Health and Extreme Weather Program Update

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Program Officer, Population Health Branch

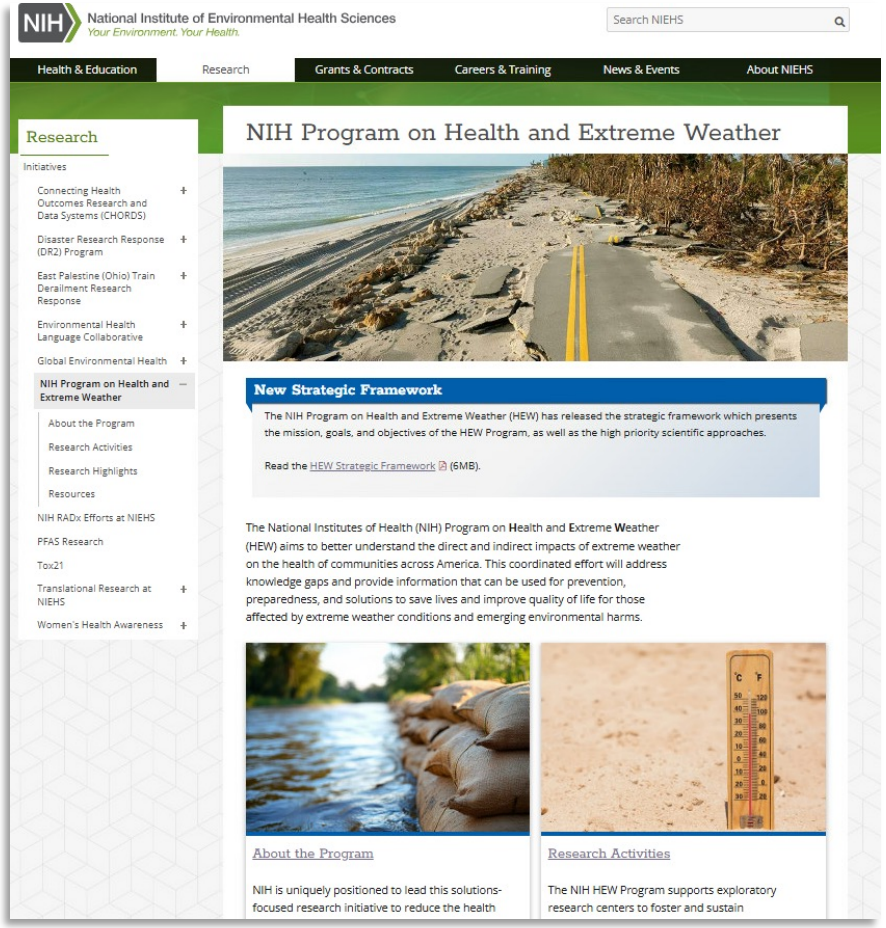
NAEHS Council Meeting

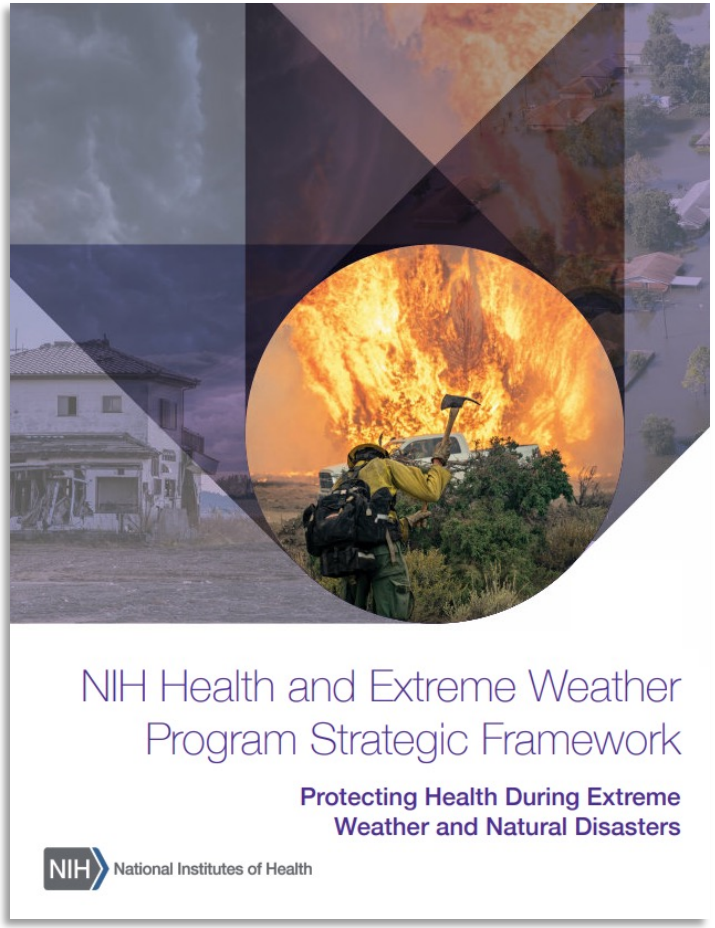
March 18, 2026

Outline

- **Health and Extreme Weather (HEW) at the NIH**
- **Launch of HEW Program: Website, Strategic Framework**
- **Update on HEW Activities**
  - Research Coordinating Center (CAFE)
  - P20 Exploratory Centers for Research Development
  - Alliance for Community Engagement – PATH
  - Collaboration with NSF
  - HEW-Intramural Program
  - Data Efforts
- **Looking Forward**

