



The Environmental
Collaboratory

THE ENVIRONMENTAL COLLABORATORY AT DREXEL



ABOUT TEC

The Environmental Collaboratory (TEC) seeks to co-fund, co-design, and co-implement climate justice solutions with community partners that are grounded in addressing systemic, environmental, and socio-economic justice. The Environmental Collaboratory is centrally positioned in the Office of the Provost to facilitate expertise across Drexel University.

MATHY STANISLAUS, ESQ



VICE PROVOST & EXECUTIVE DIRECTOR

With a diverse experience to lead TEC, Stanislaus brings his passion for authentically facilitating trust building among diverse stakeholders to credibly design and implement pragmatic solutions that align environmental, economic considerations and social justice.

[Link to biography](#)




Disasters are evolving faster
than our systems can adapt.





We Are Not Ready for the Climate We Now Live In

Our warning systems, health care, and insurance markets are failing faster than the weather is changing. We can fix this by convening stakeholders to establish equity-first alerts, right to cooling and health care investment in preventing harm and smarter risk policy.





THE CHALLENGE WE'RE FACING

Severe weather is no longer a distant threat

Across the United States, communities are experiencing storms, heatwaves, floods, and wildfires at a frequency and intensity once unimaginable.

At the same time:

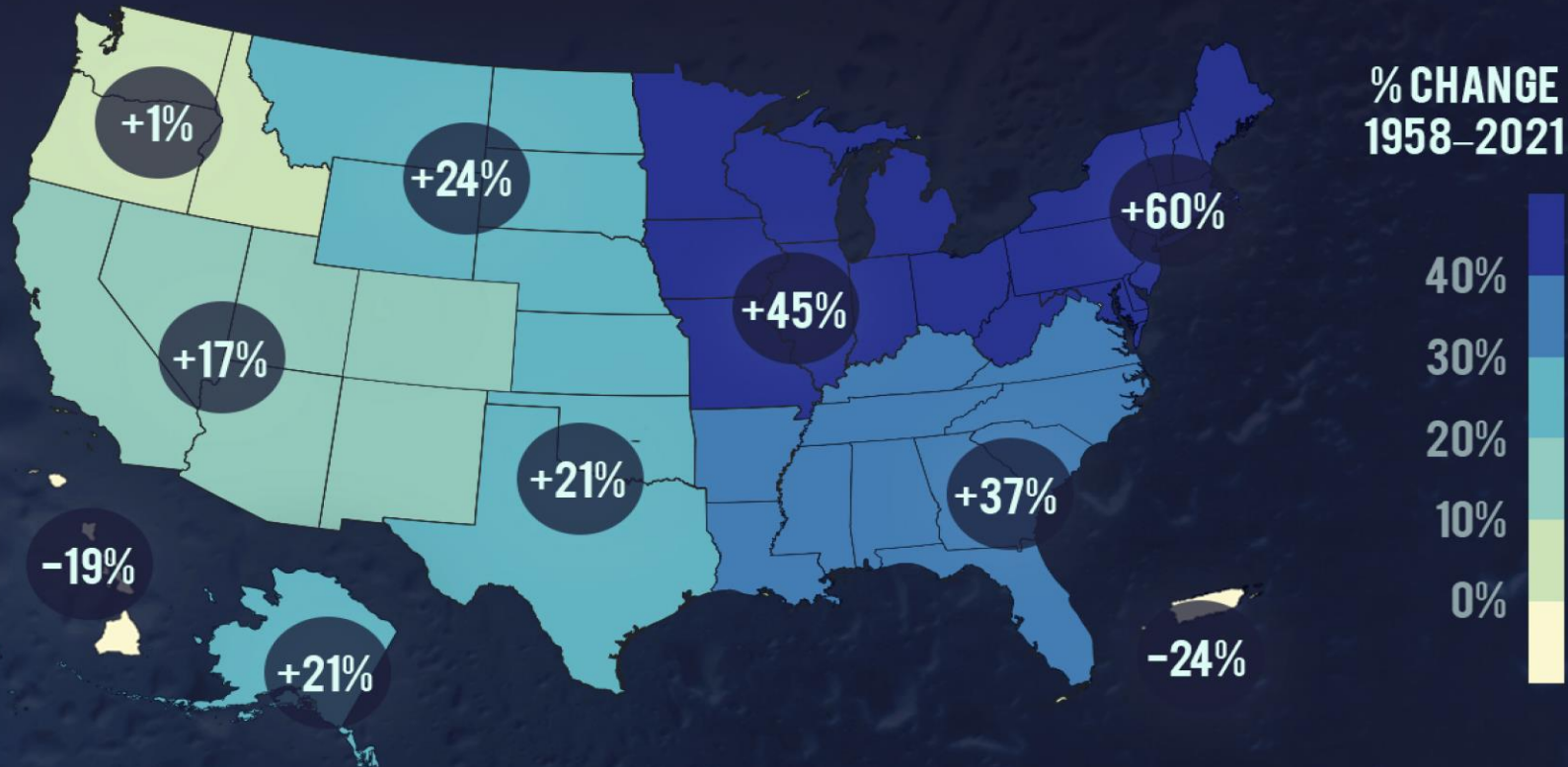
- Infrastructure is aging
- Health systems are overburdened
- Emergency frameworks were designed for a bygone era

