

NOUS41 KWBC DDHHMM  
PNSWSH

Technical Implementation Notice 15-34  
National Weather Service Headquarters Washington DC  
705 an EDT Mon June 29 2015

To: Subscribers:  
-Family of Services  
-NOAA Weather Wire Service  
-Emergency Managers Weather Information Network  
-NOAAPORT  
-Other NWS Partners, Users and Employees

From: Tim McClung  
Chief Operating Officer  
Office of Science and Technology Integration

Subject: Changes to GFS-based Model Output Statistics (MOS)  
Guidance effective September 15, 2015

On or about Tuesday, September 15, 2015, beginning with the 1200 Coordinated Universal Time (UTC) model run, the NWS Meteorological Development Laboratory (MDL) will implement changes to the Global Forecast System (GFS)-based Model Output Statistics (MOS) guidance. The changes will include:

1. Add gridded MOS guidance for CONUS and Alaska for the Day 8-11 period. Guidance will be available for the following elements:

- 1) 2-meter temperature (every 6 h)
- 2) 2-meter dew point temperature (every 6 h)
- 3) Daytime maximum temperature
- 4) Nighttime minimum temperature
- 5) Relative humidity (every 6 h)
- 6) Wind speed (every 6 h)
- 7) Wind direction (every 6 h)
- 8) 12-h probability of precipitation (every 12 h)

These day 8-11 products will be produced on a 2.5-km Lambert Conformal grid over the CONUS and 3-km Polar Stereographic grid over Alaska. Guidance will be available for the 0000 and 1200 UTC model cycles for projections out to 11 days in advance. These Day 8-11 Gridded MOS products will be disseminated on the Satellite Broadcast Network (SBN), NOAAPORT, and the NWS FTP server in GRIB2 format.

The day 8-11 products for the CONUS and Alaska will be available in GRIB2 format in the experimental area of the National Digital Guidance Database (NDGD) on the NWS ftp server at:

<ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.gr2/DC.ndgd/GT>

.mosgfs/AR.conus/

ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.gr2/DC.ndgd/GT  
.mosgfs/AR.alaska/

Each element-specific GRIB2 file will reside in the VP.008-450 directory and contain a WMO super header and individual headers. A listing of the GRIB2 file names for each element is given in Table 1 below. Tables 2 and 3 list WMO super headers for CONUS and Alaska Day 8-11 gridded MOS elements.

A Web page outlining the gridded MOS guidance and the ftp server structure can be found at:

<http://www.nws.noaa.gov/mdl/synop/gmos.php>

2. This change will expand the output mask for the 2.5-km CONUS grid northward from its current National Digital Forecast Database (NDFD) extent to include all of the Northwest River Forecast Center basin and a buffer of 170 km elsewhere along the border with Canada. This change will affect the following 2.5-km CONUS Gridded MOS elements:

- 1) 2-meter temperature
- 2) 2-meter dew point temperature
- 3) Daytime maximum temperature
- 4) Nighttime minimum temperature
- 5) Wind speed, wind direction, wind gust
- 6) 6-h/12-h probability of precipitation
- 7) 6-h/12-h quantitative precipitation amount
- 8) Relative humidity
- 9) Total sky cover
- 10) 24-h snowfall amount

The northward expansion of the 2.5-km CONUS grid will result in a small increase in GRIB2 file sizes (generally less than 10 percent) for the above listed elements. Grids of 24-h snowfall amount will be clipped to their current extent and contain missing values elsewhere. Other elements not listed above will not be affected by the grid expansion. WMO super headers for the 2.5-km CONUS Gridded MOS elements affected by this change are listed in Table 4 below. The operational 5-km CONUS Gridded MOS products will remain on their current NDFD extent and will not be affected by the expansion of the 2.5-km CONUS grids.

3. NWS will add new stations to the GFS-based short-range and extended-range Cooperative Observer Program (COOP) maximum and minimum temperature messages, known by their AWIPS IDs MCG and MCX, respectively. Communication identifiers for affected products are listed in Table 5 below. A list of the stations being added can be found at:

[http://www.nws.noaa.gov/mdl/synop/gfsmos\\_changes/newsitesSept2015.php](http://www.nws.noaa.gov/mdl/synop/gfsmos_changes/newsitesSept2015.php)

4. NWS will remove stations from the GFS-based short-range and extended-range COOP maximum and minimum temperature messages, known by their AWIPS IDs MCG and MCX, respectively. These are stations that have closed, stopped reporting, or do not contain sufficient cases to develop MOS equations. Communication identifiers for the affected products are listed in Table 5 below. A list of the stations being removed can be found at:

[http://www.nws.noaa.gov/mdl/synop/gfsmos\\_changes/droppedsitesSept2015.php](http://www.nws.noaa.gov/mdl/synop/gfsmos_changes/droppedsitesSept2015.php)

5. NWS will remove stations from the GFS-based River Forecast Center maximum and minimum temperature SHEF message with AWIPS ID FTP. These are stations that have closed, stopped reporting, or do not contain sufficient cases to develop MOS equations. Communication identifiers for the affected products are listed in Table 6 below. Stations being removed can be found at:

[http://www.nws.noaa.gov/mdl/synop/gfsmos\\_changes/droppedsitesSept2015.php](http://www.nws.noaa.gov/mdl/synop/gfsmos_changes/droppedsitesSept2015.php)

6. This change provides updated thunderstorm guidance for Alaska valid for the warm season, May through September. NWS has updated guidance for probability of a thunderstorm in 3-, 6-, 12- and 24-h periods over Alaska with more recent model data and lightning observations. Communication identifiers for the products affected by this update are listed in Tables 7 and 8 below.

