# Introduction to the Climate Change and Health Research Coordinating Center (CAFÉ)
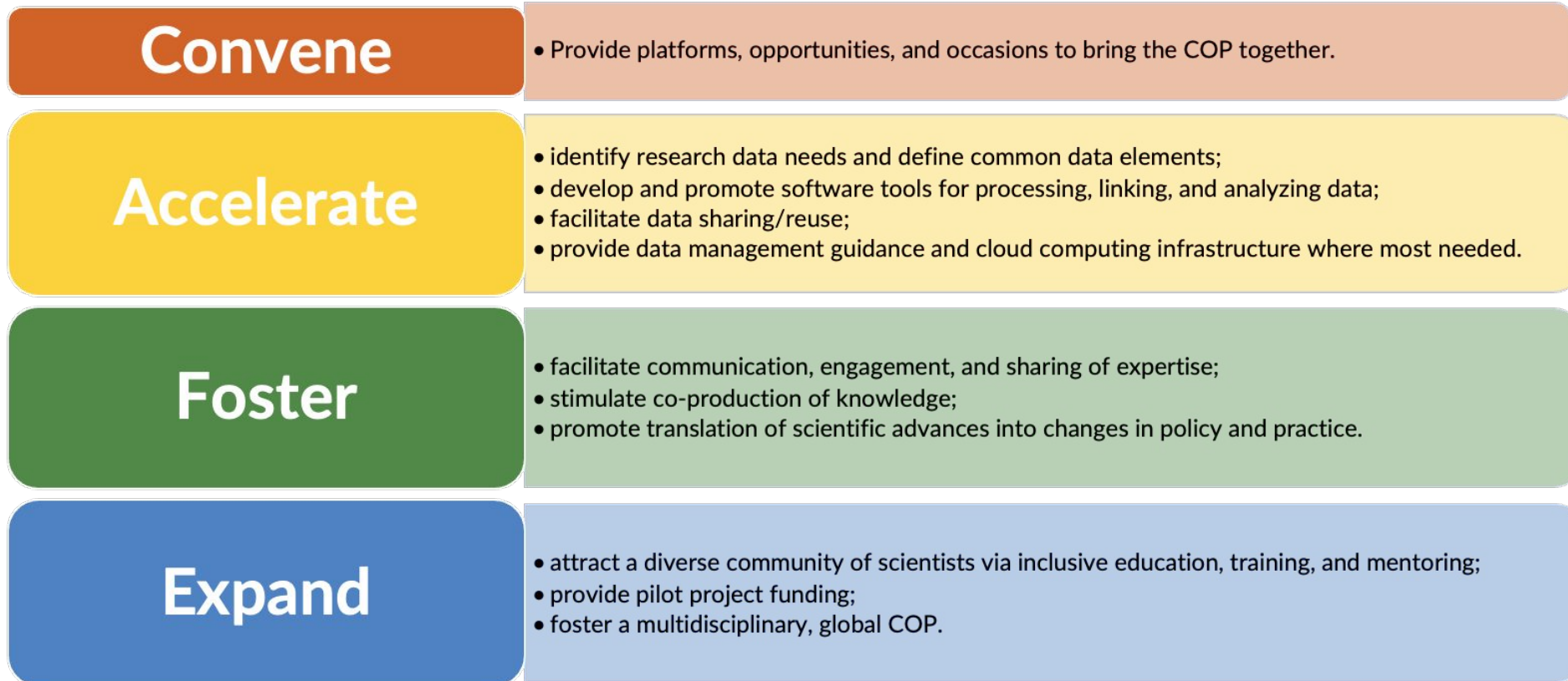
*Stefano Aicus, Harvard University, Sonia Barbosa, Harvard University. Joshua S. Cetron, Harvard University, Kezia Irene, Harvard University, Michelle Audirac, Harvard University, Gregory A. Wellenius, Boston University, Amruta Nori-Sarma, Boston University, Kevin Lane, Boston University*

*Danielle Braun, Harvard University*

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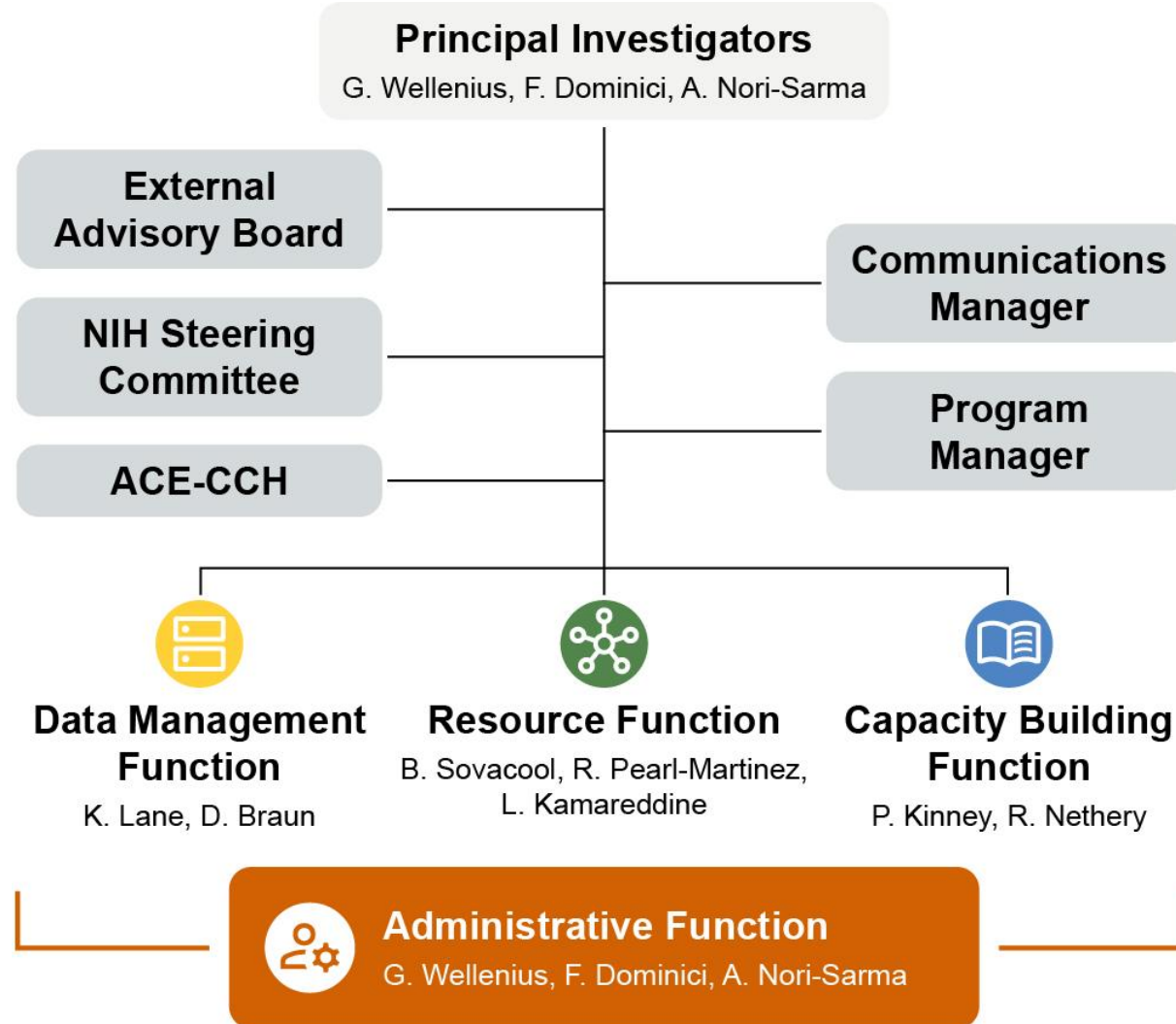Department of Biostatistics

