

The Evolving Roles and Responsibilities of Federal Agencies in Providing Transport and Dispersion Support

-- an ARL Perspective



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14 July 2004

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The dominant mission of NOAA: To provide forecasts to protect people, property and the environment. NOAA provides dispersion forecasts over all scales, from urban to global.

The intent is primarily to give information on where materials will go, and on where it would be safe to move to.

ARL is NOAA's end-to-end dispersion research organization. We start with theory and physical models, develop and use tracer systems, conduct outdoor laboratory studies, and provide quasi-operational products.

Since 9/11, the focus has been on where and when people could be exposed.

We need to learn how to integrate the results of physical modeling. This result simulates a smoke release from World Trade Center Site.



Source – EPA/NOAA

Description of concentration extremes and fluctuations is a central issue. Existing capabilities address averages. We must now focus on acute as well as chronic doses.

In the past, the focus has been on the study of concentration fields in intensive experiments. Today, we need to concentrate on exposures and doses for any set of circumstances. We need to learn how to make use of tracers of opportunity.



The ARL READY site is the community's access point for NOAA dispersion products, as well as the latest meteorological information from a number of sources, presented in a user friendly manner.

- > 1500 non-NOAA registered users.
- Relied on by industry and academia, as well as many US agencies (DoD, NPS, NRC, etc.)
- Specifically favored by balloonists, yachtsmen, airline pilots, and emergency managers.
- Enabling field forecasts of dispersion from a central computer.

READY

Realtime Environmental Applications and Display System



The source for interactive trajectory and dispersion modeling on the web.



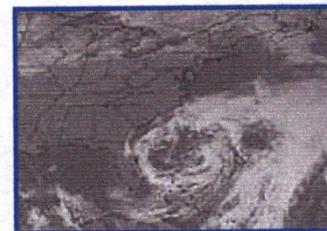
Volcano (VAFTAD)



Air Quality



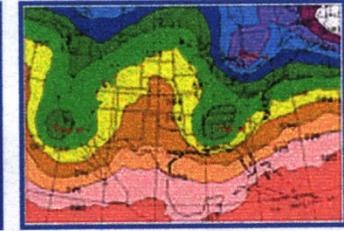
Transport and Dispersion (HYSPLIT)



