

Understanding Diverse Disciplinary Needs and Incentivizing Data Publication and Reuse

Lori Peek, Ph.D. Professor, Department of Sociology and Director, Natural Hazards Center and CONVERGE University of Colorado Boulder









Natural Hazards Center

Message 1: Find or Develop a Common Repository for Your Data Resources









2018-2020:









Co-developed and extensively pilot tested the first social science and interdisciplinary data model for hazards and disaster field research













University of Colorado Boulder

Symposium on Disaster Data Science



Check for updates

ARTICLE

https://doi.org/10.1057/s41599-023-01831-7 OPEN

Perceived benefits of open data are improving but scientists still lack resources, skills, and rewards

Joshua Borycz ¹², Robert Olendorf², Alison Specht ³, Bruce Grant⁴, Kevin Crowston ⁵, Carol Tenopir ⁶, Suzie Allard ⁶, Natalie M. Rice⁶, Rachael Hu⁷ & Robert J. Sandusky^{8,9}

Addressing global scientific challenges requires the widespread sharing of consistent and trustworthy research data. Identifying the factors that influence widespread data sharing will help us understand the limitations and potential leverage points. We used two well-known theoretical frameworks, the Theory of Planned Behavior and the Technology Acceptance Model, to analyze three DataONE surveys published in 2011, 2015, and 2020. These surveys aimed to identify individual, social, and organizational influences on data-sharing behavior. In this paper, we report on the application of multiple factor analysis (MFA) on this combined, longitudinal, survey data to determine how these attitudes may have changed over time. The first two dimensions of the MFA were named willingness to share and satisfaction with resources based on the contributing questions and answers. Our results indicated that both dimensions are strongly influenced by individual factors such as perceived benefit, risk, and effort. Satisfaction with resources was significantly influenced by social and organizational factors such as the availability of training and data repositories. Researchers that improved in willingness to share are shown to be operating in domains with a high reliance on shared resources, are reliant on funding from national or federal sources, work in sectors where internal practices are mandated, and live in regions with highly effective communication networks. Significantly, satisfaction with resources was inversely correlated with willingness to share across all regions. We posit that this relationship results from researchers learning what resources they actually need only after engaging with the tools and procedures extensively.

¹Vandebilt University, Nashville, TN, USA.² North Carolina State University, Raleigh, NC, USA.³ TERN, University of Queensland, Brisbane, Australia. ⁴Wildener University, Onester, PA, USA.⁵ Syracuse, University, Syracuse, NY, USA.⁹ University of Tennessee, Knowille, TN, USA.⁷ California Digital Library, Oakland, CA, USA.⁸ University of Illinois at Chicago, Ohicago, IL, USA.⁷ Decesseet Robert J. Sandusky.[®]email: pstuabatory:c@ivanderbilt.edu "Social scientists (–0.592) were far less willing to share [data] than researchers in the physical sciences, natural sciences, and information sciences."

"Here the importance of social or community norms is paramount. For social scientists and other similar domain specialties work is more individual, resulting in them being late adopters of the open data concept."

Creating a Culture Shift:

How can we <u>support</u> and <u>incentivize</u> the <u>social science</u> hazards and disaster research community to publish and reuse research protocols, instruments, and data?



Message 2: Offer Interactive Trainings, Templates, and Financial Incentives for Instrument and Data Publication and Reuse





CONVERGE | Natural Hazards Center INSTITUTE OF BEHAVIORAL SCIENCE

converge.colorado.edu/data/

About CONVERGE Research Networks Resources Data Communications



Publish Your Data! Events

Learn more about the Publish Your Data! training sessions for social and behavioral scientists. These events are organized to inform members of the natural hazards research community about possibilities for publishing data, research instruments, protocols, and other materials.

Overview

Event Videos and Documents



Data Ambassadors

CONVERGE Data Ambassadors have completed a Publish Your Data! training session and have published their own data or instruments on DesignSafe. They also share their newly attained knowledge with colleagues in the hazards and disaster field. CONVERGE Data Ambassadors are helping to usher in a culture shift toward data publication and data and instrument sharing across disciplines.