# Goals of CAFÉ

A research coordinating center which seeks to to accelerate the pace of research and translation in climate change and health by supporting and growing the Community of Practice (COP).

**Convene**
- Provide platforms, opportunities, and occasions to bring the COP together.

**Accelerate**
- identify research data needs and define common data elements;
- develop and promote software tools for processing, linking, and analyzing data;
- facilitate data sharing/reuse;
- provide data management guidance and cloud computing infrastructure where most needed.

**Foster**
- facilitate communication, engagement, and sharing of expertise;
- stimulate co-production of knowledge;
- promote translation of scientific advances into changes in policy and practice.

**Expand**
- attract a diverse community of scientists via inclusive education, training, and mentoring;
- provide pilot project funding;
- foster a multidisciplinary, global COP.

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# Overview of CAFÉ

# CAFÉ Leadership Team

**Danielle Braun**
Principal Research Scientist
HSPH/DFCI

**Greg Wellenius**
Professor BUSPH

**Francesca Dominici**
Professor HSPH

**Amruta Nori-Sarma**
Assistant Professor BUSPH

**Leila Kamareddine**
Regulatory and Compliance
Manager, HSPH

**Kevin Lane**
Assistant Professor
BUSPH

**Pat Kinney**
Professor BUSPH

**Rachel Nethery**
Assistant Professor HSPH
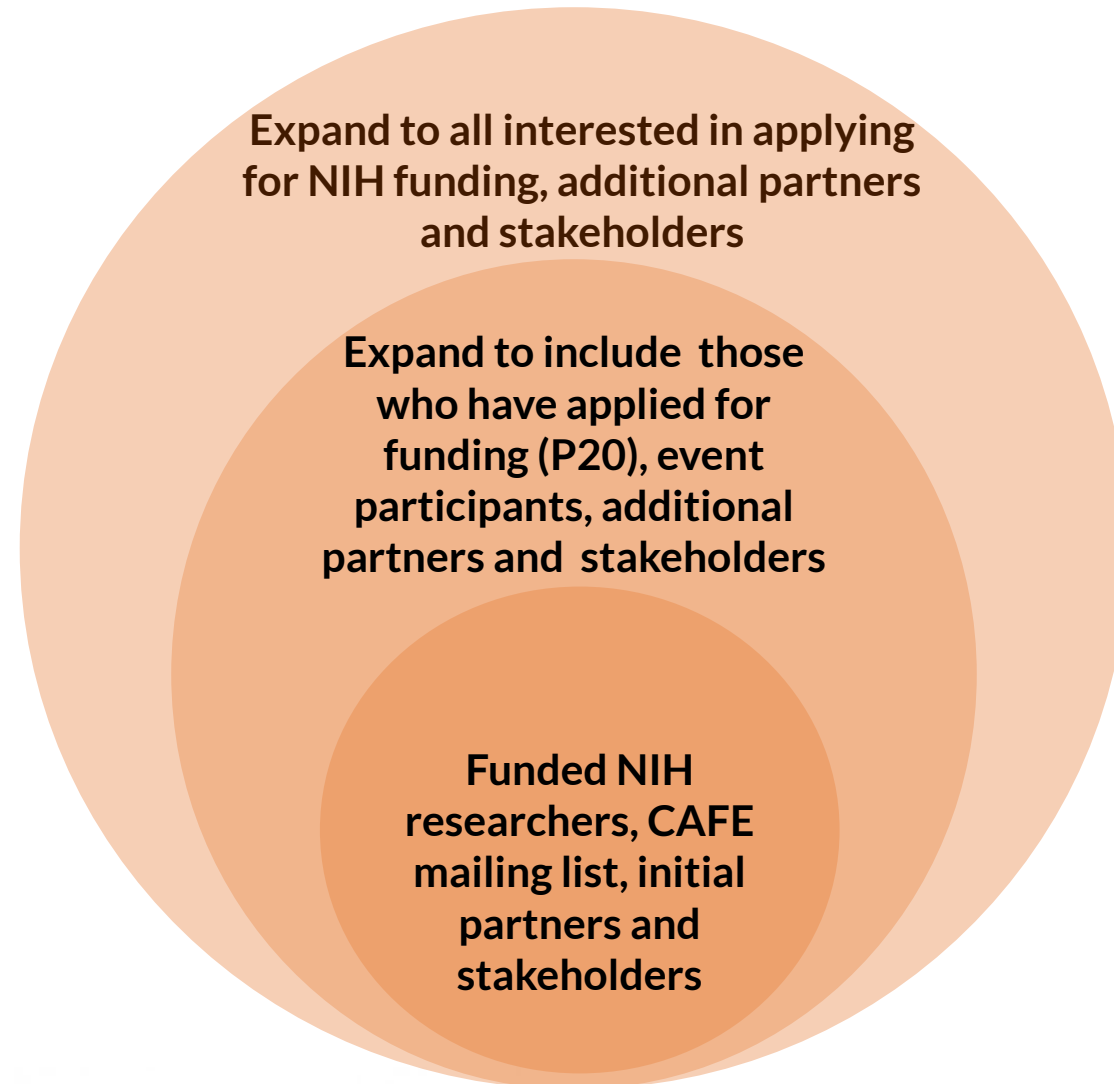
**Rebecca Pearl-Martinez**
Executive Director, BU IGS

