

WMO Headings for Gridded LAMP (GLMP) Products

WMO headings have the format of T₁T₂A₁A₂ii CCCC

1. The CCCC for all Gridded LAMP (GLMP) product WMO headings is **KMDL**.
2. The T₁ for all GLMP products is **L**.
3. The T₂ represents the weather element type designator. Values for 0-hour observation T₂ 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 1-25 hour forecast T₂ 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 T₂ skips letters between 0-hour observation and 1-25 forecast grids so that elements can be added in the future and subsequent to the appropriate list, observations or forecasts.

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

A₁=**U**

5. For non-probability grids, the A₂ indicates if the grid is the standard grid (A₂= A) or an Error Estimation grid (A₂= B). Specifically, for non-probability grids the A₂ represents:

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

B = Error estimation grid (such as temperature error estimation or dewpoint error estimation)

For probability grids, the A₂ for individual element headers indicates the probability event. Specifically:

For ceiling height grids (T₂ = M), the A₂ 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 (T₂ = N), the A₂ 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 A₂ 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

LAUBii KMDL - Temperature Error Estimation

LBUAii KMDL - Dew Point

LBUBii KMDL - Dew Point Error Estimation

LCUAii KMDL - Ceiling Height

LDUAii KMDL - Visibility

LEUAii KMDL - Opaque Sky Cover

LFUAii KMDL - Wind Speed

LGUAii KMDL - Wind Direction

LHUAii KMDL - Wind Gusts

ii = valid UTC hour (00-23)

GLMP 1-25 hour forecast grids:

LKUAii KMDL - Temperature
LLUAii KMDL - Dew Point

LMUAii KMDL - Ceiling Height
LMUCii KMDL - Probability of ceiling height < 500 feet
LMUDii KMDL - Probability of ceiling height < 1000 feet
LMUFii KMDL - Probability of ceiling height \leq 3000 feet

LNUAii KMDL – Visibility
LNUCii KMDL – Probability of visibility < 1 mile
LNUEii KMDL – Probability of visibility < 3 miles
LNUFii KMDL – Probability of visibility \leq 5 miles

LOUAii KMDL – Opaque Sky Cover
LPUAii KMDL – Wind Speed
LQUAii KMDL – Wind Direction
LRUAii KMDL – Wind Gusts

ii = forecast projection (01-25)

Table1: Superheaders and individual headers and product sizes for Gridded LAMP products. Gridded LAMP products with individual headers commenced routing to experimental NDGD on August 22, 2011. Gridded LAMP observational grid products, which have individual headers, and Gridded LAMP forecast grid products, which will have individual headers as well as super headers, are routed to operational NDGD, the Satellite Broadcast Network, and NOAAPORT as of on December 17, 2012.

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 valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
Error Estimate of 0-hr Observed Temperature	N/A	LAUBii KMDL valid hour in UTC (00-23)	CONUS	1	N/A	0.75MB/0.75MB
0-hr Observed Dew Point	N/A	LBUAii KMDL valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
Error Estimate of 0-hr Observed Dew Point	N/A	LBUBii KMDL valid hour in UTC (00-23)	CONUS	1	N/A	0.75MB/0.75MB
0-hr Observed Ceiling Height	N/A	LCUAii KMDL valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
0-hr Observed Visibility	N/A	LDUAii KMDL valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
0-hr Observed Opaque Sky Cover	N/A	LEUAii KMDL valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
0-hr Observed Wind Speed	N/A	LFUAii KMDL valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
0-hr Observed Wind Direction	N/A	LGUAii KMDL valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
0-hr Observed Wind Gusts	N/A	LHUAii KMDL 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	LMUZ98	LMUAii KMDL ii =	CONUS	25	1-25 (in	1MB/25MB

Ceiling Height	KMDL	forecast projection (01- 25)			increments of 1 hour)	
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	LNUIii 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	LNUIii KMDL ii = forecast projection (01- 25)	CONUS	25	1-25 (in increments of 1 hour)	1MB/25MB
Forecasted Opaque Sky Cover	LOUZ98 KMDL	LOUIii 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.