Meet Our Ambassadors

CONVERGE Data Ambassador Checklist

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•••		•	•	•
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Prepare protocols, instruments, data for curation Attend a 3-hour virtual Publish Your Data! training session

Meet w/ Dr. Maria Esteva DesignSafe



Publish a project on DesignSafe "

Share your work (citations, social media, present, etc.)

Fr



\$750 Incentive

1. 1. 1



CONVERGE Data Ambassador Checklist

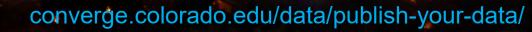
Name: Nathanael Rosenheim

Title and Affiliation: Associate Research Scientist, Texas A&M University

Activity	Date Completed
Read this webpage that details the partnership between the NSF-funded DesignSafe, CONVERGE, and RAPID facilities: <u>https://converge.colorado.edu/data/data_publication</u> .	2020-11-16
Read this webpage on preparing a Data Management Plan: <u>https://converge.colorado.edu/data/data-management</u> . This page includes several tips and insights that will help you to prepare your data for publication.	2020-11-16
Complete the data template in advance of the Publish Your Data! event.	2020-08-24
 Prepare your own data, data collection protocols/reports, and/or research instruments and ensure they are ready for curation during or following the event. These materials will help ensure a comprehensive data publication that can be used and analyzed by future researchers or research teams. If your data involves human subjects, you must provide documentation of your institution's IRB approval. All human subjects data should be properly de-identified based on ethical best practices, institutional requirements, and any other commitments to participants. 	2020-06-18
Carefully review the DesignSafe data curation guidelines (click on the Field Research tab) (https://www.designsafe-ci.org/rw/user-guides/data-curation- publication/), RAPID website (https://rapid.designsafe-ci.org/), and CONVERGE website (https://converge.colorado.edu/) before the meeting so you can familiarize yourself with the research teams, missions, and resources available from these NSF- supported facilities.	2020-11-16

CONVERGE-NSF Award #1841338 | RAPID-NSF Award #1611820 | DesignSafe-NSF Award #152081









University of Colorado **Boulder**

CONVERGE Data Publication Template



Step 4: Select "Add New Project"

Step 5: Add your project title.

* As good practice, your project title should be something that describes your project overall, not simply the same title as the dataset, instrument, or report that you are publishing. These materials should have their own specific names. Your project title should capture the project in a broad sense so that you can add additional research materials as the project expands.

Add Your Project Title Here:

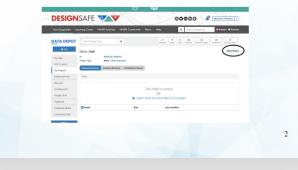
Step 6: Identify the Principal Investigator (PI)

The PI must have an account in DesignSafe. If you have collaborators who should be listed as co-Pls, they need to have an account with DesignSafe. You can also designate people with a DesignSafe account as "members"—people with this distinction can still work within the project but are not listed as Pls. You can also add unregistered members, who will be listed on the publication citation but are unable to edit the project.

Add PI Information Here:

Step 7: Edit the Project

Once the project is created, you will begin editing. Go to the top, right-hand side of the screen and click the "Edit Project" link. A new page will appear where you can add more information. At the top, you will see your title of the project, which you can edit again here.



Step 8: Select the Project Type

- Click "Change Project Type." DesignSafe will offer an overview of each Project Type. You can read these by clicking on a Project Type and clicking the Continue button. Read these carefully to select the most appropriate Project Type. Most social science researchers who have collected original data will likely select "Field Research Project." Then you will have the option to enter the "Field Research Type." In most cases for social science research, you will want to select "Social Science," but "Field Experiment," "Longitudinal Study," and other options are available. Note that the rest of this guide assumes the project type of Field Research.
- If what you are attempting to publish does not involve Field Research, you may also want to select "Other." This category is useful, for example, if you built a novel dataset. See here for one such example of an "Other" publication type of a dataset generated from publicly available websites.