**Benjamin Sovacool**
Professor & Director, BU IGS

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# Community of Practice (COP)



Expand to all interested in applying for NIH funding, additional partners and stakeholders

Expand to include those who have applied for funding (P20), event participants, additional partners and stakeholders

Funded NIH researchers, CAFE mailing list, initial partners and stakeholders

# Community of Practice (COP)

- Who is in the COP?
  - **Anyone** who is professionally interested in climate and health
  - Includes:
    - **academic researchers**
    - those working in **healthcare, government agencies**, **NGOs**, **funding agencies, community-based organizations**, **industry**, **foundations, and more**!

## 1500+ members

# With which Professional Group(s) do you identify?
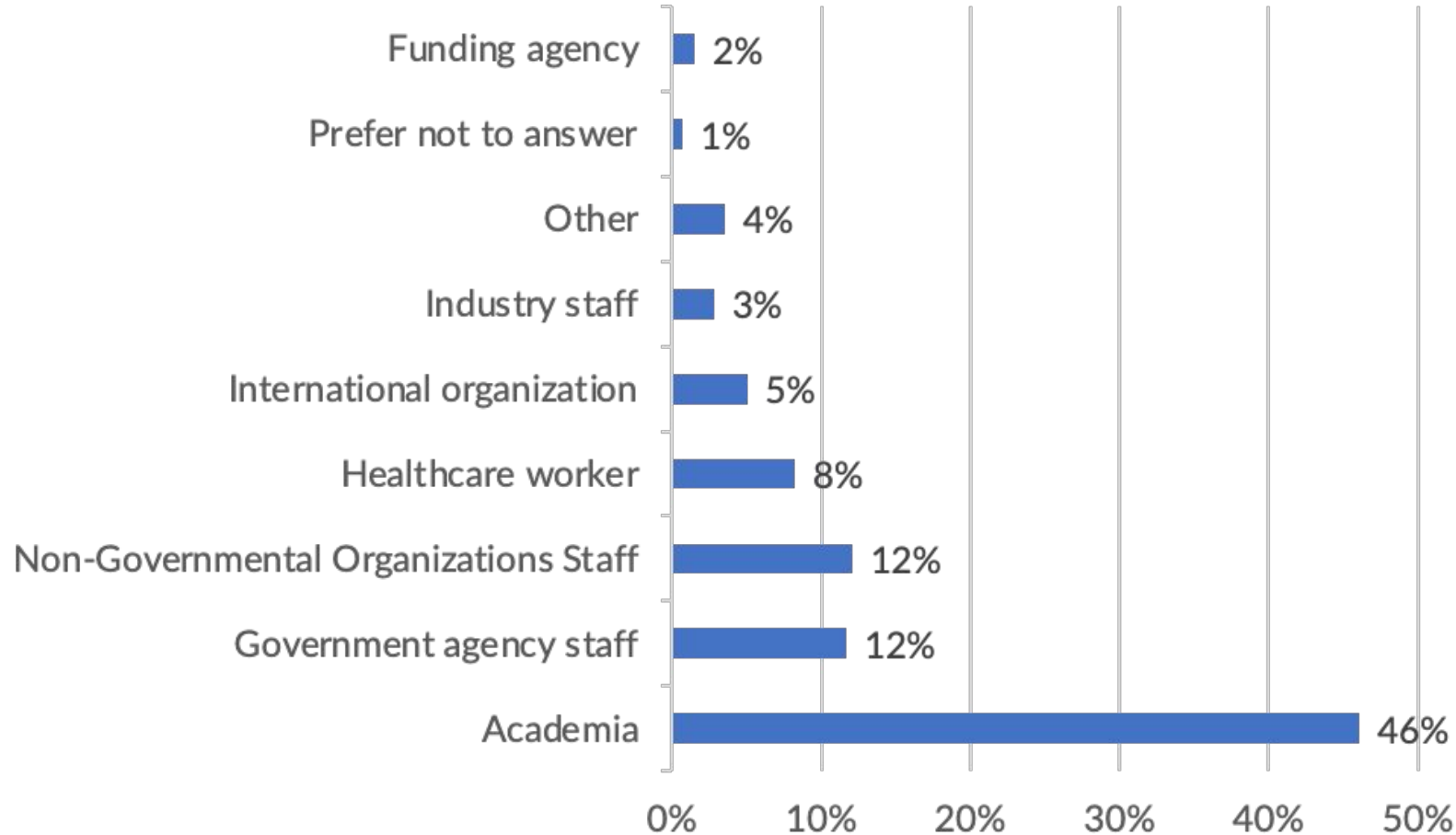
# Geographic Diversity
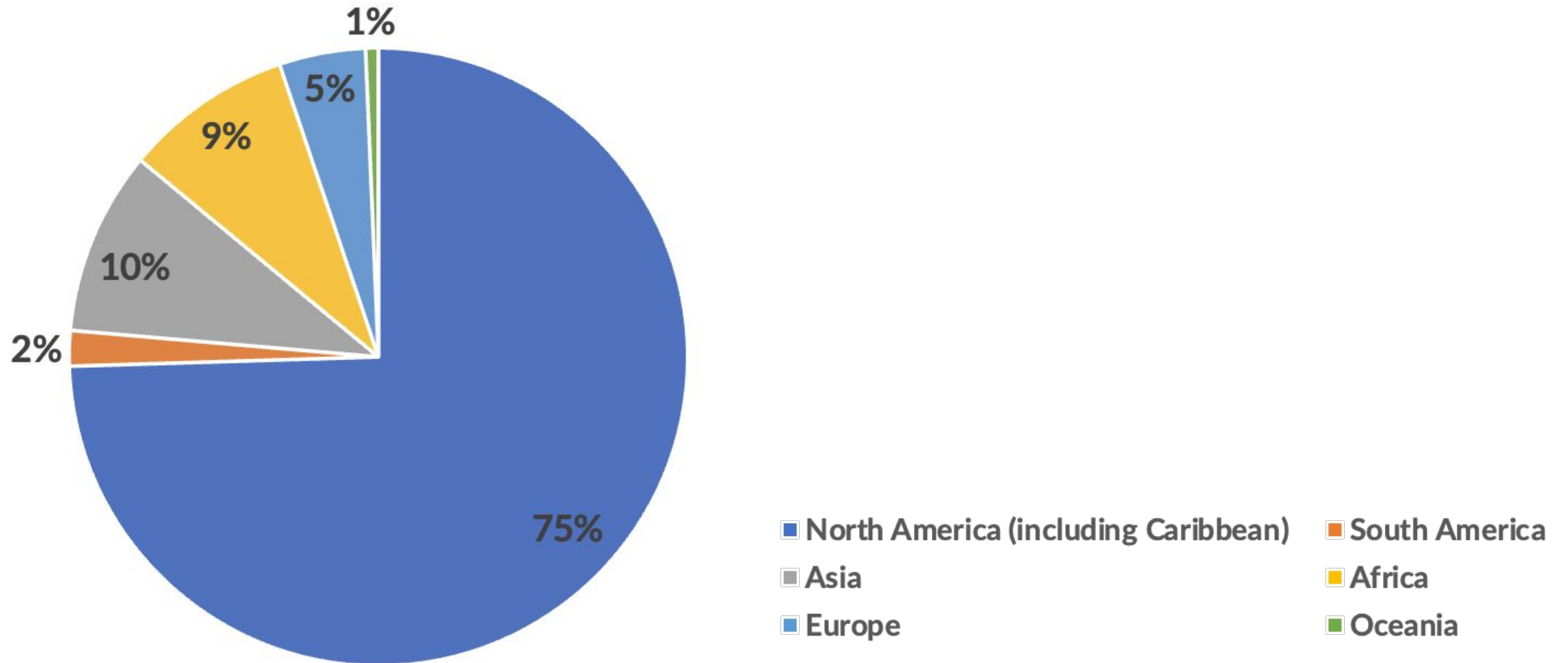
# Areas of Professional Interest



