CONVERGE: NHERI's Social Science Facility

Rachel Adams, PhD, MPH
Research Associate
Natural Hazards Center and CONVERGE
University of Colorado Boulder

NSF Award #1841338

The Natural Hazards Center

Mission: We are the National Science Foundation-designated information clearinghouse for the **societal** dimensions of hazards and disasters. We are dedicated to reducing disaster harm through:

1. translating and sharing hazards and disaster research and information;
2. building connections between researchers, non-profit and private sector professionals, the media, policy makers, and local, state, and federal officials;
3. advancing social science and interdisciplinary knowledge, with a special emphasis on the most vulnerable populations and places; and
4. training and mentoring the diverse next generation of hazards and disaster professionals.

CONVERGE

CONVERGE is a new National Science Foundation-Natural Hazards Engineering Research Infrastructure (NSF-NHERI) facility dedicated to:

- ***identifying*** researchers;
- ***educating*** and ***training*** researchers;
- ***setting*** a convergence research agenda that is problem-focused and solutions-based;
- ***connecting*** researchers and ***coordinating*** functionally and demographically diverse research teams; and
- ***supporting*** and ***funding*** convergence research, data collection, data sharing, and solutions implementation.

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converge.colorado.edu/signup

CONVERGE NHERI

CONVERGE

- In 2020 we published an article on CONVERGE in *Frontiers in Built Environment*
- This article synthesizes 20 years of convergence research in an effort to bring that framework to the natural hazards field
- Access the article for free online at: https://www.frontiersin.org/articles/10.3389/fbuil.2020.00110/full

frontiers in Built Environment

ORIGINAL RESEARCH
published: 07 July 2020
doi: 10.3389/fbuil.2020.00110

A Framework for Convergence Research in the Hazards and Disaster Field: The Natural Hazards Engineering Research Infrastructure CONVERGE Facility

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OPEN ACCESS

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Peek L, Tobin J, Adams RM, Wu H and Mathews MC (2020) A Framework for Convergence Research in the Hazards and Disaster Field: The Natural Hazards Engineering Research Infrastructure CONVERGE Facility. Front. Built Environ. 6:110. doi: 10.3389/fbuil.2020.00110

The goal of this article is twofold: to clarify the tenets of convergence research and to motivate such research in the hazards and disaster field. Here, convergence research is defined as an approach to knowledge production and action that involves diverse teams working together in novel ways – transcending disciplinary and organizational boundaries – to address vexing social, economic, environmental, and technical challenges in an effort to reduce disaster losses and promote collective well-being. The increasing frequency and intensity of disasters coupled with the growth of the field suggests an urgent need for a more coherent approach to help guide what we study, who we study, how we conduct studies, and who is involved in the research process itself. This article is written through the lens of the activities of the National Science Foundation-supported CONVERGE facility, which was established in 2018 as the first social science-led component of the Natural Hazards Engineering Research Infrastructure (NHERI). Convergence principles and the Science of Team Science undergird the work of CONVERGE, which brings together networks of researchers from geotechnical engineering, the social sciences, structural engineering, nearshore systems, operations and systems engineering, sustainable material management, and interdisciplinary science and engineering. CONVERGE supports and advances research that is conceptually integrative, and this article describes a convergence framework that includes the following elements: (1) identifying researchers; (2) educating and training researchers; (3) setting a convergence research agenda that is problem-focused and solutions-based; (4) connecting researchers and coordinating functionally and demographically diverse research teams; and (5) supporting and funding convergence research, data collection, data sharing, and solutions implementation.

Keywords: convergence research, natural hazards, disasters, interdisciplinary, transdisciplinary, training, Science of Team Science, research coordination networks

