Updates from the CDC Environmental Public Health Tracking Program

Health and Air Quality Applications Program Review, September 2022

Angela Werner, PhD, MPH

Environmental Public Health Tracking Program

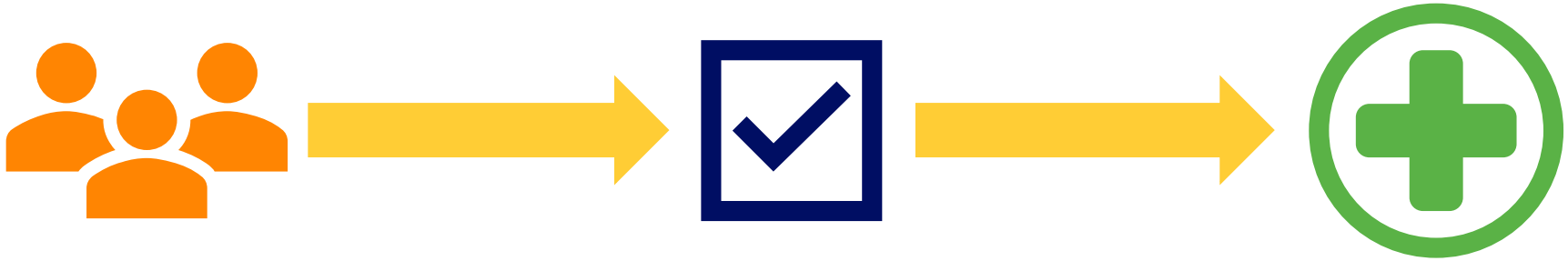
Emergency Management, Radiation, and Chemical Branch

Division of Environmental Health Science and Practice

INTRODUCTION TO CDC'S ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM

ENVIRONMENTAL PUBLIC HEALTH TRACKING

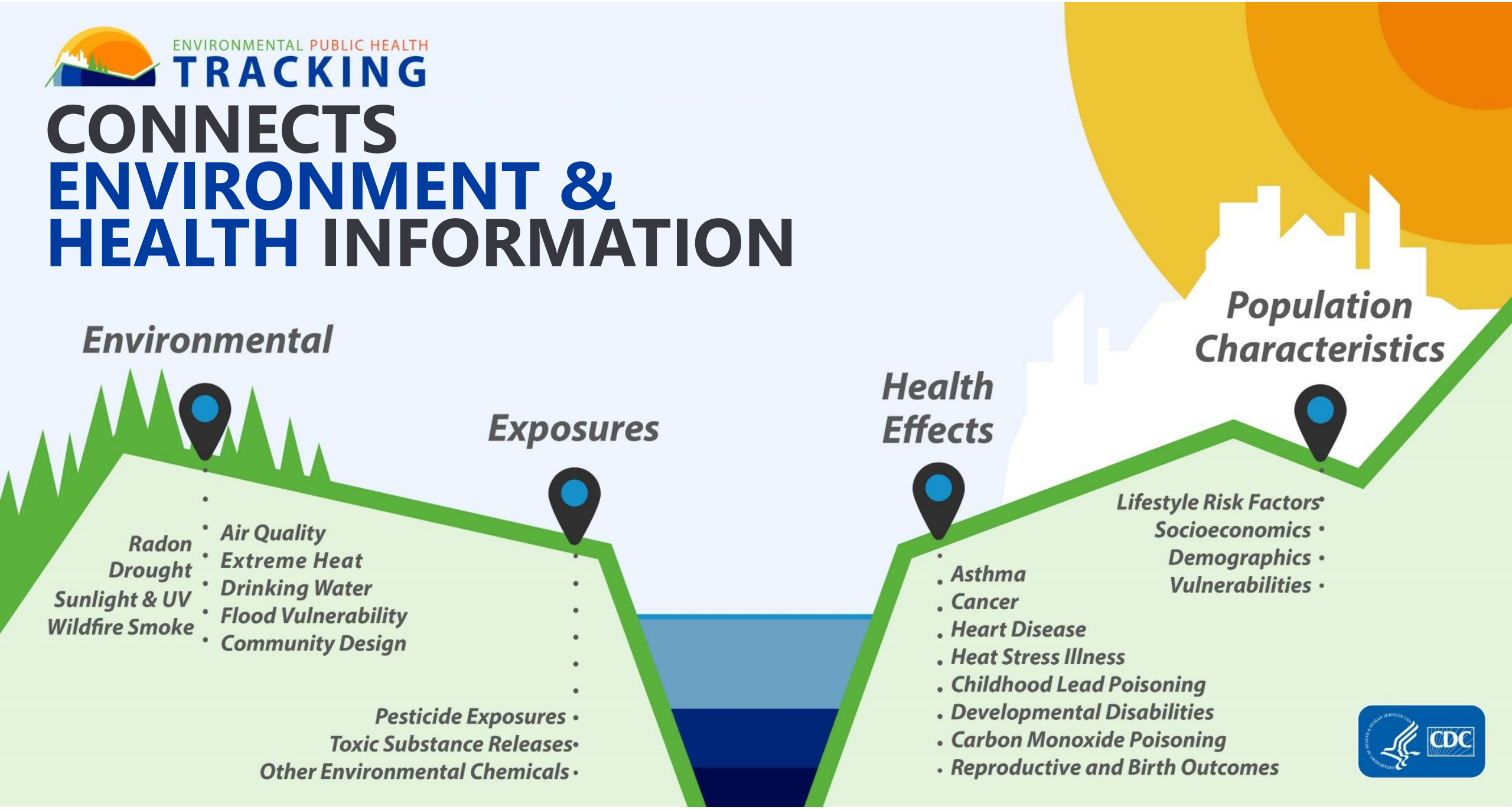
PROVIDES BETTER INFORMATION FOR BETTER HEALTH



Tracking empowers people to make information-driven decisions to protect and improve health.

ENVIRONMENTAL PUBLIC HEALTH TRACKING

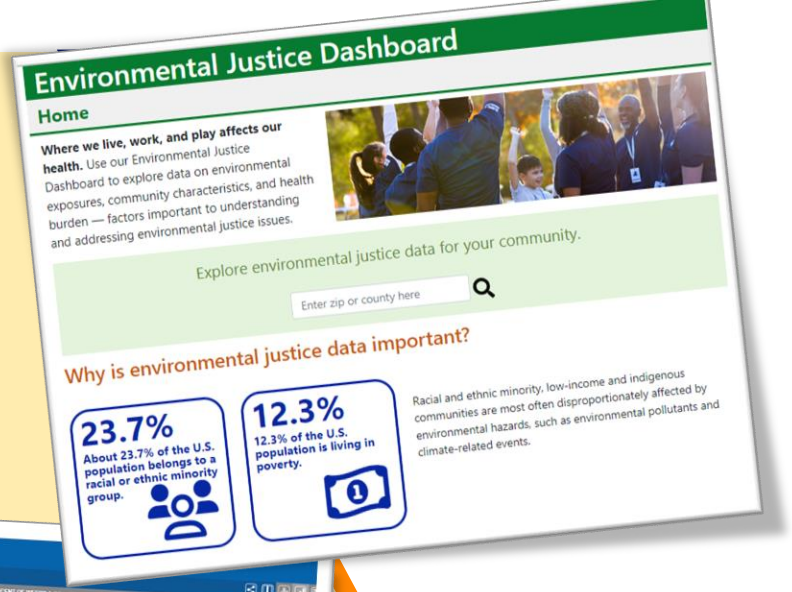
CONNECTS ENVIRONMENT & HEALTH INFORMATION

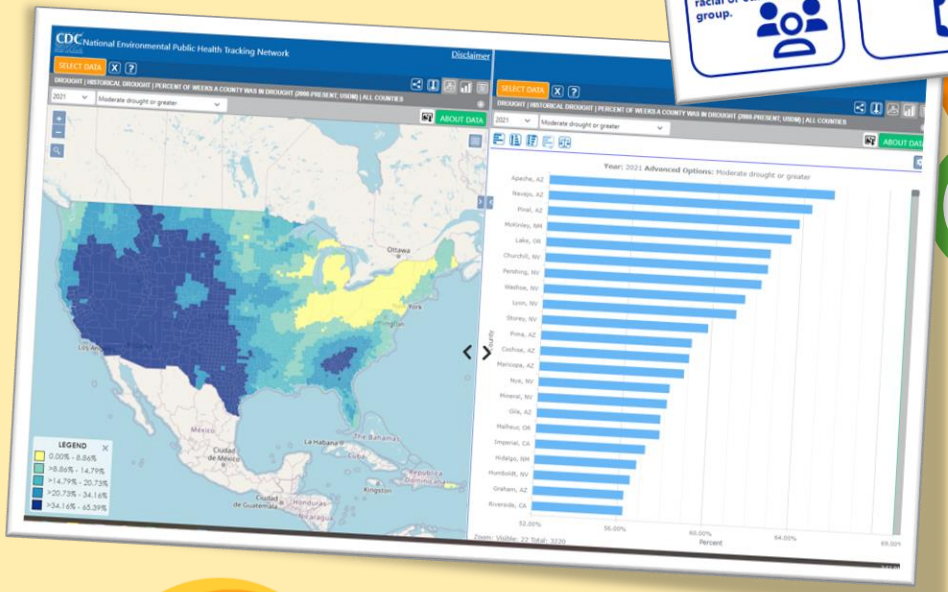


ENVIRONMENTAL PUBLIC HEALTH TRACKING

DELIVERS DATA RELEVANT TO YOUR NEEDS

Tracking makes standardized data easier to use.





Interactive Data Explorer (maps, charts, and tables)

Dashboards

Application Program Interface (API)

ENVIRONMENTAL PUBLIC HEALTH TRACKING

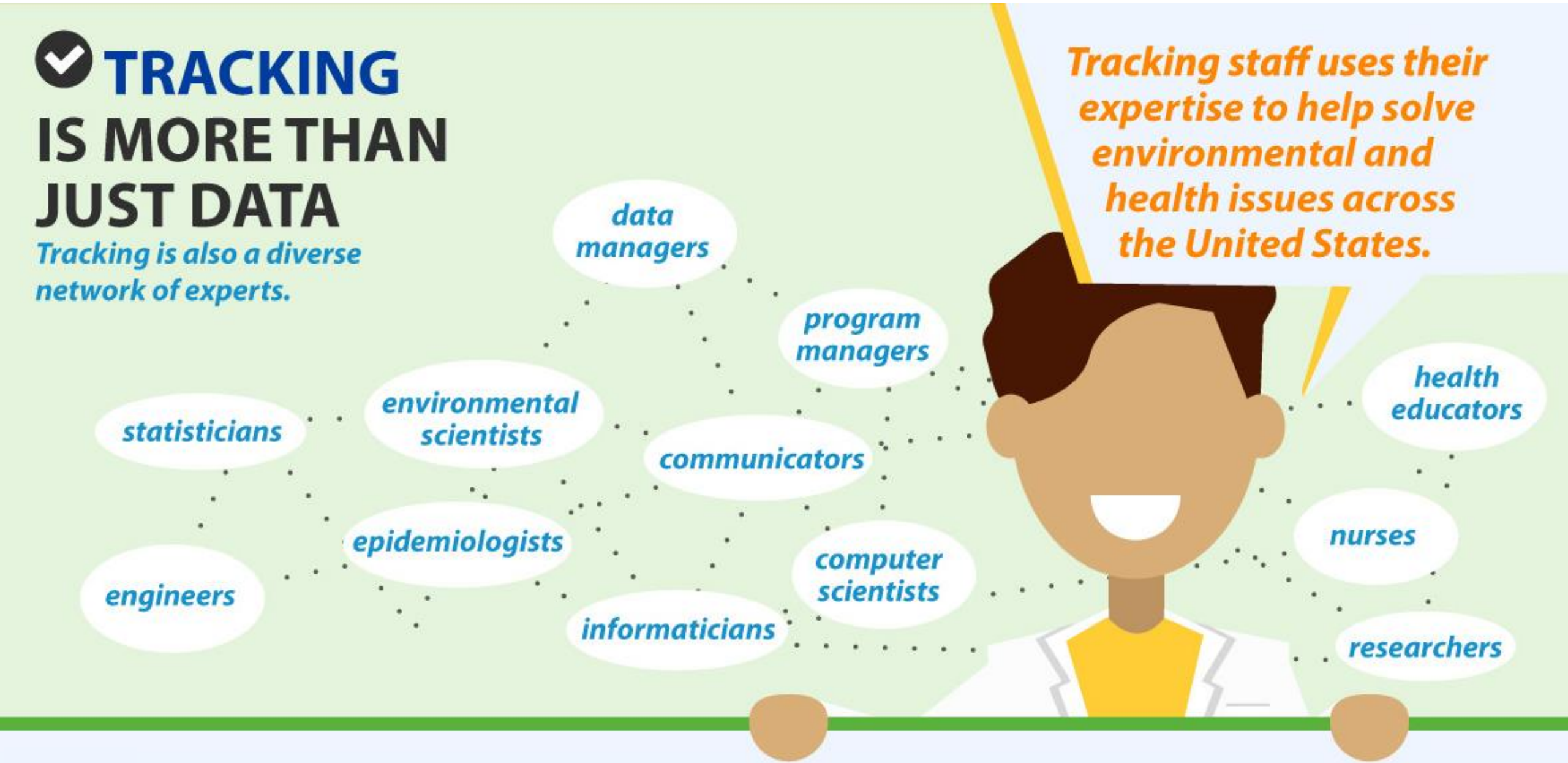
REQUEST
API
DATA

PHONE, TABLET, DESKTOP APP, WEBSITE, ETC.

TRACKING IS MORE THAN JUST DATA

Tracking is also a diverse network of experts.

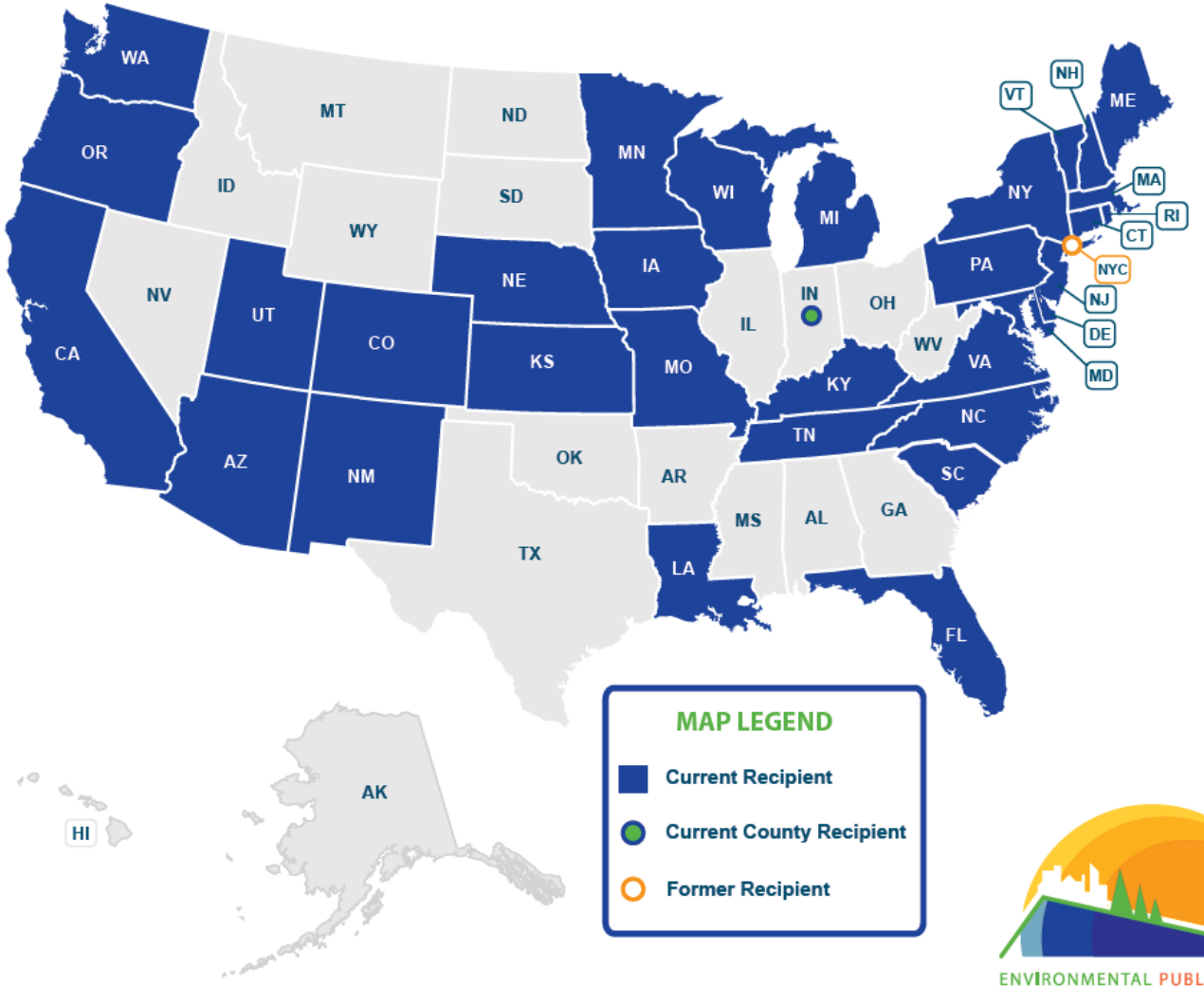
Tracking staff uses their expertise to help solve environmental and health issues across the United States.



EH22-2202 Recipients

Welcome to our new additions!

- Delaware
- Marion County, Indiana
- Nebraska
- North Carolina
- Pennsylvania
- South Carolina
- Tennessee
- Virginia



August 2022

ENVIRONMENTAL PUBLIC HEALTH TRACKING

CDC TRACKING PROGRAM
VISION, MISSION, & STRATEGIC PLAN

CDC Tracking Vision and Mission

Vision: Data-informed decisions create healthy communities

Mission: Provide information from a nationwide network of integrated health and environmental data that drives actions to improve community health

Strategic Plan: Core Values

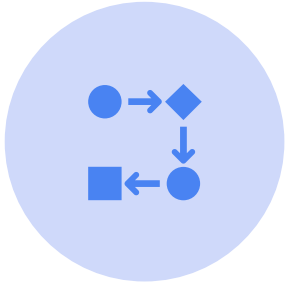
Innovation

Collaboration

Evaluation

Data for Action

Strategic Plan: Program Goals



Goal 1: Promote Use of Data to Inform Action

Goal 2: Strengthen Partnerships

Goal 3: Advance Data Modernization

Goal 4: Accelerate Workforce Development

EH22-2202 NOFO

EH22-2202: Modernizing Environmental Public Health Tracking to Advance Environmental Health Surveillance

Purpose:

continue building capacity & expertise in environmental health surveillance

modernize data systems

empower information-driven decisions that affect health

Learn more: https://www.cdc.gov/nceh/tracking/foa.htm

EH22-2202 NOFO Priorities

We provide funding for recipients to

- build state and local public health capacity and expertise in environmental health surveillance
- create modern, interoperable, and real-time public health data and surveillance systems
- modernize the collection, integration, dissemination, & application of timely, local environmental health data
- empower public health practitioners, healthcare providers, community members, policy members, and others to make information-driven decisions that affect their health

CDC’S ENVIRONMENTAL JUSTICE DASHBOARD

Environmental Justice (EJ) Dashboard

"Environmental Justice will be achieved when everyone enjoys the same degree of protection from environmental and health hazards, and equal access to the decision-making process to have a healthy environment."

Improve access to EJ information by presenting data in ways that accommodate different levels of health literacy and incorporate climate change and health outcome data not available in other tools.

Environmental Justice Dashboard

Home

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

- Home
- Community Characteristics
- Environmental Exposures
- Health Burden
- Environmental Justice Index
- About the Data
- Learn More

Where we live, work, and play affects our health.
Use our Environmental Justice Dashboard to explore data on environmental exposures, community characteristics, and health burden — factors important to understanding and addressing environmental justice issues.

Explore environmental justice data for your community.

Enter zip or county here

Why is environmental justice data important?

23.7%
About 23.7% of the U.S. population belongs to a racial or ethnic minority group.

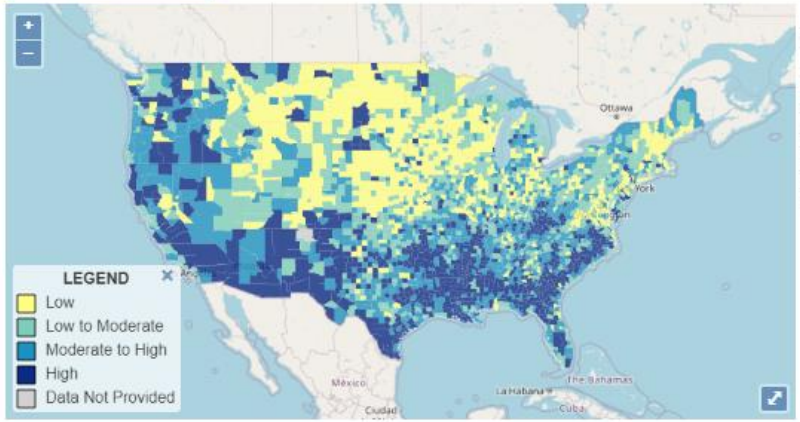
12.3%
12.3% of the U.S. population is living in poverty.

People from racial and ethnic minority, low-income and indigenous communities are most often disproportionately affected by environmental hazards, such as environmental pollutants and climate-related events.

Explore the tabbed map below to see national data trends.

Overlay different points of interest, such as Superfund sites and landfill facilities.

Social Vulnerability Index | Minority Population | Median Income



Points of Interest

The CDC/ATSDR Social Vulnerability Index (SVI) is calculated based on 15 social factors, such as unemployment, minority status, and disability. SVI scores range from 0.00 to 1.00, with 1.00 representing the greatest level of social vulnerability to human suffering and financial loss in the event of public health emergencies.

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11.9 m

702

Air Pollution ($PM_{2.5}$) disproportionately affects people from racial and

bit.ly/EJDashboard

Environmental Justice Dashboard

Community Characteristics

- Home
- **Community Characteristics**
- Environmental Exposures
- Health Burden
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- About the Data
- Learn More

DeKalb, GA (change)

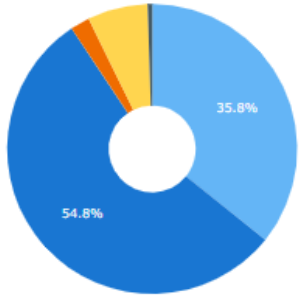
Explore maps and infographics to learn more about community characteristics in your county. This data can help you better understand populations at higher risk for environmental and health inequities.

Explore more data for your community by selecting the environmental exposures or health burden tab on the left-hand navigation.

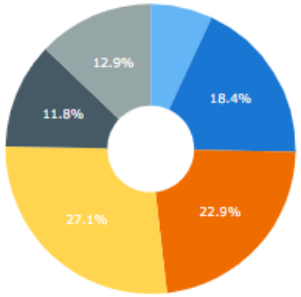
Demographics for DeKalb County, GA

Explore demographic information for your county, such as age, race, poverty, and social vulnerability.

Percent of People by Race



Percent of People by Age Group



Hover over the charts to see additional information.

64.2

Percentage of the population that is a minority

Why is this important?
Racial and ethnic minority groups are disproportionately affected by environmental pollutants, such as air pollution.

State level: 39.9
National Level: 23.7%

12.9

Percent of DeKalb, GA Living in Poverty

Why is this important?
Low income communities are more likely to be exposed to environmental hazards, such as living near a Superfund site.

State level: 13.5
National Level: 12.3%

0.661

Social Vulnerability Index (SVI) score for your county.

Why is this important?
The SVI is developed for each U.S. county and census tract and is calculated based on 15 social factors, such as unemployment, minority status, and disability.

Social Vulnerability refers to the resilience of communities (the ability to survive and thrive) when confronted by external stresses on human health, such as natural or human-caused disasters, or disease outbreaks. Social Vulnerability Index (SVI) scores range from 0.00 to 1.00, with 1.00 representing the greatest level of social vulnerability to human suffering and financial loss in the event of public health emergencies. Learn more about the SVI.

Community Characteristics for DeKalb County, GA

Use the drop down menu to explore county by census tract maps on demographic, social, vulnerability, households, and food access data.

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Environmental Justice Dashboard

Health Burden

Home
Community Characteristics
Environmental Exposures
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Environmental Justice Index
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DeKalb, GA (change)

Explore infographics and maps learn more about health vulnerability, health outcomes, and reproductive and birth outcomes in your county.

Explore more data for your community by selecting the **environmental exposures** or **community characteristics** tab on the left-hand navigation.

Health Vulnerability in DeKalb County, GA

16.9

Percent of Population without Health Insurance

Why is this important?
People without health insurance are less likely to visit a doctor and are less likely to get preventive care.

State level: 15.7
National Level: 10.8%

35.60

Number of Hospital Beds per 10,000 Population

Why is this important?
As we saw during the COVID-19 pandemic, hospital beds are an important measure of hospital capacity.

11.1

Percent of Population over 5 Living with a Disability

Why is this important?
People living with disabilities are more vulnerable to environmental hazards and need special consideration during emergencies.

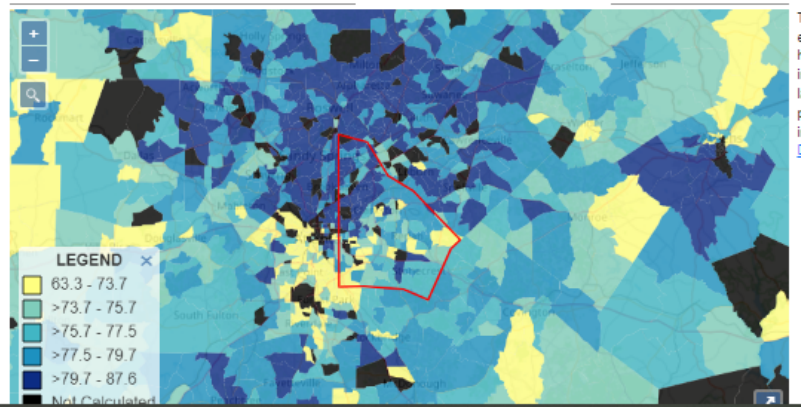
State level: 13.3
National Level: 13.3% (ACS, 2019)

Health Burden for DeKalb

Use the drop-down menu to explore county by census tract maps layers on asthma, stroke, life expectancy at birth, and mental health.

Data Layers by Census Tract: Life Expectancy at Birth

Points of Interest



These different data layers can be used to explore information about populations at higher risk for environmental and health inequities. You can also add points of interest layers, such as schools, Superfund sites, parks, landfills, and more. For more information on these data, see About the Data.

