

Experimental Graphical Uncertainty Forecast for Milwaukee and Madison WI Product Description Document (PDD)

Part I – Mission Connection

- a. **Product/Service Description** – NWS Forecast Offices have long produced routine forecasts of maximum temperature (highs), minimum temperatures (lows), and 12 hour probability of precipitation (POPs). These products provide single, deterministic values that provide little information to the user about the degree of confidence, uncertainty, or difficulty in providing the forecast. This is particularly true for temperature forecasts.

Operational forecasters have long known how much uncertainty there is in making forecasts. Some forecasts are more difficult in others when uncertainty is high and model forecasts offer different solutions. Academic and operational communities agree that we need to increase the amount of probabilistic information in forecasts as users become more and more sophisticated.

In a single graphic, information from the Point Forecast Matrix (PFM), climatological averages, Mean Absolute Error of forecasts from periods 1 to 14, and GFS MOS ensemble standard deviation for highs, lows, and POPs will be provided in “one stop shopping”.

- b. **Purpose/Intended Use** – The user will be provided about information about the degree of uncertainty in the forecast and how the forecasts compare to what is typical for the time of year.
- c. **Audience** - A wide variety of users will benefit from this product. General public, private sector, emergency managers
- d. **Presentation Format** – Four Graphical Images on WFO MKX Web page.
Example at: <http://www.crh.noaa.gov/mkx/?n=experimental-fcst-uncertainty>
- e. **Feedback/Method** – comments regarding the Graphical Forecast Uncertainty product should be sent to the feedback email address provided on the graphics webpage. The comment period extends through June 30, 2007.

Comments may also be provided to:

NWS Sullivan/Milwaukee WI
N3533 Hardscrabble Road
Dousman WI 53118
Attn: Jeff Craven, SOO
(262) 965-5061 x 766

Part II – Technical Description

- a. **Format and Science Basis** – These forecasts are produced with information readily available from existing forecast grids and numerical model output. No forecaster input is required.

Forecast highs, lows and POPs from Milwaukee and Madison WI are extracted from the 4 am forecast issued under the Point Forecast Matrix (PFM) for each city (MKEPFMMKX). Mean Absolute Errors are taken from the past two years of available PFM stats on demand. Average highs, lows, and precipitation frequency are available in the Ensemble MOS table (MENMKE, MENMSN), provided using the 0000z GFS ensemble runs. Standard Deviation of the highs, lows, and POP forecasts are also mined from these ensemble MOS tables. These standard deviations are used to objectively determine forecast uncertainty. It is hoped that production of SREF Ensemble MOS tables will be generated in the short term and provide another source of objective uncertainty guidance.

- b. **Product Availability** – Once per day, Monday through Friday, around 10 am CT. It is hoped that through increased automation, these forecasts can eventually be generated automatically every day between 4 and 6 am CT.
- c. **Additional Information** - . This is part of research associated with a diverse group of natural scientists known as WAS*IS (Weather and Society Integrated Studies). More information is available at: <http://www.sip.ucar.edu/wasis/>