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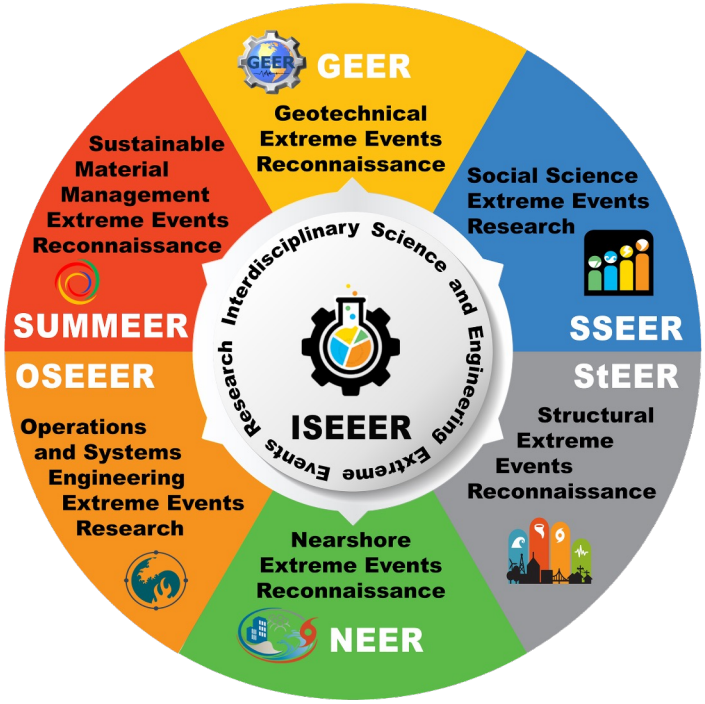
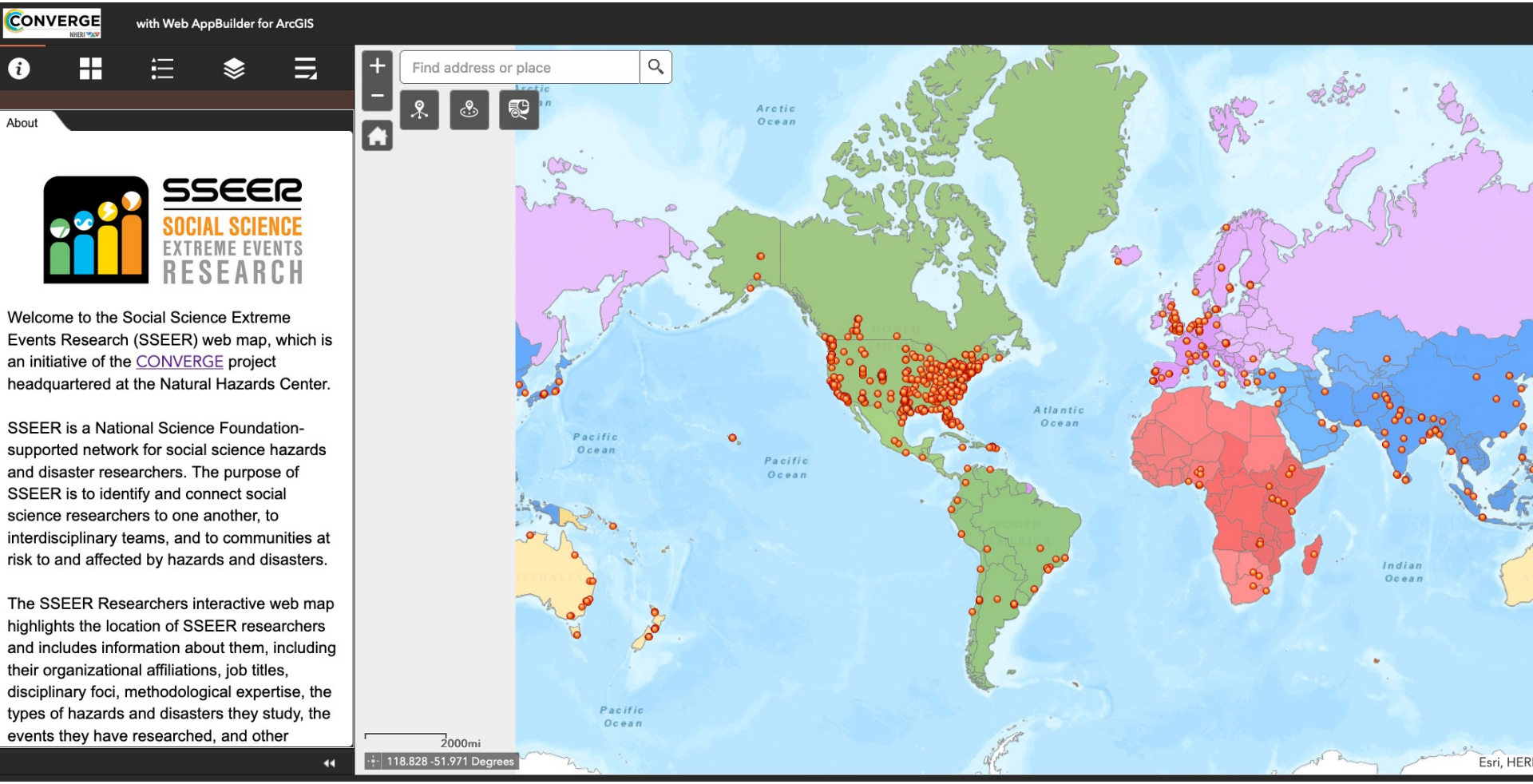
NSF Extreme Events Reconnaissance / Research (EER) Networks