Current Meteorological Products

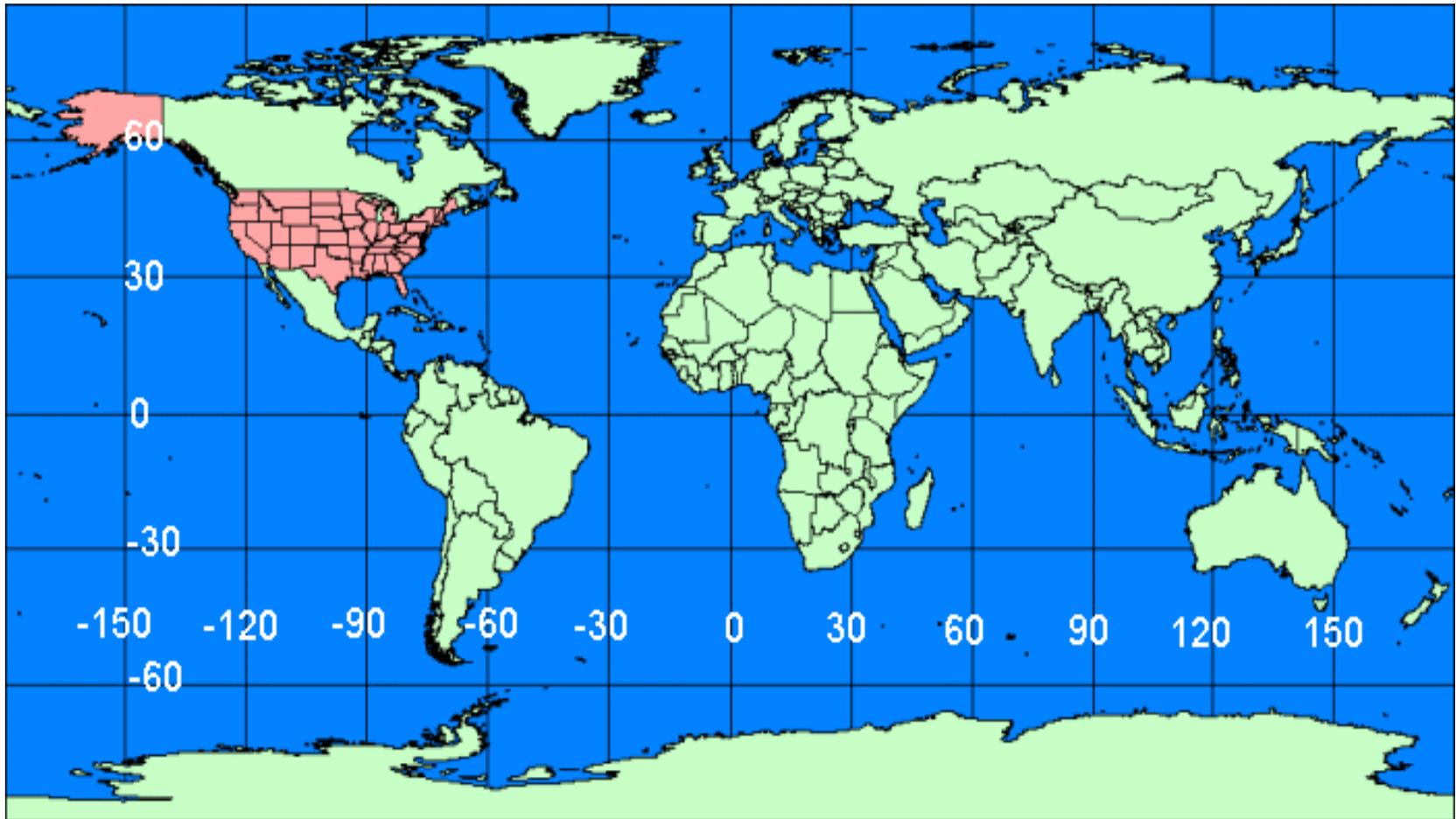


Emergency Response Activities



Archived Meteorological Products

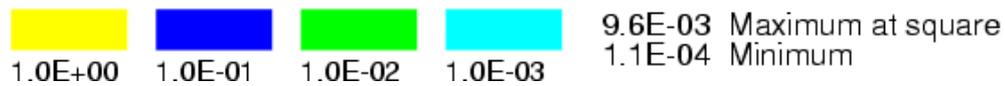
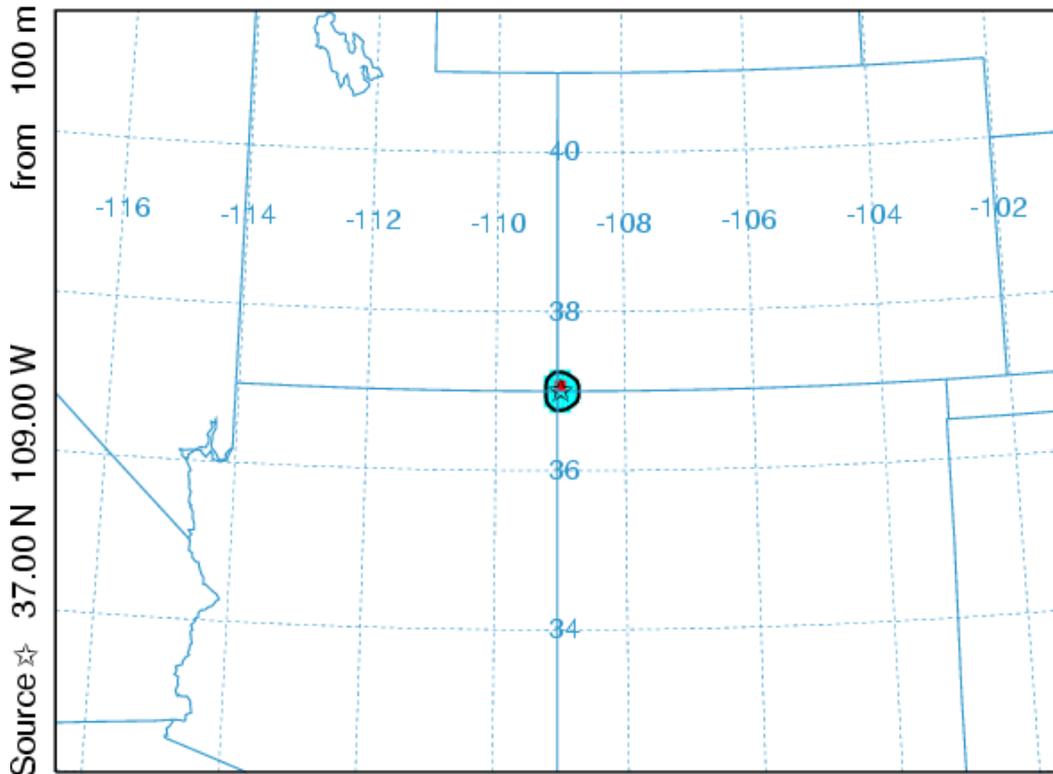
The idea is to make it easy for users to get high quality products. We start with a map - - -



We keep track of what users are interested in.

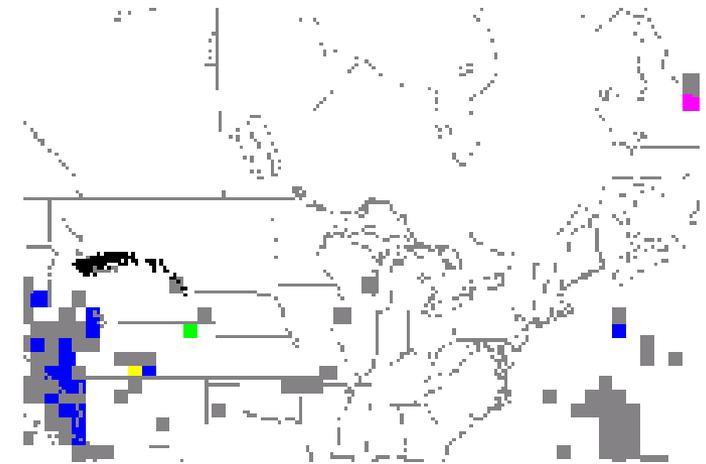
NOAA ARL/NESDIS FIRE SMOKE FORECAST

Air Concentration (ug/m3) Boundary Layer Average 0 m and 3000 m
Integrated from 0000 12 Jul to 0300 12 Jul 04 (UTC)
SOOT Release started at 0000 12 Jul 04 (UTC)



ETAMETEOROLOGICAL DATA

Forecasts for active forest fires are presented routinely. Satellite observations can now be accessed and integrated.



Current emphases –

- Assimilating data from towers and remote probing systems,
- Interpreting point measurements in urban areas,
- Nocturnal dispersion, and intermittency,
- Tracer studies using sources “of opportunity,”
- Developing the Urban Test Bed strategy
- Analyzing past experiments using modern meteorology (E.g. METREX)