HEW Program Webpage and Strategic Framework

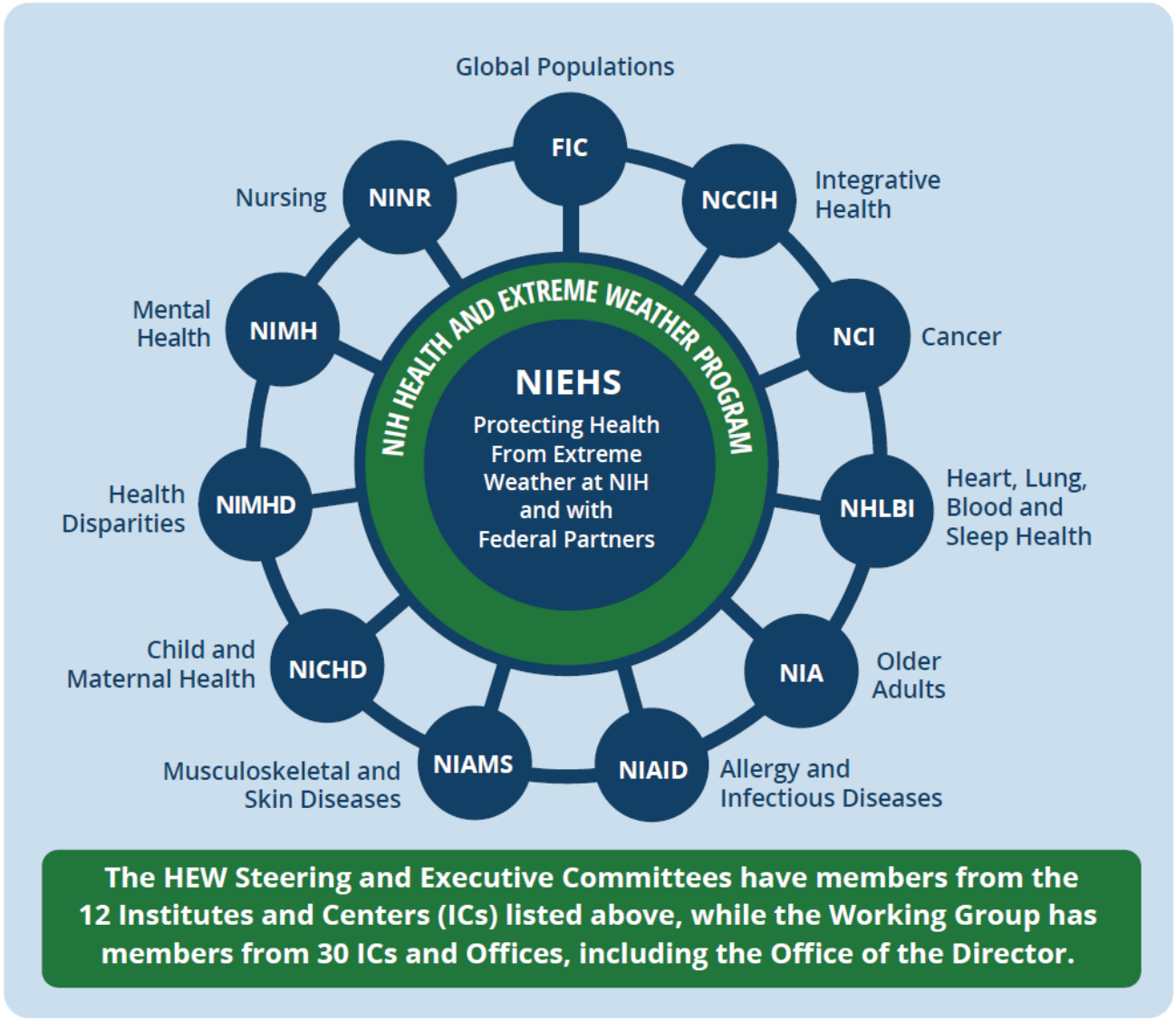




Visit the HEW Webpage

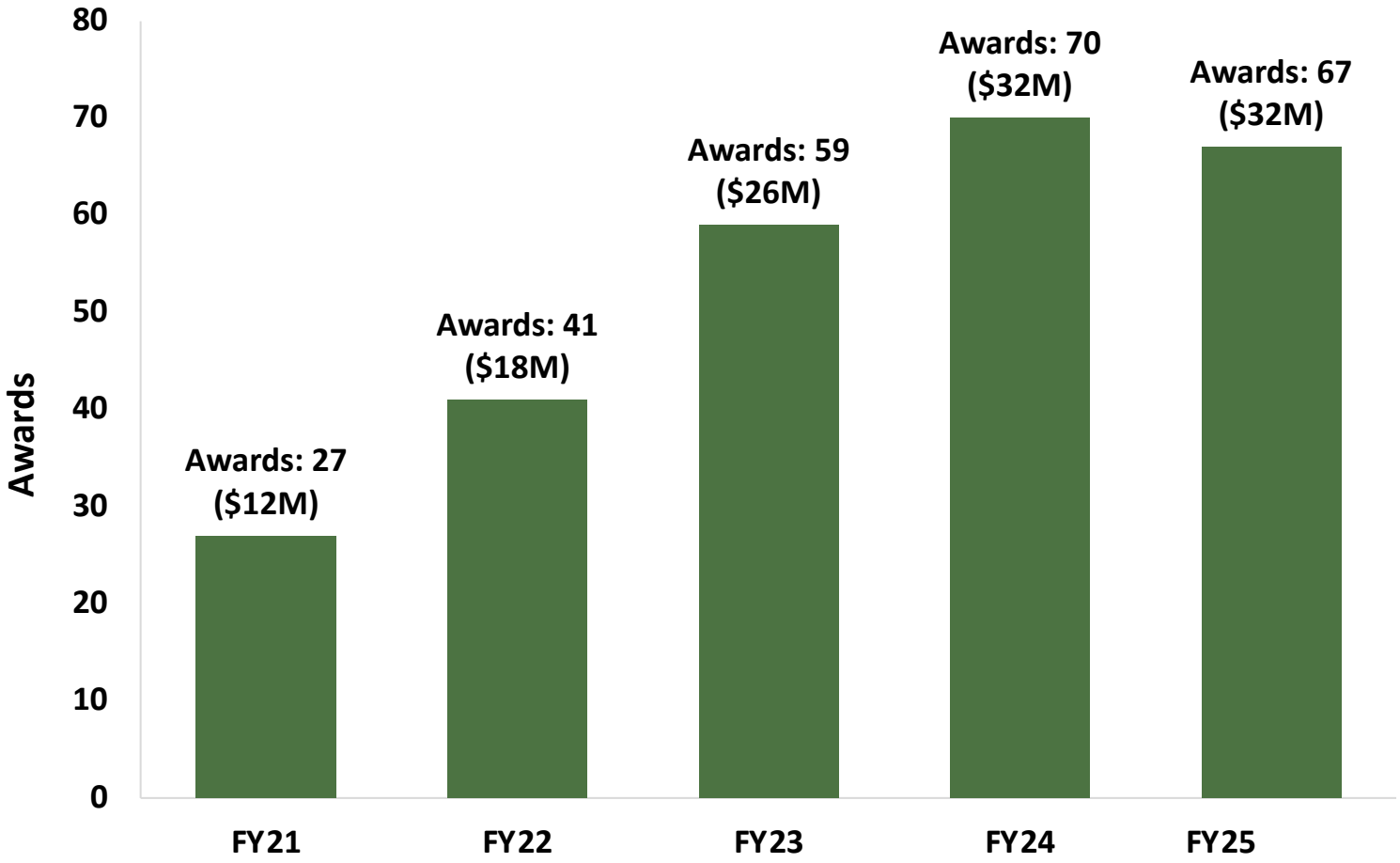
Read the HEW Strategic Framework

Collaborating Across NIH



The HEW Steering and Executive Committees have members from the 12 Institutes and Centers (ICs) listed above, while the Working Group has members from 30 ICs and Offices, including the Office of the Director.