1. Geotechnical Engineering (GEER)
2. Social Sciences (SSEER)
3. Structural Engineering (StEER)
4. Nearshore Systems (NEER)
5. Operations and Systems Engineering (OSEEER)
6. Sustainable Material Management Engineering (SUMMEER)
7. Interdisciplinary Science and Engineering (ISEEER)



Leadership Corps for Natural Hazards Research

SSEER



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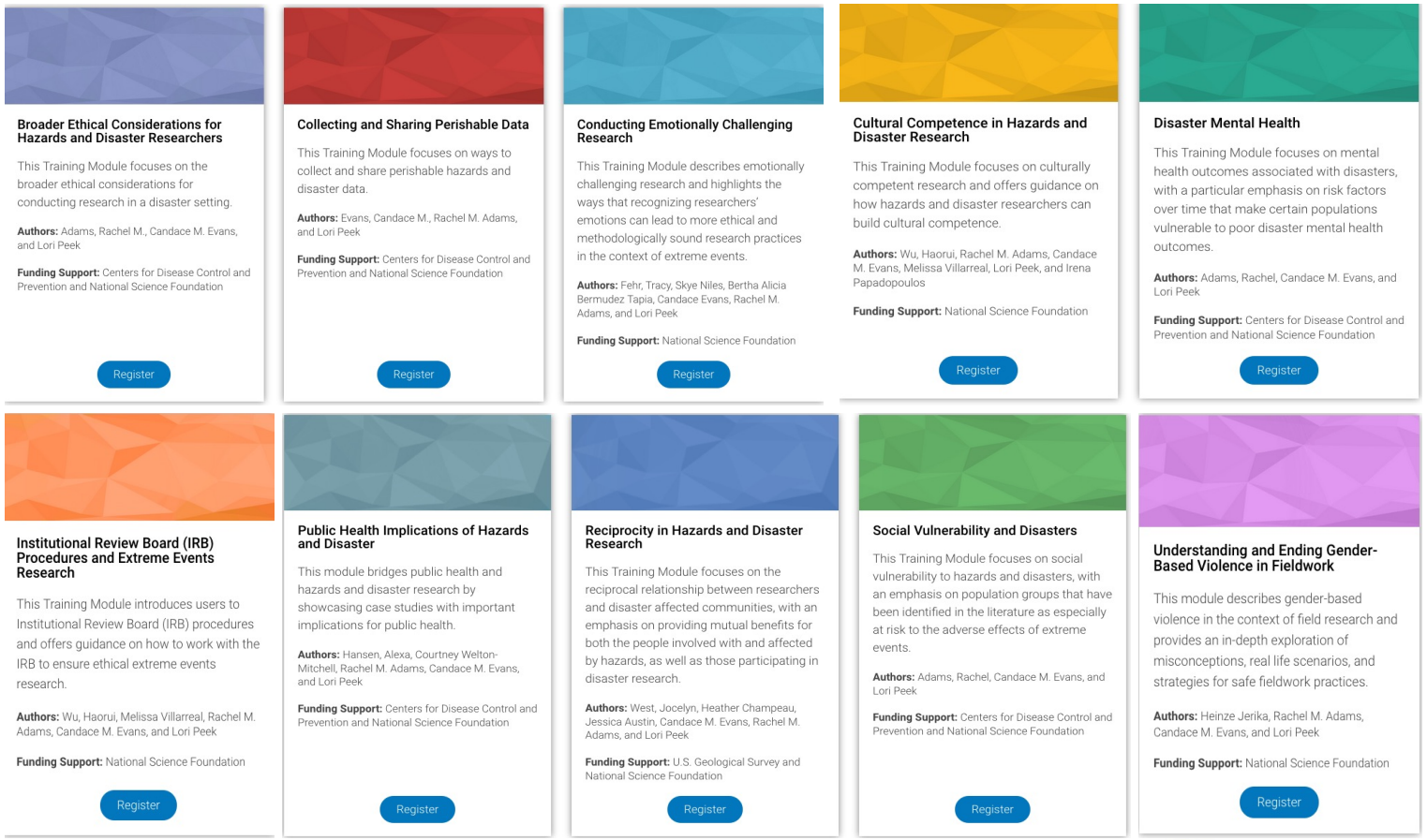
CONVERGE Training Modules

