

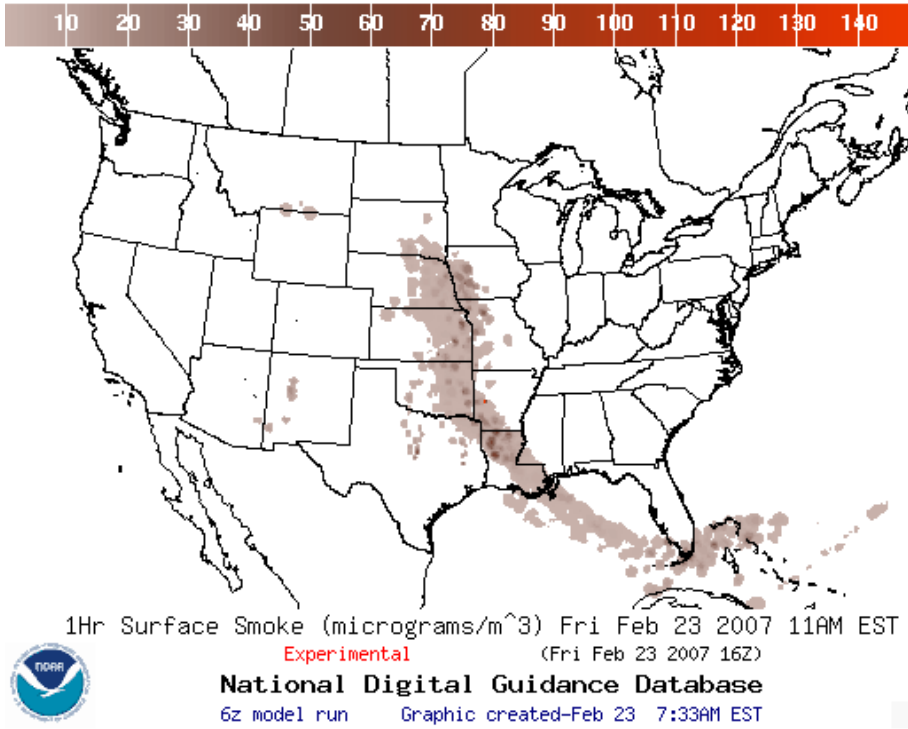
## Smoke Forecast Tool Implemented into Operations

The National Weather Service (NWS) Director approved the new smoke forecast tool for deployment into the NWS operational product suite after the February 22, 2007 review of operational readiness criteria demonstrated successfully with experimental product testing.

**Background:** Smoke from large fires is an important component of fine particle pollution, which is responsible for an estimated 50,000 premature deaths each year (Science, 2005). Smoke forecast guidance is a first step in helping air quality forecasters and the public take steps to limit their exposure to airborne particulate matter, which comes from many sources (especially air pollutants and windborne dust) in addition to fires. The smoke forecast tool, built and tested by a cross-National Oceanic and Atmospheric Administration (NOAA) team, also leverages efforts of NOAA's partners at the US Forest Service (USFS) in providing wildfire emissions information, and with the Environmental Protection Agency (EPA), in coordinating with state and local air quality forecasters.

**Summary:** A team of NOAA Office of Oceanic and Atmospheric Research (OAR), NWS, and National Environmental Satellite Dissemination and Information Service (NESDIS) scientists developed and tested experimentally a new smoke forecast tool that integrates: 1) NESDIS satellite information on location of wildfires, 2) USFS information on particle emissions from wildfires, 3) NWS/National Centers for Environmental Prediction (NCEP) numerical weather prediction (North American mesoscale model) and 4) OAR smoke transport (HYSPLIT) models to produce each day a prediction of smoke transport. Hour-by-hour predictions at 12km grid resolution of smoke at the surface and in the column are provided each day by 13 UTC, extending through midnight next day. Predictions generated on NCEP's supercomputers are updated each day, sent through the NWS Telecommunications Operations Center, and posted on the National Digital Guidance Database, under <http://www.weather.gov/aq/sectors/conus.php>. Air quality forecasters in NWS's focus group have been providing feedback, to date uniformly positive, on test products. Satellite imagery is being used for verification of predicted smoke transport. Forecast accuracy and reliability have been monitored during experimental testing daily since late March, 2006, demonstrating achievement of benchmark criteria needed for operational implementation.

Sample product:



Zoomed view:

