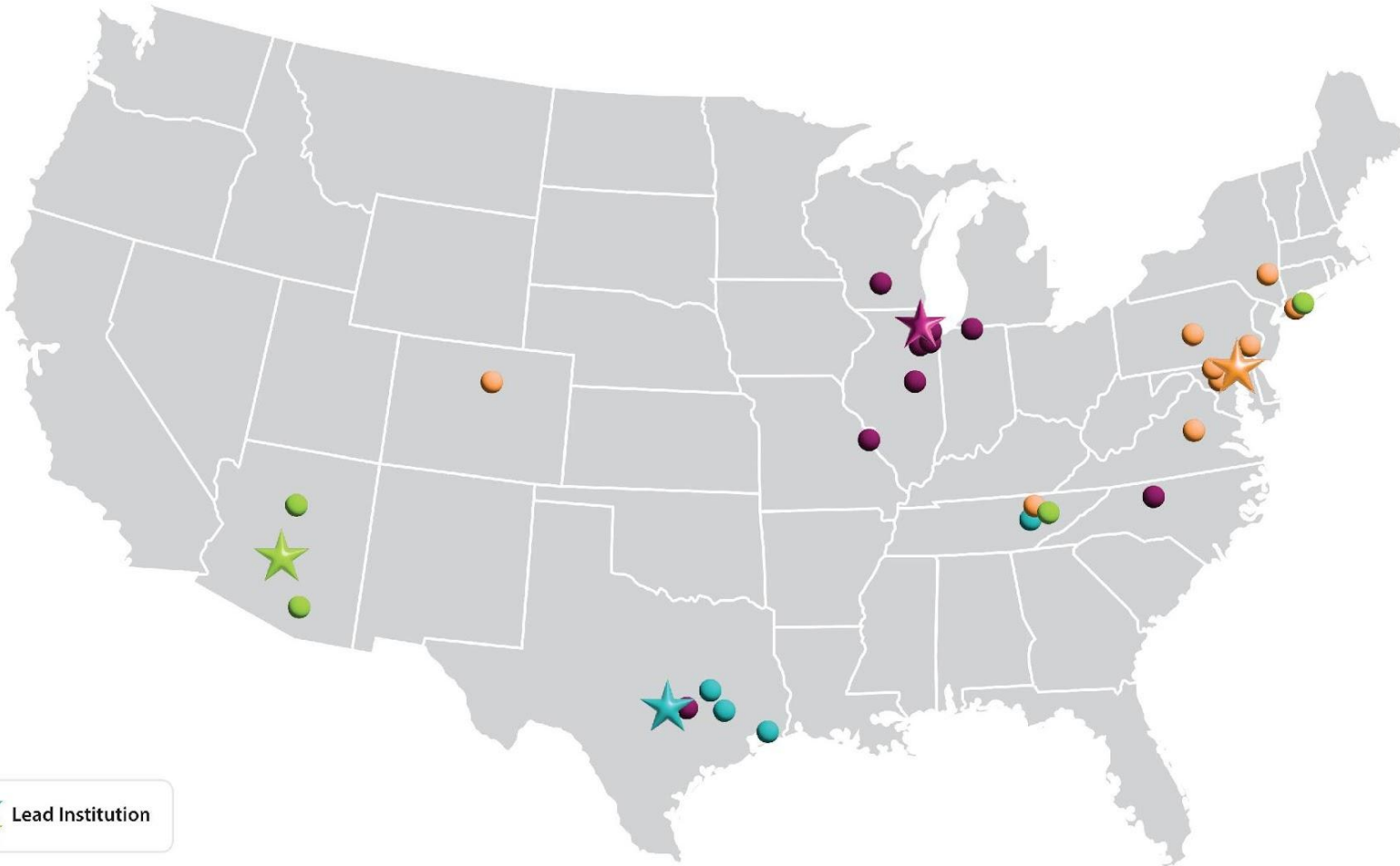


# Urban Integrated Field Laboratories and Collaborators



Lead Institution

**Southwest Integrated Field Laboratory (SW-IFL)**

- Arizona State University**
- Brookhaven National Laboratory
- Oak Ridge National Laboratory
- University of Arizona
- Northern Arizona University