- Free, online courses designed to accelerate the training of diverse hazards and disaster researchers, including students and early career researchers



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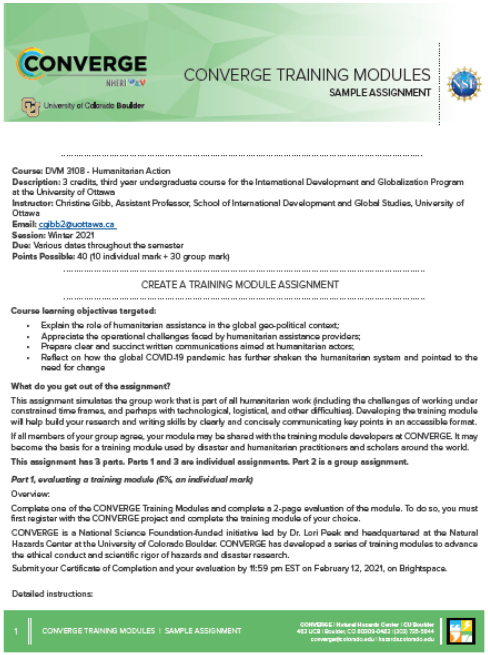
converge.colorado.edu/training-modules

CONVERGE Training Modules

- Worth 1 contact hour of general management training through the International Association of Emergency Managers (IAEM) certification program.
- Assignment bank for course for instructors
- Annotated bibliographies to complement training module



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CONVERGE TRAINING MODULES
SAMPLE ASSIGNMENT

Course: DVM 2108 - Humanitarian Action
Description: 3 credits, third year undergraduate course for the International Development and Globalization Program at the University of Ottawa
Instructor: Christine Gibb, Assistant Professor, School of International Development and Global Studies, University of Ottawa
Email: cgibb2@uottawa.ca
Session: Winter 2021
Due: Various dates throughout the semester
Points Possible: 40 (10 individual mark + 30 group mark)

CREATE A TRAINING MODULE ASSIGNMENT

Course learning objectives targeted:

- Explain the role of humanitarian assistance in the global geo-political context;
- Appreciate the operational challenges faced by humanitarian assistance providers;
- Prepare clear and succinct written communications aimed at humanitarian actors;
- Reflect on how the global COVID-19 pandemic has further shaken the humanitarian system and pointed to the need for change

What do you get out of the assignment?

This assignment simulates the group work that is part of all humanitarian work (including the challenges of working under constrained time frames, and perhaps with technological, logistical, and other difficulties). Developing the training module will help build your research and writing skills by clearly and concisely communicating key points in an accessible format.

If all members of your group agree, your module may be shared with the training module developers at CONVERGE. It may become the basis for a training module used by disaster and humanitarian practitioners and scholars around the world.

This assignment has 3 parts. Parts 1 and 3 are individual assignments. Part 2 is a group assignment.

Part 1, evaluating a training module (6%, an individual mark)

Overview:

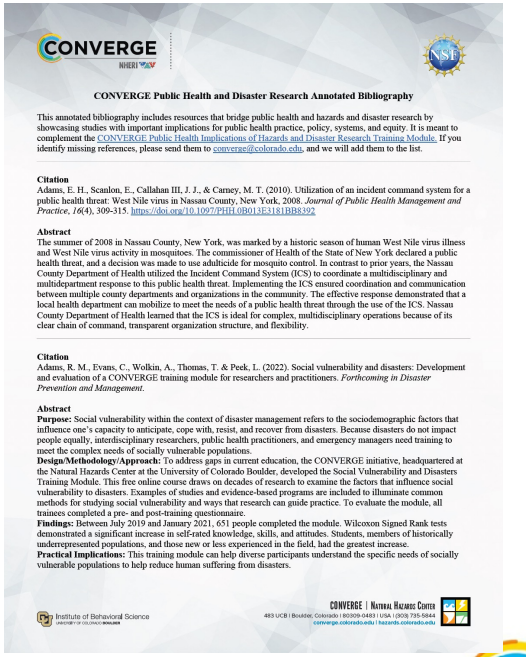
Complete one of the CONVERGE Training Modules and complete a 2-page evaluation of the module. To do so, you must first register with the CONVERGE project and complete the training module of your choice.

