



Activities Related to the Air & Health Community Of Practice In the United States

**Group on Earth Observations
User Interface Committee Meeting**

April 2, 2007

USGEO and Air Quality



RESEARCH & DEVELOPMENT

Building a scientific foundation for sound environmental decisions

[http://usgeo.gov/
documents.asp?s=nto](http://usgeo.gov/documents.asp?s=nto)

**Five well-integrated products/
services that collectively
advance AQ assessment and
forecasting:**

- **Integrated Observed-Modeled Air Quality Fields**
- **Systems for Utilizing Observations to Improve AQ Forecasts**
- **Assessments of Key Air Quality Processes,**
- **Improved National Emissions Inventories**
- **Improved International AQ Transport Assessments**

Air Quality Assessment and Forecast System:
Near-Term Opportunity Plan



PRE-PUBLICATION



September 2006

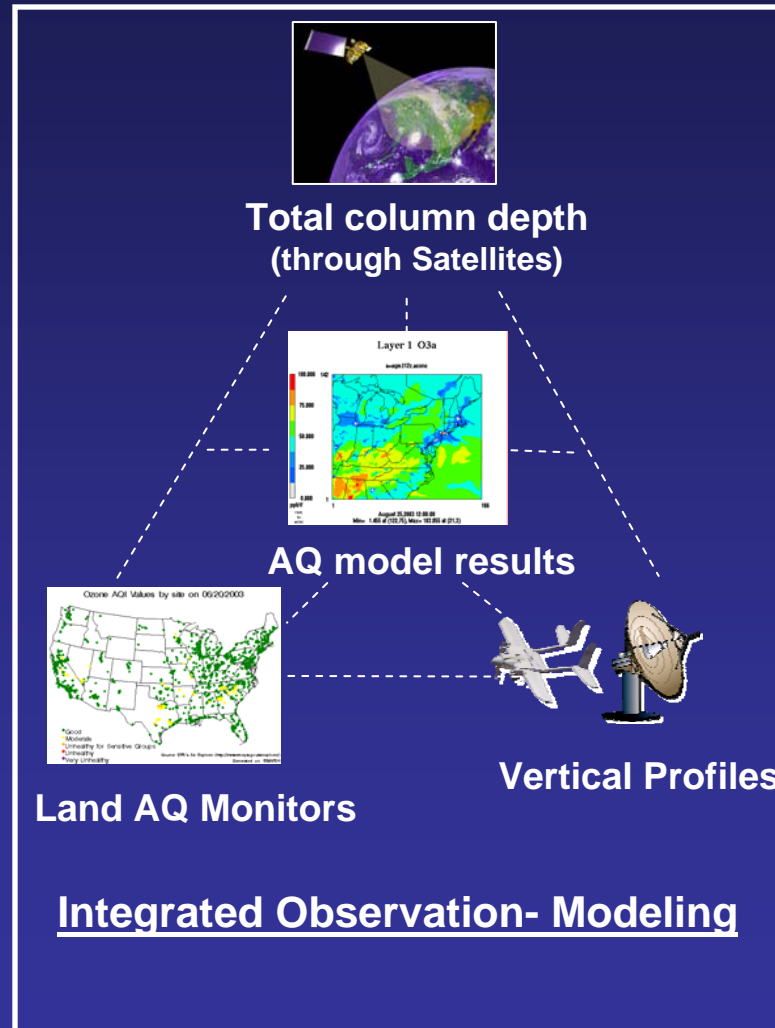


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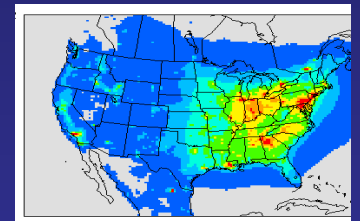
Building a scientific foundation for sound environmental decisions

Merging Measurement Systems and Numerical Predictive Models

- Assimilation of data to improve
 - air quality models for forecast
 - Current and
 - Retrospective assessments
- Global-Regional Air Quality Connections
- Climate-AQ connections

