

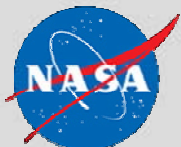
Linking Health and Environmental Data in a Public Health Surveillance System

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Climate Science in Support of Decisionmaking

November 14-16, 2005

- NASA/MSFC
- formerly CDC
- USRA



- **What type of information do decision makers need and what are the pressing science questions?**
- Are we communicating information to decision makers effectively or are we falling short on delivering the information they need?
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- How can CCSP best maintain a dialogue with decision makers to evolve the program?



Public health surveillance is the ongoing, systematic collection, analysis, interpretation, and dissemination of data regarding a health-related event for use in public health action to reduce morbidity and mortality and to improve health. Data disseminated by a public health surveillance system can be used for immediate public health action, program planning and evaluation, and formulating research hypotheses.

Public health surveillance activities are generally authorized by legislators and carried out by public health officials.

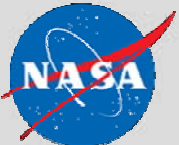
“Updated Guidelines for Evaluating Public Health Surveillance Systems, Recommendations from the Guidelines Working Group”; Robert R. German, Chairman; Morbidity and Mortality Weekly Report; July 27, 2001 / 50(RR13);1-35



Public health surveillance systems can be used to

- **guide immediate action for cases of public health;**
- **measure the burden of a disease, related factors, and risk populations;**
- **monitor trends, including the detection of epidemics (outbreaks) and pandemics;**
- **guide planning, implementation, and evaluation of programs to prevent and control disease, injury, or exposure;**
- **detect changes in health practices and the effects of these changes;**
- **prioritize the allocation of health resources;**
- **describe the clinical course of disease;**
- **provide a basis for epidemiologic research.**

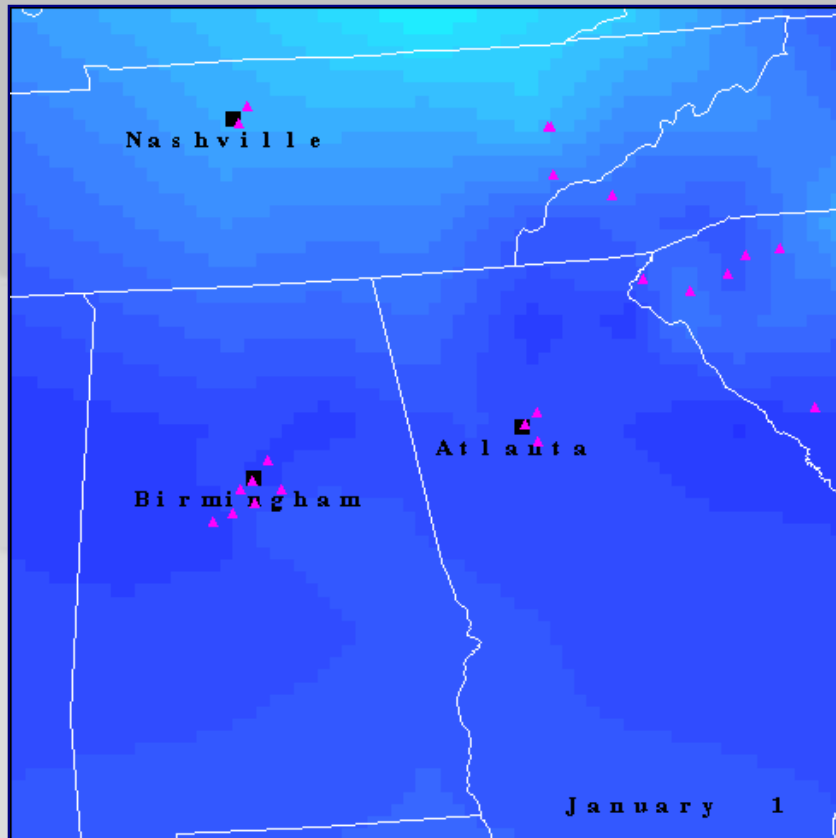
Modified from “Updated Guidelines for Evaluating Public Health Surveillance Systems, Recommendations from the Guidelines Working Group”; Robert R. German, Chairman; Morbidity and Mortality Weekly Report; July 27, 2001 / 50(RR13);1-35



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Particulate Matter (PM_{2.5}) in 2003



Data from scattered EPA monitoring sites were used to make daily surfaces of PM_{2.5} concentrations. High PM_{2.5} concentrations are associated with respiratory and cardiovascular problems.

