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

HAQAST Meeting
November 29, 2017

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The National Environmental Public Health Tracking 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

www.cdc.gov/ephtracking
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

MAP LEGEND
- Current National Tracking Network Grantee (State)
- Current National Tracking Network Grantee (City)
- Former National Tracking Network Grantee

August 2017
Evolution of the Tracking Program and Focus for 2016-2020

- **Foundation and Capacity Building**
  - ‘02-'05: Focus on building capacity and conducting pilot projects as “proof of concept” through working with states and other partners.

- **Implementation**
  - ‘06-'10: Focus on launching the national and state networks through building national infrastructure, workforce and collaborations on data linkage.

- **Network Growth and Enhancement**
  - ‘11-'15: Focus on expanding the network by adding new data, functionality, states, and data use activities and incorporating changes as a result of evaluation.

- **Increase Public Health Impact and Value to Stakeholders**
  - ‘16-'20: Focus on continuing to promote enhanced public health action through innovation and new capabilities enhancements.
NASA and CDC Collaboration

Interagency Agreement

Joint Projects and Data Translation Activities
- Extract Grid-level Modeled Datasets (NASA & NASA-funded Partners)
- Evaluate Modeled Data and Generate County-level Estimates (CDC)
- Create Measures for Public Health Surveillance and Research

Collaborative Projects
- Health and Environment Linked for Information Exchange (HELIX)
- Enhancing spatial coverage of PM2.5 in the Southeast (PI: Yang Liu)
- Heat-Health Activities
- Quantify Social Vulnerabilities to Heat Stress and Strengthen Environmental Public Health Tracking and Heat Mitigation Efforts (PI: Tabassum Insaif)
- Evaluate and Enhance Suomi NPP Products for Air Quality and Public Health Applications, Specifically UV and skin cancer (PI: Jun Wang)
- Assessing and Predicting Wildfire Smoke Related Health Effects Using Satellites, In-situ Measurements (PI: Jeff Pierce)
- HAQAST Projects

Health Risk Assessments to Support Tool Development Efforts
- Create Linkages with Health Datasets (CDC)
- Conduct Health Assessments to Generate Health Risk Estimates

CDC's National Environmental Public Health Tracking Network
Current Activities / Opportunities for Collaboration

Exposure Modelling using Satellite Data Products

Measures of Exposures (Smoke PM$_{2.5}$ Concentrations)

Health Risk Assessment of Historical Wildfire Episodes

C-R functions from Epidemiologic Analyses

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

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
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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.