



DESIGNSAFE-CI

A NATURAL HAZARDS
ENGINEERING COMMUNITY



A Cyberinfrastructure for Natural Hazards Research



Tim Cockerill, PhD: Deputy Project Director

Texas Advanced Computing Center, Univ of Texas at Austin

PI: Ellen M. Rathje, PhD, PE, F.ASCE

*Janet S. Cockrell Chair in Engineering
Dept. of Civil, Arch., and Env. Engineering
University of Texas at Austin*



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What is DesignSafe?

- A web-based research platform that enables transformative research to protect human life and reduce damage during natural hazard events

DesignSafe Vision

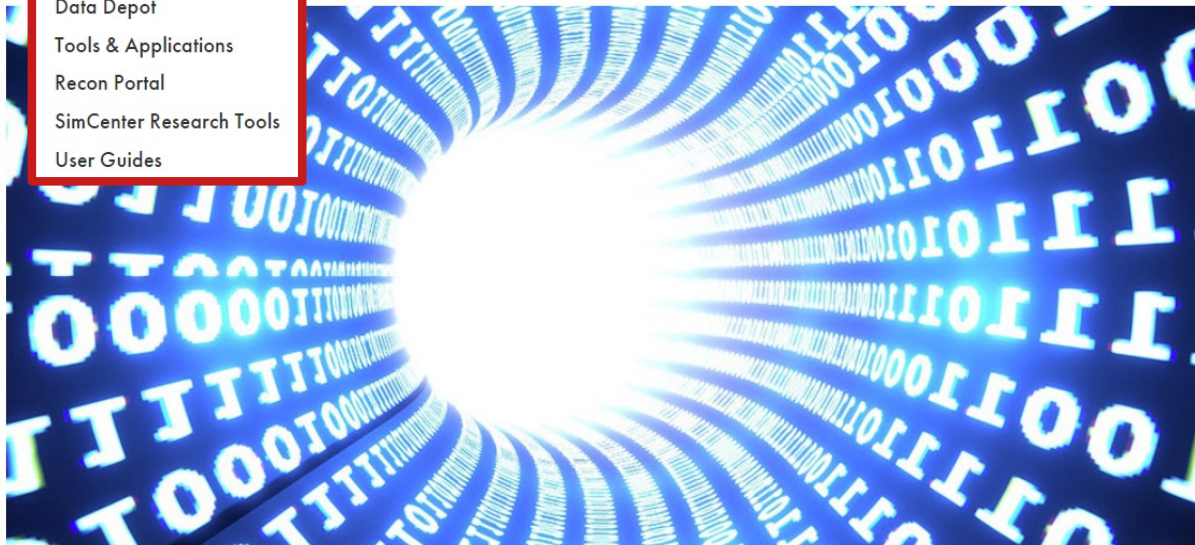
- A cyberinfrastructure (CI) that is an integral part of research discovery
 - Provide a platform for data sharing/publishing
 - Enable research workflows and access to high performance computing (HPC)
 - Deliver cloud-based tools that support the analysis, visualization, and integration of diverse data types
- Amplify and link the capabilities of natural hazards researchers in the US and abroad



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- Data Depot
- Tools & Applications
- Recon Portal
- SimCenter Research Tools
- User Guides



INAUGURAL DESIGNSAFE DATASET AWARDS

Data Impact

Explore newly published datasets and learn how researchers are reusing data.

[READ THE IMPACT REPORT](#)

Training & Events

DECEMBER 15, 2020

Third Planning Meeting of the NHERI and EUCENTRE Foundation Research Collaboration

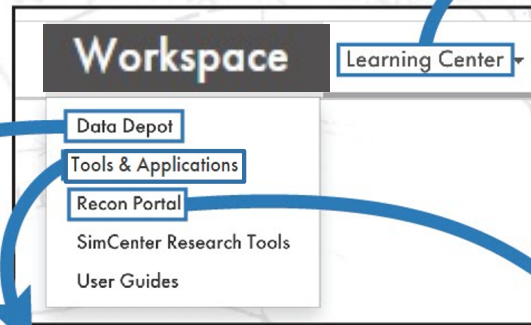
DECEMBER 16, 2020

4th NHERI-NIED/E-Defense Research Collaboration Meeting

DECEMBER 17, 2020

Leveraging DesignSafe with TAPIS





DesignSafe Tutorials

NEW Leveraging DesignSafe with TAPIS
December 17, 2020

- Watch Tutorial

Best Practices to Enhance the Quality, Discoverability and Re-Use Potential for Post-Event Reconnaissance Data
November 11, 2020

- Watch Tutorial
- Presentation Slides

What's New in DesignSafe
September 17, 2020

- Watch Tutorial

DATA DEPOT

Find in Published Projects

Add

My Data
My Projects
Shared with Me
Box.com
Dropbox.com

Publication Type
☐ Experimental ☐ Simulation ☐ Hybrid Simulation

Project Title
Collaborative Research: Development, experimental validation and case studies for the next generation of landslide tsunami models for coastal hazard mitigation (Simulation)

TOOLS & APPLICATIONS

Learn About the Workspace.