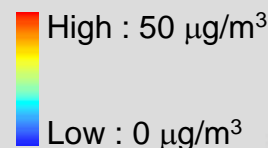
NASA/MSFC and the CDC are partners in linking environmental and health data to enhance public health surveillance.

The use of NASA technology creates value – added geospatial products from existing environmental data sources to facilitate public health linkages. In the future, MODIS data will be combined with the EPA data.

Additional environmental and technology data products, such as ozone and surface temperature, are being developed to provide information to the national Environmental Public Health Tracking Network (EPHTN).

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NASA Program Contact:
John A Haynes, Program Manager
Public Health Application,
Applied Sciences Program
NASA Headquarters MS 5L79
Washington DC 20546-0001



▲ EPA sites

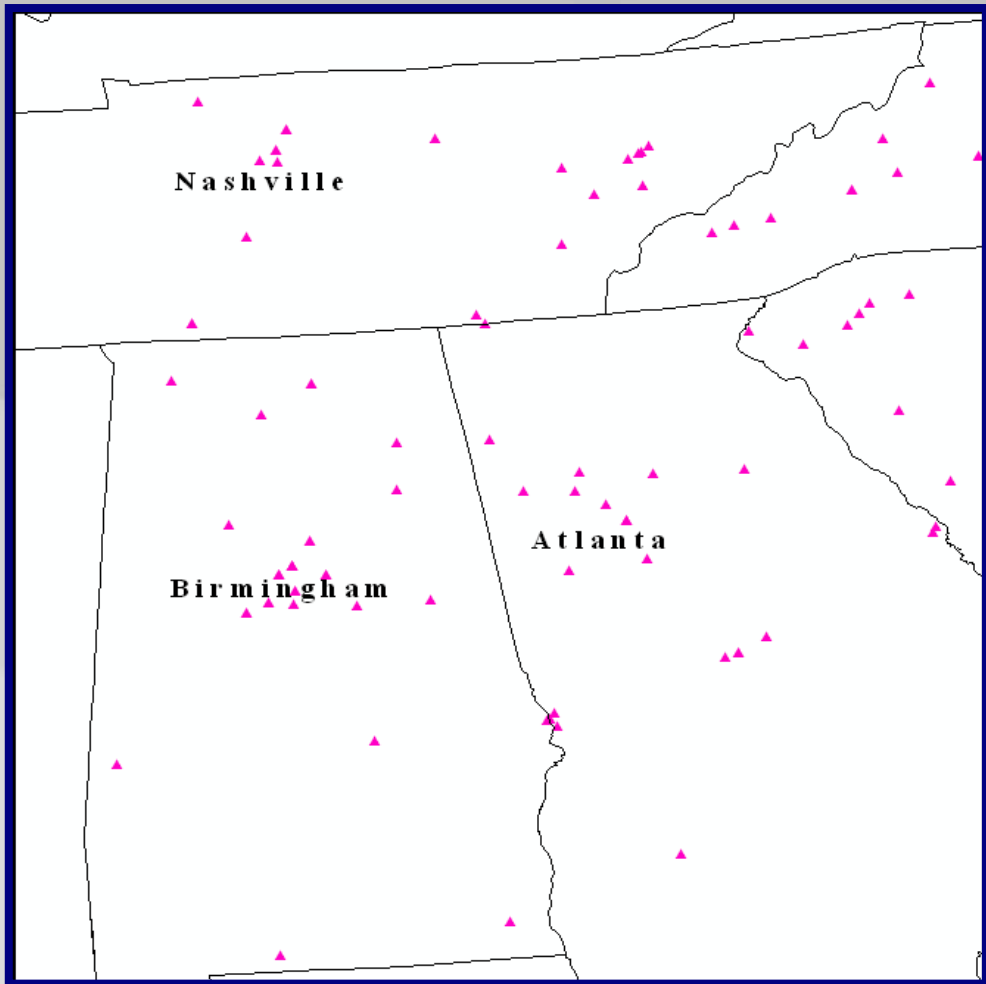


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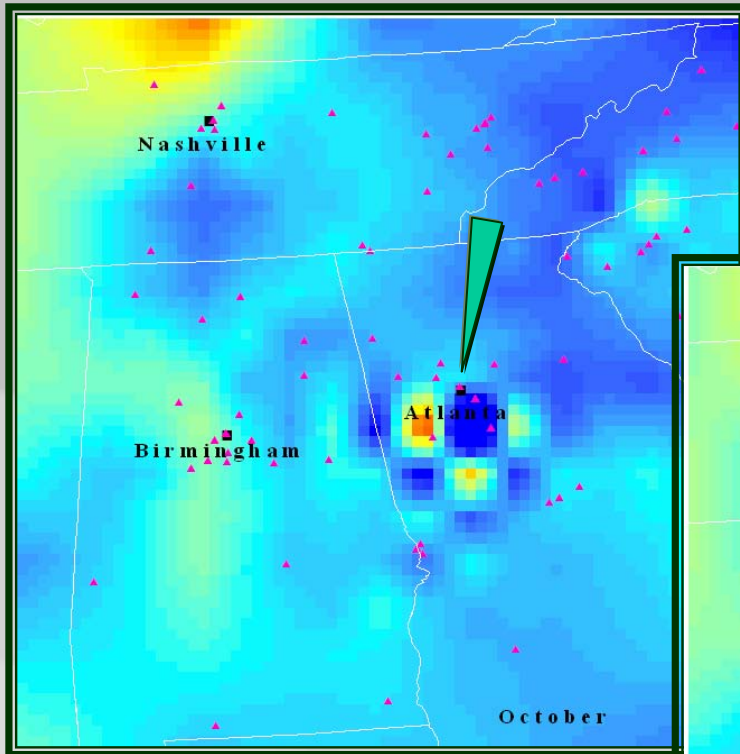
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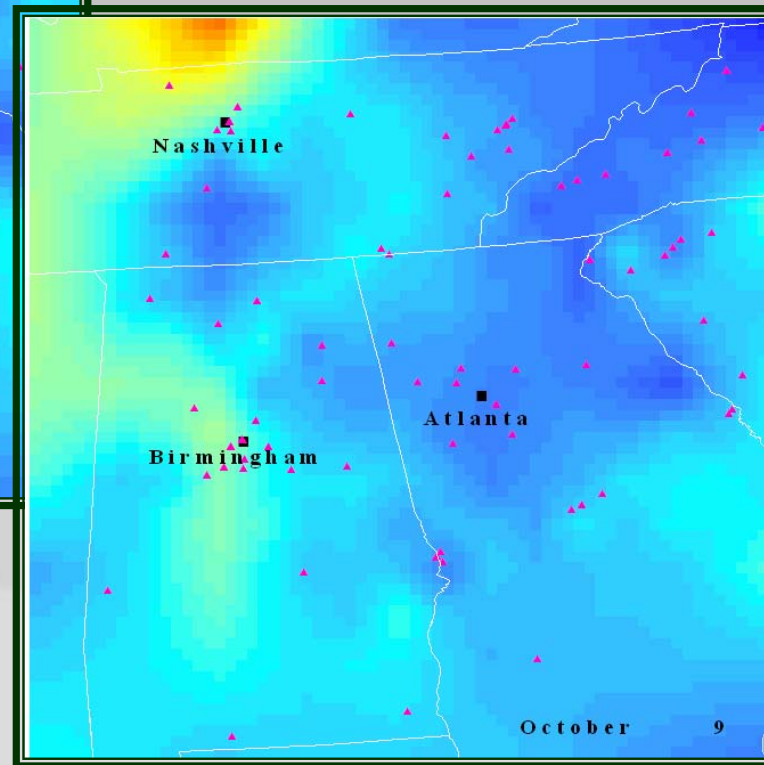
**October 9, 2003
EPA AQS PM2.5 Sites**