| Area | Percentage |
|---|---|
| Other | 3% |
| Determinants | 14% |
| Equity/Justice | 13% |
| Allergens | 3% |
| Infectious diseases and vector transmissions | 7% |
| Food security or quality | 6% |
| Water quality or availability | 7% |
| Fires | 7% |
| Drought | 5% |
| Air quality | 12% |
| Extreme precipitation events | 12% |
| Heat | 13% |

■ Percentage
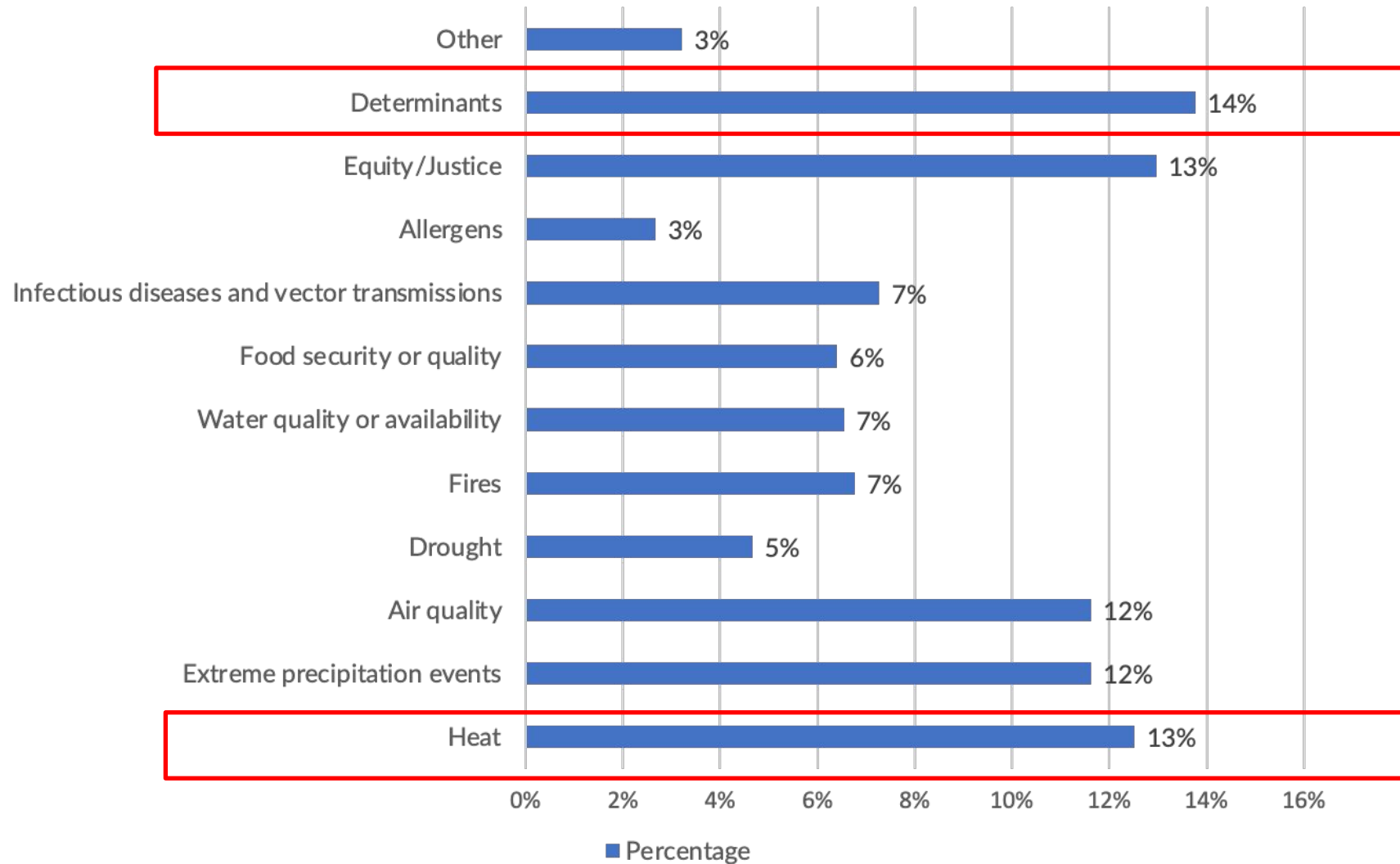
# CAFÉ Climate Health Data Resources

