

**Product and Service Description Document
(PDD)**

**Real-Time Mesoscale Analysis:
Experimental Surface Pressure Analysis, Surface Pressure
Uncertainty Analysis and Model Terrain Height Analysis**

Approved_____ **Date**_____

Disapproved_____ **Date**_____

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Real-Time Mesoscale Analysis (RTMA)

New Parameters: Surface Pressure Analyses, Surface Pressure Uncertainty and Model Terrain Product Description Document

August 6, 2010

Part I - Mission Connection

- a. **Product Description.** The National Weather Service (NWS) weather forecast offices (WFOs) prepare digital forecasts of hydrometeorological variables, such as temperature and precipitation which are made available via the NWS National Digital Forecast Database (NDFD). The Real-Time Mesoscale Analysis (RTMA) is a gridded analysis of the hydrometeorological variables that matches the NDFD spatial resolution and domains. Analyses are generated hourly, disseminated to NWS field offices and National Centers, and made available to external users. The RTMA is the first component of the NWS Analysis of Record (AOR) project.

RTMA products available for the CONUS region are: surface temperature, surface dew point, wind speed and direction, and cloud and precipitation amount products, and u and v wind components. The product set generated for RTMA Alaska, Hawaii, and Puerto Rico contains the same parameters as CONUS regions with the exception of the cloud amount and precipitation products. An analysis uncertainty product is generated for all RTMA products except the cloud and precipitation products, and u and v wind components. These products are now awaiting approval to transition to official operational products.

This PDD describes new experimental RTMA analyses which were added to the NOAAPort and National Digital Guidance Database (NDGD) distribution on January 28 2009: surface pressure analysis, surface pressure analysis uncertainty, and the model terrain height of the RTMA system. These analyses will be made available hourly for four domains, the CONUS, Alaska, Hawaii, and Puerto Rico.

- b. **Purpose.** The primary purpose of the RTMA is to provide an NDFD matching-resolution analysis to verify digital forecasts. These three new experimental products will assist NWS field forecasters in making evaluations of their operational forecasts.
- c. **Intended Audience.** The primary intended audience of RTMA products includes users of hydrometeorological analyses including groups applying gridded products for operational applications such as NWS forecast offices. Other possible users include other government meteorologists, private operational meteorologists, research and media meteorologists, and climatologists.
- d. **Presentation Format.** The hourly RTMA products are provided in two formats, graphical

and digital. The National Centers for Environmental Prediction's (NCEP) Environmental Modeling Center (EMC) generates these three experimental RTMA products in collaboration with NOAA's Office Oceanic and Atmospheric Research (OAR) Environmental Research Laboratory (ESRL).

These three RTMA products are available on the National Digital Guidance Database (NDGD) in GRIB 2 data.

CONUS:

The CONUS GRIB 2 products are available from the NDGD at the following URL:

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

Graphical images of selected RTMA CONUS products are available at the following URL:

<http://www.nco.ncep.noaa.gov/pmb/nwprod/analysis/>

ALASKA:

The Alaska GRIB 2 products are available from the NDGD at the following URL:

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

HAWAII:

The Hawaii GRIB 2 products are available from the NDGD at the following URL:

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

PUERTO RICO:

The Puerto Rico GRIB 2 products are available from the NDGD at the following URL:

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

- e. Feedback Mechanism. Comments are welcome from users of the RTMA data and information until and August 6, 2011.

The following URL provides a survey to collect feedback on the three new RTMA parameters, surface pressure analysis, surface pressure uncertainty, and the model terrain height.

<http://www.weather.gov/survey/nws-survey.php?code=RTMA-SP>

Technical questions regarding NCEP's RTMA products may be addressed to:

Attention: Geoff DiMego
NCEP
5200 Auth Road, WWBG
Camp Springs, MD 20746-4304
301-763-8000 x 7221
Geoff.DiMego@noaa.gov

Technical questions about the NDGD may be addressed to:

NWS Meteorological Laboratory (MDL)
Attention: David Ruth, W/OST21
1325 East-West Highway
SSMC 2
Silver Spring, MD 20910
301-713-1768 x 157
David.Ruth@noaa.gov

Part II - Technical Description

- a. **Format and Scientific Basis.** RTMA product availability for users includes both digital and graphic formats, and accessibility through the World Wide Web. Source links to obtain this information is provided in the previous section of this document. These products are also ingest and displayed in the Advanced Weather Interactive Processing System (AWIPS). The new experimental set of RTMA products, the surface pressure analysis, surface pressure analysis uncertainty, and the model terrain height were added to the initial product set of RTMA analyses on January 28, 2009.

The RTMA production involves various types of hydrometeorological data and a background field, which is a one-hour forecast from a numerical weather model.

Production of the analysis uncertainty products occurs hourly for each of these three experimental RTMA products. The analysis uncertainty values depend primarily on observation density, observation quality, and the background field. The units of the analysis uncertainty products are the same as the corresponding product.

- b. **Product Availability.** The RTMA generates gridded products that are available in the last half of each hour. Part I of this document contains Internet links for the RTMA.