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Particulate Matter (PM_{2.5}) in 2003



PM_{2.5} Concentration

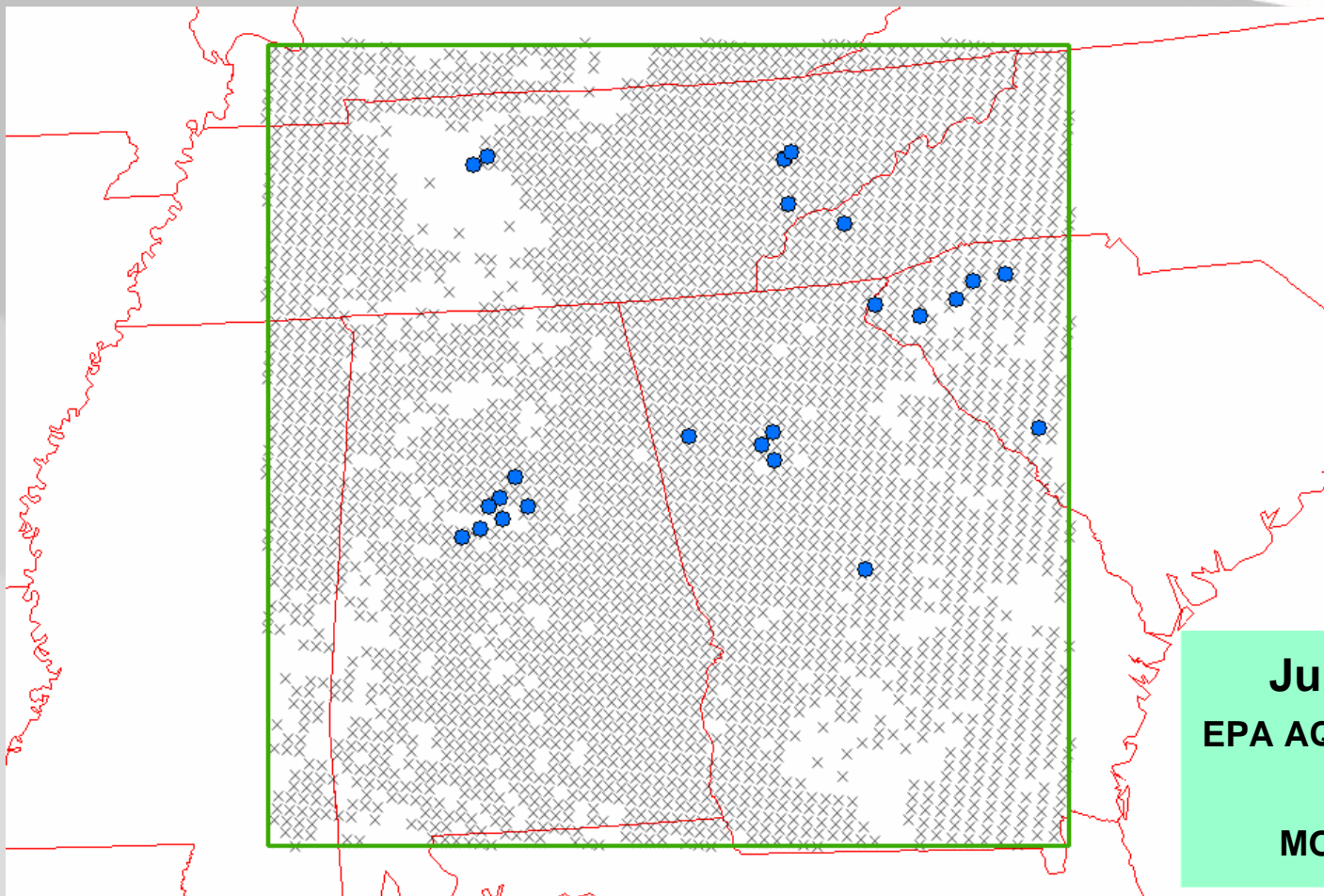
High : 50 $\mu\text{g}/\text{m}^3$