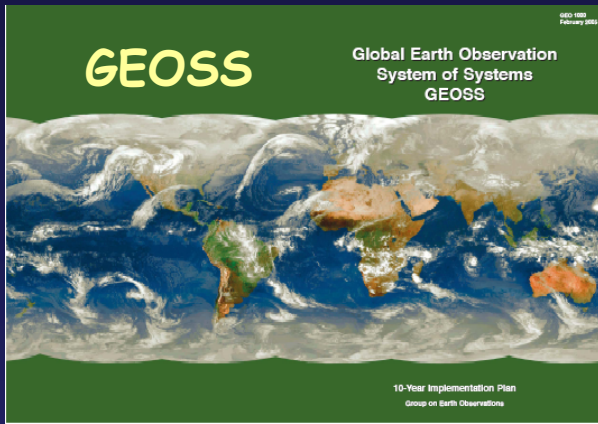


Optimized PM2.5, O3



Characterizations



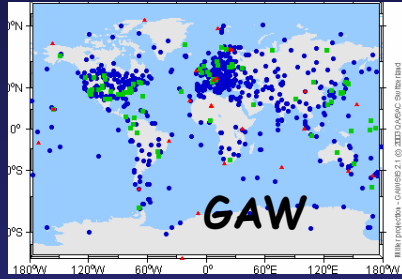


<http://earthobservations.org/>

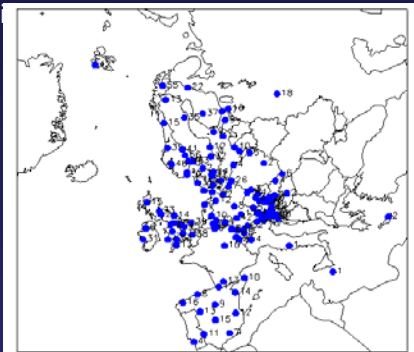
National Ambient Air Monitoring Strategy

Office of Air Quality Planning and Standards
Research Triangle Park, NC
December 2005

<http://www.epa.gov/ttn/amt/>

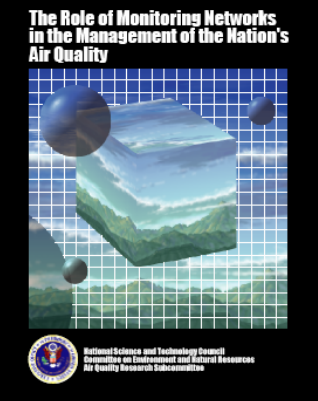


<http://www.empa.ch/gaw/gawsis/>



<http://www.emep.int/>

CENR/AQRS



<http://www.al.noaa.gov/AQRS/reports/monitoring.html>

IGACO
THE INTEGRATED GLOBAL ATMOSPHERIC CHEMISTRY OBSERVATIONS THEME
For the Monitoring of our Environment from Space and from Earth
IGOS
Integrated Global Observing Strategy
September 2004
An international partnership for cooperation in Earth observations

<http://www.igospartners.org/>



<http://www.fz-juelich.de/icg/icg-ii/mozaic/home>

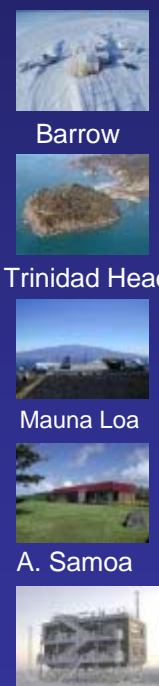


<http://www.fz-juelich.de/icg/icg-ii/iagos/>



NOAA NESDIS

<http://www.nesdis.noaa.gov/>



Barrow

Trinidad Head

Mauna Loa

A. Samoa

S. Pole

<http://www.cmdl.noaa.gov/>

NOAA CMDL

Building an integrated observation-modeling complex from an air program perspective

- Health
 - effects/outcomes associations (PHASE)
 - Public health warnings/forecasting
- Air program support
 - defining attainment/nonattainment areas (and projection, *current practice*)
 - developing emission strategies
 - accountability
- Environmental
 - Ecosystem deposition assessments/support
 - AQ trends in National Parks
 - Regional haze assessments
- Atmospheric science
 - Diagnosing emissions and models

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graph LR; A[Health, Air program support, Environmental, Atmospheric science] --> B[Benefit from Air quality characterizations]; B --> C[And benefit even more from rich (t,s,c) AQ characterizations];
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Benefit from
Air quality
characterizations

And benefit even more
from rich (t,s,c)
AQ characterizations

*Air Quality Assessment
and Forecast System Table*
from the USGEO website

**Draft Table 1. Products, Services,
Observing Systems & Models**

**Draft Table 2. Decision Support
Systems**

- (an initial compilation of U.S. capabilities in Earth observation systems, models and decision support systems}



Global Air Quality Assessment and Forecasting

- Led by EPA with NOAA, NASA, DOE, HHS & NSF
- Is focused on connecting Earth observations to health issues related to air quality.
- Builds on the success of the EPA's AIRNow air quality information system, with the objective to make it deployable to other countries.
- Requires an approach to use satellite information to be combined with and augment ground based AQ information systems.
- Key Milestone, May 1st, to present the project implementation timetable to the USGEO Co-Chairs.



EPA and Air Quality



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EPA-GEO Pilot Projects

Project

AIRNow Gateway
System to Improve
Forecasting and
Public Health

Modeling Integrated
Spatial Data for
Improved Public
Information on AQ

Benefit

AQ assessment decisions
relying on real-time AIR-
Now data will be processed
faster

Contributes to PH tracking,
understanding IC transport
of these air pollutants &
accountability of emission
reduction strategies.



EPA-GEO Pilot Projects

Project

Improving Assessments
of Air Pollution Over
and From Central
Asia

PHASE Toolkit to Im-
prove Local Infor-
mation for AQ &
Public Health

Benefit

More effective & efficient strategies
for Western US PM, and support
for LRTAP Task Force on Hemi-
spheric Transport of Pollutants.

Automating AQ (O₃/PM 2.5) est-
imates, improved epidemiological
exposure estimates, better PH
officials' decisions on “at risk”
populations .



EPA-GEO Pilot Projects

Project

Ground Level Ozone
Concentrations based
on Satellite/Ground
Observations

Advanced Accountability
Metrics using Space-
based Observations of
NO₂

Benefit

Decision support for regional ambi-
ent O₃ attainment along US-
Mexico border & Border 2012
Program environmental health
decisions;

Support of regulatory policy decision
making for NO_x emission controls
and evaluating currently enacted
regulations



EPA-GEO Pilot Projects

Project

Integration & Evaluation of Global Emissions Inventories in the NEISGEI Framework

Benefit

Improved inventories for wildfires & agricultural burning for the inter-continental transport of air pollutants.



***Center For Disease
Control (CDC)
and
Air Quality***



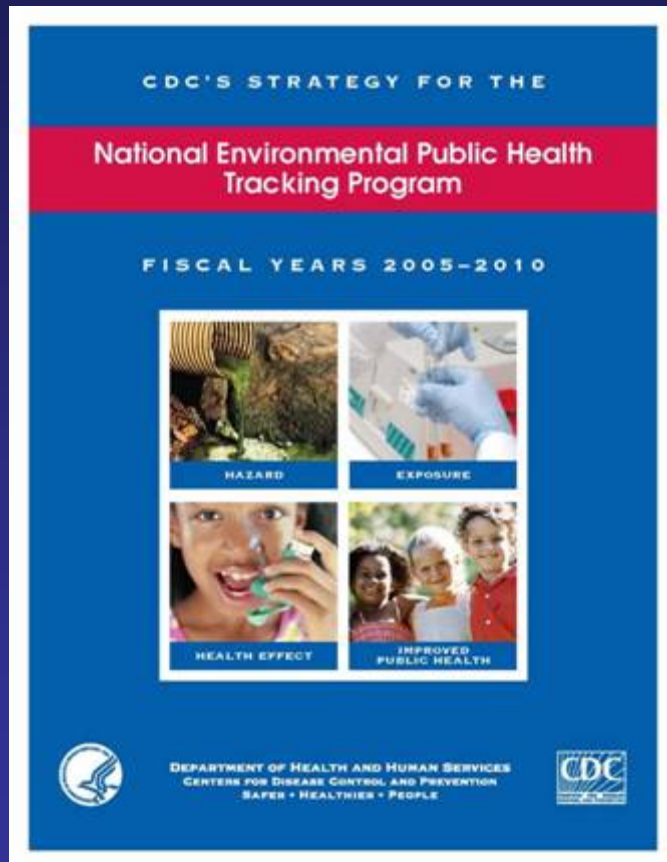
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Tracking = Surveillance