NIH Unsolicited Portfolio in Health and Extreme Weather: Trajectory Over Time



"Unsolicited" applications are those made to NIH Parent Announcements instead of to specific RFAs, and include R01s, R21s, Ks, Fs, etc. (new awards only)

- Graph includes awards across all Institutes and Centers at NIH;
- The proportion at NIEHS is typically about 50% of the total

Examples from the NIH Unsolicited Portfolio (new awards in FY25)

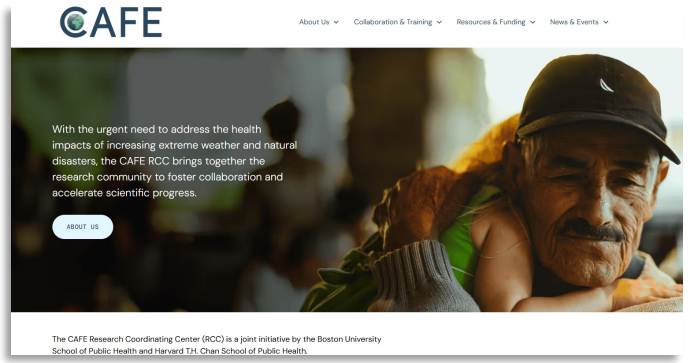
Grant	Title	Example Area of Science
R01 ES034708	Girasoles 2.0: understanding the **role of microbiota, inflammation, and metabolomics in heat-related illness**	Mechanistic science
R21 ES036649	**Biological signatures of prenatal wildfire smoke exposure** and fetal and infant growth	Mechanistic science
R01 HD114056	**Adverse health outcomes from extreme heat, air pollution, and medications** in low-income pregnant women and their offspring	Epidemiology
R21 ES037897	Scorching circumstances: the role of extreme heat in **disability among older workers in heat sensitive jobs**	Epidemiology
R61 NR021961	**Supporting flood recovery** in rural, mountainous areas **through health systems knowledge exchange** and fine-scale healthcare utilization data analysis	Preparedness & Resilience
R01 HD117936	Heat waves, pediatric readiness, and child outcomes: **evaluating climate risk, mitigation, and resilience in emergency care**	Preparedness & Resilience
K23 HL179490	Designing and piloting a **community-based intervention to reduce wildfire smoke exposure** in children with asthma	Implementation science
K01 ES036202	Establishing a unified evaluation and **implementation framework to inform heat-health warning systems**	Implementation science
F31 AI191409	Landscape immunity, climate, and **yellow fever risk**	Data Integration
R21 HD114012	Using **big data** to understand the influence of extreme weather events on **child health and development** in the USA	Data Integration

Update on Health and Extreme Weather Program Activities

CAFE Research Coordinating Center

CAFE-Research Coordinating Center (Boston University & Harvard)

CAFE: Convene, Accelerate, Foster, and Expand

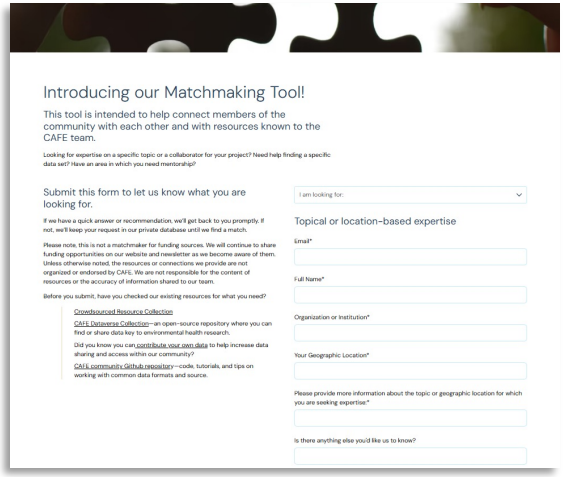


- **Building a Community of Practice**: 3200+ members
- **Supporting the Community of Practice** via:
  - Capacity building (e.g., pilot awards, mentorship, webinars)
  - Resource development (e.g., tutorials, crowdsourcing of educational material)
  - Data management (e.g., improving access, findability, and usability of HEW data resources)

Visit the CAFE Webpage

Capacity Building for the CoP: Webinars, Workshops, Mentorship, and Pilots

- **'State of the Science' webinars** (e.g., wildfire smoke, aging, infectious disease, mental health from extreme weather). *Webinars routinely garner 150+ attendees.*
- **Half-day topical events:** (Hurricanes & Health; Wildfires & Health; Infectious Disease & Extreme Weather-- **upcoming**). *Recorded sessions available in the Educational Resource Hub.*
- **Public Narrative Workshops:** two cohorts building skills in research communication and community engagement.
- **HEW Community Support:** Fostering collaborations, networking, and support among P20 centers and ACE-PATH centers.
- **Mentor-mentee connections**: Supported a cohort of 25 mentees and facilitated connections via a **matchmaking tool**.



- **Pilot Projects:** E.g., Infant health after flooding, wastewater pathogen surveillance wastewater, drivers of coccidioidomycosis, air pollution and IVF outcomes, mental health among farmers. *3 out of 5 to ESIs.*

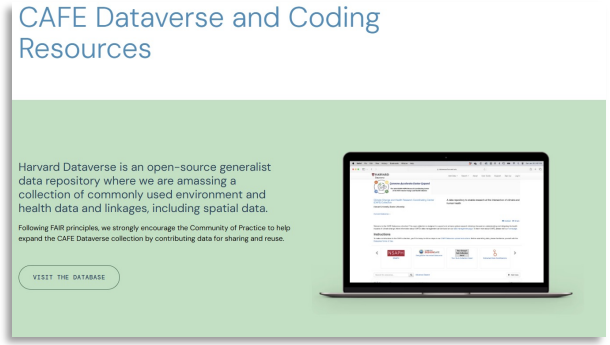
Data Management & Educational Resource Hub

Over **1000 datasets** now in public **Dataverse** collection

- Including migration of large databases: e.g., NSF DesignSafe, NASA Socioeconomic Data and Applications Center (SEDAC), Columbia Center for Integrated Earth System Information (CIESIN)

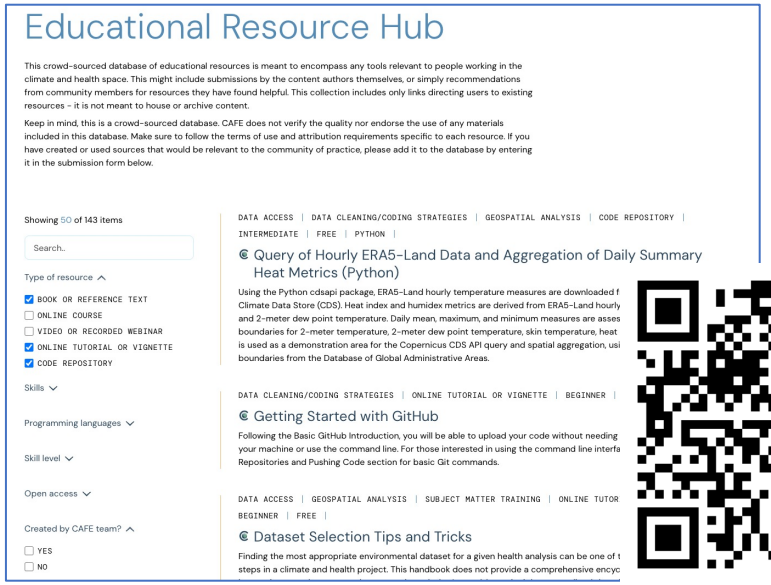
- Development of publicly available code and tutorials for complex data usage.

