

Applications of Earth Science Data and Tools for Public Health Surveillance and Research

*HAQAST Meeting
November 29, 2017*

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Network

A system of integrated health, exposure, and hazard information and data from a variety of sources, that is accessible through a public web portal for educational to policymaking purposes



CDC

Centers for Disease Prevention and Control

CDC 24/7: Saving Lives. Protecting People.™

SEARCH

CDC A-Z INDEX

National Environmental Public Health Tracking Network

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The National Environmental Public Health Tracking Network (Tracking Network) is a system of integrated health, exposure, and hazard information and data from a variety of national, state, and city sources.

On the [Tracking Network](#), you can view maps, tables, and charts with data about:

- chemicals and other substances found in the environment
- some chronic diseases and conditions
- the area where you live

You can also:

- Try our new Data Explorer
- Search for Information by Location
- Visit State & Local Tracking Portals



CDC's Tracking Network

ENVIRO HEALTH APP CHALLENGE

to visit the challenge website >>

EXPLORE OUR NEW DATA QUERY TOOL



View & download all data

Maps • Charts • Tables

GO

INFO BY LOCATION

Data for you!

View data by county or zip code

GO

STATE & LOCAL TRACKING PROGRAMS



Websites

Grantor Profiles

Data Highlights

GO

Environments



Pesticide Exposures

