Experimental Testing for Smoke Forecast Tool over Alaska Underway (June, 2008)

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) in the Nation. In Alaska, wildfire smoke is the leading cause of poor air quality in the summer. Smoke forecast guidance will help air quality forecasters and the public take steps to limit their exposure to airborne particulate matter. A new smoke forecast guidance tool, built and tested by a cross-NOAA team, also leverages efforts of NOAA's partners at the USFS in providing wildfire emissions information, and with EPA, in coordinating with state and local air quality forecasters.

Summary: The new smoke forecast tool now in testing over Alaska is an adaptation and extension of the smoke forecast tool implemented in operations for the lower 48 states (CONUS) in 2007. While there are wildfires over the CONUS on almost any given day in the year, annual wildfire activity in AK, that typically consumes as much acreage as in the CONUS, is concentrated into a few months in summer. A team of OAR, NWS, and NESDIS scientists has completed initial development on the Alaska smoke forecast tool required to begin experimental testing; including integrating satellite information on location of wildfires with weather (North American mesoscale model) and smoke transport (HYSPLIT) models to produce each day a prediction of smoke transport for Alaska, and developing binary and graphical prediction products for smoke in the new domain. The adaptation for Alaska has met several challenges: prototype development for the smoke forecast tool had to be done with shorter time periods of fire episodes, and routine satellite verification products were not available. A new satellite verification product is in development testing for routine near-real time application. 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-expr/sectors/conus.php. Forecast accuracy and reliability are being monitored against benchmark criteria for accuracy, reliability, and production-system readiness needed for approval for operational implementation.

Sample product: www.weather.gov/aq-expr