NWS/STI/MDL/DSD/LAMP
DTM:02/23/2011
JEG:11/15/2012
JEG:08/05/2015
JEG:04/27/2016
JEG/PS:06/18/2019
PS:03/28/2023
PS: 07/17/2024

WMO Headings for Gridded LAMP (GLMP) Products

(Note: This document has been updated (07/2024) for GLMP v2.6 to remove obsolete headers and products. There are no changes to GLMP headers for the v2.6 upgrade.)

WMO headings have the format of $T_1T_2A_1A_2$ii CCCC

1. The CCCC for all Gridded LAMP (GLMP) product WMO headings is **KMDL**.

2. The T_1 for all GLMP products is **L**.

3. The T_2 represents the weather element type designator. Values for 0-hour observation T_2 are:

A = temperature at sensor height (nominally, 2 m)
B = dew point temperature at sensor height (nominally, 2 m)
C = ceiling height
D = visibility
E = opaque sky cover
F = wind speed (nominally, 10 m)
G = wind direction (nominally, 10 m)
H = wind gusts (nominally, 10 m)

Values for forecast T_2 are:
K = temperature at sensor height (nominally, 2 m)
L = dew point temperature at sensor height (nominally, 2 m)
M = ceiling height (see A2 below for probability specifications)
N = visibility (see A2 below for probability specifications)
O = opaque sky cover
P = wind speed (nominally, 10 m)
Q = wind direction (nominally, 10 m)
R = wind gust (nominally, 10 m)

Note that T_2 skips letters between 0-hour observation and forecast grids so that elements can be added in the future and subsequent to the appropriate list, observations or forecasts.

4. The A_1 designates the geographical area. This implementation is over CONUS only and therefore A1=**U**

5. For non-probability grids, the A_2 indicates if the grid is a standard grid (A_2= A) or an Error Estimation grid (A_2= B). Specifically, for non-probability grids the A_2 represents:

A = Standard grid (such as temperature, dewpoint, wind speed, ceiling height, etc.)

For probability grids, the A_2 for individual element headers indicates the probability event. Specifically:

For ceiling height grids (T_2 = M), the A_2 represents:

C = probability of ceiling height < 500 feet
D = probability of ceiling height < 1000 feet
F = probability of ceiling height ≤ 3000 feet

For visibility grids (T_2 = N), the A_2 represents:

C = probability of visibility < 1 mile
E = probability of visibility < 3 miles
F = probability of visibility ≤ 5 miles

The ii will represent the cycle time for the observation grids and number of hours past cycle time for the forecast grids.

6. Since there will be multiple GRIB2 messages for the GLMP forecast grids in the same file, they will be grouped under a superheader where the A_2 and ii will be "**Z**" and "**98**", respectively, when being routed to the tgftp at the TOC for NDGD. As there will only be one grid per header for the GLMP observations, superheaders will not be necessary for those grids.

GLMP 0-hour observation grids:

LAUAii KMDL - Temperature
LBUAii KMDL - Dew Point
LCUAii KMDL - Ceiling Height
LDUAii KMDL - Visibility
LEUAii KMDL - Opaque Sky Cover

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LFUAii KMDL - Wind Speed
LGUAii KMDL - Wind Direction
LHUAii KMDL - Wind Gusts

ii = valid UTC hour (00-23)

GLMP forecast grids:

LKUAii KMDL – Temperature (ii=01-25)
LLUAii KMDL - Dew Point (ii=01-25)

LMUAii KMDL - Ceiling Height (ii=01-38)
LMUCii KMDL - Probability of ceiling height < 500 feet (ii=01-38)
LMUDii KMDL - Probability of ceiling height < 1000 feet (ii=01-38)
LMUFii KMDL - Probability of ceiling height ≤ 3000 feet (ii=01-38)

LNUAii KMDL – Visibility (ii=01-38)
LNUCii KMDL – Probability of visibility < 1 mile (ii=01-38)
LNUEii KMDL – Probability of visibility < 3 miles (ii=01-38)
LNUFii KMDL – Probability of visibility ≤ 5 miles (ii=01-38)

LOUAii KMDL – Opaque Sky Cover (ii=01-25)
LPUAii KMDL – Wind Speed (ii=01-25)
LQUAii KMDL – Wind Direction (ii=01-25)
LRUAii KMDL – Wind Gusts (ii=01-25)

ii = forecast projection

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Table1: Superheaders and individual headers and product sizes for Gridded LAMP products.

Element	Super-header	Product Headers	Geographical Area	No. of Products per cycle	Projections (hr)	Estimated maximum Bytes per header/ cycle *
0-hr Observed Temperature	N/A	LAUAii KMDL ii = valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
0-hr Observed Dew Point	N/A	LBUAii KMDL ii = valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
0-hr Observed Ceiling Height	N/A	LCUAii KMDL ii = valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
0-hr Observed Visibility	N/A	LDUAii KMDL ii = valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
0-hr Observed Opaque Sky Cover	N/A	LEUAii KMDL ii = valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
0-hr Observed Wind Speed	N/A	LFUAii KMDL ii = valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
0-hr Observed Wind Direction	N/A	LGUAii KMDL ii = valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
0-hr Observed Wind Gusts	N/A	LHUAii KMDL ii = valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
Forecasted Temperature	LKUZ98 KMDL	LKUAii KMDL ii = forecast projection (01- 25)	CONUS	25	1-25 (in increments of 1 hour)	0.8MB/20MB
Forecasted Dew Point	LLUZ98 KMDL	LKUAii KMDL ii = forecast projection (01- 25)	CONUS	25	1-25 (in increments of 1 hour)	0.8MB/20MB
Forecasted Ceiling Height	LMUZ98 KMDL	LMUAii KMDL ii = forecast projection (01- 25)	CONUS	25	1-25 (in increments of 1 hour)	1MB/25MB
Forecasted Probability of Ceiling Height < 500 feet	LMCZ98 KMDL	LMUCii KMDL ii = forecast projection (01- 25)	CONUS	25	1-25 (in increments of 1 hour)	1MB/25MB
Forecasted Probability of Ceiling Height < 1000 feet	LMDZ98 KMDL	LMUDii KMDL ii = forecast projection (01- 25)	CONUS	25	1-25 (in increments of 1 hour)	1MB/25MB

Forecasted Probability of Ceiling height ≤ 3000 feet	LMFZ98 KMDL	LMUFii KMDL ii = forecast projection (01- 25)	CONUS	25	1-25 (in increments of 1 hour)	1MB/25MB
Forecasted Visibility	LNUZ98 KMDL	LNUAii KMDL ii = forecast projection (01- 25)	CONUS	25	1-25 (in increments of 1 hour)	1MB/25MB
Forecasted Probability of Visibility < 1 mile	LNCZ98 KMDL	LNUCii KMDL ii = forecast projection (01- 25)	CONUS	25	1-25 (in increments of 1 hour)	1MB/25MB
Forecasted Probability of Visibility < 3 mile	LNEZ98 KMDL	LNUEii KMDL ii = forecast projection (01- 25)	CONUS	25	1-25 (in increments of 1 hour)	1MB/25MB
Forecasted Probability of Visibility ≤ 5 miles	LNFZ98 KMDL	LNUFii KMDL ii = forecast projection (01- 25)	CONUS	25	1-25 (in increments of 1 hour)	1MB/25MB
Forecasted Opaque Sky Cover	LOUZ98 KMDL	LOUAii KMDL ii = forecast projection (01- 25)	CONUS	25	1-25 (in increments of 1 hour)	0.8MB/20MB
Forecasted Wind Speed	LPUZ98 KMDL	LPUAii KMDL ii = forecast projection (01- 25)	CONUS	25	1-25 (in increments of 1 hour)	0.8MB/20MB
Forecasted Wind Direction	LQUZ98 KMDL	LQUAii KMDL ii = forecast projection (01- 25)	CONUS	25	1-25 (in increments of 1 hour)	1MB/25MB
Forecasted Wind Gusts	LRUZ98 KMDL	LRUAii KMDL ii = forecast projection (01- 25)	CONUS	25	1-25 (in increments of 1 hour)	1MB/25MB
Totals				184		339.5 MB/cycle (each hour)

* Note: since file sizes differ by day depending on the actual weather and therefore the values encoded, this is an estimate for what the largest size might be.