CONVERGE is a National Science Foundation-funded initiative led by Dr. Lori Peek and headquartered at the Natural Hazards Center at the University of Colorado Boulder. CONVERGE has developed a series of training modules to advance the ethical conduct and scientific rigor of hazards and disaster research.

Submit your Certificate of Completion and your evaluation by 11:59 pm EST on February 12, 2021, on Brightspace.

Detailed instructions:

1 | CONVERGE TRAINING MODULES | SAMPLE ASSIGNMENT



CONVERGE NHERI

CONVERGE Public Health and Disaster Research Annotated Bibliography

This annotated bibliography includes resources that bridge public health and hazards and disaster research by showcasing studies with important implications for public health practice, policy, systems, and equity. It is meant to complement the CONVERGE Public Health Implications of Hazards and Disaster Research Training Module. If you identify missing references, please send them to converge@colorado.edu, and we will add them to the list.

Citation
Adams, E. H., Scanlon, E., Callahan III, J. J., & Carney, M. T. (2010). Utilization of an incident command system for a public health threat: West Nile virus in Nassau County, New York, 2008. *Journal of Public Health Management and Practice*, *16*(4), 309-315. https://doi.org/10.1097/PHH.0B013E3181BB8392

Abstract
The summer of 2008 in Nassau County, New York, was marked by a historic season of human West Nile virus illness and West Nile virus activity in mosquitoes. The commissioner of Health of the State of New York declared a public health threat, and a decision was made to use adulticide for mosquito control. In contrast to prior years, the Nassau County Department of Health utilized the Incident Command System (ICS) to coordinate a multidisciplinary and multidepartment response to this public health threat. Implementing the ICS ensured coordination and communication between multiple county departments and organizations in the community. The effective response demonstrated that a local health department can mobilize to meet the needs of a public health threat through the use of the ICS. Nassau County Department of Health learned that the ICS is ideal for complex, multidisciplinary operations because of its clear chain of command, transparent organization structure, and flexibility.

Citation
Adams, R. M., Evans, C., Wolkin, A., Thomas, T. & Peek, L. (2022). Social vulnerability and disasters: Development and evaluation of a CONVERGE training module for researchers and practitioners. *Forthcoming in Disaster Prevention and Management*.

Abstract
Purpose: Social vulnerability within the context of disaster management refers to the sociodemographic factors that influence one's capacity to anticipate, cope with, resist, and recover from disasters. Because disasters do not impact people equally, interdisciplinary researchers, public health practitioners, and emergency managers need training to meet the complex needs of socially vulnerable populations.
Design/Methodology/Approach: To address gaps in current education, the CONVERGE initiative, headquartered at the Natural Hazards Center at the University of Colorado Boulder, developed the Social Vulnerability and Disasters Training Module. This free online course draws on decades of research to examine the factors that influence social vulnerability to disasters. Examples of studies and evidence-based programs are included to illuminate common methods for studying social vulnerability and ways that research can guide practice. To evaluate the module, all trainees completed a pre- and post-training questionnaire.
Findings: Between July 2019 and January 2021, 651 people completed the module. Wilcoxon Signed Rank tests demonstrated a significant increase in self-rated knowledge, skills, and attitudes. Students, members of historically underrepresented populations, and those new or less experienced in the field, had the greatest increase.
Practical Implications: This training module can help diverse participants understand the specific needs of socially vulnerable populations to help reduce human suffering from disasters.

Institute of Behavioral Science

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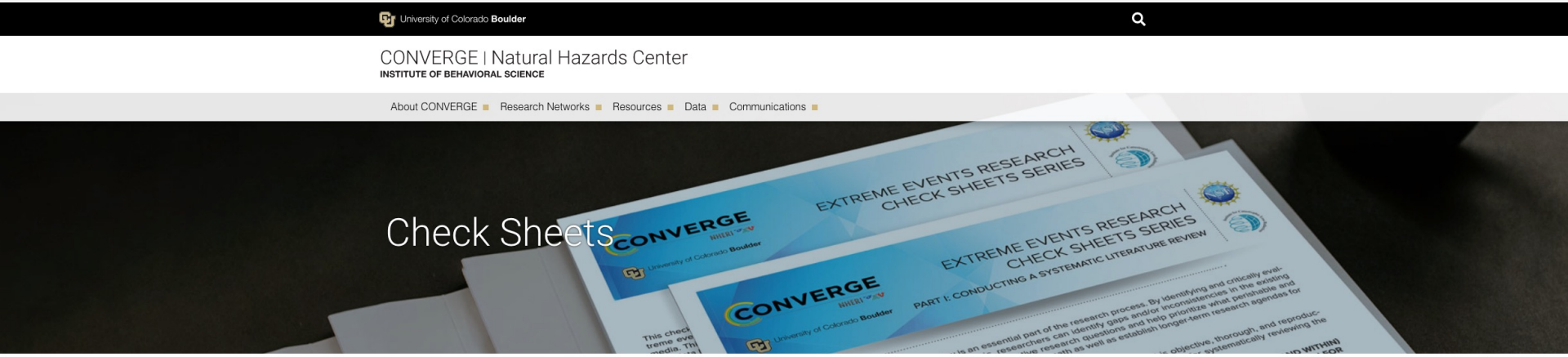
Check Sheets