Table 1: GRIB2 file names for the day 8-11 GFS-based Gridded MOS elements (These files will reside in the VP.008-450 directory on the ftp server.)

GRIB2 FILE NAME	ELEMENT
ds.wdir.bin	Wind direction
ds.wspd.bin	Wind speed
ds.pop12.bin	12-h prob. of precipitation
ds.temp.bin	2-meter temperature
ds.td.bin	2-meter dew point temperature
ds.maxt.bin	Daytime maximum temperature
ds.mint.bin	Nighttime minimum temperature
ds.rhm.bin	Relative humidity

Table 2: WMO super headers for the day 8-11 Gridded MOS products over the CONUS

WMO SUPERHEADER	ELEMENT
YBUZ96 KWBQ	Wind direction
YCUZ96 KWBQ	Wind speed
YDUZ96 KWBQ	12-h prob. of precipitation
YEUZ96 KWBQ	2-meter temperature

YFUZ96 KWBQ	2-meter dew point temperature
YGUZ96 KWBQ	Daytime maximum temperature
YHUZ96 KWBQ	Nighttime minimum temperature
YRUZ96 KWBQ	Relative humidity

Table 3: WMO super headers for the day 8-11 Gridded MOS products over Alaska

WMO SUPERHEADER ELEMENT

LBRZ96 KWBQ	Wind direction
LCRZ96 KWBQ	Wind speed
LDRZ96 KWBQ	12-h prob. of precipitation
LERZ96 KWBQ	2-meter temperature
LFRZ96 KWBQ	2-meter dew point temperature
LGRZ96 KWBQ	Daytime maximum temperature
LHRZ96 KWBQ	Nighttime minimum temperature
LRRZ96 KWBQ	Relative humidity

Table 4. WMO superheaders for each 2.5-km CONUS Gridded MOS element affected by the grid expansion. Listed below are representations of the superheaders where ii=98 for short-range guidance (days 1-3) and ii=97 for medium-range guidance (days 4-7). Elements indicated by (\*\*) will include ii=96 for extra extended-range (days 8-11).

WMO SUPERHEADER ELEMENT

YAUZii KWBQ	Total sky cover
YBUZii KWBQ**	Wind direction
YCUZii KWBQ**	Wind speed
YDUZii KWBQ**	12-h prob. of precipitation
YEUZii KWBQ**	2-meter temperature
YFUZii KWBQ**	2-meter dew point temperature
YGUZii KWBQ**	Daytime maximum temperature
YHUZii KWBQ**	Nighttime minimum temperature
YIUZii KWBQ	6-h quant. precipitation amount
YRUZii KWBQ**	Relative humidity
YSUZii KWBQ	24-h snowfall amount
YUUZii KWBQ	6-h prob. of precipitation
YVUZii KWBQ	12-h quant. precipitation amount
YWUZii KWBQ	Wind Gusts

Table 5: Communication identifiers for the GFS-based COOP maximum and minimum temperature text products affected by the changes

WMO HEADING AWIPS ID

FOUS10 KWNO	MCGUSA (Short-range)
FEUS10 KWNO	MCXUSA (Extended-range)

Table 6: Communication identifiers for the GFS-based River Forecast Center SHEF products affected by the changes

WMO HEADING	AWIPS ID
FOUS12 KWNO	FTPCIN
FOUS12 KWNO	FTPHEFD
FOUS12 KWNO	FTPGRF
FOUS12 KWNO	FTPMSR
FOUS12 KWNO	FTPPTR
FOUS12 KWNO	FTPCHA
FOUS12 KWNO	FTPRSA
FOUS12 KWNO	FTPSLR
FOUS12 KWNO	FTPTUR
FOAK12 KWNO	FTPACR

Table 7: Communication identifiers for the GFS-based MOS text products affected by the updated Alaska thunderstorm guidance

WMO HEADING	AWIPS ID
FOAK37 KWNO	MAVAJK
FOAK38 KWNO	MAVAFC
FOAK39 KWNO	MAVAFG
FEAK37 KWNO	MEXAJK
FEAK38 KWNO	MEXAFC
FEAK39 KWNO	MEXAFG

Table 8: Representations of WMO headers for the Alaska Gridded MOS products affected by the updated thunderstorm guidance, where XXX represents the valid day and time

WMO SUPERHEADER	ELEMENT
LJRXXX KWBQ	3-h Prob. of a thunderstorm
LYRXXX KWBQ	6-h Prob. of a thunderstorm
LXRXXX KWBQ	12-h Prob. of a thunderstorm

For questions regarding the above changes to the GFS-based MOS guidance, please contact:

Phil Shafer  
MDL/Silver Spring, Maryland  
301-427-9488  
Phil.Shafer@noaa.gov

or

Matthew Peroutka  
MDL/Silver Spring, Maryland  
301-427-9483  
Matthew.Peroutka@noaa.gov

Links to MOS products and descriptions are online at:

<http://www.nws.noaa.gov/mdl/synop>

NWS national TINs are online at:

<http://www.weather.gov/os/notif.htm>

\$\$