Simulation [7] Visualization [8] Data Processing [2] Partner Data Apps [5]

ADCIRC clawpeak Dakota LS-DYNA



Recon Portal

Learn more about contributing.

Show filter options

2021 M 6.2 Sulawesi Indonesia Earthquake
Majene Sulawesi Indonesia
2021-01-15

2020 M 6.4 Petrinja Croatia Earthquake
Petrinja Croatia



Real time collaboration
during a hazard event
via Slack

DesignSafe-CI ▾



- gradworkshop-fa2016
- hpc-use-case-team
- # hurricane-barry-2019
- # hurricane-delta-2020
- # hurricane-dorian-2019
- # hurricane-florence-2...
- # hurricane-harvey-20...
- # hurricane-irma-2017
- # hurricane-laura-2020
- # hurricane-michael-2...
- # hurricane-sally-2020
- irma-structural
- iseeer
- # iseeer-community
- # jupyter
- leadership-corps
- ls-dyna

hurricane-sally-2020 ▾

80

September 15th, 2020 ▾



Forrest Masters 9:51 PM

T1 in suburban terrain

File from iOS ▾



Brian Phillips 10:03 PM

FCMP T1 at Jonnie Sims Park
(30.2751521, -87.6956365)



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Project ID	Project Title	PI	Last Modified
PRJ-2440	Ridgecrest, CA earthquake, July 4, 2019	Scott Brandenburg	9/11/19 8:56 AM
PRJ-2531	TxDoT - Seismic Vulnerability and Post-Event Actions	Patricia Clayton	8/29/19 1:36 PM
PRJ-1716	NHERI TallWood Project_Task 4a	Shiling Pei	8/29/19 9:31 AM
PRJ-1437	Simulation Test Project	Ellen Rathje	8/28/19 2:31 PM
PRJ-2466	DesignSafe-QuakeCoRE Cyberinfrastructure Workshop	Ellen Rathje	8/27/19 2:53 AM
PRJ-1729	NHERI@UTexas Nonintrusive Sinkhole 3D-Imaging Workshop	Kenneth Stokoe	8/21/19 10:34 AM
PRJ-2504	Vorticity-Advection-RODSEX experiment	Steve Elgar	8/19/19 1:27 PM

My Projects: A space to share files/data/results with collaborators and to eventually publish for public use



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Community Data

Help

PRJ-2363 | SOIL-FOUNDATION-STRUCTURE INTERACTION EFFECTS ON THE CYCLIC FAILURE POTENTIAL OF SILTS AND CLAYS

PI **Brandenberg, Scott**
CoPIs **Stewart, Jonathan**
Project Type **Experimental**
Keywords **Cyclic Softening, Fine-Grained Soil, Soil-Foundation-Structure Interaction**

Earthquake-induced ground failure has resulted in billions of dollars of damage during recent earthquakes exhibiting either "sand-like" or "clay-like" behavior with respect to strength loss during earthquakes. Soils, which are less well understood than "sand-like" soils. Cyclic failure of fine-grained soils are and not in the free-field soils away from the structures, indicating that soil-foundation-structure interaction in centrifuge model testing to study cyclic failure of fine-grained soils beneath structures. This repository contains all of the experimental measurements and metadata required for users to make sense of the data.

[View Data Diagram](#)

Experiment | **Centrifuge Testing on Kaolinite Clay - Test UCLA JZB02**

Experiment Type **Centrifuge**
Authors **Buenker, Jason; Brandenberg, Scott; Stewart, Jonathan**
Experimental Facility **Center For Geotechnical Modeling, UC Davis**
Equipment Type **9m Radius Dynamic Geotechnical Centrifuge**
Date of Experiment **10-24-2018 — 01-26-2019**
Date of Publication **01-09-2020**
DOI [Citation](#) **10.17603/ds2-jpwh-nq72**
License(s) **Open Data Commons Attribution**

This experiment tested three structures resting on fine-grained soil consisting of non-plastic sequence of earthquake ground motions was applied to the model container. Measurements bending strain, and axial strain.

