

FORECASTING AIR QUALITY OVER THE UNITED STATES

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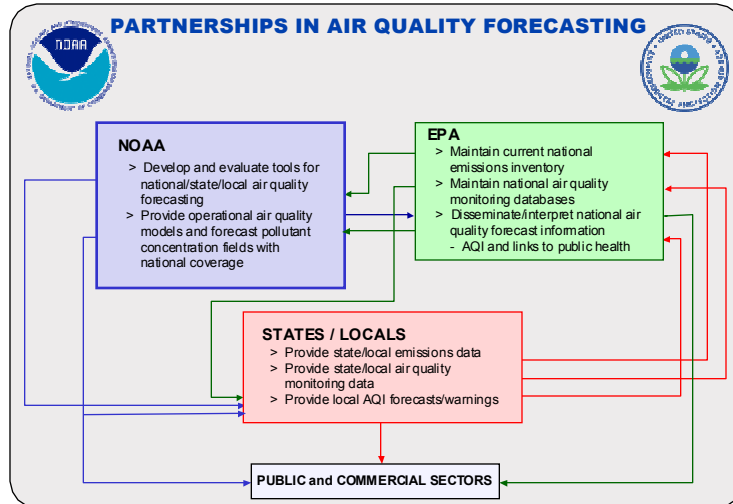
* On assignment from the Air Resources Laboratory, National Oceanic and Atmospheric Administration, U.S. Department of Commerce

NOAA AND EPA COLLABORATE ON AIR QUALITY FORECASTING

- Increased public awareness of air quality issues has led to recent demand for short-term forecasts of air quality.
- NOAA's National Weather Service (NWS) and U.S. EPA have begun a partnership to produce and operate a national system to provide air quality forecast guidance.
- A Memorandum of Agreement defines the roles of the organizations, including partnerships with state and local agencies and the private sector who produce tailored air quality forecasts for their communities (see figure below).
- The initial operational system will provide guidance on ground-level ozone for the northeastern U.S. by the end of 2004.
- The forecast system will be extended to include fine particulate matter (PM2.5) and the geographical coverage will be extended to the continental U.S. over the next 5-7 years.
- 1-day air quality forecast guidance will be provided twice daily to support state and local agencies who issue local forecasts of the Air Quality Index (AQI), based upon the model guidance and other air quality data.



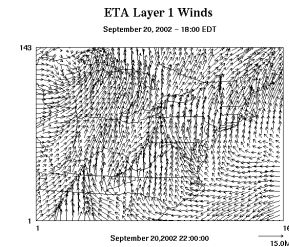
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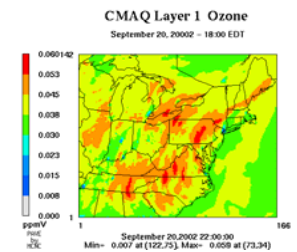
HOW WILL IT WORK?

- NOAA/NWS runs their operational **weather prediction model, Eta-12**, for the U.S. four times daily. Air quality predictions are made each day beginning with the 8:00 a.m. (EDT) weather model output.
- EPA provides source emissions data, air quality monitoring data and the air quality model (**Community Multiscale Air Quality model, CMAQ**) developed by NOAA and EPA researchers.
- NOAA/NWS runs **CMAQ** using forecasted weather information from **Eta-12**, along with source emissions data, to produce gridded predictions of air quality, initially for the northeastern U.S. Forecast guidance is available by 1:30 p.m. EDT and extends through the following day.
- A later prediction cycle is run overnight, to provide guidance for morning updates.

Example of Forecast Winds from **ETA Model**



Example of Forecast Ozone from **CMAQ Model**



- State and local air management agencies, as well as commercial interests, "pull" the forecast guidance from NOAA/NWS computers and issue local AQI forecast.

WHO WILL USE THE FORECASTS?

- Asthmatics, the elderly, parents of young children, and others concerned about short-term health impacts of poor air quality
- Government and industry officials who consider taking actions to reduce source emissions during periods of poor air quality
- Commercial print, TV, and radio media outlets to broadcast the forecast information to the public

Ozone Air Quality Index	
Air Quality	Air Quality Index
Good	0-50
Moderate	51-100
Unhealthy for Sensitive Groups	101-150
Unhealthy	151-200
Very Unhealthy	201-300

*Generally, an AQI of 100 for ozone corresponds to an ozone level of 0.08 parts per million (averaged over 8 hours).