Low : 0 $\mu\text{g}/\text{m}^3$

▲ EPA sites



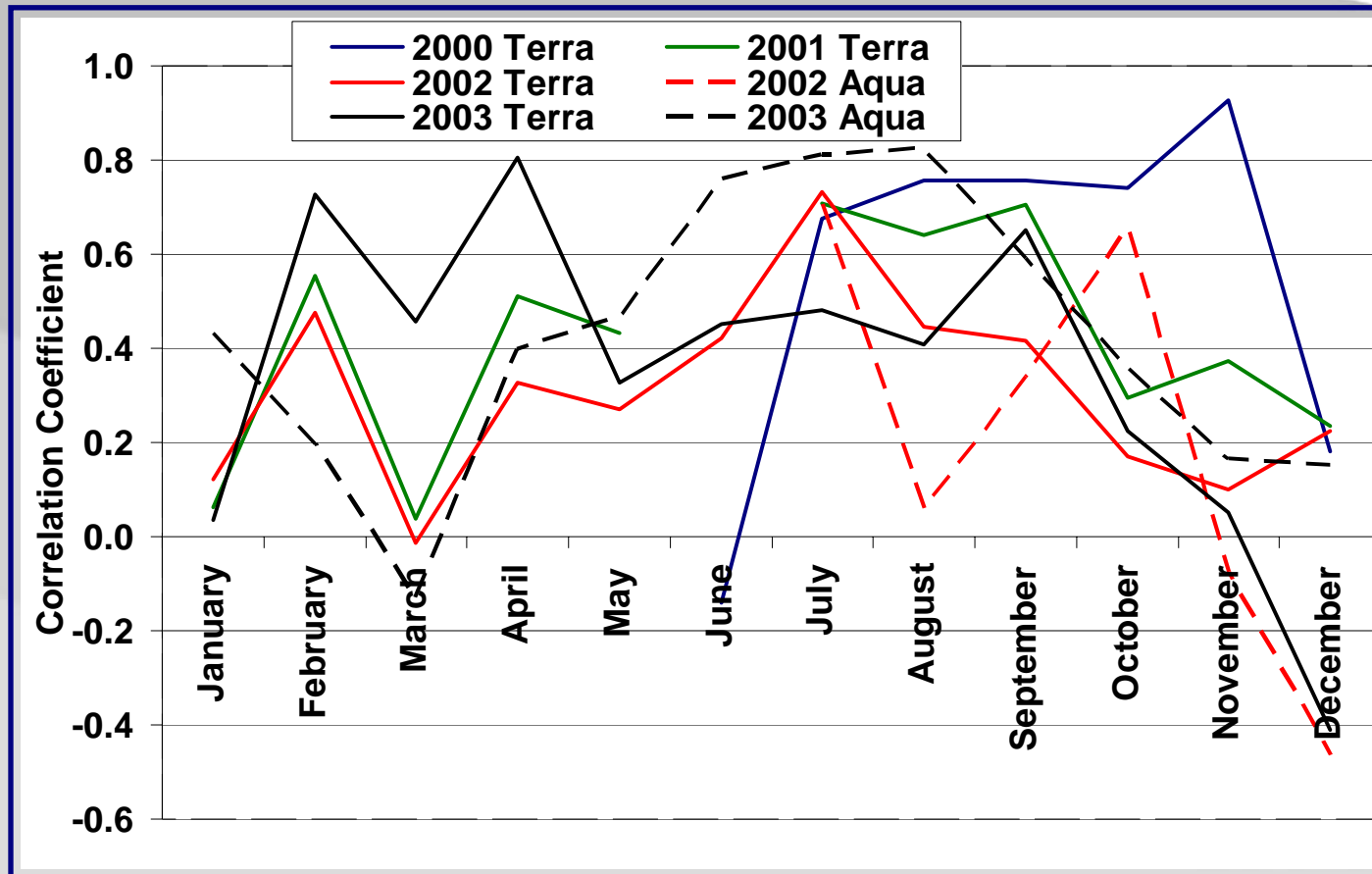
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June 25, 2003
EPA AQS PM2.5 Monitors
&
MODIS Postings