Resources / Check Sheets

Extreme Events Research Check Sheets Series

These short, graphical check sheets are meant to be used as researchers design their studies, prepare to enter the field, conduct field research, and exit the field. The series offers best practices for extreme events research and includes check sheets for free to the research community.

RESEARCH DESIGN TABLE

PART I: CONDUCTING A SYSTEMATIC LITERATURE REVIEW

PART II: SYSTEMATIC LITERATURE REVIEW TABLE

DON'T FORGET: A CHECKLIST OF THINGS TO BRING TO THE FIELD

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Data Ambassadors

CONVERGE Data Ambassadors

CONVERGE Data Ambassadors have completed a National Science Foundation-supported Publish Your Data! training session. As Data Ambassadors, they have committed to publishing their own data and instruments on DesignSafe, to learning about the CONVERGE and RAPID facilities and their resources, and to sharing their newly attained knowledge with other social and behavioral scientists and colleagues from other allied disciplines in the hazards and disaster field. CONVERGE Data Ambassadors will help usher in a culture shift toward data publication and data and instrument sharing across disciplines.

The following page includes a list of instruments, reports, protocols, and other research materials published by the CONVERGE Data Ambassadors via the DesignSafe Cyberinfrastructure.

Lauren Clay
Associate Professor, Health Administration and Public Health
D'Youville College

Research Instrument Repository:
Clay, L. (2020). "COVID-19 and Social Determinants of Health Data Collection Instrument Repository." DesignSafe-CI. https://doi.org/10.17603/ds2-nay0-j518.

Research Brief:
Clay, L., S. Penta, and A. Silver. (2020). "Risk Perception, Information Seeking, and Protective Actions During COVID-19 Among New Yorkers (May-July 2020)," in A Multi-Wave Study of Risk Perception, Information Seeking, and Protective Action in COVID-19. DesignSafe-CI. https://doi.org/10.17603/ds2-7019-cs31.

Data Report:
Clay, L. S. Rogus, and P. Gadhoke. (2020). "Primary and Secondary Health Impacts of the COVID-19 Pandemic on New Yorkers (May-June 2020)," in National Food Access and COVID Research Team (NFACT) - New York. DesignSafe-CI. https://doi.org/10.17603/ds2-xe2x-xs40.

Alex Greer
Associate Professor, College of Emergency Preparedness, Homeland Security, and Cybersecurity
University at Albany

Research Instruments and Data:
Greer, A., T. Wu, H. Murphy, and R. Chang. (2020). "Survey of Students and Households and Interviews with Key Stakeholders in Oklahoma," in Earthquake Adjustment in Oklahoma. DesignSafe-CI. https://doi.org/10.17603/ds2-dn0z-0111.

Betty Lai
Buehler Sesquicentennial Assistant Professor, Department of Counseling, Developmental, and Educational Psychology
Boston College

Interview Protocol:
Hoskova, B. J. Medzhitova, C. Colgan, B. Liang, and B. Lai. (2020). "Time 1 Interview Protocol on Colleges and COVID-19," in Colleges and the COVID-19 Crisis. DesignSafe-CI. https://doi.org/10.17603/ds2-erzs-j690.

Lori Peek
Professor, Department of Sociology and Director, Natural Hazards Center
Principal Investigator, CONVERGE, SSEER, and ISEEER
University of Colorado Boulder

Dataset:
Peek, L., E. Hines, M. Mathews, J. Gunderson, and H. Wu. (2020). "Global Academic Hazards and Disaster Research Centers Data." DesignSafe-CI. https://doi.org/10.17603/e9wq-qz57.