[Report | Data Processing](#)

[Report | Data Processing](#)

[Report | Digital Data Report \(JZB02\)](#)

[Model Configuration | Centrifuge Model \(JZB02\)](#)

[Sensor Information | Centrifuge \(JZB02\)](#)

[Event | CPT \(JZB02\)](#)

[Event | Fast Data from Spin 2 \(Dynamic Shaking Applied\)](#)

Data collected at 5000 Hz during shaking

- ☐ [01162019@082639@110817@77.0rpm.bin](#)
- ☐ [01162019@082639@112208@77.0rpm.bin](#)
- ☐ [01162019@082639@113803@76.8rpm.bin](#)
- ☐ [01162019@082639@115034@76.9rpm.bin](#)
- ☐ [01162019@082639@122026@77.0rpm.bin](#)
- ☐ [01162019@082639@125704@77.0rpm.bin](#)



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DesignSafe Data Models



Structured, yet **flexible**, data models for different types of research

-  **Experimental Project**
For physical work, typically done at an experimental facility or in the field.
-  **Simulation Project**
For numerical and/or analytical work, done with software.
-  **Hybrid Simulation Project**
For work using both physical and numerical components.
-  **Field Research Project**
For work done by observation in areas affected by a natural hazard.
-  **Other Project**
For work other than the project types above.



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Supporting
integrated
interdisciplinary
datasets

PRJ-1234 | Hurricane Michael Structural Damage And Population Resilience [Download Dataset](#)

Project PI(s) [Peek, Lori; Wartman, Joseph](#)

Keywords Hurricane, Reconnaissance, Damage Assessment, Interviews, Children, Shelters

Publication Type [Field Research / Engineering / Geosciences / Social Sciences](#)

Natural Hazard Event Hurricane Michael | Florida | 10/7/2018 | [Lat 30.455690 Long -97.813780](#)

Event Type Hurricane, Storm Surge, Flood

This interdisciplinary social science and engineering data set includes damage assessment data collected five weeks after Hurricane Michael, as well as survey, interview, and observational data collected with parents and their children. This data may be of special interest to those seeking to understand the connections between damage to the built environment and associated social disruptions.

Documents Collection | Virtual Reconnaissance ☒

Mission | Mexico Beach - RAPID ☒

Date(s) of Mission 11/11/2018 - 11/15/2018

Author(s) [Hamideh, Sara; Huang, Shih-Kai; Sutley, Elaine; Fischer, Erica; Esnard, Ann-Margaret; Lyles, Ward; Merdjanoff, Alexis; Meyer, Michelle](#)

Site Location North Lake Estates | [Lat 30.455690 Long -97.813780](#)

Date of Publication 11/25/2018

DOI [Citation](#) 10.17603/ds2-z4hp-mv28

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During this initial wave, the research team collected damage assessment data in two neighborhoods, as well as surveyed and interviewed parents and children who were displaced from those neighborhoods. The intent is for the team to return for two to three more waves of data collection over the coming year.

Research Planning Collection | RAPID Team Preparation ☒

Engineering/Geosciences Collection | Water Tower ☒

Engineering/Geosciences Collection | Blue Beach Area ☒

Engineering/Geosciences Collection | Panama City to Mexico Beach ☒

Research Planning Collection | Interviewer Preparation ☒

Social Sciences Collection | Interviews & Observations at the Shelter - Children ☒

Social Sciences Collection | Interviews, Surveys, & Observations at the Shelter - Parents ☒

Organizational Structure

Mission: A group of data collections that are associated with a common goal, location, or time

Collection: Data grouped together based on a shared purpose in a project or mission.



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Make ****your**** data count!

*Make your research re-producible and
your data re-usable*



- **Formally publish** data sets in stable data repositories
 - Include data processing scripts, visualizations, etc.
- Data needs a permanent, **digital location (DOI)** not just a URL
 - List curated data sets on your CV, just like papers
- Cite data publication **in your reference list** of your paper using DOI, citation language as indicated in DesignSafe

References

provided here. Additionally, the probabilistic approaches described in this paper are implemented as executable Jupyter notebooks (Saygili 2018a, b). These notebooks can be accessed in the Data

Saygili, G., Rathje, E., and Wang, Y. (2018a). "Probabilistic seismic hazard analysis for the sliding displacement of rigid sliding masses [Data set]." Designsafe-CI (<https://doi.org/10.17603/ds22d6k>)



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Curation Assistance

- Curation and publication guidelines under **User Guides**
 - <https://www.designsafe-ci.org/rw/user-guides/data-curation-publication/>
- Data transfer methods
 - <https://www.designsafe-ci.org/rw/user-guides/data-transfer-guide/>
 - Web browser/Dropbox/etc (smaller uploads), Globus, Cyberduck
- Virtual Curation Office Hours
 - DesignSafe Data Curators: Maria Esteva and Mahyar Sharifi
 - Tuesday and Thursday at 1 pm Central (or by appt)
 - <https://www.designsafe-ci.org/learning-center/training/>



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