These systems are no longer keeping pace with today's climate realities.

Extreme precipitation is increasing

HEAVIER DOWNPOURS

Change in precipitation on heaviest 1% of days



Change in total precipitation falling on the heaviest 1% of days, 1958–2021.
Source: USGCRP, 2023: Fifth National Climate Assessment.

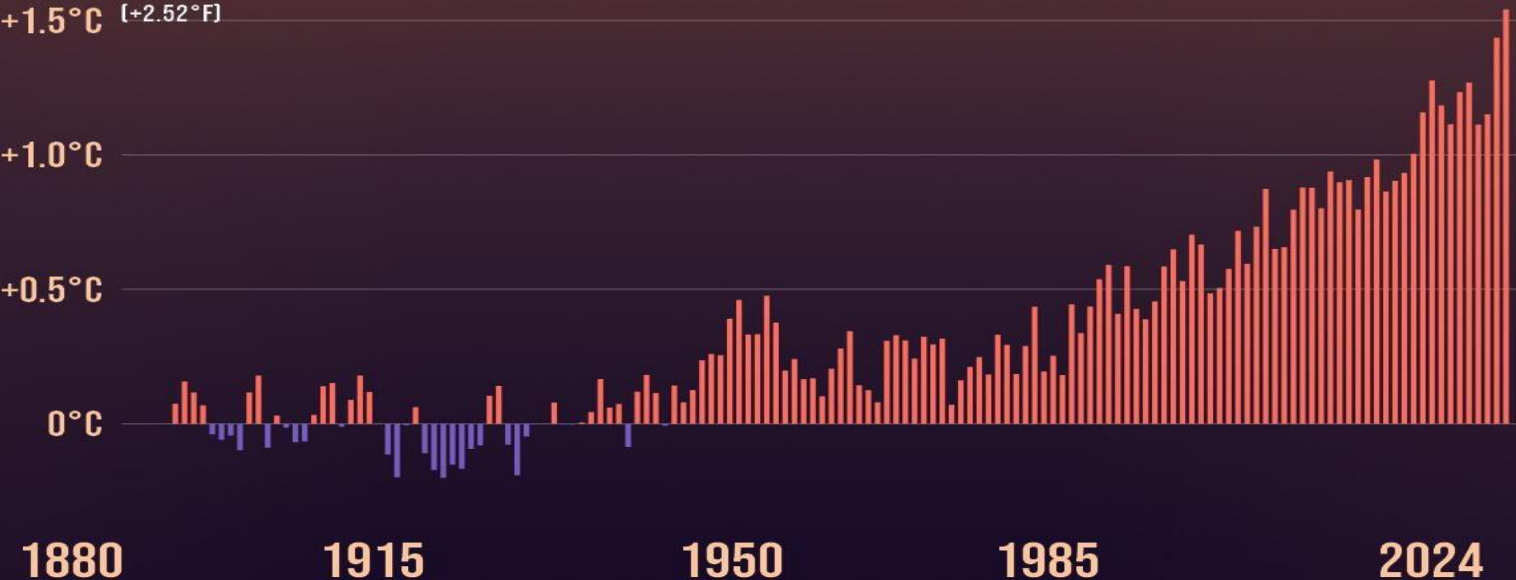
CLIMATE  CENTRAL

The 11 hottest years on record have all occurred since 2010, and 2024 was officially the hottest year ever recorded.

Hottest days also result in poorer air quality

GLOBAL TEMPERATURE

Departure from 1881-1910 average



Health effects

- Heat stress, heat stroke
- Cardiovascular failure
- Premature births
- Aggression, murder, suicides
- Cognitive decline
- Breathing issues
- Kidney disease
- Severe burns

Older adults, residents of under-resourced neighborhoods, individuals with preexisting environmental and health disparities, and outdoor workers face the greatest exposure to dangerous heat conditions.

Global temperature anomalies averaged and adjusted to early industrial baseline (1881-1910). Source: NASA GISS & NOAA NCEI



Extreme heat is not simply a weather hazard but a cascading systems failure spanning housing, energy, labor, and health.

Without coordinated action, these overlapping gaps will continue to leave the most vulnerable residents unprotected.

These record-breaking temperatures are not anomalies, they're the new normal.



The 11 hottest years on record have all occurred since 2010.

2024 was the hottest year ever recorded

1.28°C

above the 20th-century baseline

1.55°C

above pre-industrial norms

Extreme heat is not just a health crisis. It's an economic crisis.

7+

missed workdays per year under a no-action scenario