- The CAFE data group is working in collaboration with **NIH CHORDS** project, **RAPID** Facility, and NSF-funded **DesignSafe** (data repository)



Educational Resource Hub: Currently hosts 180 curated resources in an easily searchable interface.

- Crowd-source form is open and ready to receive suggestions from the COP.



Explore the Educational Resource Hub

P20 Awards for Research Center Development

P20 Awards for Research Center Development

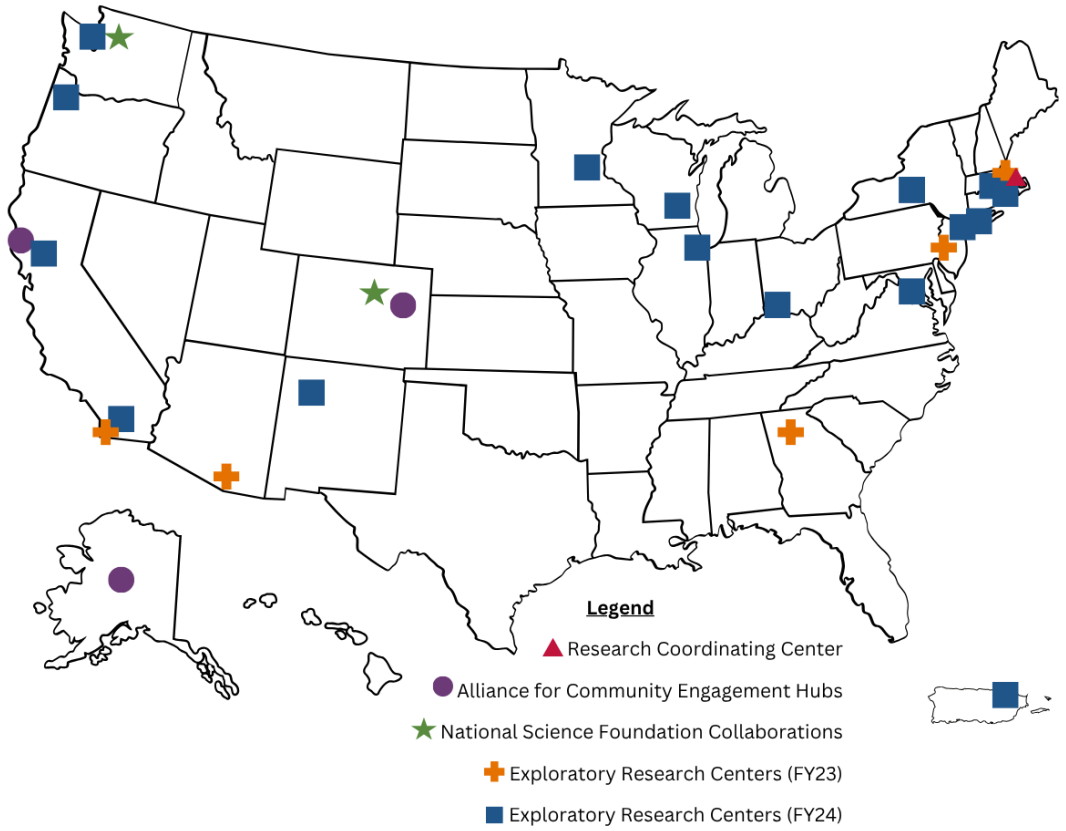
Objectives of the P20 RFA:

1. Plan and develop sustainable research capacity

2. Develop a thematic science area through transdisciplinary research activities

3. Build and maintain authentic partnerships to engage communities

Result: 21 active P20 Centers (*blue squares and orange crosses below*)



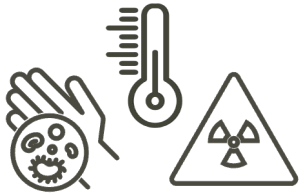
Examples of Health Outcomes and Extreme Weather Events/Conditions Studied

Cancer
Comprehensive Cancer Center & University PR

Post-disaster asthma, depression, & vector-borne diseases
University of New Mexico

Heat & air pollution
Brown University

Aging brain & neurodegeneration
Columbia University



Heat, pathogenic microbes, & environmental toxicants
University of Cincinnati

Heat & wildfires
University of Southern California

Examples of Activities and Actions

Solutions for health impacts of air pollution & respiratory health

University of Wisconsin, Madison

Anticipatory action plans for extreme weather & health impacts

Tufts University

Implementation science solutions for health adaptation

University of Washington

Implement and test solutions for heat stress

Harvard School of Public Health

Community-engaged research to develop & implement interventions

University of California, San Francisco

P20 Stories of Success – Overcoming Silos, Engaging Partners, Building Capacity

"[The P20 has] **strengthened transdisciplinary research collaboration and mentoring across historically siloed departments** at [my institution]"

"**For the first time, health, well-being and reduction in environmental pollutant risks [were] integrated into master design studio planning and development.**" [Regarding an interdisciplinary design charrette project that won an American Planning Association award]

"We have successfully hosted **cross-university workshops** to build community around health impacts of extreme weather. These connections have yielded integrative projects... Further, these new connections are **fostering applications for funding** to pursue new areas such as heat impacts on the microbiome from foundations and rural heat health resilience from state appropriations."

