National Air Quality Forecast System (AQFS) Capability for Ozone (O_3) Product Description Document (PDD) 7/07

Part I - Mission Connection

a. Description of Product - The National Oceanic and Atmospheric Administration (NOAA)/National Weather Service (NWS) Air Quality Forecast System (AQFS) Ozone (O_3) Experimental Air Quality Forecast Guidance display is a web-based presentation of gridded (grib formatted) forecast O_3 guidance originating from the Environmental Modeling Center (EMC) of the National Centers for Environmental Prediction (NCEP). The ozone data are displayed at 5-kilometer (km) resolution based on 12-km model output for a domain covering the contiguous U.S. (CONUS) for 1-hour and 8-hour averages. Additional information on the AQFS is available here.

Ozone grib files are produced from the Weather Research and Forecast (WRF) Community Multi-scale Air Quality (CMAQ) modeling system, which is run twice daily from the 0600 and 1200 Coordinated Universal Time (UTC) cycles. These grib formatted files are posted to an NWS Telecommunications Gateway File Transfer Protocol (FTP) server, and ingested into the National Digital Guidance Database (NDGD). Graphic images created from the grib files are posted to NWS and Environmental Protection Agency (EPA) web sites per interagency agreement. These graphic images display forecast time projections out to 48 hours. Additional coverage and pollutants will be added in future years.

b. Purpose – AQFS has been developed in accordance with Congressionally directed appropriations to implement an operational air quality forecast system to benefit public health. Department of Commerce (DOC)/NOAA and EPA formed a partnership to transfer scientific advances in air quality monitoring and forecasting into NCEP's world class modeling enterprise. AQFS guidance is used by state and local agency forecasters, as well as the media and private sector meteorologists, as input to their AQ forecasts providing higher resolution (computed at 12-km resolution) and greater coverage than the approximately 300 specific locations nationwide provided by EPA's AIRNow site. The general public health benefits from improved forecasts and mitigation of harmful impacts. Expanded coverage and additional forecast pollutants such as particulate matter will be produced as the science and NOAA capabilities permit and in accordance with growing user needs.

c. Intended Audience - The NWS graphical AQFS guidance products are intended for use by state and local agency AQ forecasters, as well as the media and private sector meteorologists. The general public who may be adversely impacted by pollutants also has access to the data via graphical output on multi-agency web sites.

d. Presentation Method - The data are presented as web-based graphic images at 5-km resolution. The AQFS provides experimental ground level ozone (O_3) for a domain covering the CONUS. In the future, the domain will expand to cover the entire U.S.

e. Feedback Mechanism - We are always seeking to improve our products based on user feedback. Please submit your comments by completing our brief survey. Comments will be most useful if received by August 31, 2007. For general questions regarding the AQFS Capability, please contact michael.dion@noaa.gov.

Part II - Technical Description

a. Format and Science Basis – A description of the AQFS is provided here.

b. Product Availability – The AQFS O_3 products are run twice daily based on the 0600 and 1200 UTC model cycles and are available at 0900 and 1330 Eastern Daylight Time, respectively. Real-time O_3 grib files are available at the NWS FTP site (06 and 12 UTC) and graphics are posted to the NWS AQ weather products site.

c. Other Details – The NWS Air Quality Forecast Capability will be described in NWS Policy Directive 10-516, which will be updated by the fall of 2007.