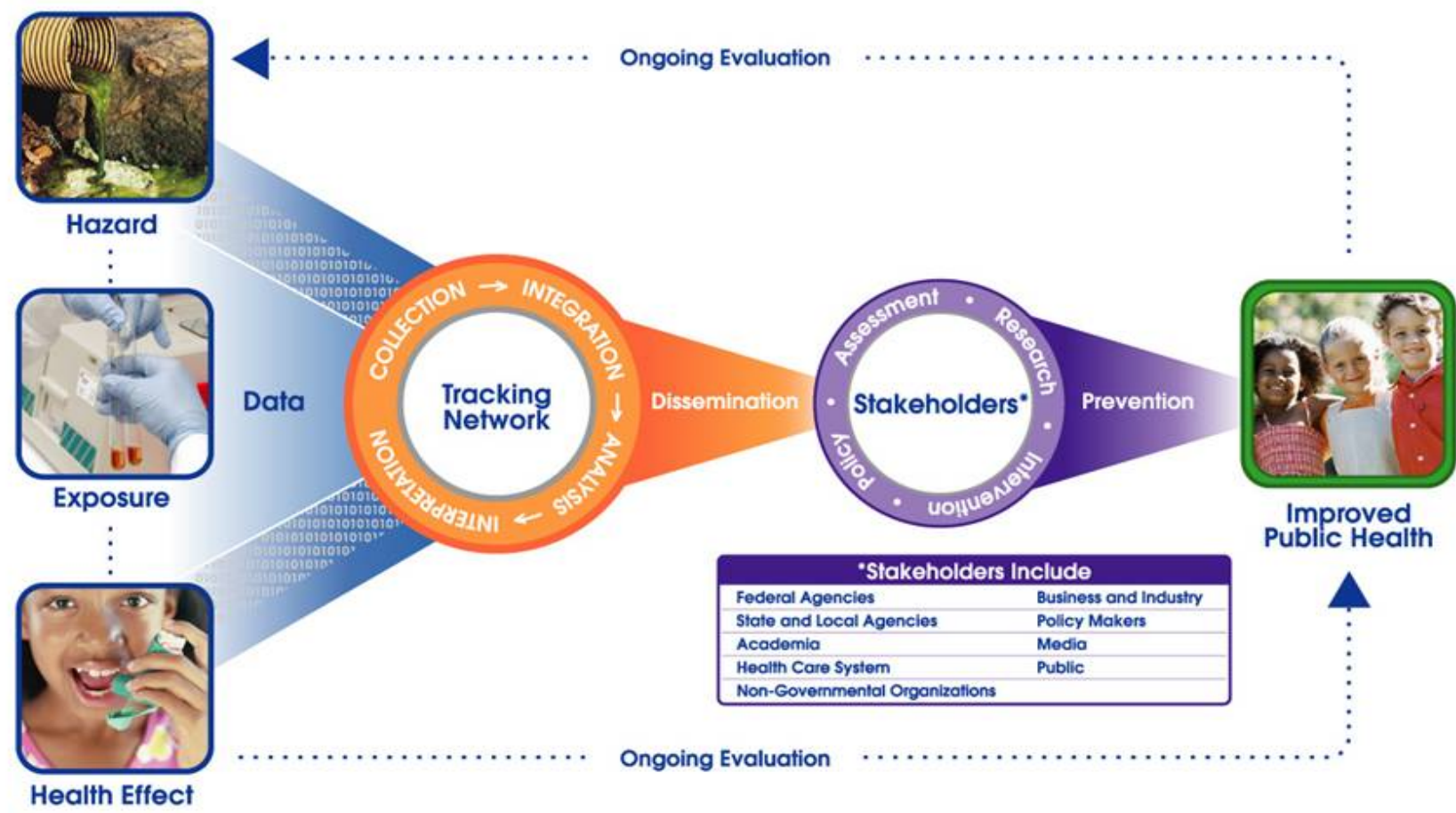
- Environmental public health tracking is the ongoing, systematic collection, integration, analysis, interpretation of data about the following factors:
 - environmental hazards;
 - human exposure to environmental hazards;
 - health effects potentially related to exposure to environmental hazards.
- Data must be disseminated to plan, implement, and evaluate environmental public health action.