**Southeast Texas Urban Integrated Field Laboratory (SETx)**

- University of Texas–Austin**
- Texas A&M University
- Prairie View A&M University
- Lamar University
- Oak Ridge National Laboratory

**Community Research on Climate and Urban Science (CROCUS)**

- Argonne National Laboratory**
- Chicago State University
- City Colleges of Chicago
- North Carolina Agricultural and Technical State University
- Northeastern Illinois University
- Northwestern University
- University of Wisconsin–Madison
- University of Texas–Austin
- Washington University in St. Louis
- University of Illinois
- University of Notre Dame

**Baltimore Social-Environmental Collaborative (BSEC)**

- Johns Hopkins University**
- University of Maryland–Baltimore County
- Morgan State University
- The Pennsylvania State University
- National Renewable Energy Laboratory
- Drexel University
- University of Virginia
- Oak Ridge National Laboratory
- The City University of New York
- Cary Institute of Ecosystem Studies

# Urban Integrated Field Laboratories (Urban IFLs) Program Updates



Daniel Winkler, Sally McFarlane, Bob Vallario

Urban IFL Program Managers

October 28, 2024

# SC's Statement of Commitment

[SC Statement of Commitment](#) outlines DOE's expectation for professional behaviors and our commitment to a safe, diverse, and inclusive environment. All participants are expected to read and agree to as part of their participation in the meeting.

The DOE Office of Science (SC) is fully and unconditionally committed to fostering safe, diverse, equitable, and inclusive work, research, and funding environments that value mutual respect and personal integrity...

...SC's effective stewardship and promotion of diverse and inclusive workplaces that value and celebrate a diversity of people, ideas, cultures, and educational backgrounds is foundational to delivering on our mission. Harnessing a diverse range of views, expertise, and experiences drives scientific and technological innovation and enables the SC community to push the frontiers of scientific knowledge for the betterment of America's prosperity and security.

Discrimination and harassment undermine SC's ability to achieve its mission by reducing productivity, discouraging or inhibiting talent retention and career advancement, and weakening the integrity of the SC enterprise overall. SC does not tolerate discrimination or harassment of any kind, including sexual or non-sexual harassment, bullying, intimidation, violence, threats of violence, retaliation, or other disruptive behavior in the federal workplace, including DOE field site offices, or at national laboratories, scientific user facilities, academic institutions, other institutions receiving SC funding, or other locations where activities funded by SC are carried out...

...SC expects the scientific community, particularly those engaging in SC-sponsored activities, to always conduct themselves in a manner that is respectful, ethical, and professional. This renewed commitment is part of SC's continuing effort to identify opportunities to improve its policies, practices, and communications in furtherance of its core values and its mission.

For the full SC Statement:

<https://science.osti.gov/SW-DEI/SC-Statement-of-Commitment>

# What are Urban IFLs?

- Large multi-disciplinary, multi-institutional projects that emphasize the basic sciences of climate, environmental, ecological, and urban change affecting urban regions, with a view towards informing sustainable, resilient, and equitable solutions.
- Integrate research primarily across three research areas: spatial variabilities leading to microclimates and micro-environments, atmospheric composition and biogeochemical cycling, and quantifying equitable climate solutions.
- Research combines new observations with high resolution and highly detailed urban modeling.
- Provides opportunities to inspire, train, and support scientists from a variety of institutions who have an appreciation for the global climate and energy challenges of the 21st century.