"The P20 has **brought everyone to the table**… I have this small research project, and normally I wouldn't be able to involve [organizations like the Environmental Defense Fund] – but because of the P20, **every meeting benefits from the input of many partners**"

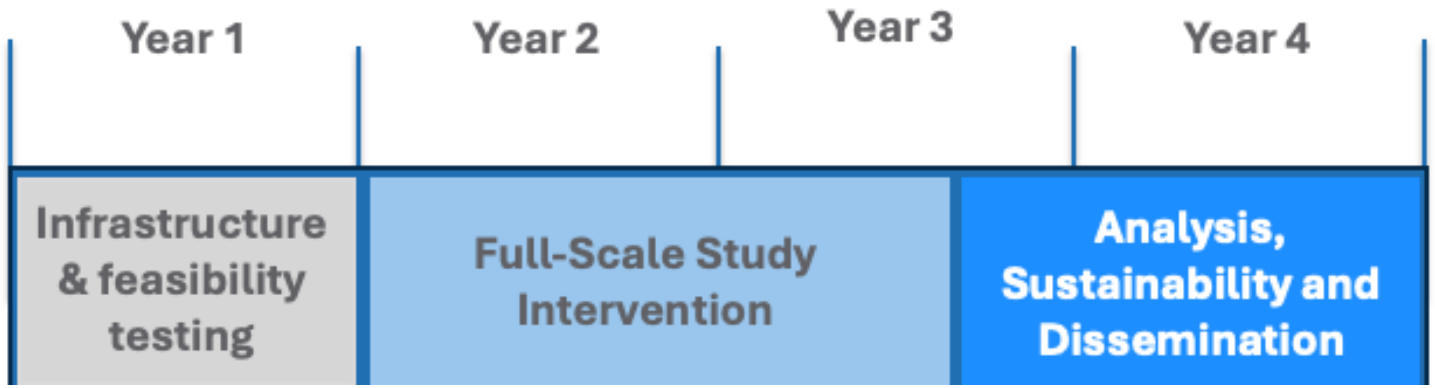
"We **promoted and enhanced community engagement** by consulting with project teams to expand their capacity for community engagement and develop community research action boards (CRABs), **providing technical assistance to research teams regarding the content of communications to help meet local needs**"

Alliance for Community Engagement-Partnership for Action Toward Health (ACE-PATH)

Alliance for Community Engagement-Partnership for Action Toward Health (ACE-PATH)

- ACE-PATH **supports U.S. communities' quality of life** by developing and testing **interventions** to **address the impacts of local health stressors**.
- Using a community-engaged research approach, ACE-PATH **research teams (academic and community partners) work in partnership** over four years to implement strategies and solutions in areas facing community health challenges.

Phase II High Level Timeline



- **Phase I** (Formative): March 2023-June 2025
- **Phase II** (Intervention): Launched June 2025, (FY25-FY29)

University of Colorado Denver
Mountain West Hub

Description: Effectiveness-Implementation Hybrid I stepped wedge trial assessing the effectiveness of a household-level **Do-It-Yourself air filter** (DIYaf) intervention in urban and rural settings experiencing poor air quality to improve physical, mental, and behavioral outcomes.

Year 1 Objective: Pilot test/refine measurement instruments and DIYaf intervention in **San Luis Valley and West Denver** March 2026–June 2026, prior to implementing full scale intervention.

Public Health Institute: Community Health Adaptation and Resilience Mobilizing Lake County Project (California)

Description: Cluster Randomized trial evaluating the impact of a Community Adaptation and Resilience Intervention (CARI) to reduce self-reported **heat-related illnesses** and increase resilient **preventative behaviors**.

Year 1 Objectives: Complete **feasibility piloting** planned February 2026–June 2026 to inform final study design prior to implementation.

University of Alaska Fairbanks: Alaska Alliance for Community Engagement (AK-ACE)

Description: Dynamic **waitlist control study** evaluating the impact of an indigenous community level **"Tools for Life" intervention** to reduce chronic stress, promote mental health, and
fact
com

Yea
activities in **Kake, Alaska** (January 2026-March 2026) to inform final study design and strategy to adapt to remaining villages.

Sec. Kennedy Jr. visit with Tanana Chiefs Conference and AK-ACE Co-I, V. Joseph July 30th, 2025

Visited the Tanna Village and toured new health clinic under construction.

AN community expressed concerns about health impacts of weather events on a range of

access to food resources.

> "**Chronic disease falls heaviest on the native populations,** and it's absolutely critical that we return these, to these traditional subsistence foods, from hunting, from fishing, from trapping, and we give them access to, to those foods"
>
> **– Secretary Kennedy Jr.**

Collaboration with the National Science Foundation (NSF) on Disaster Research

Collaboration with NSF on Disaster Research

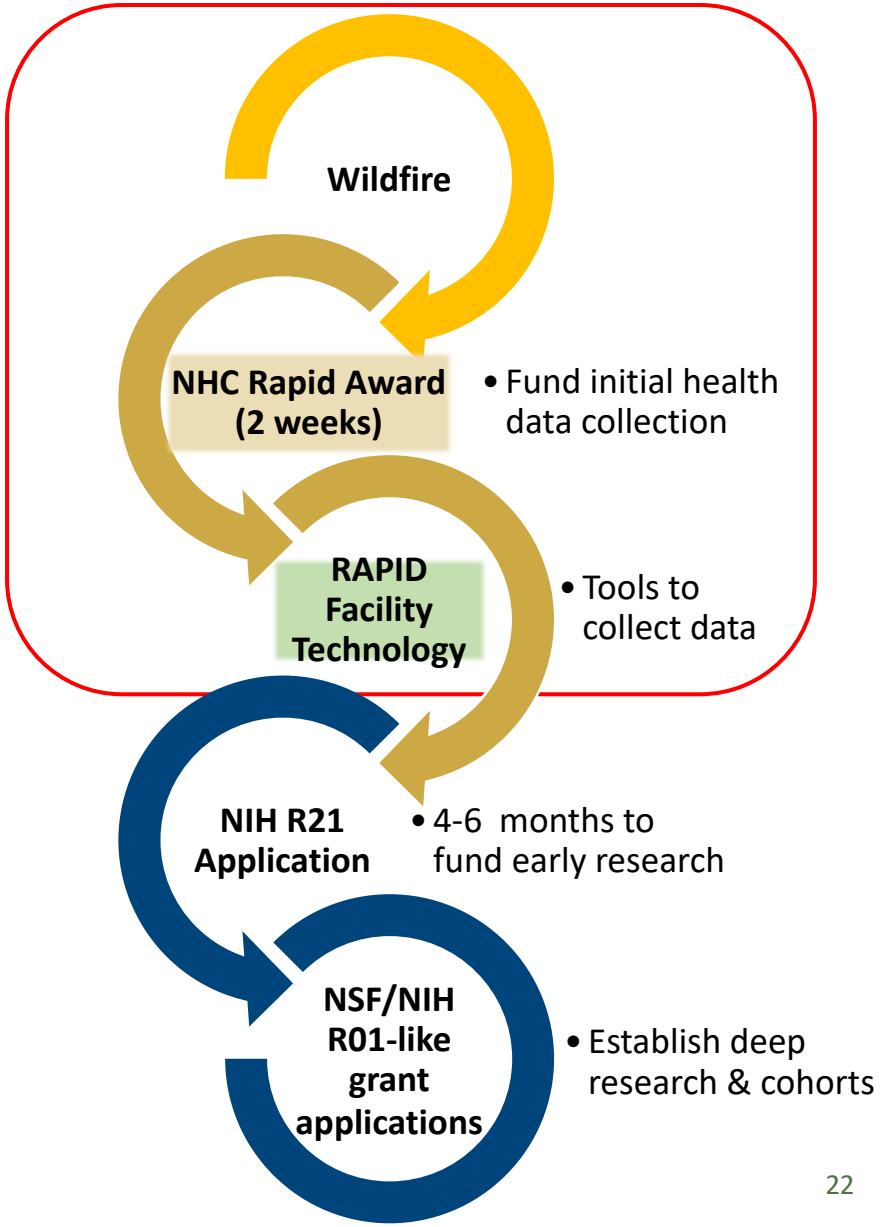
Goal: Promote time-critical data collection and research to understand and address the health risks associated with extreme weather and disasters.