Our Mission



To provide information from a nationwide network of integrated health and environmental data that drives actions to improve the health of communities

ENVIRONMENTAL PUBLIC HEALTH TRACKING



***Stakeholders include**

Federal Agencies	Business and Industry
State and Local Agencies	Policy Makers
Academia	Media
Health Care System	Public
Non-Governmental Organizations	



DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION
SAFER • HEALTHIER • PEOPLE



State of Tracking

- Telling our story
 - Why Tracking?
 - What has been done?
 - What have we learned?
 - Where are we going?



- Anticipated Release December 2006

State of EH

- Biennial report on the Nation's environmental public health status
 - Accessible and readable
 - Useful for forecasting
 - Stimulate further data collection
 - Stimulate research
 - Impact policy
 - Improve public health
- First release anticipated December 2008



***The State of Maine
with CDC
and
Ozone Air Quality***



RESEARCH & DEVELOPMENT

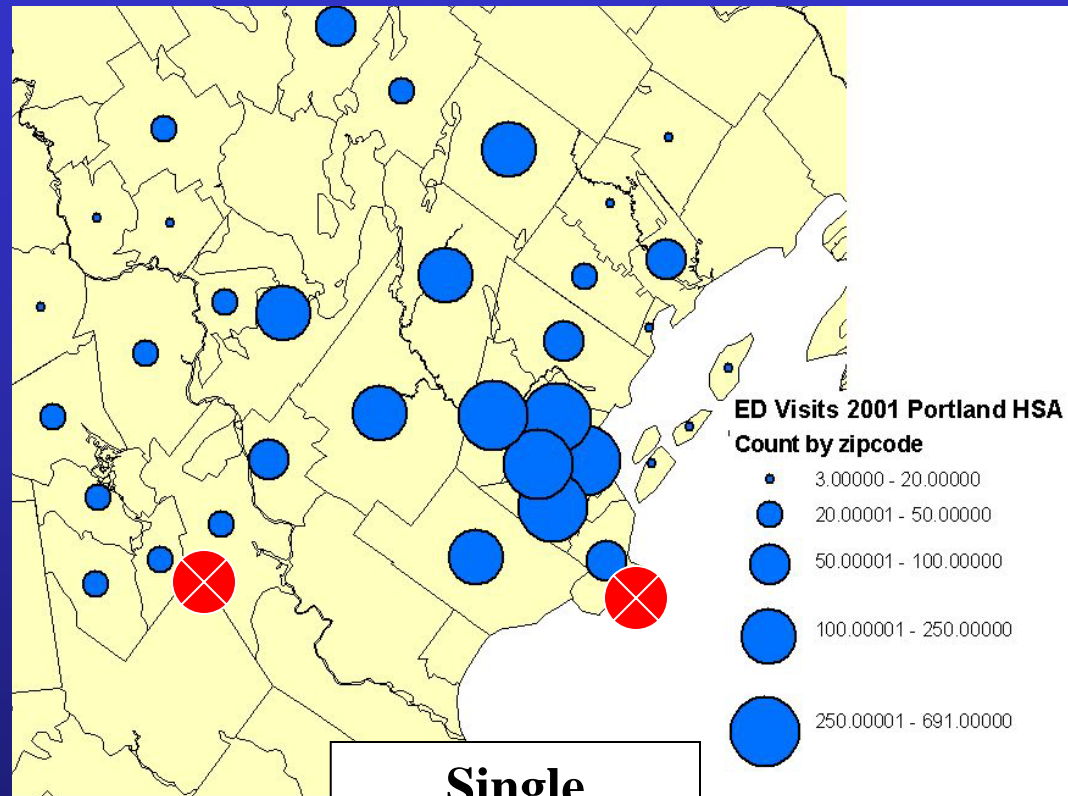
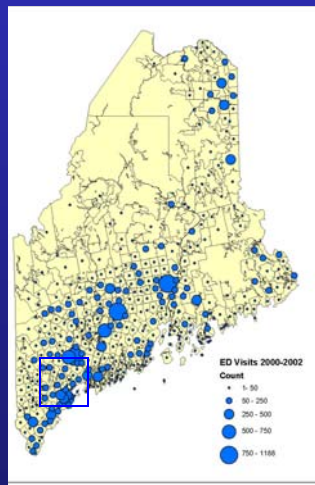
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Public Health Surveillance is:

The orderly consolidation and evaluation of these data ...

- can we track asthma morbidity attributable to ozone?

Life Before PHASE



Single
monitoring
site 

... treats population as all having the same ozone exposure

Life After PHASE

Link to zipcode of patient residence