\$240–1,700

in earnings at risk per outdoor worker

\$3–18M

total lost wages annually

\$9–55B

at-risk earnings overall



Wildfires are becoming a regular occurrence - combination of drought, wet cycles and land use policies

The extent of Maui's death and destruction was due to failure of warning systems

California fires impact were due to planning for 2 major fires vs. 4 major fires that occurred


Wildfire smoke can contain toxic substances and can spread widely



Industrial area
flooding and power
loss leads to toxic
releases

One-third of regulated chemical facilities in the United States are located in the path of natural hazards like hurricanes, floods and wildfires.

3,000 facilities having reported chemical releases associated with power loss between 2004 and 2020, the industry largely has not installed back up power.



These are not distant threats. They are unfolding now. Every moment of inaction leaves more people vulnerable to these compounding risks.

Community Impacts and Needs

Eastwick, Philadelphia

93%
OF RESIDENTS

HAVE EXPERIENCED FLOODING AT THEIR RESIDENCE OR NEIGHBORHOOD RESULTING IN MEDIAN unreimbursed costs of about \$25,000

>50%
OF RESIDENTS

ARE NOT AWARE OF FLOOD EMERGENCY RESPONSE PLANS OR WHERE TO EVACUATE

90%
OF RESIDENTS

HAVE IDENTIFIED THE NEED FOR A FORMAL EVACUATION PLAN

Based on surveys Drexel University conducted with Eastwick organizations and Philadelphia OEM



THE SCALE OF THE IMPACT

Extreme weather is accelerating and costing lives

In 2025 alone, the U.S. experienced \$115 billion in disasters - record-setting 21 thunderstorm systems that spawned tornadoes, large hail and damaging wind each caused at least \$1 billion including:

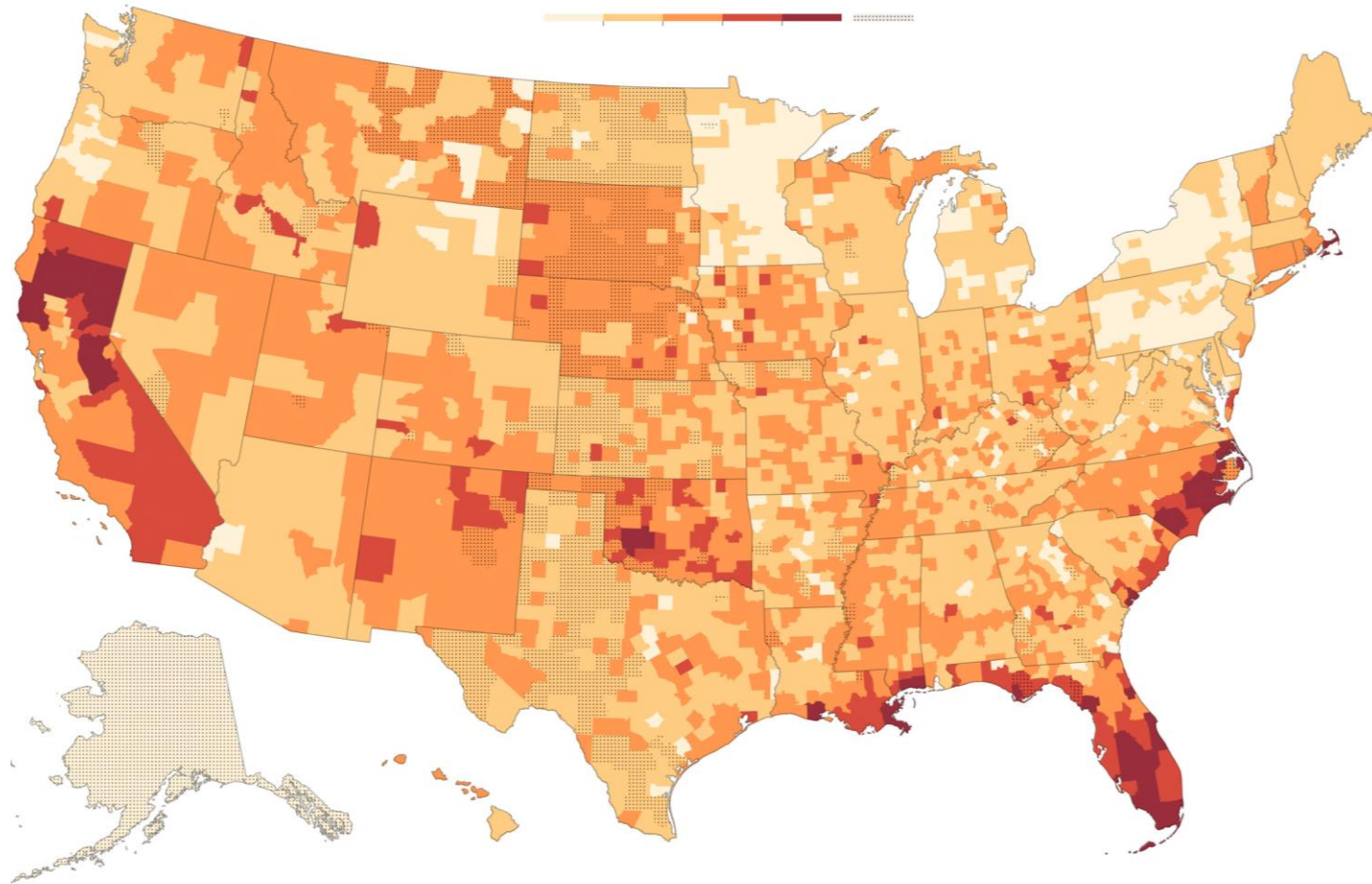
- Flooding that took 25 lives at a Texas summer camp
- California Wildfire
- Hurricane Helene's historic rainfall and catastrophic flooding
- A heat wave and drought that took more than 100 lives and destroyed billions in crops

\$320B in global damages



Globally, natural disasters caused \$320 billion in damage in 2024,
only \$140 billion of it insured