Natural Hazards Center "NHC" (University of Colorado-Boulder)

- Fund grants to collect perishable health data focused on high-risk groups & time sensitive situations (e.g., pregnancy, comorbidities, workers, at-risk populations)

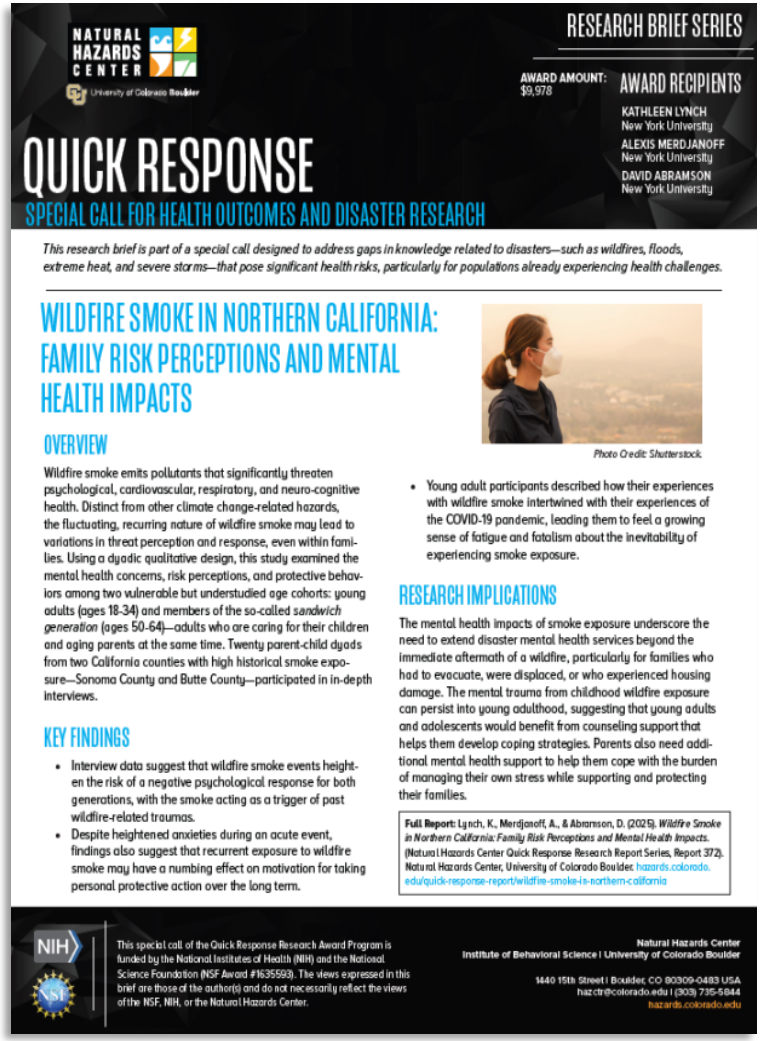
RAPID Facility Program (University of Washington)

- Provide access and support for instrumentation, data management, and training for collection of exposure and health data



University of Colorado Natural Hazards Center

Examining **Hurricane Helene** Flooding Vulnerabilities and Health Disparities in **Southern Appalachia**	**Mental Health of Community Volunteers** in the Aftermath of **Hurricane Helene** in **North Carolina**	**Chronic Disease Management** following Hurricane **Helene** in **East Tennessee**	Exploring **Mental Health** Impact of **Hurricane Beryl** on Minorities in **Houston**
Transportation as a Social Determinant of Health During **Hurricane Idalia** in **Florida**	Longitudinal Evaluation of **Wildfire Impacts** on an Unhoused Cohort in **Los Angeles**	**California Wildfire Smoke** Events: **Life Course** Risk Perceptions and **Mental Health** Impacts	**Transit Riders' Health Risks** and Adaptive Travel During the **Los Angeles Wildfires**
Assessing Health and Environmental Impacts of 2023 **Maui Wildfires** on Asian Americans	Impacts of **Flooding** on **Opioid Use Disorder** in Western **Pennsylvania**	**Nebraska** Tornado Quick Response: Assessing Community Impacts and **Evaluating Early Warnings**	**Ohio's** 2024 Tornado Touchdown Impact on **Mental Health** Among Socio-Economically Challenged Communities



NATURAL HAZARDS CENTER
University of Colorado Boulder

RESEARCH BRIEF SERIES

AWARD AMOUNT: $9,978

AWARD RECIPIENTS
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New York University

QUICK RESPONSE
SPECIAL CALL FOR HEALTH OUTCOMES AND DISASTER RESEARCH

This research brief is part of a special call designed to address gaps in knowledge related to disasters—such as wildfires, floods, extreme heat, and severe storms—that pose significant health risks, particularly for populations already experiencing health challenges.

WILDFIRE SMOKE IN NORTHERN CALIFORNIA: FAMILY RISK PERCEPTIONS AND MENTAL HEALTH IMPACTS

OVERVIEW

Wildfire smoke emits pollutants that significantly threaten psychological, cardiovascular, respiratory, and neuro-cognitive health. Distinct from other climate change-related hazards, the fluctuating, recurring nature of wildfire smoke may lead to variations in threat perception and response, even within families. Using a dyadic qualitative design, this study examined the mental health concerns, risk perceptions, and protective behaviors among two vulnerable but understudied age cohorts: young adults (ages 18-34) and members of the so-called *sandwich generation* (ages 50-64)—adults who are caring for their children and aging parents at the same time. Twenty parent-child dyads from two California counties with high historical smoke exposure—Sonoma County and Butte County—participated in in-depth interviews.