# Data Management Function Aims

1. Identify CCH research data needs and define common data elements across the COP
2. Develop and promote data science and software tools for processing, linking, and analyzing common CCH data
3. Facilitate sharing and reuse of CCH data
4. Provide data management and dissemination guidance and cloud computing infrastructure to those who need it most
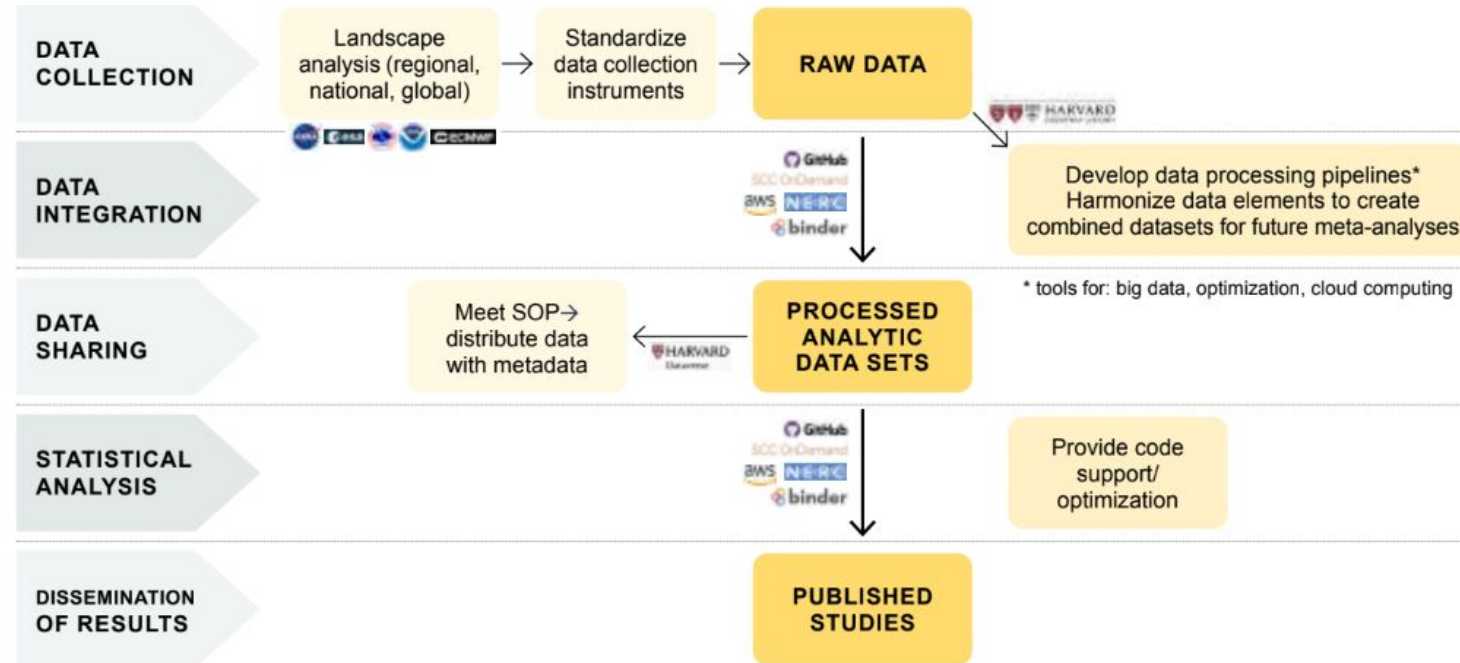


**Note:** CAFE is <u>not a data processing/analysis service center</u>! Focus is on curating commonly used datasets and coding pipelines.