Add Project Type Here:

Step 9: Select the Natural Hazard Types

 Next you will specify the hazard being researched (e.g., earthquake, flood) from a dropdown menu. If you are working with multiple hazards or in a general hazard context, you can click the "Other" option, then type in "Multiple Hazards."

Step 10: Select the Data Type and Facilities

* Here you will review options from a dropdown menu where you will specify the nature or genre of the content. You will also be able to identify whether a specific facility or network, such as CONVERGE or SSEER, supported the effort. All Natural Hazards Center awardees should select "CONVERGE."

Step 11: Add Award Funding Acknowledgement

 Natural Hazards Center awardees should review their award agreements for the appropriate grant # to insert.

Add Award Number(s) Here:

Step 12: Identify Published Referenced Data or Related Work

 This is an opportunity to link out to relevant websites, publications, or other materials relevant to your data or instrument publication.

CONVERGE Data Ambassadors

CONVERGE Data Ambassadors have completed a National Science Foundation-supported Publish Your D Ambassadors, they have committed to publishing their own data and instruments on DesignSafe, to learn RAPID facilities and their resources, and to sharing their newly attained knowledge with other social and b colleagues from other allied disciplines in the hazards and disaster field. CONVERGE Data Ambassadors wi 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 Ambassadors via the DesignSafe Cyberinfrastructure.



Lauren Clav 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." Design /ds2-nay0-j518

Research Brief

Clay, L., S. Penta, and A. Silver. (2020). "Risk Perception, Information Seeking, and Protective Actions During (May-July 2020)," in A Multi-Wave Study of Risk Perception, Information Seeking, and Protective Action in Cl 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 Pandem 2020)," in National Food Access and COVID Research Team (NFACT) - New York. DesignSafe-CI. https://doi.org/



Alex Gree Associate Professor, College of Emergency Preparedness, Homeland Security, and 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 Earthquake Adjustment in Oklahoma. DesignSafe-CI. https://doi.org/10.17603/ds2-dn0z-0111.



Betty Lai Buehler Sesquicentennial Assistant Professor, Department of Counseling, Develo Psychology

Boston College

Hoskova, B. J. Medzhitova, C. Colgan, B. Liang, and B. Lai. (2020). 'Time 1 Interview Protocol on Colleges and 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

Peek, L., E. Hines, M. Mathews, J. Gunderson, and H. Wu. (2020). "Global Academic Hazards and Disaster Res Cl. https://doi.org/10.17603/e9wq-gz57

Research Instruments

Peacock, W., N. Rosenheim, D. Gu, S. Van Zandt, L. Peek, M. Dillard, J. Tobin, and S. Hamideh. (2020). "House November 26, 2016: Wave 1," in A Longitudinal Community Resilience Focused Technical Investigation of the 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 Li "Household Survey Instrument, January 19, 2018: Wave 2," in A Longitudinal Community Resilience Focused 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 DesignSafe-CI. https://doi.org/10.17603/ds2-9vz8-7r76.

✓ 37 Trainees

- ✓ 16 Data Ambassadors
- ✓ \$750 Awards
 - DesignSafe Publications w/ Permanent DOIs:
 - 16 Datasets
 - **19** Research Instruments
 - 13 IRB Protocols
 - 9 Reports and Research Briefs
 - **2** Scoping Literature Reviews
 - 1 Poster
 - 1 Toolkit
- ✓ 823 Downloads and 38,365 Views

converge.colorado.edu/data/data-ambassadors/



Research Instruments

Peacock, W., N. Rosenheim, D. Gu, S. Van Zandt, L. Peek, M. Dillard, J. Tobin, and S. Hamideh. (2020). November 26, 2016: Wave 1," in A Longitudinal Community Resilience Focused Technical Investigation 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 A and Harris County, Texas after Hurricane Harvey. DesignSafe-CI. https://doi.org/10.17603/ds2-aq2k-

Toolkit:

Rosenheim, N., M. Stanley, C. Goodman, A. Berd, S. Hayes, E. Millard, J. Korukonda, and M. Watson. (2 Toolkit.* DesignSafe-CI. https://doi.org/10.17603/ds2-3fn5-4b44.

