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 T1T2A1A2ii CCCC

The CCCC for all GFS-LAMP products is KWNO.

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

1. The T1 designates the data type. For the GFS-LAMP ASCII text product T1 is F for Forecast.

2. The T2 further designates the data type. For the GFS-LAMP ASCII text product T2 is O for Guidance.

3. The A1A2 designates the geographical area. For the GFS-LAMP ASCII text product the A1A2 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 = FOUUS11 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 T1 designates the data type. For the GFS-LAMP BUFR product T1 is J for Forecast Information - BUFR.

2. The T2 further designates the data type. For the GFS-LAMP BUFR product T2 is S for surface/sea level.

3. The A1 further designates the data type. For the GFS-LAMP BUFR product the A1 is M for Land based main synoptic reports.

4. The A2 further designates the reference time. For the GFS-LAMP BUFR product the A2 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 T₁ for the GFS-LAMP GRIB2 product is L.

   2. The T₂ 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 A₁ designates the geographical area. For the GFS-LAMP product in GRIB2 format, the A₁ is U for CONUS.

   4. The A₂ 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-h period which ends on an even UTC hour. Please see [http://www.nws.noaa.gov/mdl/gfslamp/docs/Tstorm_proj_schematic.pdf](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 A₂ 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  

h. 2-h period ending at 08 UTC: LAUB08 and LBUB08  

i. 2-h period ending at 10 UTC: LAUB10 and LBUB10  

j. 2-h period ending at 12 UTC: LAUB12 and LBUB12  

k. 2-h period ending at 14 UTC: LAUB14 and LBUB14  

l. 2-h period ending at 16 UTC: LAUB16 and LBUB16  
m. 2-h period ending at 18 UTC: LAUB18 and LBUB18  
n. 2-h period ending at 20 UTC: LAUB20 and LBUB20  

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
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
<table>
<thead>
<tr>
<th>Element</th>
<th>Header</th>
<th>Geographical Area</th>
<th>Data Type</th>
<th>No. of Products per cycle</th>
<th>Projections (hr)</th>
<th>Bytes per header/ cycle</th>
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<tbody>
<tr>
<td>All elements</td>
<td>JSMF10 KWNO</td>
<td>Pacific Region</td>
<td>BUFR</td>
<td>1</td>
<td>1-25 (in increments of 1 hour)</td>
<td>20K/20K</td>
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<tr>
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<td>Northeast CONUS</td>
<td>BUFR</td>
<td>1</td>
<td>1-25 (in increments of 1 hour)</td>
<td>400K/400K</td>
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<tr>
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<td>JSMF12 KWNO</td>
<td>Southeast CONUS, PR, VI</td>
<td>BUFR</td>
<td>1</td>
<td>1-25 (in increments of 1 hour)</td>
<td>300K/300K</td>
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<tr>
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<td>North Central CONUS</td>
<td>BUFR</td>
<td>1</td>
<td>1-25 (in increments of 1 hour)</td>
<td>700K/700K</td>
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<tr>
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<td>BUFR</td>
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<tr>
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<td>Rocky Mountains CONUS</td>
<td>BUFR</td>
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<td>JSMF16 KWNO</td>
<td>West Coast CONUS</td>
<td>BUFR</td>
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<td>1-25 (in increments of 1 hour)</td>
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<tr>
<td>All elements</td>
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<td>Alaska</td>
<td>BUFR</td>
<td>1</td>
<td>1-25 (in increments of 1 hour)</td>
<td>200K/200K</td>
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<tr>
<td>All elements</td>
<td>FOUS11 KWNO</td>
<td>CONUS, HI, AK, PR, VI</td>
<td>ASCII</td>
<td>1</td>
<td>1-25 (in increments of 1 hour)</td>
<td>3M/3M</td>
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<tr>
<td>Gridded Thunderstorm Probabilities in a 2-hr period</td>
<td>LAUA2ii KWNO</td>
<td>CONUS</td>
<td>GRIB2</td>
<td>14 grids (1 per projection)</td>
<td>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</td>
<td>75K/1.05M</td>
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<tr>
<td>Gridded Categorical Forecasts (yes/no) of thunderstorms occurring in a 2-hr period</td>
<td>LBUA2ii KWNO</td>
<td>CONUS</td>
<td>GRIB2</td>
<td>14 grids (1 per projection)</td>
<td>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</td>
<td>65K/910K</td>
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</tbody>
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