Climate Change

Outdoor Air

More >

Health Effects



Asthma

Cancer

Childhood Lead Poisoning

More >

Population Health



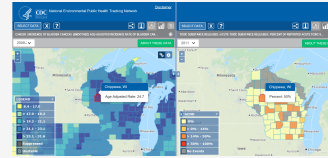
Populations and Vulnerabilities

Health Impact Assessments

Children's Environmental Health

More >

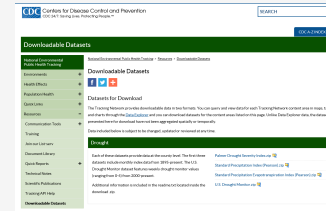
www.cdc.gov/ephtracking



Data Explorer



Info by Location



Downloadable Datasets



Application Program Interface

Grantees

26

25 states + 1 city

CDC-ASTHO
Tracking Fellowships

41

since 2008

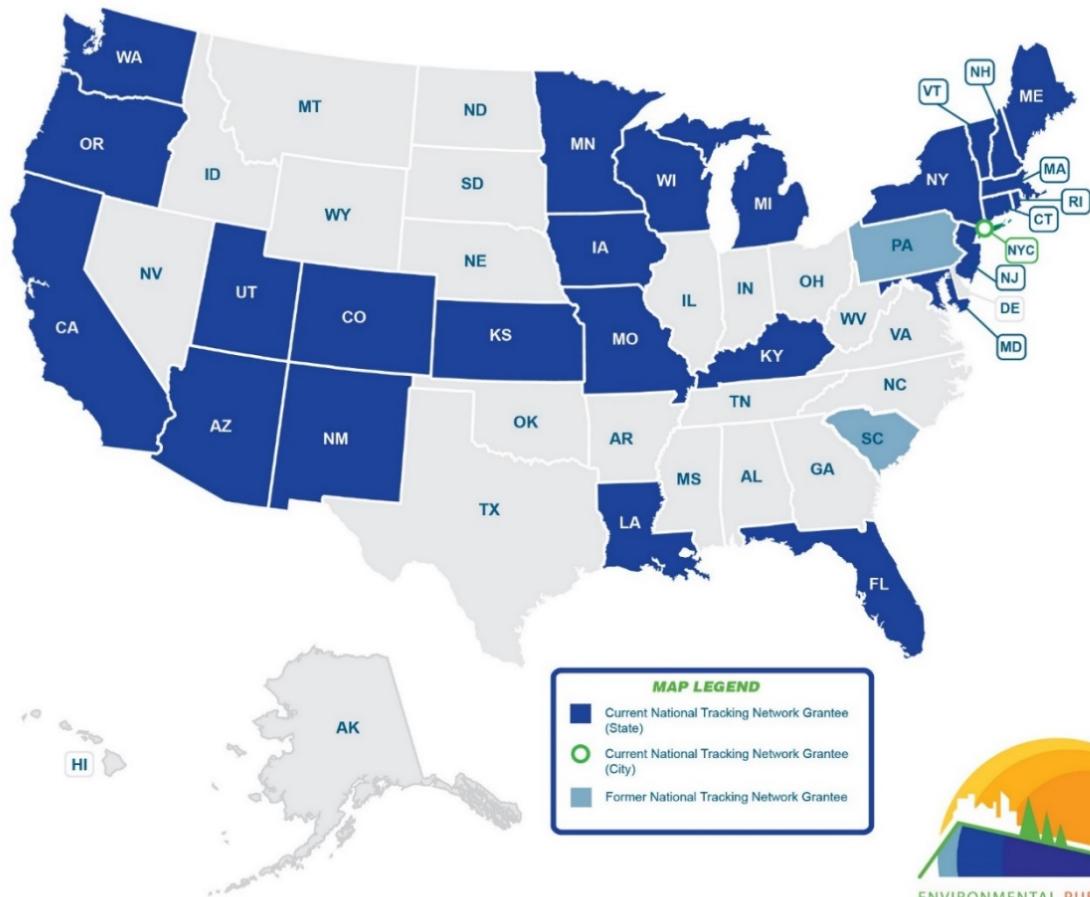
Partnerships

CDC programs,
federal agencies, national
organizations

Public Health Actions

400+

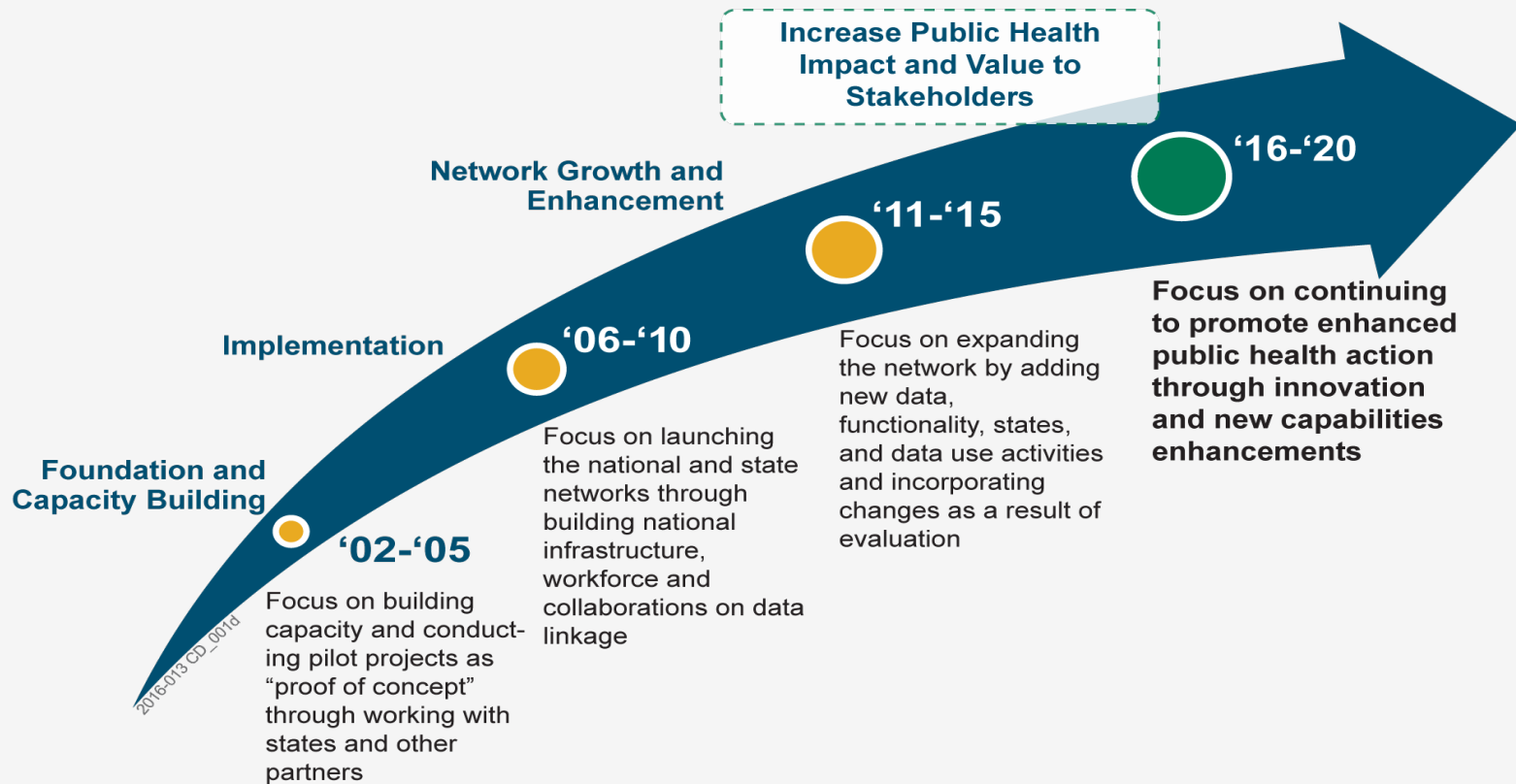
CDC's National Environmental Public Health Tracking Program