# CCH-COP RAW AND PROCESSED DATA

Commonly used CCH exposure and health datasets and users will be identified by the data landscape analysis and prioritized by the Data Management function working group (Ex: Air Pollution Estimates, Satellite Data, Temperature Data, Census Data, Built Environment Factors)

## EXISTING DATA

**Users:** Any CCH research group with appropriate metadata that meets the Dataverse requirements

↓

**HARVARD**
Dataverse

Storage and Dissemination

## REFINEMENT & DATA DEVELOPMENT

**Users:** CCH-COP Research groups in need of common data methods and code to rapidly develop reproducible analyses

↓

GitHub

Processing, Standard Operating Procedures, Code

## SANDBOX DATA DEVELOPMENT & ANALYTICS

**Users:** Researchers without the infrastructure to conduct on site CCH research (i.e. Pilot Awardees and LMIC collaborators)

↓

SCC OnDemand
NERC
aws

Cloud Computing

CAFÉ

# CAFÉ Dataverse Collection



https://dataverse.harvard.edu/dataverse/CAFE

# Nori Sarma et al. 2022 Example of Data and Code Sharing



**1b**

95th % ile of Daily Temperature
- <90
- 90 - <92.8
- 92.8 - <95.1
- 95.1 - <97.5
- 97.5+
- Data suppressed, <12 ED visits
- NCA4 Climate Regions

**1a**

Number of ED visits
- <100
- 100 - <500
- 500 - <1000
- 1000 - <2000
- 2000 - <3000
- 3000+
- Data suppressed, <12 ED visits
- NCA4 Climate Regions

360   180   0   360 Miles
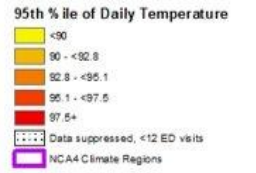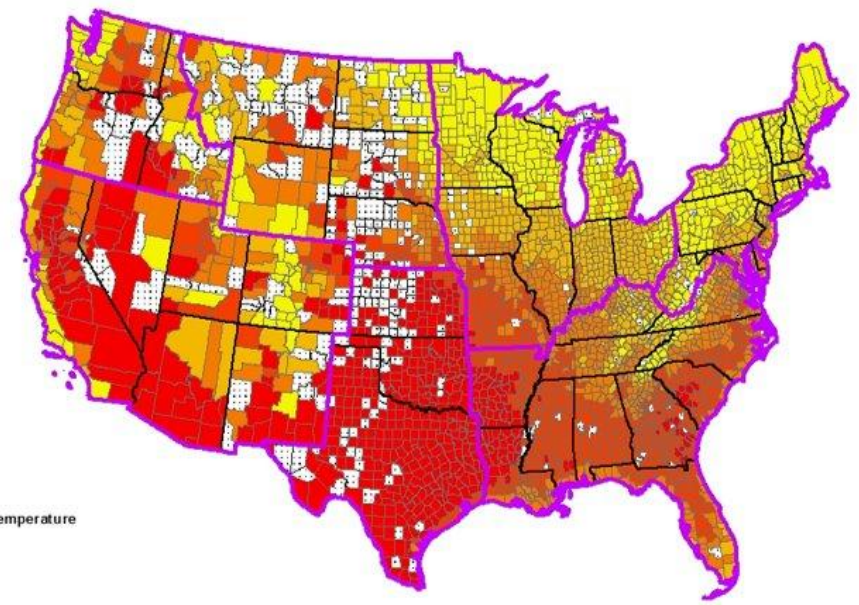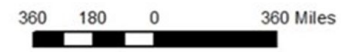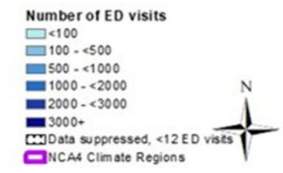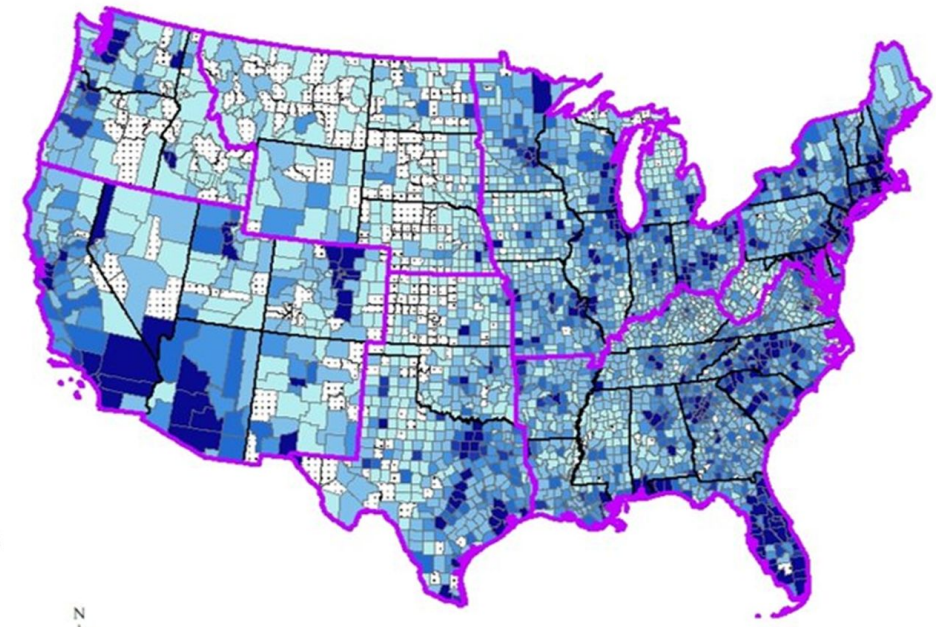
## HARVARD
Dataverse

Add Data ▾     Search ▾

Climate Change and Health Research Coordinating Center (CAFE) Collection

(Harvard University, Boston University)   **Unpublished**
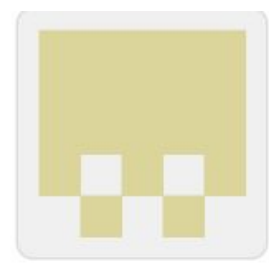
Climate-CAFE

Harvard Dataverse >

# CAFÉ Data Related Resources



**Climate CAFÉ Data Management page:**

https://climate-cafe.github.io//intro.html

# CAFÉ Dataverse Data Collection

- Harvard Dataverse is an open source established and rapidly growing NIH-supported and funded generalist data repository.