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Monthly correlation coefficients between
MODIS AOD and AQS-measured PM2.5



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By being in the mine with them!



**1400 Feet Under the Missouri Ozarks
Mining Lead**



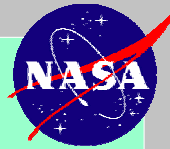
**Dressed at the mine mouth in Coahuila
Strontium Mine**



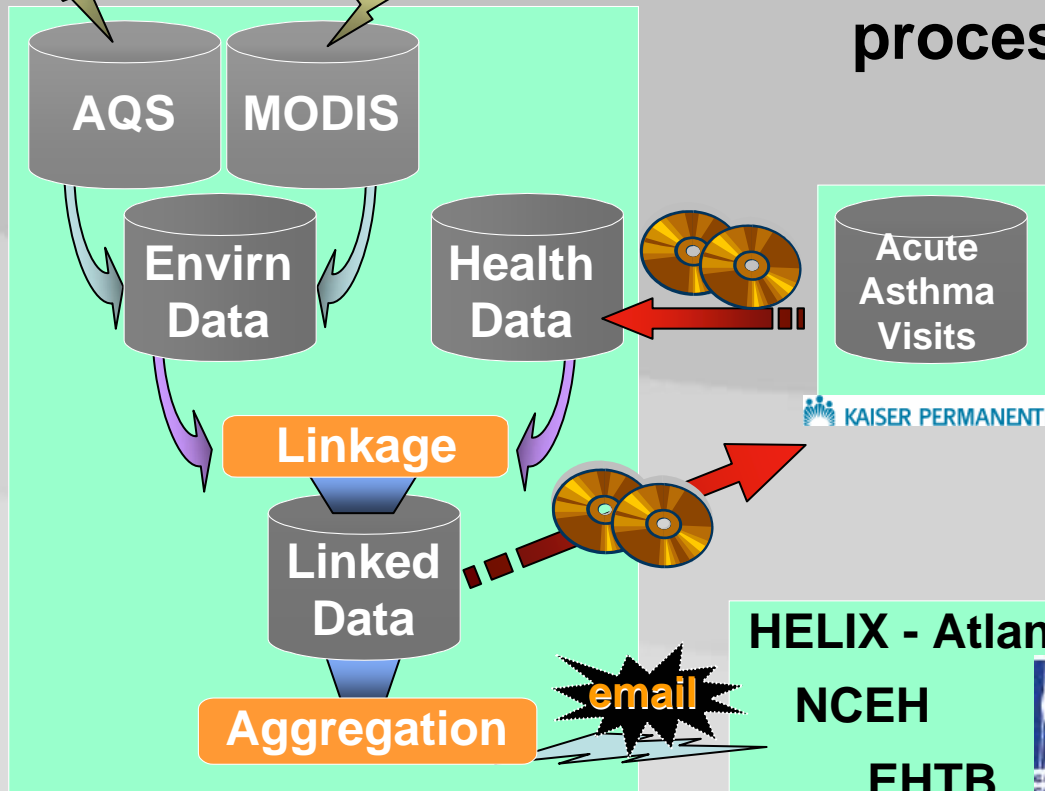
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EPA



NASA



Schematic data transfer process for HELIX-Atlanta.