KEY FINDINGS

- Interview data suggest that wildfire smoke events heighten the risk of a negative psychological response for both generations, with the smoke acting as a trigger of past wildfire-related traumas.
- Despite heightened anxieties during an acute event, findings also suggest that recurrent exposure to wildfire smoke may have a numbing effect on motivation for taking personal protective action over the long term.

Photo Credit: Shutterstock

- Young adult participants described how their experiences with wildfire smoke intertwined with their experiences of the COVID-19 pandemic, leading them to feel a growing sense of fatigue and fatalism about the inevitability of experiencing smoke exposure.

RESEARCH IMPLICATIONS

The mental health impacts of smoke exposure underscore the need to extend disaster mental health services beyond the immediate aftermath of a wildfire, particularly for families who had to evacuate, were displaced, or who experienced housing damage. The mental trauma from childhood wildfire exposure can persist into young adulthood, suggesting that young adults and adolescents would benefit from counseling support that helps them develop coping strategies. Parents also need additional mental health support to help them cope with the burden of managing their own stress while supporting and protecting their families.

Full Report: Lynch, K., Merdjanoff, A., & Abramson, D. (2025). *Wildfire Smoke in Northern California: Family Risk Perceptions and Mental Health Impacts.* (Natural Hazards Center Quick Response Research Report Series, Report 372). Natural Hazards Center, University of Colorado Boulder. hazards.colorado.edu/quick-response-report/wildfire-smoke-in-northern-california

This special call of the Quick Response Research Award Program is funded by the National Institutes of Health (NIH) and the National Science Foundation (NSF Award #1635590). The views expressed in this brief are those of the author(s) and do not necessarily reflect the views of the NSF, NIH, or the Natural Hazards Center.

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University of Washington RAPID Facility

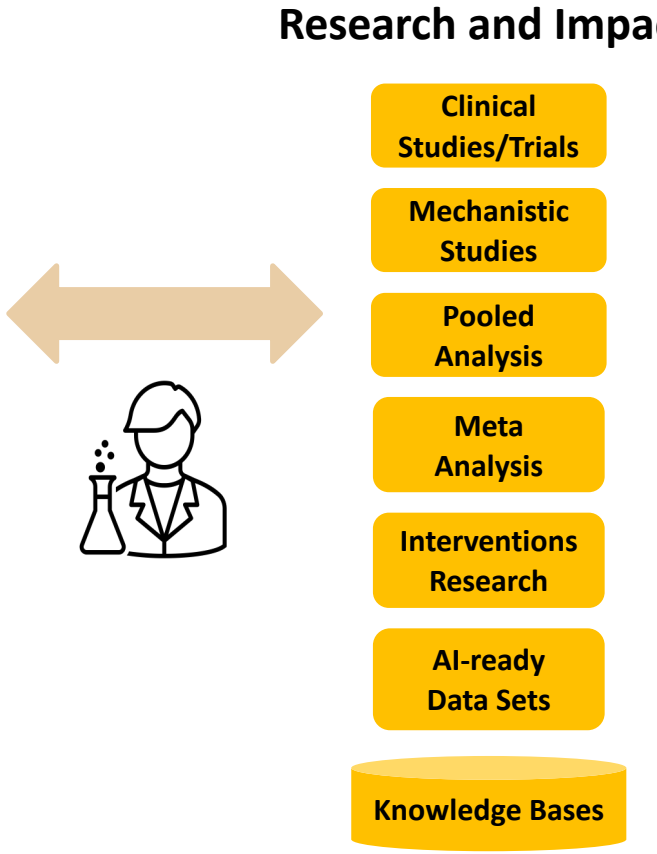
- Providing investigators with the **instrumentation, software, and support** needed to collect, process, and analyze perishable data from natural disasters
- **Listening sessions** to identify research needs & priorities for tools to support data collection.
- **Participants:** universities, federal agencies (NIH, USGS, CDC, EPA), and research centers.
  - **Specialties**: environmental and occupational health, toxicology, epidemiology, disaster research, exposure science, engineering, and community engagement.

HEW Data-Related Efforts

Health and Extreme Weather Data-Related Efforts

***Problem**: Ability to **find, access, and use** HEW data (e.g., atmospheric observations, environmental monitoring, local data) with health data to understand health impacts and mitigation/adaptation efforts.*

- **Access to fit-for-purpose HEW data products**
  - Difficult to discover, find, and access the most relevant datasets
  - Existing HEW data products are not tailored to health researcher needs
- **Capacity to use HEW data in health research**
  - Limited expertise in applying HEW data to health research questions
  - Lack of reusable datasets, code, and HEW models designed for health research
  - Limited computing and storage infrastructure to deal with large HEW datasets
- **Interoperability, standards, and governance for HEW data**
  - Gaps in metadata, ontologies, Common Data Elements (CDEs), and standards
  - Lack of clear policies and guidance for access/sharing of linked Env–Health data
  - HEW data not integrated with common health data models (e.g., FHIR, OMOP)