  - Follows FAIR principles

- Launched the Climate-Health CAFE Dataverse collection:

  - The CAFE team will be curating and processing commonly-used climate and health data and linkages, including spatial data. (we need your input!)

- We strongly encourage the community to help expand the Climate-Health CAFÉ Dataverse collection by contributing data for **sharing** and **reuse**. You can:

  - Deposit and share your data and code.

    - Get academic credit!! (DOI for each dataset)

    - Adhere to CAFE NIH DMP template

  - Reuse data.

# CAFÉ Dataverse Collection: Example Dataset

# CAFÉ Dataverse Collection: Custom Metadata



Metadata About Data Sources

| ✔ Derived from Another Dataset | Required by Dataverse | |
|---|---|---|
| ✔ Source Dataset Title | ○ Required | ● Optional |
| ✔ Source Dataset Author | ○ Required | ● Optional |
| ✔ Source Dataset Institution | ○ Required | ● Optional |
| ✔ Source Dataset Version Number | ○ Required | ● Optional |
| ✔ Source Dataset DOI or URL | ○ Required | ● Optional |
| ✔ Source Dataset Last Modified Date | ○ Required | ● Optional |
| ✔ Source Dataset Date Obtained | ○ Required | ● Optional |
| ✔ Source Dataset Type | ○ Required | ● Optional |
| ✔ Source Dataset Other Type | ○ Required | ● Optional |

Metadata About Data Sources

| ✔ Source Dataset Spatial Resolution | | |
|---|---|---|
| Source Dataset Spatial Resolution Value | ○ Required | ● Optional |
| Source Dataset Spatial Resolution Unit | ○ Required | ● Optional |
| Source Dataset Spatial Resolution Other Unit | ○ Required | ● Optional |
| ✔ Source Dataset Timestep | ○ Required | ● Optional |
| ✔ Other Source Dataset Timestep | ○ Required | ● Optional |
| ✔ Source Dataset Attribution | ○ Required | ● Optional |
| ✔ Source Dataset Disclaimer | ○ Required | ● Optional |

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# CAFÉ  Dataverse Collection:  Custom Metadata

# CAFÉ  Dataverse Collection: Contributing Data



https://climate-cafe.git
hub.io/tutorial.html

# CAFÉ Tutorials/Code Walkthroughs



Tutorials/code sharing resources for processing, linking, and analyzing CCH data: hosted on Git

https://climate-cafe.github.io/cafe_github_org.html

# CAFÉ Resources on NIH Data Management and Sharing Policy

- NIH issued a new Data Management and Sharing policy (effective January 25, 2023).
  - Promotes sharing of scientific data.
- Leveraging Harvard Dataverse, we provide a NIH Data Management and Sharing Policy template for the CAFE community:
  - https://climate-cafe.github.io//intro.html

# CAFÉ More Data Related Resources (coming soon!)

- More data/tutorials/code/resources.
  - conducting a landscape analysis.
- More guidelines for data curation, processing, harmonization, and code sharing.
- Community engagement:
  - working groups related to datasets, tutorials, data curation, processing, and harmonization
  - webinars and training sessions:
    - e.g. github training session
  - slack channels focused on datasets, tutorials, data curation, processing, and harmonization
  - virtual office hours

# CAFÉ Education and Training Resources

# CAFÉ inclusive education and training resources

- **CAFÉ Website** now hosts initial details on free / low-cost resources for Climate and Health training materials
- First training was on temperature mortality epidemiology study designs

**BUSPH PHX Courses**

1. Mini Master in Public Health
2. Foundations in Public Health, Parts 1-3
3. Quantitative Methods Primer
4. Cyclones and health [podcast]

**Other Online Courses**

1. Coursera: Global Warming I: The Science and Modeling of Climate Change
2. Coursera: Global Warming II: Create your own models in Python
3. Coursera: From Climate Science to Action
4. Coursera: Climate Change Mitigation in Developing Countries
5. Coursera: Companies and Climate Change
6. Coursera: Feeding the World
7. Coursera: Introduction to Environmental Law and Policy
8. GIS for Climate Action - ESRI

**Trainings**

1. NIH Grant-Writing Short Course for Junior Investigators
2. GitHub Reproducible Research Training
3. Spatial Data Science with R

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# CAFÉ Pilot Award Program



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**2023-2024 CAFÉ Pilot Project Request for Proposals**

CAFÉ is a Climate Change and Health Research Coordinating Center supporting the NIH Climate Change and Health Initiative, with the overarching goal to build a Community of Practice by enabling, expanding, and supporting climate change and health research and capacity building efforts. CAFÉ is pleased to announce its first request for proposals for pilot projects. The objective of the CAFÉ pilot program is to provide small seed funding for activities (e.g., data collection, community engagement, training, and workshops) that will allow

https://climatehealthcafe.org/funding

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# CAFÉ Community Resources

# Ways to Engage with the COP

- ○ Annual Conferences (2024-2026)
- ○ Online Collaboration platform: Slack channel (Live as of 3/20/24)
- ○ Online Networking events (coming soon)
- ○ Webinars/workshops (CAFÉ Website Registration)
- ○ Working groups (coming soon)
  - i. Short term engagements to reach specific milestones
  - ii. Convened through community suggestions

