LBUB17**
    e. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
    f. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
    g. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
    h. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
    i. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
    j. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
    k. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**
    l. 2-h period ending at 08 UTC: **LAUC08** and **LBUC08**
    m. 2-h period ending at 10 UTC: **LAUC10** and **LBUC10**
    n. 2-h period ending at 12 UTC: **LAUC12** and **LBUC12**
13. Projections from the 12 UTC GFS-LAMP cycle:
    a. 2-h period ending at 15 UTC: **LAUB15** and **LBUB15**
    b. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
    c. 2-h period ending at 17 UTC: **LAUB17** and **LBUB17**
    d. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
    e. 2-h period ending at 19 UTC: **LAUB19** and **LBUB19**
    f. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
    g. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
    h. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
    i. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**

j. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
k. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**
l. 2-h period ending at 08 UTC: **LAUC08** and **LBUC08**
m. 2-h period ending at 10 UTC: **LAUC10** and **LBUC10**
n. 2-h period ending at 12 UTC: **LAUC12** and **LBUC12**

14. Projections from the 13 UTC GFS-LAMP cycle:
    a. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
    b. 2-h period ending at 17 UTC: **LAUB17** and **LBUB17**
    c. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
    d. 2-h period ending at 19 UTC: **LAUB19** and **LBUB19**
    e. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
    f. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
    g. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
    h. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
    i. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
    j. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**
    k. 2-h period ending at 08 UTC: **LAUC08** and **LBUC08**
    l. 2-h period ending at 10 UTC: **LAUC10** and **LBUC10**
    m. 2-h period ending at 12 UTC: **LAUC12** and **LBUC12**
    n. 2-h period ending at 14 UTC: **LAUC14** and **LBUC14**
15. Projections from the 14 UTC GFS-LAMP cycle:
    a. 2-h period ending at 17 UTC: **LAUB17** and **LBUB17**
    b. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
    c. 2-h period ending at 19 UTC: **LAUB19** and **LBUB19**
    d. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
    e. 2-h period ending at 21 UTC: **LAUB21** and **LBUB21**
    f. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
    g. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
    h. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
    i. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
    j. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**
    k. 2-h period ending at 08 UTC: **LAUC08** and **LBUC08**
    l. 2-h period ending at 10 UTC: **LAUC10** and **LBUC10**
    m. 2-h period ending at 12 UTC: **LAUC12** and **LBUC12**
    n. 2-h period ending at 14 UTC: **LAUC14** and **LBUC14**
16. Projections from the 15 UTC GFS-LAMP cycle:
    a. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
    b. 2-h period ending at 19 UTC: **LAUB19** and **LBUB19**
    c. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
    d. 2-h period ending at 21 UTC: **LAUB21** and **LBUB21**
    e. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
    f. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
    g. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
    h. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
    i. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**
    j. 2-h period ending at 08 UTC: **LAUC08** and **LBUC08**
    k. 2-h period ending at 10 UTC: **LAUC10** and **LBUC10**
    l. 2-h period ending at 12 UTC: **LAUC12** and **LBUC12**
    m. 2-h period ending at 14 UTC: **LAUC14** and **LBUC14**
    n. 2-h period ending at 16 UTC: **LAUC16** and **LBUC16**
17. Projections from the 16 UTC GFS-LAMP cycle:
    a. 2-h period ending at 19 UTC: **LAUB19** and **LBUB19**
    b. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
    c. 2-h period ending at 21 UTC: **LAUB21** and **LBUB21**
    d. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
    e. 2-h period ending at 23 UTC: **LAUB23** and **LBUB23**
    f. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**

g. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
h. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
i. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**
j. 2-h period ending at 08 UTC: **LAUC08** and **LBUC08**
k. 2-h period ending at 10 UTC: **LAUC10** and **LBUC10**
l. 2-h period ending at 12 UTC: **LAUC12** and **LBUC12**
m. 2-h period ending at 14 UTC: **LAUC14** and **LBUC14**
n. 2-h period ending at 16 UTC: **LAUC16** and **LBUC16**