Baltimore Social-Environmental Collaborative



Southeast Texas Urban Integrated Field Laboratory

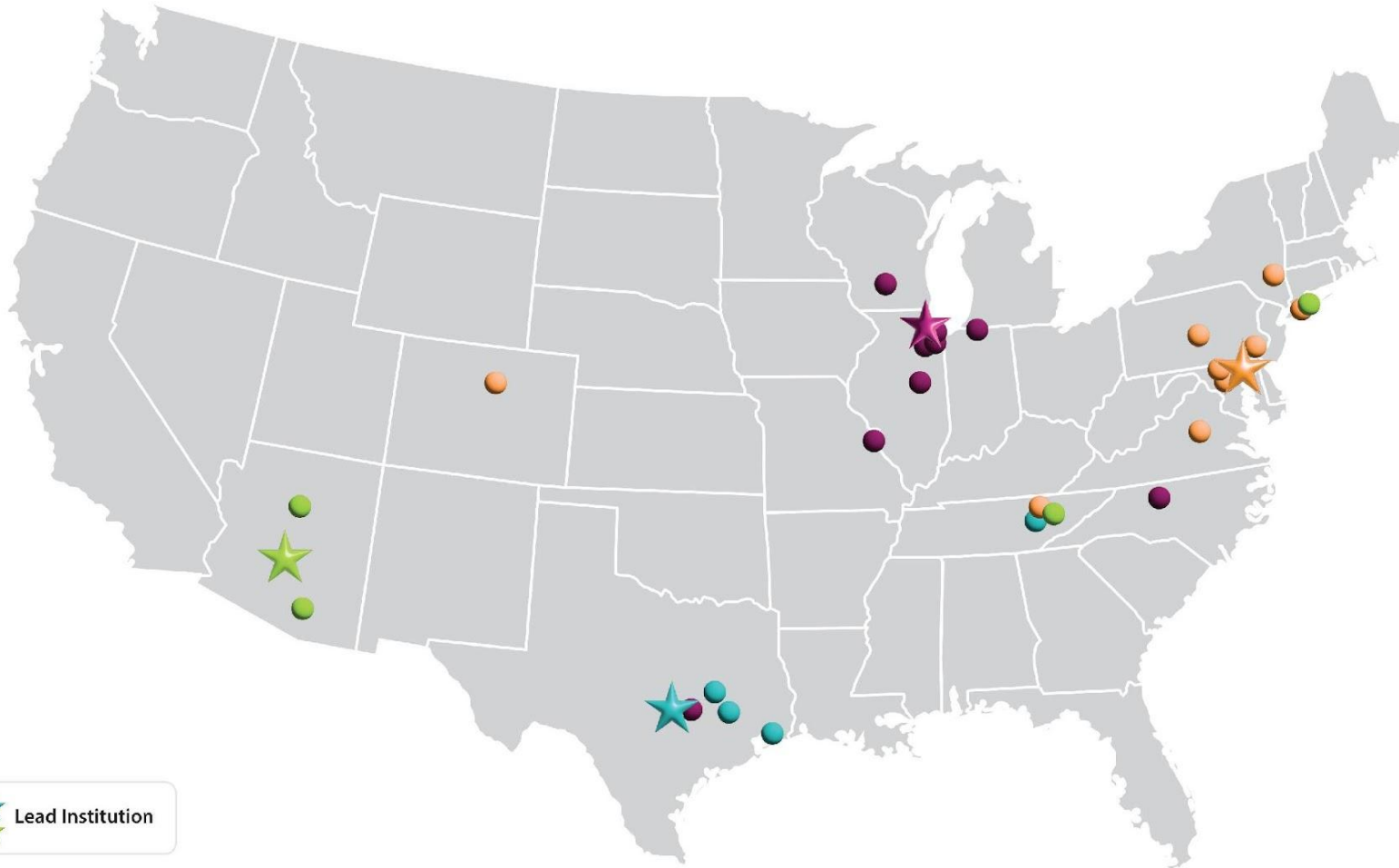


Southwest Urban Integrated Field Laboratory



Community Research on Climate and Urban Science

# Urban Integrated Field Laboratories and Collaborators



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  - Oak Ridge National Laboratory
  - The City University of New York
  - Cary Institute of Ecosystem Studies