Gavin Smith



Professor, Department of Landscape Architecture and Environmental Plan North Carolina State University

Smith, G., O. Vila, and G. Caverly. (2020). "A National Evaluation of State Roles in Hazard Mitigation: B FEMA Hazard Mitigation Assistance Grants." DesignSafe-Cl. https://doi.org/10.17603/ds2-sjbv-eg8



Maria Watson Research Assistant Professor, Department of Landscape Architecture and 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. v "Household Survey Instrument, January 19, 2018: Wave 2," in A Longitudinal Community Resilience F 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. 1 and M. Koliou. (2020). "Business Survey Instrument, January 19, 2018: Wave 2," in A Longitudinal Com Investigation of the Lumberton, North Carolina Flood of 2016. DesignSafe-CI. https://doi.org/10.176/



Haorui Wu Assistant Professor, School of Social Work Dalhousie University

Peek, L., E. Hines, M. Mathews, J. Gunderson, and H. Wu. (2020). "Global Academic Hazards and Disa Cl. https://doi.org/10.17603/e9wq-gz57.

Scoping Literature Review:

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

H. Tristan Wu

Associate Professor, Department of Emergency Management and Disaste University of North Texas

Wu, T., S. Huang, and M. Linde DesignSafe-CI. https://doi.or

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

				- Latra
	Call 1: Weather Ready Research		5	
	Call 2: Instrument and Data Publication			
	Call 3: Tornado Ready Research			SXIC
	Call 4: Wildfire Ready Research			RIE
Home	Special Calls Awards	Reports - Webinars - Rese	search Resources -	

The Natural Hazards Center—with support from the National Oceanic and Atmospheric Administration (NOAA) Weather Program Office and the National Science Foundation—has issued six special calls for <u>Weather Ready Research</u> through our **Weather Ready Research Award Program**.



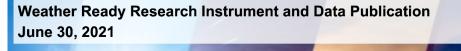


Special Call for Weather Ready Research Instrument and Data Publication

\$1,250 to \$2,500 Awards

- Jointly reviewed by Natural Hazards Center researchers and NOAA scientists. Priority was given to data and materials focused on <u>weather</u> <u>related research</u>, including floods, hurricanes, extreme temperatures, wildfire, and more.
- 15 Projects Funded, 13 Datasets, 21 Research Instruments, 11 Protocols, 5 Reports Published on <u>DesignSafe</u>
- 509 Downloads and 9,061 Views
- Project Descriptions and DOIs: hazards.colorado.edu/research/weather-ready/instrument-and-data-publication







Next Steps for the Weather Ready Award Program Recipients and Upcoming Deadlines:

- 1. Prepare your own data, data collection protocol/report, and/or research instrument and ensure relevant material(s) are ready for curation.
- 2. Work with Dr. Maria Esteva to publish your project, data, and/or data collection instrument or protocol. You can sign up for an appointment at: <u>https://signup.com/go/MkHJzWd</u>.
- 3. Upon publication of your work, please add the full citation and DOI to the Award Checklist and submit to the Natural Hazards Center no later than: **October 8, 2021** at: haz.research.awards@colorado.edu.



The Weather Ready Research Award program is based on work supported by the National Science Foundation (NSF Award #1635593) through supplemental funding from the National Oceanic and Atmospheric Administration (NOAA) Weather Program Office. Any opinions, findings, conclusions, or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of NSF, NOAA, or the Natural Hazards Center.