18. Projections from the 17 UTC GFS-LAMP cycle:
    a. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
    b. 2-h period ending at 21 UTC: **LAUB21** and **LBUB21**
    c. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
    d. 2-h period ending at 23 UTC: **LAUB23** and **LBUB23**
    e. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
    f. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
    g. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
    h. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**
    i. 2-h period ending at 08 UTC: **LAUC08** and **LBUC08**
    j. 2-h period ending at 10 UTC: **LAUC10** and **LBUC10**
    k. 2-h period ending at 12 UTC: **LAUC12** and **LBUC12**
    l. 2-h period ending at 14 UTC: **LAUC14** and **LBUC14**
    m. 2-h period ending at 16 UTC: **LAUC16** and **LBUC16**
    n. 2-h period ending at 18 UTC: **LAUC18** and **LBUC18**
19. Projections from the 18 UTC GFS-LAMP cycle:
    a. 2-h period ending at 21 UTC: **LAUB21** and **LBUB21**
    b. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
    c. 2-h period ending at 23 UTC: **LAUB23** and **LBUB23**
    d. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
    e. 2-h period ending at 01 UTC: **LAUC01** and **LBUC01**
    f. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
    g. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
    h. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**
    i. 2-h period ending at 08 UTC: **LAUC08** and **LBUC08**
    j. 2-h period ending at 10 UTC: **LAUC10** and **LBUC10**
    k. 2-h period ending at 12 UTC: **LAUC12** and **LBUC12**
    l. 2-h period ending at 14 UTC: **LAUC14** and **LBUC14**
    m. 2-h period ending at 16 UTC: **LAUC16** and **LBUC16**
    n. 2-h period ending at 18 UTC: **LAUC18** and **LBUC18**
20. Projections from the 19 UTC GFS-LAMP cycle:
    a. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
    b. 2-h period ending at 23 UTC: **LAUB23** and **LBUB23**
    c. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
    d. 2-h period ending at 01 UTC: **LAUC01** and **LBUC01**
    e. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
    f. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
    g. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**
    h. 2-h period ending at 08 UTC: **LAUC08** and **LBUC08**
    i. 2-h period ending at 10 UTC: **LAUC10** and **LBUC10**
    j. 2-h period ending at 12 UTC: **LAUC12** and **LBUC12**
    k. 2-h period ending at 14 UTC: **LAUC14** and **LBUC14**
    l. 2-h period ending at 16 UTC: **LAUC16** and **LBUC16**
    m. 2-h period ending at 18 UTC: **LAUC18** and **LBUC18**
    n. 2-h period ending at 20 UTC: **LAUC20** and **LBUC20**
21. Projections from the 20 UTC GFS-LAMP cycle:
    a. 2-h period ending at 23 UTC: **LAUB23** and **LBUB23**
    b. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**
    c. 2-h period ending at 01 UTC: **LAUC01** and **LBUC01**

d. 2-h period ending at 02 UTC: **LAUC02** and **LBUC02**
e. 2-h period ending at 03 UTC: **LAUC03** and **LBUC03**
f. 2-h period ending at 04 UTC: **LAUC04** and **LBUC04**
g. 2-h period ending at 06 UTC: **LAUC06** and **LBUC06**
h. 2-h period ending at 08 UTC: **LAUC08** and **LBUC08**
i. 2-h period ending at 10 UTC: **LAUC10** and **LBUC10**
j. 2-h period ending at 12 UTC: **LAUC12** and **LBUC12**
k. 2-h period ending at 14 UTC: **LAUC14** and **LBUC14**
l. 2-h period ending at 16 UTC: **LAUC16** and **LBUC16**
m. 2-h period ending at 18 UTC: **LAUC18** and **LBUC18**
n. 2-h period ending at 20 UTC: **LAUC20** and **LBUC20**