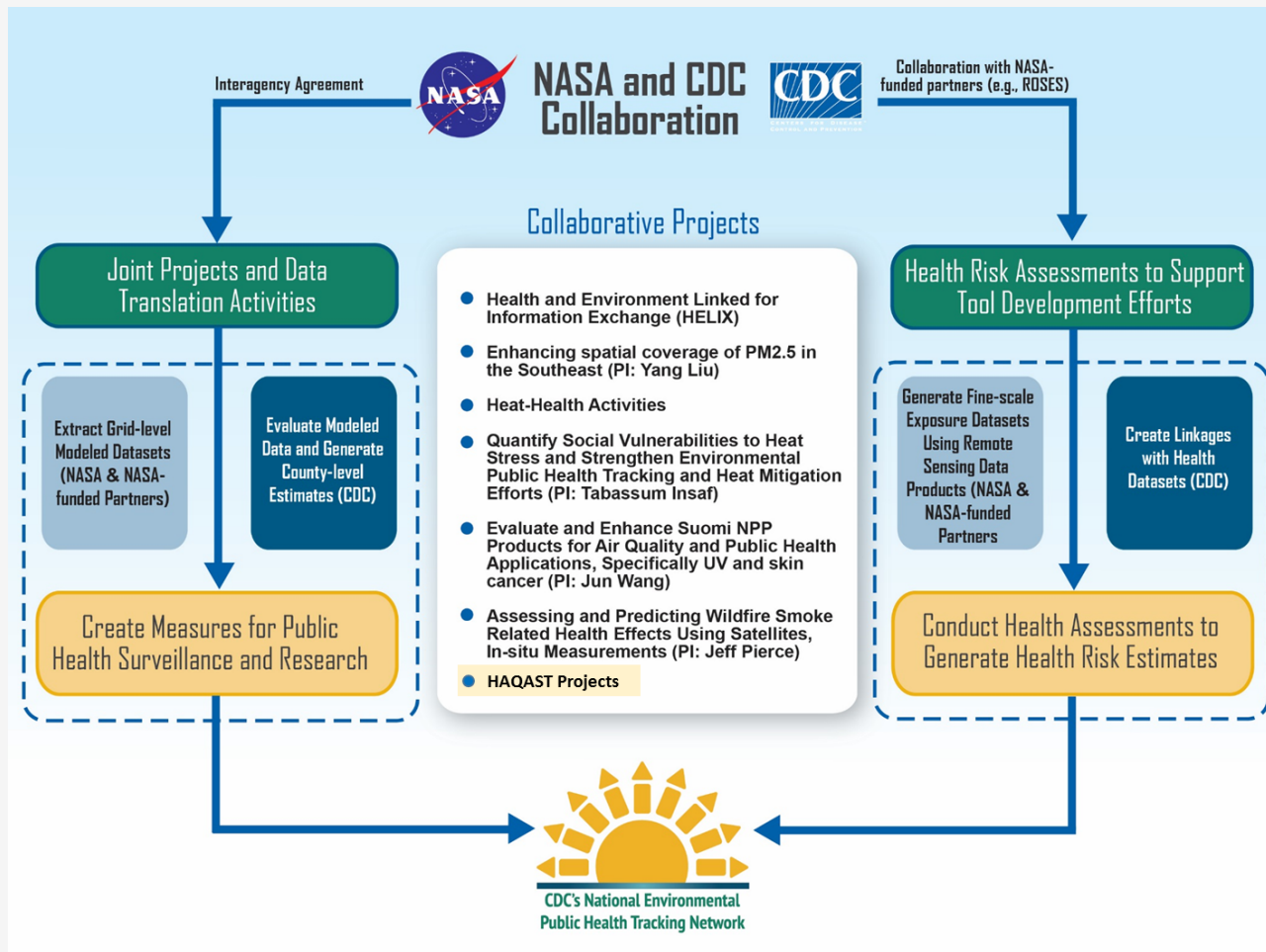


August 2017



Evolution of the Tracking Program and Focus for 2016-2020





Current Activities / Opportunities for Collaboration

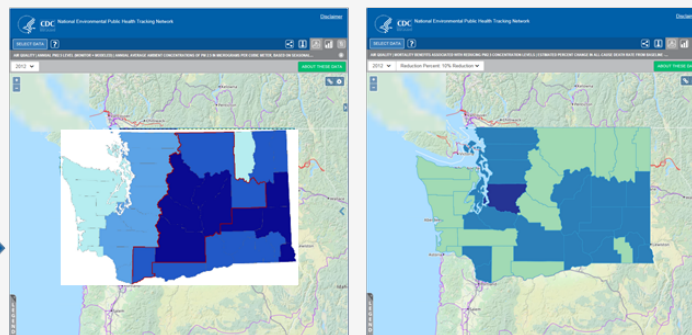
Exposure
Modelling using
Satellite Data
Products

Health Risk Assessment of Historical Wildfire Episodes

C-R functions
from
Epidemiologic
Analyses

Measures of Exposures
(Smoke $PM_{2.5}$
Concentrations)

Measures of Health
Impacts
(% Change in Deaths /
Hospitalizations)



Computer Model
(WRF-Chem)

In-situ monitors
(AQ5, IMPROVE)

Satellite data
(MODIS, MISR, GOES)