Research Instruments:
Peacock, W., N. Rosenheim, D. Gu, S. Van Zandt, L. Peek, M. Dillard, J. Tobin, and S. Hamideh. (2020). "Household Survey Instrument, November 26, 2016: Wave 1," in A Longitudinal Community Resilience Focused Technical Investigation of the Lumberton, North Carolina Flood of 2016. DesignSafe-CI. https://doi.org/10.17603/ds2-pmt9-1s33.

Sutley, E., M. Dillard, S. Hamideh, W. Peacock, J. Tobin, L. Peek, K. Seong, A. Barbosa, T. Tomiczek, J. van de Lindt, and D. Gu. (2020). "Household Survey Instrument, January 19, 2018: Wave 2," in A Longitudinal Community Resilience Focused Technical Investigation of the Lumberton, North Carolina Flood of 2016. DesignSafe-CI. https://doi.org/10.17603/ds2-db3h-gy28.

Scoping Literature Review:
Wu, H., L. Peek, M. Mathews, and N. Mattson. (2020). "A Scoping Literature Review: Cultural Competence for Hazards and Disaster Research." DesignSafe-CI. https://doi.org/10.17603/ds2-9vz8-7r76.

Nathanael Rosenheim
Associate Research Scientist and Director of Research, Hazard Reduction & Recovery Center
Texas A&M University

Research Instruments:
Peacock, W., N. Rosenheim, D. Gu, S. Van Zandt, L. Peek, M. Dillard, J. Tobin, and S. Hamideh. (2020). "Household Survey Instrument, November 26, 2016: Wave 1," in A Longitudinal Community Resilience Focused Technical Investigation of the Lumberton, North Carolina Flood of 2016. DesignSafe-CI. https://doi.org/10.17603/ds2-pmt9-1s33.

Rosenheim, N., W. Peacock, M. Perez, and G. Lane. (2020). "Food Retail Survey Instrument," in Food Access Impact Survey for Southeast Texas and Harris County, Texas after Hurricane Harvey. DesignSafe-CI. https://doi.org/10.17603/ds2-aq2k-dy92.

Toolkit:
Rosenheim, N., M. Stanley, C. Goodman, A. Berd, S. Hayes, E. Millard, J. Korukonda, and M. Watson. (2020). "Systematic Literature Review Toolkit." DesignSafe-CI. https://doi.org/10.17603/ds2-3fn5-4b44.

Gavin Smith
Professor, Department of Landscape Architecture and Environmental Planning
North Carolina State University

Research Instrument
Smith, G., O. Vila, and G. Caverly. (2020). "A National Evaluation of State Roles in Hazard Mitigation: Building Local Capacity to Implement FEMA Hazard Mitigation Assistance Grants." DesignSafe-CI. https://doi.org/10.17603/ds2-sjbv-eg87.

Maria Watson
Research Assistant Professor, Department of Landscape Architecture and Urban Planning
Texas A&M University

Research Instruments
Sutley, E., M. Dillard, S. Hamideh, W. Peacock, J. Tobin, L. Peek, K. Seong, A. Barbosa, T. Tomiczek, J. van de Lindt, and D. Gu. (2020). "Household Survey Instrument, January 19, 2018: Wave 2," in A Longitudinal Community Resilience Focused Technical Investigation of the Lumberton, North Carolina Flood of 2016. DesignSafe-CI. https://doi.org/10.17603/ds2-db3h-gy28.

Xiao, Y., M. Watson, J. Helgeson, K. Farokhnia, J. van de Lindt, J. Mitrani-Reiser, E. Sutley, D. Deniz, T. Tomiczek, A. Barbosa, J. Fung, O. Nofal, and M. Koliou. (2020). "Business Survey Instrument, January 19, 2018: Wave 2," in A Longitudinal Community Resilience Focused Technical Investigation of the Lumberton, North Carolina Flood of 2016. DesignSafe-CI. https://doi.org/10.17603/ds2-f9kt-fm93.

Haorui Wu
Assistant Professor, School of Social Work
Dalhousie University

Dataset:
Peek, L., E. Hines, M. Mathews, J. Gunderson, and H. Wu. (2020). "Global Academic Hazards and Disaster Research Centers Data." DesignSafe-CI. https://doi.org/10.17603/e9wq-qz57.

Scoping Literature Review:
Wu, H., L. Peek, M. Mathews, and N. Mattson. (2020). "A Scoping Literature Review: Cultural Competence for Hazards and Disaster Research." DesignSafe-CI. https://doi.org/10.17603/ds2-9vz8-7r76.

