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Service Change Notice 18-77
National Weather Service Headquarters Washington DC
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From: Jeffrey Craven
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Meteorological Development Laboratory

Subject: Changes to the Global Forecast System (GFS)-based Model Output Statistics (MOS) guidance, effective on or about September 19, 2018

Effective on or about Wednesday, September 19, 2018, beginning with the 1200 Coordinated Universal Time (UTC) run, the Meteorological Development Laboratory (MDL) will implement changes to the GFS-based MOS and gridded MOS (GMOS) guidance.

Changes to the station-based GFS MOS guidance contained in the GFS MOS text (MAV/MEX) and BUFR messages will include:

--New cool- and warm-season equations for opaque sky cover, valid 3-hourly to 192-h for the 0000Z and 1200Z cycles and to 84-h for the 0600Z and 1800Z cycles.

--New cool- and warm-season equations for 12-h average total sky cover, valid 12-hourly to 192-h for the 0000Z and 1200Z cycles only.

--New cool- and warm-season equations for ceiling height, valid 3-hourly to 84-h for the 0000Z, 0600Z, 1200Z, and 1800Z cycles.

--New cool- and warm-season equations for visibility, valid 3-hourly to 84-h for the 0000Z, 0600Z, 1200Z, and 1800Z cycles.

--New cool- and warm-season equations for obstruction to vision, valid 3-hourly to 84-h for the 0000Z, 0600Z, 1200Z, and 1800Z cycles.

These changes are intended to bring the station-based GFS MOS system more in line with recent operational versions of the underlying model. Test results on parallel data have shown improved forecast skill for these elements.

In addition, MDL will implement an update to the GFS-based gridded MOS (GMOS) guidance designed to improve terrain effects in the gridded analyses and to support the National Blend of Models (NBM). GMOS grids for the CONUS, Alaska and Hawaii domains will be updated to include the latest unified terrain files. An additional 12,000+ stations from NOAA's Meteorological Assimilation Data Ingest System (MADIS) also have been added to the CONUS analyses and 1,200+ MADIS and Canadian stations have been added to the Alaska analyses. Background grids used to initialize the Alaska grids have been updated from 47 KM spatial resolution to 0.25 degrees (~23 KM).

The CONUS and Alaska grids also have been expanded to cover the entire National Digital Forecast Database domain to support the NBM. These grids will be clipped before dissemination. The CONUS grids, for all products except the Precipitation Potential Index and Weather Grids, will be clipped to include an additional 200 gridpoints off the West Coast of the CONUS to cover the offshore marine zones. Clipping changes to the Alaska grids should be transparent to current users.

Should the implementation date be declared a Critical Weather Day (CWD) due to the occurrence or forecast of significant weather, implementation of the above changes will be delayed until the 1200 UTC model run on the next weekday not declared a CWD.

Beginning approximately 1 month prior to the implementation date, users may find parallel station MOS data for download on NOAA's Operational Model Archive and Distribution System (NOMADS) at the following link (files will reside in gfsmos.YYYYMMDD, where YYYYMMDD is the year, month, and day):

http://para.nomads.ncep.noaa.gov/pub/data/nccf/com/gfs/para

Parallel data representing the data that will be available on the TGFTP server and/or via the SBN can be found at the following location:

http://para.nomads.ncep.noaa.gov/pub/data/nccf/noaaport/gfsmos

Gridded MOS images will be available on the GMOS web page (this page is not operationally supported and guidance may not be current):

https://www.weather.gov/mdl/gmos_home

Users of gridded MOS products in GRIB1 format should also be advised that these products will be removed from NOMADS services with this upgrade. GRIB1 products will remain available on the TGFTP server at:

http://tgftp.ncep.noaa.gov/SL.us008001/DF.gr1/DC.mos/

The following public weather alphanumeric messages and BUFR products are affected by the above changes:

Table 1: Communication identifiers for the GFS-based MOS public weather alphanumeric messages affected by the above changes (for Air Force MOS messages (MAVFxx, MEXFxx), xx = 01,...,29)

WMO HEADING (SHORT RANGE)	AWIPS ID	WMO HEADING (EXTENDED RANGE)	AWIPS ID
FOCN20 KWNO	N/A	FECN21 KWNO	N/A
FOUS10 KWNO	MCGUSA	FEUS10 KWNO	MCXUSA
FOPA20 KWNO	MAVPA0	FEPA20 KWNO	MEXPA0
FOUS21 KWNO	MAVNE1	FEUS21 KWNO	MEXNE1
FOUS22 KWNO	MAVSE1	FEUS22 KWNO	MEXSE1
FOUS23 KWNO	MAVNC1	FEUS23 KWNO	MEXNC1
FOUS24 KWNO	MAVSC1	FEUS24 KWNO	MEXSC1
FOUS25 KWNO	MAVRM1	FEUS25 KWNO	MEXRM1
FOUS26 KWNO	MAVWC0	FEUS26 KWNO	MEXWC0
FOUS30 KWNO	MAVFxx	FEUS30 KWNO	MEXFxx
FOAK37 KWNO	MAVAJK	FEAK37 KWNO	MEXAJK
FOAK38 KWNO	MAVAFC	FEAK38 KWNO	MEXAFC
FOAK39 KWNO	MAVAFG	FEAK39 KWNO	MEXAFG
FQPA20 KWNO	MMGHI1		
FQUS21 KWNO	MMGNE1		
FQUS22 KWNO	MMGSE1		
FQUS23 KWNO	MMGGL1		
FQUS24 KWNO	MMGGF1		
FQUS25 KWNO	MMGNW1		
FQUS26 KWNO	MMGSW1		
FQAK37 KWNO	MMGAK1		

Table 2. Communication identifiers for the affected GFS-based MOS BUFR products

WMO HEADING SHORT RANGE)	WMO HEADING (EXTENDED RANGE)	REGION
JSML30 KWNO	JSMT30 KWNO	PACIFIC REGION
JSML31 KWNO	JSMT31 KWNO	NORTHEAST CONUS
JSML32 KWNO	JSMT32 KWNO	SOUTHEAST CONUS
JSML33 KWNO	JSMT33 KWNO	NORTH CENTRAL CONUS
JSML34 KWNO	JSMT34 KWNO	SOUTH CENTRAL CONUS
JSML35 KWNO	JSMT35 KWNO	ROCKY MOUNTAIN CONUS
JSML36 KWNO	JSMT36 KWNO	WEST COAST CONUS
JSML37 KWNO	JSMT37 KWNO	ALASKA

For general inquiries about the above changes to the GFS MOS system, please contact:

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For specific questions regarding the station-based GFS MOS guidance, please contact:

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For questions about gridded GFS MOS(GMOS) guidance, please contact:

John Wagner
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301-427-9471
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For questions related to data flow, please contact:

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Links to MOS products and descriptions are online at:

http://www.weather.gov/mdl/StatisticalModeling_home

NWS national Service Change Notices are online at:

http://www.weather.gov/notification

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