Insurance System Signal of Cascading Consequences to Financial Systems



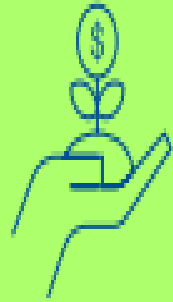
US Department of Treasury Insurance Office analysis of financial impacts of climate change-related impacts (January 2025/June 2024 reports):

- Climate events can disrupt homeowners financial stability, increasing delinquencies, and foreclosures
- Homeowners in high-risk areas paid 82% higher than those in low risk areas
- Mortgage back securities containing loans from high-risk areas may experience devaluation, potentially destabilizing financial markets

Modeling of Foreclosures by **First Street** projects 30% of foreclosures and \$5 + billion of annual credit loss due to extreme weather

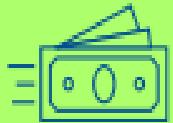
The Preparedness Payoff: The Economic Benefits of Investing in Climate Resilience

2024 Climate Resiliency Report, produced in partnership by the U.S. Chamber of Commerce, Allstate, and the U.S. Chamber of Commerce Foundation



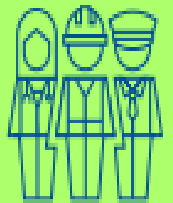
Investment in disaster preparedness pays off.

Every \$1 invested in resilience and preparedness saves \$13 in economic savings, damage, and cleanup costs after the event.



Amount spent on preparedness reduces the economic impact on the local community.

Every \$1 spent on preparing for disasters is worth \$7 in saved economic costs for the community, including job losses, reduced incomes, and other economic impacts.



Investments in resilience and preparedness have economic benefits even if a disaster never occurs.

As investments in disaster preparedness climb, communities see more jobs, the workforce grows, more people move to the area, and production and incomes increase.

**\$7 of savings for economic costs is in addition to the \$6 of savings for damage

Addressing severe weather preparedness and recovery requires addressing a complex interweaving of community, government, private sector, and a host of other segments of society and creating alignment.



2025 REPORT

Community-Level Preparedness and Recovery for Increasingly Severe Weather



<https://drexel.edu/environmental-collaboratory/emergency-preparedness>





Community Level

Places to make change within impacted communities



Local Government Community Interface

Changes in how local government interacts with other governments and with communities



Private Sector Community Interface

Private sector, investment, and utility areas of emphasis

Addressing severe weather preparedness and recovery requires addressing a complex interweaving of community, government, private sector, and a host of other segments of society and creating alignment.



Community Level

1. Early Warning Systems, Accessible Emergency Messaging & Multilingual Support
2. Localizing Information
3. Strengthening Community Partnerships
4. Inclusion of Vulnerable Populations in Emergency
5. Evacuation Planning & Public Awareness
6. Heatwave Preparedness and Right to Cooling

Local Government Community Interface



7. Intergovernmental Coordination in Emergency Communication
8. Local Government in Emergency Preparedness
9. Land-Use & Regulations

Private Sector Community Interface



10. Insurance and Financial Systems
11. Public Health and Hospital
12. Utility Infrastructure
13. Chemical Plants/Hazardous



WHAT WE NEED

Effective **preparedness** requires inclusive, community-centered systems

- Early warning systems that reach every household
- Culturally grounded communication delivered Partnerships with community based organizations as trusted designer and deliverer
- Real-time, community-informed data
- Evacuation plans that honor dignity and access needs
- All of Government leadership in preparedness and resiliency (housing, transportation, energy/infrastructure)
- Right-to-cooling policies that treat heat as a public health emergency
- Insurance, Financial and Infrastructure systems that protect, not imperil, communities

A Foundation for Action through Collaboration, Research, Policy, & Funding

Early Warning Systems, Accessible Emergency Messaging & Multilingual Support



RESEARCH/ DATA NEEDS

- Assessment of language barriers in past emergency responses.
- Analysis of real-world delays in warning message comprehension and receipt across non-English-speaking and vulnerable populations, including people with disabilities, older adults, and immigrant and refugee communities
- Evaluation of the effectiveness of multilingual messaging strategies.