# 2024 Conference



## Event Agenda
CAFÉ Climate and Health Conference 2024

**Mon, Feb 05, 2024**

| | |
|---|---|
| 10:45 AM - 12:00 PM | **Welcome and Keynote Day I (NIH)**<br>Speakers: Peter Kilmarx, Eliseo J. Pérez-Stable, Joshua Gordon, Shannon Zenk, Rick Woychik, Amruta Nori-Sarma, Francesca Dominici |
| 12:00 PM - 1:00 PM | **Introduction to CAFÉ**<br>Speakers: Greg Wellenius, Danielle Braun, Leila Kamareddine, Patrick Kinney, Kevin Lane |
| 12:00 PM - 1:00 PM | **Policy Entrepreneurship 101: Translating Climate and Health Policy Opportunities into Plans of Action**<br>Speakers: Grace Wickerson, Alexa White |
| 12:00 PM - 1:00 PM | **Alliance for Community Engagement -- Climate and Health (ACE-CH) Session 1: Colorado and California**<br>Speakers: Mary Masterson, Katherine A James, Paul English, Liam O'Fallon, Katherine Dickenson |
| 12:30 PM - 1:30 PM | **Exploring Climate Change and Health with ArcGIS**<br>Speakers: Jhonatan Garrido-Lecca, Jared Shoultz, Este Geraghty |
| 1:00 PM - 2:00 PM | **Panel on Community Resilience and Vulnerability**<br>Speakers: Lisa Frueh, Jane Clougherty, Perry Sheffield |
| 1:30 PM - 2:30 PM | **Youth Climate Advocacy**<br>Speakers: Muskaan Khemani, Shalom Entner, Ellyanne Chlystun-Githae, Sibusiso Mazomba |
| 2:00 PM - 3:00 PM | **Granular, Real-time, US-Wide Health Damages from Electricity Consumption**<br>Speakers: Scott Delaney, Nat Steinsultz |
| 2:00 PM - 3:00 PM | **Assessing conceptual frameworks to support translational research in climate and health: Moving to Action**<br>Speakers: Arnab Ghosh, Olivia Keenan |
| 2:30 PM - 3:30 PM | **Funders shaping the climate-health nexus**<br>Speakers: Victoria McGovern, Chris Hanley, Carrie Wolinetz, Kathryn DeRobertis |
| 3:00 PM - 3:30 PM | **Speed Networking Session** |
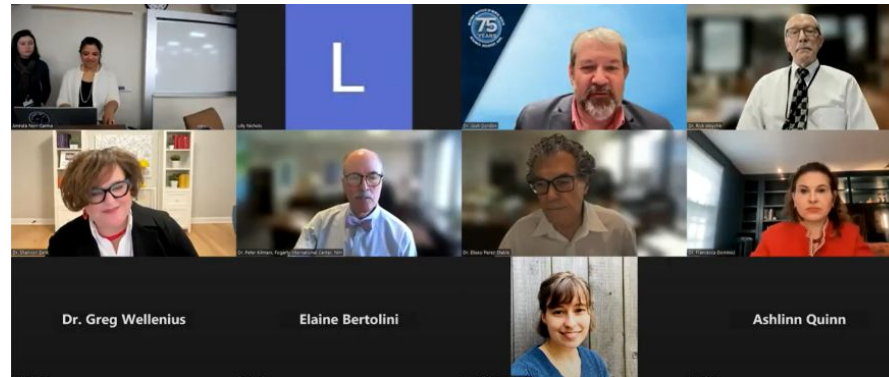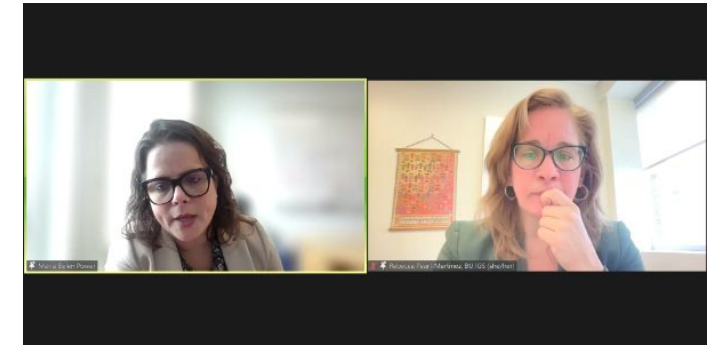
# Information Sharing

- Website: https://climatehealthcafe.org/
- Newsletter Monthly through COP email
- Instagram page: climatehealthcafe



- LinkedIn page
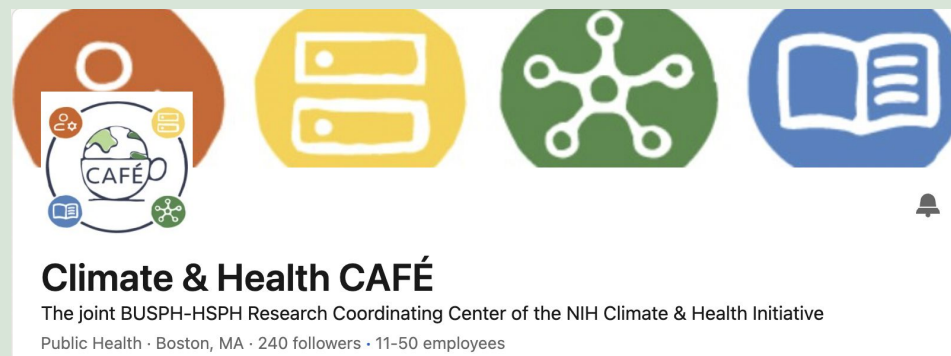
# CAFÉ All-Star Team:

- Elaine Bertolini
- Lilly Nichols
- Hannah Kim
- Keith Spangler
- Emma Gause
- Natalia Escobar-Pemberthy
- Heather Clifford
- Jon Levy
- Pam Templer
- Kipruto Kirwa
- Quinn Adams*
- Kathryn (Katie) Hollering*

- Gaurab Basu
- Michelle Audirac
- Kezia Irene
- Julie Goldman
- Stefano Iacus
- Sonia Barbosa
- Joshua Cetron
- Jinjie Liu
- Dan Yuan
- Ceilyn Boyd
- Emily Sharlach*
- Michaela Hoenig*

# NIH Partners:

- The NIH CCHI Steering Committee
- Abee Boyles
- Ashlinn Quinn
- Aubrey Miller
- Gabriel Lai
- Richard Kwok
- Aspen Reese
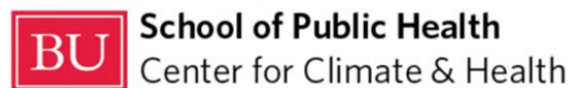
# Discussion/Questions?

**Join our Community of Practice:**