H. Tristan Wu
Associate Professor, Department of Emergency Management and Disaster Science
University of North Texas

Research Instrument:
Wu, T., S. Huang, and M. Lindell. (2020). "Household Mail Survey," in 2011 New Zealand and Japan Earthquake Household Response Survey. DesignSafe-CI. https://doi.org/10.17603/ds2-st68-6b42.

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COVID-19 Resources

University of Colorado **Boulder**

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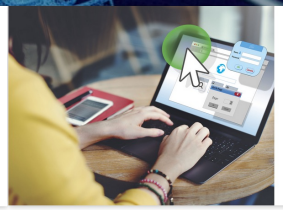
INSTITUTE OF BEHAVIORAL SCIENCE

About CONVERGE ■ Research Networks ■ Resources ■ Data ■ Communications ■

COVID-19 Working Groups

Due to the outpouring of interest from the research community and our mission to advance convergence research for the benefit of humanity, CONVERGE and the Social Science Extreme Events Research (SSEER) Network have funded 90 COVID-19 Working Groups for Public Health and Social Sciences Research.

View Groups



COVID-19 Research Registry

The COVID-19 pandemic underscores the urgent need for coordination, collaboration, and information-sharing among researchers worldwide. We hope those who are studying the human and societal impacts of this crisis will join this effort to build a global registry for public health and social science research.

Learn More

COVID-19 Virtual Forums

CONVERGE virtual forums bring together researchers to coordinate and collaborate after major events. Please check here for upcoming virtual forums and recordings of past forums.

View Forums

COVID-19 Quick Response Research Grants

This is a list of recently funded COVID-19 Quick Response Research. These were awarded by the Natural Hazards Center as part of two distinct special calls for research on this global crisis. Within three months of completing data collection, researchers submit an abstract and 10-page report detailing their preliminary findings. Completed reports are available on the Quick Response Reports page.

View All

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Webinars

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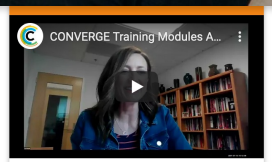
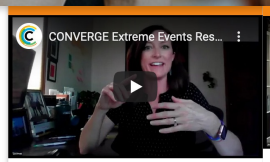
CONVERGE Collecting and Sharing Perishable Data Training Module: A Demonstration Webinar

Aug 6, 2021 - 12 to 12:30 pm MT



Make CONVERGE Training Modules Part of Your College/University Course—Here's How!

Jul 15, 2021 - 2 to 3:15 pm MT

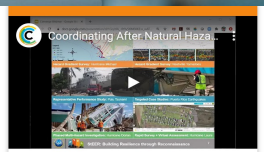


CONVERGE Extreme Events Research Check Sheets

Jun 15, 2021 - 10 to 10:30 am MT

Mobile Data Collection via RApp: Advanced Questionnaires

Dec 11, 2020 - 11 to 11:30 am MT



Coordinating After Natural Hazards to Document the Performance of the Built Environment: The Structural Extreme Events Reconnaissance (StEER) Network

Oct 23, 2020 - 1 to 1:30 pm MT

CONVERGE Conducting Emotionally Challenging Research Training Module: A Demonstration Webinar

Oct 8, 2020 - 2 to 2:30 pm MT

CONVERGE Broader Ethical Considerations for Hazards and Disaster Researchers Training Module: A Demonstration Webinar

Apr 15, 2021 - 10 to 10:30 am MT

CONVERGE Understanding and Ending Gender-Based Violence in Fieldwork Training Module: A Demonstration Webinar

Mar 16, 2021 - 3 to 3:30 pm MT

Publish Your Data! Learn How to Use DesignSafe and Meet the CONVERGE Data Ambassadors

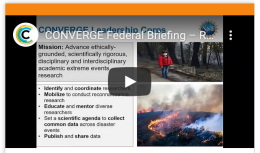
Jan 29, 2021 - 1 to 1:30 pm MT

Collaborating to Learn from Hurricanes: The Nearshore Extreme Events Reconnaissance (NEER) Association

Aug 11, 2020 - 2:30 to 3 pm MT

CONVERGE Institutional Review Board (IRB) Procedures and Extreme Events Research Training Module: A Demonstration Webinar

Jun 25, 2020 - 12 to 12:30 pm MT



CONVERGE Federal Briefing – Rapid Response Disaster Research: NSF-Supported Research Networks and Resources

May 20, 2020 - 10 am to 12 pm MT

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Thank you!

Contact Us at: converge@colorado.edu
Sign Up at: converge.colorado.edu/signup

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