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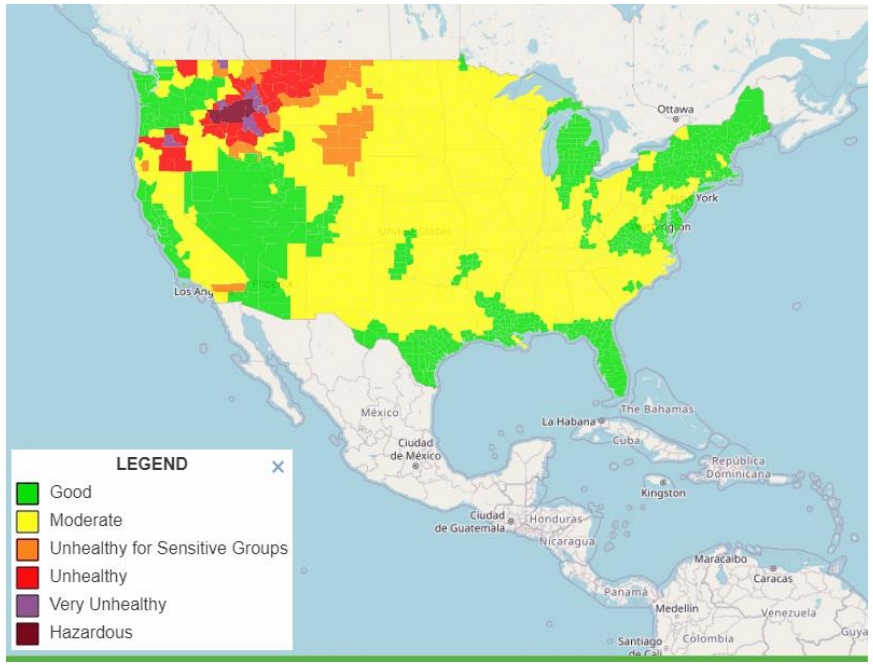
CURRENT WORK/OPPORTUNITIES FOR COLLABORATION

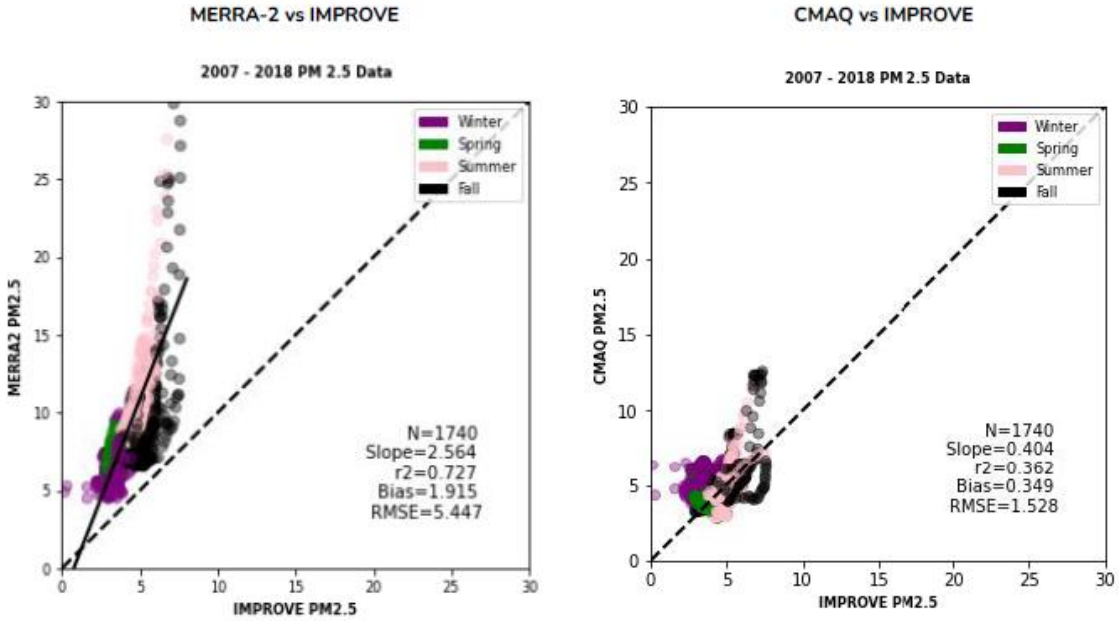
Recently Completed Tracking – NASA Collaborative Projects