# CROCUS BY THE NUMBERS

**18**  
PARTNER INSTITUTIONS

APPROXIMATELY  
**9 MILLION**  
CHICAGO-AREA RESIDENTS



**4** LEVELS OF OBSERVATION

**7** CIVIC AND INDUSTRY CHAMPIONS

**5** COMMUNITY-DRIVEN SCIENCE ACTIONS



# SW-IFL BY THE NUMBERS

**105**  
RESEARCHERS IN RESEARCH THRUSTS

MORE THAN  
**7 MILLION**  
ARIZONA RESIDENTS



**3** UNIVERSITIES

**2** NATIONAL LABORATORIES



# BSEC BY THE NUMBERS

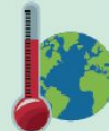
**11** PARTNERING SCIENCE INSTITUTIONS

**8+** ENGAGED COMMUNITY PARTNER ORGANIZATIONS

**4** COMMUNITY-IDENTIFIED CLIMATE PROBLEM AREAS



INDOOR/OUTDOOR AIR QUALITY



EXTREME HEAT



FLOODING

DECARBONIZATION



**\$24.8 MILLION**

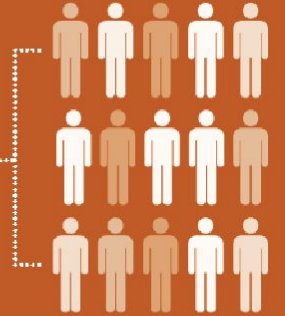
IN FEDERAL FUNDING TO STUDY CLIMATE CHANGE IN BALTIMORE

**>20** WEATHER STATIONS OPERATED BY BSEC ACROSS BALTIMORE

# SETx-UIFL BY THE NUMBERS

**280**  
WATER SENSOR SITES

**15**  
TASK FORCE MEMBERS



**40**

REALIZATIONS OF FUTURE CLIMATE CHANGE AT 1-KM RESOLUTION

**2**

CONTINUOUS AIR-MONITORING SITES

**36** UNIVERSITY STUDENTS OR POSTDOCTORAL RESEARCHERS



# Urban IFL coordination activities (~\$2 million added)

- Multi-Sector Dynamics Urban Working Group Cross-IFL Community Building
- Unified Multilayer Interface for Cataloging Spatiotemporal Observation Across IFLs
- Green Infrastructure Representations in Hydrologic Models
- Coordinating Urban Land Surface Modeling Across UIFLs
- Coordinated Inter-IFL Measurements of Gas-Phase and Particle-Phase Pollutants in Joint Intensive Observation Periods
- Greenhouse Gas, Criteria Air Pollutant, and Anthropogenic Heat Flux Inventories for the UIFL Domains at the Asset Scale
- Collaborative Evaluation of the Urban Integrated Field Laboratories Transdisciplinary Team Science



# Climate Resilience Centers and Collaborators



The Climate Resilience Center in Piedmont Triad of North Carolina  
 North Carolina State University  
 Pacific Northwest National Laboratory

California Community and Earth-System Integrated Climate Resilience Center (CalCEI CRC)  
 San Jose State University  
 Lawrence Livermore National Laboratory

Southwest Climate Resilience Center  
 Northern Arizona University  
 Lawrence Berkeley National Laboratory

Center for Climate Adaptation and Resilience in Baltimore (CCARB)  
 Morgan State University  
 Pacific Northwest National Laboratory

San Joaquin Valley Climate Resilience Center  
 University of California–Merced  
 Lawrence Livermore National Laboratory

Center for Climate-driven Hazard Adaptation, Resilience, and Mitigation (C-CHARM) in Great Lakes Rural Communities  
 Michigan Technological University  
 Argonne National Laboratory

Coastal Bend Climate Resilience Center  
 University of Texas–Arlington

Building Predictive Capacity to Enhance Stormwater Infrastructure and Flood Resilience  
 Central Michigan University

Advancing Development and Climate-Resilient Adaptation Practices via Community-Driven Urban Transformation in Saint Louis, MO (ADAPT-STL)  
 Saint Louis University

Massachusetts Gateway Cities Climate Resilience Center  
 University of Massachusetts–Lowell

A Regional Climate Resilience Center for Water Extremes Adaptation Strategies Implementation  
 Lehigh University