Message 3: Engage Members of the Community—researchers, students, research participants, data librarians, journal editors, funders—EVERY Step of the Way





Workshop on Open Data and Reuse in Social Science Weather Research



EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF SCIENCE AND TECHNOLOGY POLICY WASHINGTON, D.C. 20502

August 25, 2022

MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES

FROM: Dr. Alondra Nelson Audu-Musin Deputy Assistant to the President and Deputy Director for Science and Society Performing the Duties of Director Office of Science and Technology Policy (OSTP)

SUBJECT: Ensuring Free, Immediate, and Equitable Access to Federally Funded Research

This memorandum provides policy guidance to federal agencies with research and development expenditures on updating their public access policies. In accordance with this memorandum, OSTP recommends that federal agencies, to the extent consistent with applicable law:

- Update their public access policies as soon as possible, and no later than December 31^{at}, 2025, to make publications and their supporting data resulting from federally funded research publicly accessible without an embargo on their free and public release.
- Establish transparent procedures that ensure scientific and research integrity is maintained in public access policies; and,
- 3. Coordinate with OSTP to ensure equitable delivery of federally funded research results and data.

1. Background and Policy Principles

Since February 2013, federal public access policy has been guided by the Memorandum on Increasing Access to the Results of Federally Funded Research (2013 Memorandum).¹ Issued by the White House Office of Science and Technology Policy (OSTP), the 2013 Memorandum directed all federal departments and agencies (agencies) with more than \$100 million in annual research and development expenditures to develop a plan to support increased public access to the results of federally funded research, with specific focus on access to scholarly publications and digital data resulting from such research.

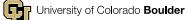
Nearly ten years later, every federal agency subject to the 2013 Memorandum has developed and implemented a public access policy in accordance with its guidance ² As a result, the American public has experienced great benefits: more than 8 million scholarly publications have become accessible to the public. Over 3 million people read these articles for free every day. The 2013 federal public access policy set the stage for a paradigm shift away from research silos and

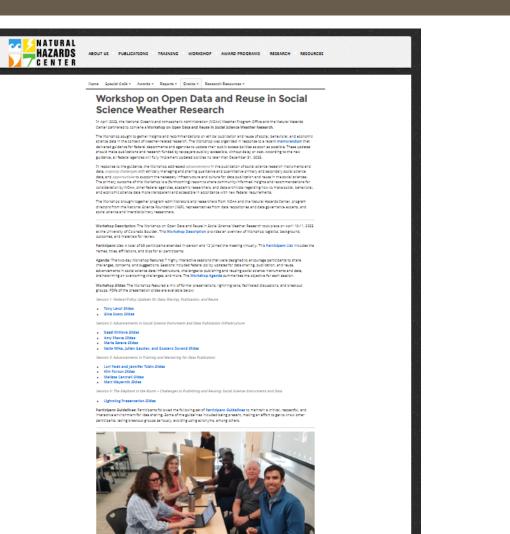
1 See the 2013 Memorandum:

https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf ³ See the 2021 OSTP Public Access Congressional Report <u>https://www.whitehouse.gov/wp-</u> content/uploads/2022/02/2021 Public-Access-Congressional-Report OSTP_pdf ⁶⁶Scientific **data** underlying peer-reviewed scholarly publications resulting from federally funded research should be made **freely available and publicly accessible** by default at the time of publication..."









Warkshap Planning Cammittaes The following Ind Vitauls from NGAA's Warcher Program Office (Dira Sozca, Altan Agester, Janathan Nors, and Cassandra Chiver-Williams) and from the Narural Hasaris Center (Lori Pest, Jennifer Tobin, and Nary Angelias Patring' environed and angestate Office meeting.

Questions should be directed Lori.Peek@colorado.edu or Gina.Sosco@nosa.gov.

2023 | 🧕 👫



Final Report

Workshop on Open Data and Reuse in Social Science Weather Research

9 key observations;21 recommended actions





University of Colorado Boulder

THANK YOU

Questions? Contact: Lori Peek, Ph.D. Lori.Peek@Colorado.edu

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