22. Projections from the 21 UTC GFS-LAMP cycle:
    a. 2-h period ending at 00 UTC: **LAUB00** and **LBUB00**
    b. 2-h period ending at 01 UTC: **LAUB01** and **LBUB01**
    c. 2-h period ending at 02 UTC: **LAUB02** and **LBUB02**
    d. 2-h period ending at 03 UTC: **LAUB03** and **LBUB03**
    e. 2-h period ending at 04 UTC: **LAUB04** and **LBUB04**
    f. 2-h period ending at 06 UTC: **LAUB06** and **LBUB06**
    g. 2-h period ending at 08 UTC: **LAUB08** and **LBUB08**
    h. 2-h period ending at 10 UTC: **LAUB10** and **LBUB10**
    i. 2-h period ending at 12 UTC: **LAUB12** and **LBUB12**
    j. 2-h period ending at 14 UTC: **LAUB14** and **LBUB14**
    k. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
    l. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
    m. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
    n. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
23. Projections from the 22 UTC GFS-LAMP cycle:
    a. 2-h period ending at 01 UTC: **LAUB01** and **LBUB01**
    b. 2-h period ending at 02 UTC: **LAUB02** and **LBUB02**
    c. 2-h period ending at 03 UTC: **LAUB03** and **LBUB03**
    d. 2-h period ending at 04 UTC: **LAUB04** and **LBUB04**
    e. 2-h period ending at 05 UTC: **LAUB05** and **LBUB05**
    f. 2-h period ending at 06 UTC: **LAUB06** and **LBUB06**
    g. 2-h period ending at 08 UTC: **LAUB08** and **LBUB08**
    h. 2-h period ending at 10 UTC: **LAUB10** and **LBUB10**
    i. 2-h period ending at 12 UTC: **LAUB12** and **LBUB12**
    j. 2-h period ending at 14 UTC: **LAUB14** and **LBUB14**
    k. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
    l. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
    m. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
    n. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
24. Projections from the 23 UTC GFS-LAMP cycle:
    a. 2-h period ending at 02 UTC: **LAUB02** and **LBUB02**
    b. 2-h period ending at 03 UTC: **LAUB03** and **LBUB03**
    c. 2-h period ending at 04 UTC: **LAUB04** and **LBUB04**
    d. 2-h period ending at 05 UTC: **LAUB05** and **LBUB05**
    e. 2-h period ending at 06 UTC: **LAUB06** and **LBUB06**
    f. 2-h period ending at 08 UTC: **LAUB08** and **LBUB08**
    g. 2-h period ending at 10 UTC: **LAUB10** and **LBUB10**
    h. 2-h period ending at 12 UTC: **LAUB12** and **LBUB12**
    i. 2-h period ending at 14 UTC: **LAUB14** and **LBUB14**
    j. 2-h period ending at 16 UTC: **LAUB16** and **LBUB16**
    k. 2-h period ending at 18 UTC: **LAUB18** and **LBUB18**
    l. 2-h period ending at 20 UTC: **LAUB20** and **LBUB20**
    m. 2-h period ending at 22 UTC: **LAUB22** and **LBUB22**
    n. 2-h period ending at 00 UTC: **LAUC00** and **LBUC00**

NWS REQUEST FOR CHANGE FORM	1. WSH TRACKING NUMBER **DRG RC 10647**	1A. REV LEVEL	2. DATE RECEIVED 4/4/07

Table 1: WMO header information for LAMP products

Element	Header	Geographical Area	Data Type	No. of Products per cycle	Projections (hr)	Bytes per header/ cycle
All elements	JSMF10 KWNO	Pacific Region	BUFR	1	1-25 (in increments of 1 hour)	20K/20K
All elements	JSMF11 KWNO	Northeast CONUS	BUFR	1	1-25 (in increments of 1 hour)	400K/400K
All elements	JSMF12 KWNO	Southeast CONUS, PR, VI	BUFR	1	1-25 (in increments of 1 hour)	300K/300K
All elements	JSMF13 KWNO	North Central CONUS	BUFR	1	1-25 (in increments of 1 hour)	700K/700K
All elements	JSMF14 KWNO	South Central CONUS	BUFR	1	1-25 (in increments of 1 hour)	400K/400K
All elements	JSMF15 KWNO	Rocky Mountains CONUS	BUFR	1	1-25 (in increments of 1 hour)	275K/275K
All elements	JSMF16 KWNO	West Coast CONUS	BUFR	1	1-25 (in increments of 1 hour)	275K/275K
All elements	JSMF17 KWNO	Alaksa	BUFR	1	1-25 (in increments of 1 hour)	200K/200K
All elements	FOUS11 KWNO	CONUS, HI, AK, PR, VI	ASCII	1	1-25 (in increments of 1 hour)	3M/3M
Gridded Thunderstorm Probabilities in a 2-hr period	LAUA2ii KWNO	CONUS	GRIB2	14 grids (1 per projection)	2-hr periods ending at the following projections - From even cycles: 3, 4, 5, 6, 7, 8, 10, 12, 14, 16, 18, 20, 22, 24 - From odd cycles: 3, 4, 5, 6, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25	75K/1.05M
Gridded Categorical Forecasts (yes/no) of thunderstorms occurring in a 2-hr period	LBUA2ii KWNO	CONUS	GRIB2	14 grids (1 per projection)	2-hr periods ending at the following projections - From even cycles: 3, 4, 5, 6, 7, 8, 10, 12, 14, 16, 18, 20, 22, 24 - From odd cycles: 3, 4, 5, 6, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25	65K/910K