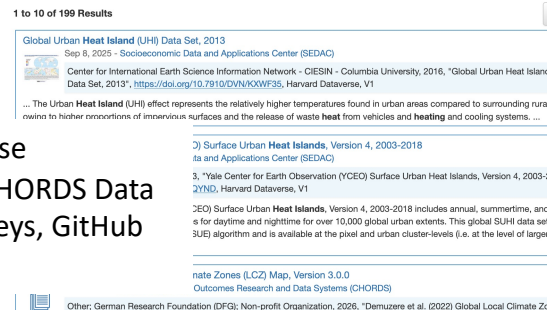


Samples of HEW Data-Related Efforts

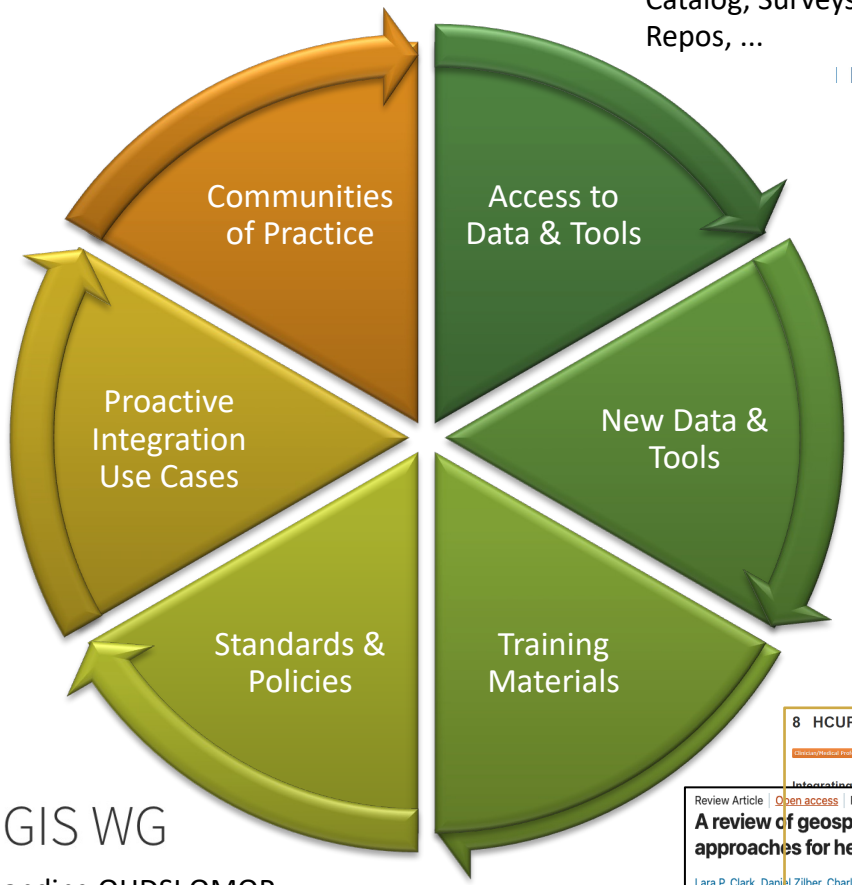
Capabilities developed through both the extramural and NIEHS Intramural space:

- ***CAFÉ** Resource Coordination Center*
- *Connecting Health Outcomes Research and Data Systems (**CHORDS**) Program – funded by HHS PCORTF*
- *HEW **Data Accelerator** Program*

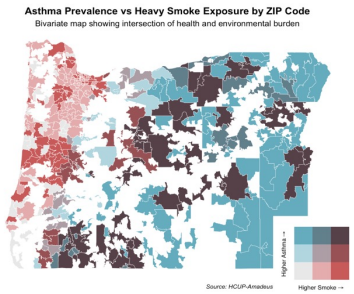
CAFE



CAFE Dataverse Repository, CHORDS Data Catalog, Surveys, GitHub Repos, ...



Use Case Cohorts: AHRQ, All of Us, NHLBI, NCI, NIEHS, N3C (planning)



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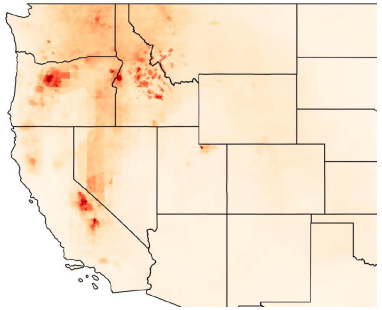
Software for Data Access and Linkage to Health Data

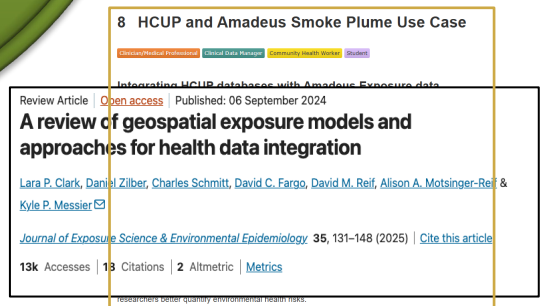
Standardized Pipelines for New Exposure Data Sets



OHDSI GIS WG

TISLab

Expanding OHDSI OMOP Data Model for Geospatial Exposures



Visit the CHORDS Webpage

HEW Intramural Research Program

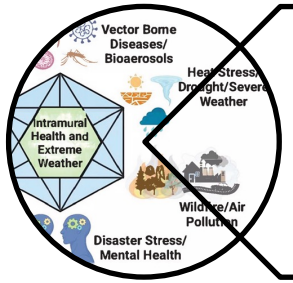
HEW in the Intramural Research Program

- **Mission:** To advance interdisciplinary research at the intersection of health and emerging environmental threats by integrating cutting-edge science from different fields to better understand, predict, and mitigate the health impacts of a changing environment.
- Examples
  - "Wildfire Smoke Exposure and Vascular Thromboinflammation"
  - "Endocrine disrupting effects of ambient temperature on reproductive health"
  - "Effects of wildfire smoke exposure on the epigenome and health in a multi-ethnic cohort"
  - "Analysis of data management capacity in regions with high infectious disease spillover risk"

Round 1: NIAMS, NICHD, NIA, NCI, NIAID, NIEHS

Round 2: NHLBI, NIA, NIAID, NLM, NIEHS

Intramural HEW Program Update

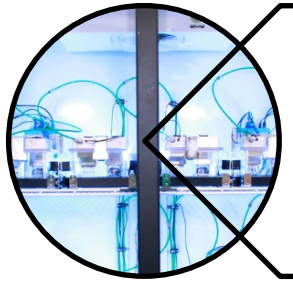


2026 Health & Extreme Weather Intramural Research Program

- Supports NIH intramural PIs with 2-year awards
- Third round of these awards anticipated in March 2026.

ORISE Scholars Program

- Supports up to 6 postdoctoral fellows to strengthen research capacity.
- Awards anticipated by May 2026.



Infrastructure/Heat Exposure Chambers

- Electrical and HVAC upgrades to support environmental chambers are underway
- Expectation is that equipment will be available for use by ICs later in FY26.

Looking Forward….

- April 2026 HEW Grantee Meeting
- HEW Scholars Program
- Ongoing Strategic Visioning Activities

Stay tuned for more to come from the HEW Program!

Contributors to the HEW Efforts Across NIH

Executive Committee Members
- Kyle Walsh (NIEHS)
- Peter Kilmarx (FIC)
- David Goff (NHLBI)
- Richard Hodes (NIA)
- Anna Mazzucco (NIAMS)
- David Shurtleff (NCCIH)
- Courtney Ferrell Aklin (NINR)
- Jeffrey Taubenberger (NIAID)
- Rohan Hazra (NICHD)
- Monica Hooper (NIMHD)
- Doug Lowy (NCI)
- Gary Ellison (NCI)
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- Brad Newsome (FIC)
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- Curt DellaValle (NCI)
- Larry Fine (NHLBI)
- Mary Masterson (NHLBI)
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- Ann Liu (NIEHS-C)
- Charles Schmitt (NIEHS)
- Alison Motsinger-Reif (NIEHS)
- Kyle Messier (NIEHS)
- Adam Burkholder (NIEHS)
- Adam Palumbo (NIEHS)
- David Fargo (NIEHS)
- David Reif (NIEHS)
- Maria Shatz (NIEHS)
- Michael Conway (NIEHS)
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- Sue Nolte (NIEHS-C)
- Jennifer Fostel (NIEHS)

Intramural Program
- Steven Tuyishime

Contract Support
- MDB, Inc.
- ORNL
- P3

Thank you for your attention!