New Forecasted Air Quality Measures on Tracking Portal



GEOS Composition Forecasting (GEOS-CF) system – Four-day county-level forecasts of PM2.5, NO_2, CO, O_3, SO_2

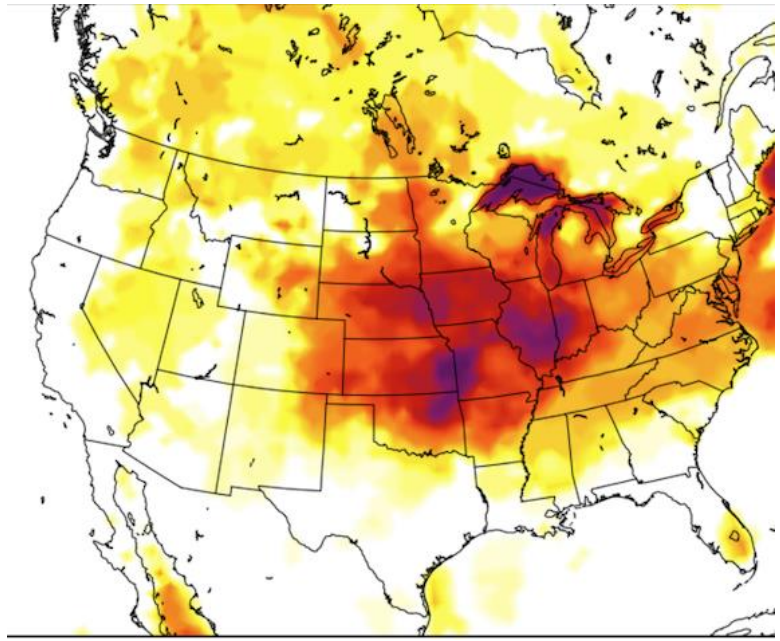
SSAI (Goddard contractor) intern evaluation of MERRA-2/CMAQ Accuracy



Comparison of MERRA-2 derived PM2.5 and CMAQ PM2.5 against AQS and IMPROVE monitors – MERRA-2 performs better in rural areas and during wildfires, CMAQ better in urban locations

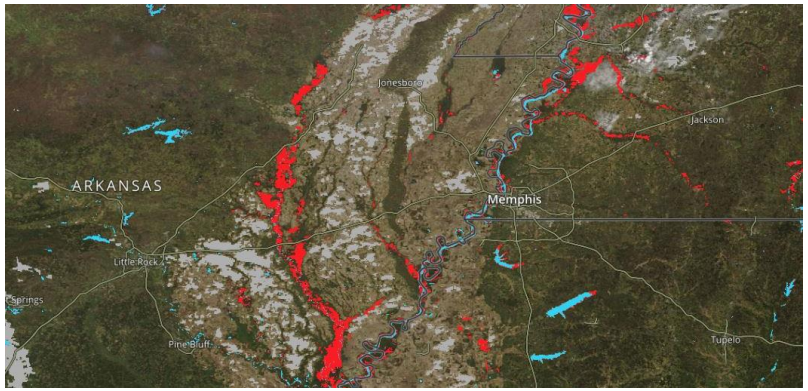
Ongoing Tracking – NASA Collaborative Projects

MERRA-2 derived Air Quality Measures



Developing daily county-level measures of PM2.5 (and constituents), CO, and SO_2. May also include weather variables in the future.

MODIS/VIIRS near real-time flood data



Developing daily census-tract estimates of flooded area under new NASA Goddard/Tracking IAA.

Preparing for TEMPO launch

Working with team at NASA Marshall and UAH to prepare for acquisition of TEMPO data. Focus will be on near real-time estimates O_3.

Looking Forward – Opportunities for Collaboration

- Characterize exposure, vulnerabilities, and health impacts to take public health action
  - Extreme weather events: tornados, hurricanes, lightning etc.
  - Wildfires and prescribed burnings: forest, agricultural

- Joint collaborations to assess the effectiveness of policy and other interventions on reducing health impacts
  - Determining effectiveness of COVID lockdowns using near real-time air pollution data

- Using the Tracking Network as a Decision Support System and as a platform to host earth science data products
  - Assistance understanding and utilizing existing NASA APIs
  - Developing scripts/data pipelines to enable dissemination of near real-time NASA data on Tracking portal

Questions or Comments?

Angie Werner
Email: awerner@cdc.gov
Phone: 404.498.1693

Additional Tracking science staff working with air quality data:

Nicholas Skaff, PhD (pwc1@cdc.gov)

The findings and conclusions in this report have not been formally disseminated by the Centers for Disease Control and Prevention/the Agency for Toxic Substances and Disease Registry, 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.