A Climate Resilience Center for Alaska  
 University of Alaska Fairbanks

The Climate Lighthouse: DOE CCNY Urban Climate Hazard Resilience Center  
 Research Foundation of The City University of New York  
 Brookhaven National Laboratory

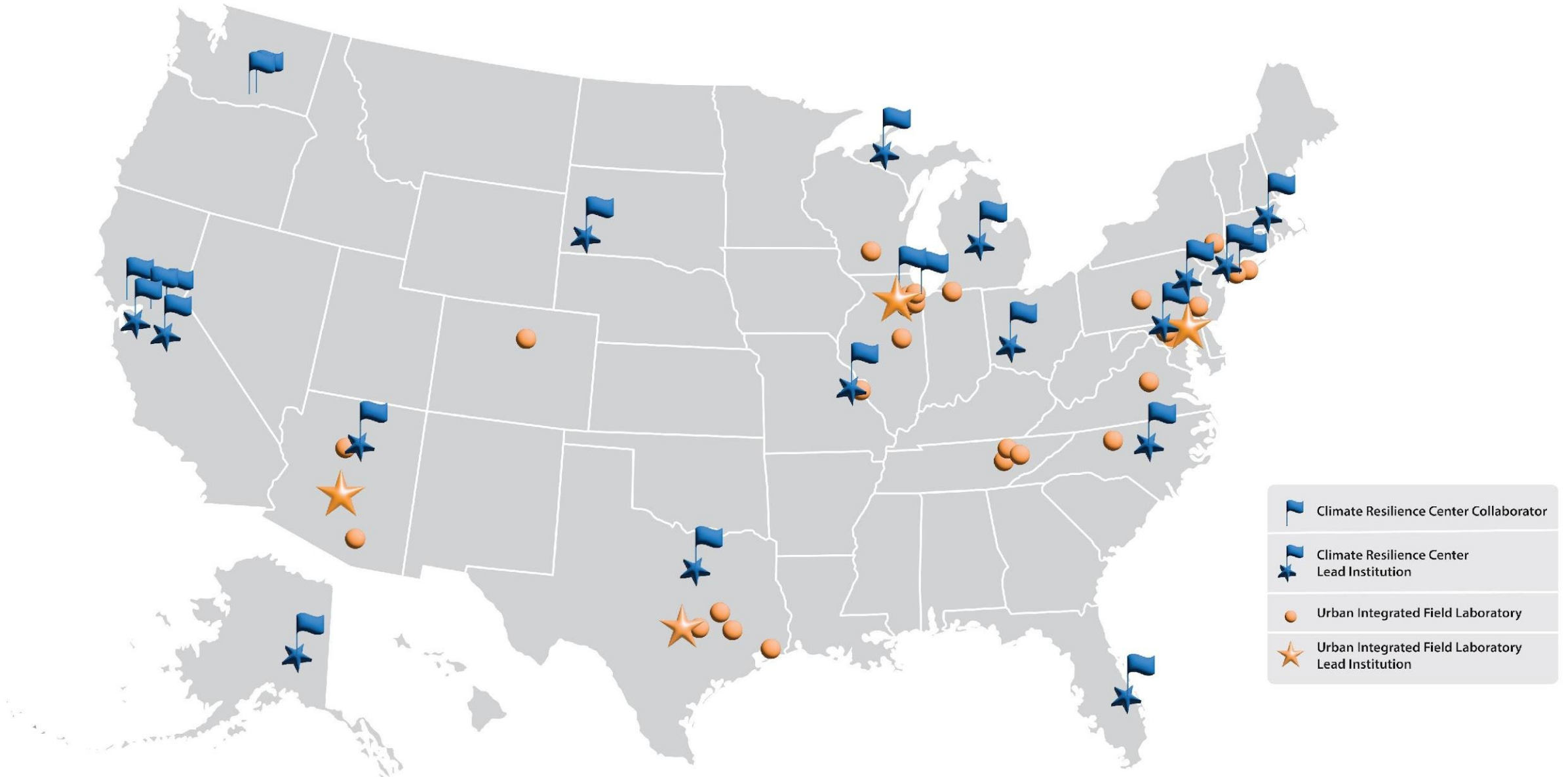
Climate Resiliency Center for building adaptive capacity in tribal communities along Missouri River Basin (MRB-CRC)  
 South Dakota School of Mines & Technology