WRF-Chem

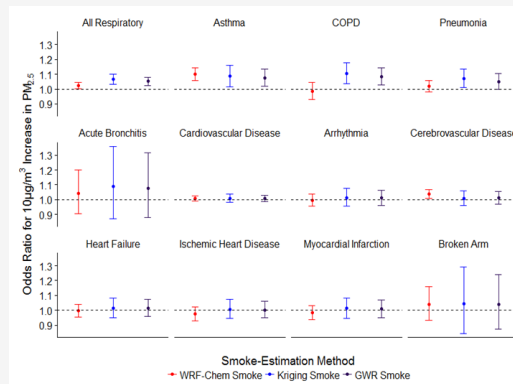
Kriging

MODIS AOD

Hybrid Approaches

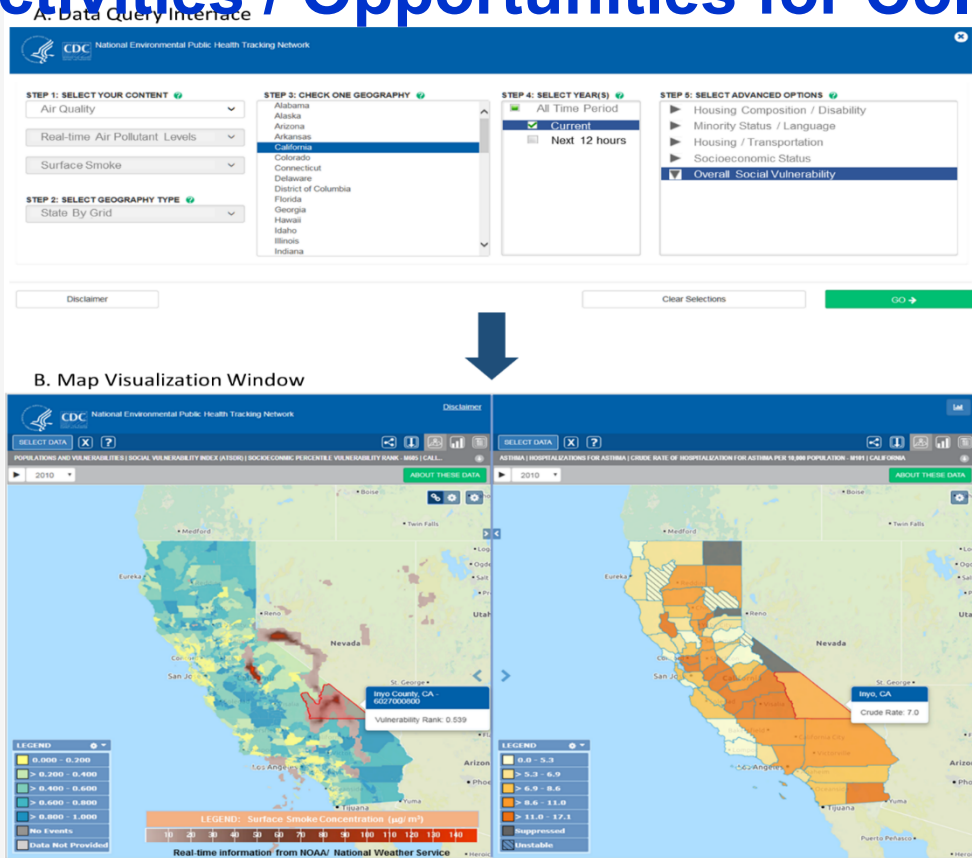
Global Regression

Geo-Weighted Regression (GWR)



Gan, R. W., Ford, B., Lassman, W., Pfister, G., Vaidyanathan, A., Fischer, E., Volckens, J., Pierce, J.R., & Magzamen, S. (2017). Comparison of wildfire smoke estimation methods and associations with cardiopulmonary-related hospital admissions. *GeoHealth*, 1(3):122-136.z

Current Activities / Opportunities for Collaboration



Vaidyanathan A, Yip F, Garbe P. (2017). Developing an Online Tool for Identifying At-Risk Populations to Wildfire Smoke Hazards. Science of the total environment (Accepted)

Current Activities / Opportunities for Collaboration

- ❑ Characterize exposure, vulnerabilities, and health impacts to take action
 - Prescribed burnings: forest, agricultural
 - Indicators for traffic-related pollutants / pollen

- ❑ Joint collaborations to assess the effectiveness of policy and other interventions on reducing health impacts:
 - Quantify changes in source-specific AQ concentrations
 - Baseline AQ exposure levels in places with no monitors (rural areas)

- ❑ Evaluation of satellite data products in a health context
 - Estimate differences in health risk estimates

- ❑ Using Tracking Network as a Decision Support System and as a platform to host earth science data products

Questions?

Thank You!



For more information, contact NCEH/ATSDR

1-800-CDC-INFO (232-4636)

TTY: 1-888-232-6348 www.atsdr.cdc.gov www.cdc.gov

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry.