POLICY NEEDS

- Mandates for multilingual emergency alerts in the top languages spoken in each community.
- Requirements for inclusive emergency communication systems that comply with accessibility standards (e.g., ADA, plain language).
- Installations of visual signage such as road signs, pictograms, and other non-text-based alerts designed to reach all individuals regardless of language or hearing impairment.
- Requirements for emergency messaging efforts to partner with local community-based organizations to design and deliver effective emergency preparedness messaging.



RESOURCE GAPS

- Financial Resources: Investment in multilingual and accessible communications staff and platforms including translation and interpretation services. Grants for community-based organizations to participate in emergency preparedness.
- Technical Resources: Real-time translation tools, ASL video messaging capabilities, and culturally tailored alert formats.
- Human Resources: Multi-lingual public information officers and communications personnel embedded in Offices of Emergency Management, Departments of Health, and other key agencies; community leaders and cultural liaisons to improve outreach.



KEY COLLABORATORS & PARTNERS

- Local governments and emergency management agencies
- Local businesses
- Community leaders from non-English-speaking populations
- Organizations focused on hearing and seeing disabilities
- Media outlets specializing in multilingual broadcasting

Collaborative Actions we can take today.



**Launch public education
and communication
campaigns**



**Create policy and best
practice resource guides**



**Collect data and
coordinator research to
guide future policy and
investment**



**Share knowledge
through accessible
platforms**



**Convene stakeholders to
facilitate knowledge
building, tracking progress,
refreshing priorities**



Launch public education
and communication
campaigns

Social Media

EXTREME WEATHER DOESN'T JUST DESTROY HOMES, IT DESTABILIZES SYSTEMS

"It's a **financial stability crisis**. Communities are already feeling the strain. Climate disasters now cost the U.S. more than **\$200 billion each year**, four times higher than in the 1980s. **Insurance markets are unraveling faster** than our policies can adapt. As insurers withdraw from high-risk regions, raise premiums, or go bankrupt, **millions of families are left unprotected**. As recognized by the U.S. Treasury Department, neighborhoods, housing markets, and local economies are forced to absorb the blow of the **cascading financial shockwaves**."

A person in a grey hoodie and dark pants is pushing a metal cart filled with various items, including bags and boxes, along a sidewalk. The cart is heavily loaded. In the background, there is a large, weathered concrete wall with peeling paint and graffiti. The sky is overcast and grey. The overall mood is one of displacement and hardship.

From Warnings to Recovery, We're Leaving People Behind

People with disabilities, immigrants, and low-income families, child care facilities miss alerts and aid. Center inclusion in planning—and pay trusted community groups to deliver.



Alerts That Never Came, Bills No One Can Pay


From Texas floods to Maui fires, warnings lag and recovery costs crush families. Community agencies must have the resources to invest in accessible, effective early warning messaging with community partners, and fair insurance now—or pay far more later.



Extreme weather isn't just about broken homes —it's about broken systems.

The U.S. is losing \$200 B+ every year to extreme weather disasters. Insurance markets are collapsing. Families are left uninsured. Communities absorb the shock. The US Treasury warned of cascading financial risks—from mortgage defaults to market disruption. Protecting communities from extreme weather impacts is economic justice.





“Disaster does not mean that things go back to the way they were before. *Things should get better.*”

- NATIONAL NONPROFIT, NONPARTISAN ORGANIZATION



SAVE THE DATE

January 28th, 12-5pm, 2026

You are invited to our **second regional convening** for

COMMUNITY-LEVEL PREPAREDNESS FOR INCREASINGLY SEVERE WEATHER

to deepen collaboration by **building on our collective work** and
ideating potential actions to address the known gaps in
community-level preparedness for increasingly severe weather.

George D. Behrakis Grand Hall, Drexel University
3210 Chestnut Street, Philadelphia
