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Public Information Statement, Comment Request
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From: Kathryn Gilbert
 Chief, Statistical Modeling Branch
 Meteorological Development Laboratory

Subject: Soliciting Comments on Proposed Enhancements to the Global
Forecast System (GFS)-Based Gridded MOS Product through November 30, 2011

The NWS is soliciting public comments by November 30, 2011, on the proposed increase in horizontal resolution over the contiguous U.S. (CONUS) from five km to 2.5 km, and the future addition of several weather elements to the GFS-Based Gridded Model Output Statistics (MOS) Guidance. We will continue to provide the GFS-based gridded MOS guidance at a horizontal resolution of five km to allow sufficient time for necessary software or hardware upgrades.

Proposed increase in horizontal resolution:

The current GFS-based gridded MOS guidance over the CONUS is available on a Lambert Conformal grid at a horizontal resolution of five km. The resolution of the gridded MOS guidance over the CONUS will be increased from five km to 2.5 km to support the planned 2.5 km National Digital Forecast Database (NDFD) and provide greater spatial detail in areas of complex terrain.

Customers can expect the characteristics of the temperature, dewpoint temperature, daytime maximum/nighttime minimum temperature, relative humidity, sky cover, probability of thunderstorms, wind speed, wind direction, wind gusts, and 24-hour snowfall amount to remain very similar to the current operational five km products with more detail noticeable in and around complex terrain. The enhanced resolution grids will be made available in gridded binary version two (GRIB2) format in the experimental area of the National Digital Guidance Database (NDGD) on a date to be advertised in an upcoming Technical Implementation Notice. Currently, the grids are available at the link provided below.

<http://www.mdl.nws.noaa.gov/~mos/gmos/conus25>

Table 1 below lists representations of the World Meteorological Organization (WMO) headers for each 2.5 km gridded MOS element.

Table 1: Communication Identifiers for the Experimental 2.5-km GFS-Based Gridded MOS GRIB2 Products for the CONUS

WMO Heading -----	Element -----
YAUXXX KWBQ	Total Sky Cover
YBUXXX KWBQ	Wind Direction
YCUXXX KWBQ	Wind Speed
YDUXXX KWBQ	12-hour Probability of Precipitation
YEUXXX KWBQ	2-Meter Temperature
YFUXXX KWBQ	2-Meter Dew Point Temperature
YGUXXX KWBQ	Daytime Maximum Temperature
YHUXXX KWBQ	Nighttime Minimum Temperature
YIUXXX KWBQ	6-hour Quantitative Precipitation Amount
YJUXXX KWBQ	6-hour Probability of a Thunderstorm
YRUXXX KWBQ	Relative Humidity
YSUXXX KWBQ	24-hour Snowfall Amount
YUUXXX KWBQ	6-hour Probability of Precipitation
YVUXXX KWBQ	12-hour Quantitative Precipitation Amount
YWUXXX KWBQ	Wind Gusts
YXUXXX KWBQ	12-hour Probability of a Thunderstorm
YYUXXX KWBQ	3-hour Probability of a Thunderstorm

Proposed removal of some stations from gridded MOS analysis

An additional proposed change is the removal of some Cooperative Observer Program (Coop) stations from the analysis of MOS daytime maximum and nighttime minimum temperature guidance. Forecasts for Coop sites within 10 km of a METAR station will no longer influence the temperature analysis. This is in response to complaints from users concerning discrepancies between the max/min MOS grids and the MOS point values at nearby locations. Coop sites contribute a large amount of detail to gridded MOS max/min forecasts, especially in data-sparse regions; however, the local 24-hour reporting period valid for Coop observations can be difficult to match with the appropriate daytime maximum and nighttime minimum forecast periods. A list of Coop sites proposed for removal and images from several case studies can be found at the following site:

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

Proposed enhancement of PoP and QPF forecasts:

The experimental 2.5 km gridded MOS suite will include enhanced-resolution, GFS-based MOS probability of precipitation (PoP) and quantitative precipitation forecasts (HRMOS QPF). The improved QPF forecasts are developed from archived stage IV national mosaic precipitation data that defines the precipitation predict. In addition, high-resolution topographic and climatological interactive predictors are incorporated into the equations to enhance resolution of the PoPs and QPFs. See the following link for more details:

<http://www.nws.noaa.gov/mdl/hrqpf/publications.php>

Proposed future additions to gridded MOS:

Future additions to the 2.5 km gridded MOS suite will include GFS-based precipitation type and MOS predominant weather. The precipitation type guidance will include best category and probabilities of freezing, frozen and liquid precipitation types out to 192 hours in advance. Gridded precipitation type is produced differently from other gridded MOS elements. Generalized operator equations are used to generate forecasts directly at each 2.5 km gridpoint while incorporating gridded climatologies and logit 50 percent values as predictors, which help to capture localized effects and produce enhanced terrain detail.

The experimental 2.5 km MOS weather grid is the predominant weather valid at the indicated hour, generated from a collection of other gridded MOS elements. The gridded MOS weather element provides type, probability, and intensity information valid every 3 hours out to 192 hours in advance.

At this time, all of the above proposed enhancements are an addition to the gridded MOS suite, not a replacement for the current five km gridded MOS guidance. Customers who use the five km guidance over the CONUS can continue to use these products without disruption until all customers and systems are able to use the higher resolution guidance.

Graphics, links to GRIB2 data for download, and more details on these experimental products can be found at:

<http://www.mdl.nws.noaa.gov/~mos/gmos/conus25>

General information on the gridded MOS file structure and additional references is available at:

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

Submit comments and questions regarding the proposed enhancements to the GFS-Based Gridded MOS products to:

Kathryn Gilbert
NWS Meteorological Development Laboratory
301-713-0023, x 130
kathryn.gilbert@noaa.gov

National Public Information Statements are online at:

<https://www.weather.gov/notification/archive>

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