Space Coast RESCUE (Resilience Solutions for Climate, Urbanization, and Environment)  
 Florida Institute of Technology  
 Argonne National Laboratory

Midwest Climate Resilience Center: Soil Systems Scale Up: (MCRC: SCALE UP)  
 Central State University

Climate Resilience Center Lead Institution  
 Collaborator

# Climate Resilience Centers, Urban Integrated Field Laboratories, and Collaborators



# ICOM

U.S. Department of Energy | Office of Science

# HYPERFACETS

A Framework for Improving Analysis and Modeling of Earth System and Intersectoral Dynamics at Regional Scales



# COMPASS

GREAT LAKES MODELING

Coastal Observations, Mechanisms, and Predictions  
Across Systems and Scales

# E<sup>3</sup>SM

Energy Exascale  
Earth System Model

# IM3

# GCIMS



# SBIR · STTR

America's Seed Fund



# ESS-DIVE

Deep Insight for Earth Science Data



# MSD LIVE

# Urban IFL PI Meeting Goal

- Update DOE management on IFL progress
- Share scientific, technical information and best practices between the IFLs and related projects
- Foster and sustain collaboration among the projects
- Identify potential collaborations and share ideas



# Meeting Logistics

- Meeting is hybrid with virtual attendees; **use microphones** for questions & discussion
  - Using same Zoom link throughout meeting
  - Any Zoom issues during meeting: [ORISE-EESSD@orau.org](mailto:ORISE-EESSD@orau.org)
- Presentations/posters will be posted on BER IFL website after the meeting to enable information sharing with broader community
- Silence your cell phones and laptops

October 28, 2024

8:00 AM ET

**Continental Breakfast available**

8:00 AM-8:30 AM

8:30 AM ET

**Plenary Session – Programmatic and Project Updates**

8:30 AM-10:00 AM

*Plaza 2&3*

- Welcome and Introductions – BER Management (10 min)
- Program Manager updates (20 min)
- Community Research on Climate and Urban Science (CROCUS) IFL, *Cristina Negri, Argonne National Laboratory* (30 min)
- Southwest Urban Corridor IFL (SW-IFL), *David Sailor, Arizona State University* (30 min)

10:00 AM ET

**Break**

10:00 AM-10:30 AM

10:30 AM ET

**Plenary Session – Project and Interagency Updates**

10:30 AM-12:00 PM

*Plaza 2&3*

- Southeast Texas (SETx) Urban IFL, *Paola Passalacqua, University of Texas at Austin* (30 min)
- Baltimore Social-Environmental Collaborative (BSEC) Urban IFL, *Benjamin Zaitchik, Johns Hopkins University* (30 min)
- US Global Change Research Program (USGCRP) Urban Interagency Working Group, *Reid Sherman, USGCRP* (30 min)

12:00 PM ET

**Lunch**

12:00 PM-1:00 PM

*Atrium*

1:00 PM ET

## Community and Stakeholder Engagement with Panel Discussion

1:00 PM-2:30 PM

*Plaza 2&3*

- Community Engagement from a DOE perspective, *Emily Brooks, DOE Fossil Energy and Carbon Management* (30 min)
- Panelist introductions and discussion (1 hour)

2:30 PM ET

## Break

2:30 PM-2:45 PM

2:45 PM ET

## Poster Session 1

2:45 PM-4:15 PM

*Atrium*

4:15 PM ET

## General Breakout Session 1

4:15 PM-5:45 PM

- Climate scale modeling/scenarios (Plaza 1)
- Observational approaches (Plaza 2&3)
- Community co-design, resilient solutions and decision-making (Regency)
- Education and workforce development (Potomac)



Office of Science

[Energy.gov/science/](https://energy.gov/science/)