<u>NHERI Council Monthly Meeting No. 12, Y-8</u> June 6, 2024 2:00 – 3:00 PM, Eastern (11:00 to Noon, Pacific)

NHERI Council Meetings

Title: NHERI Council - Spring 2024

Location: https://DesignSafe-ci.zoom.us/j/95929967866

When: June 6, 2:00 to 3:00 PM Eastern

Attending:

- Oregon State University: Dan Cox (EF Dir.) and Pedro Lomonaco (Fac. Dir.) Hinsdale
- University of California, Berkeley: Matt DeJong (Co-Dir.), and Matt Schoettler (Assoc. Dir. Ops), Stanford University: Greg Deierlein (Co-Dir), SimCenter
- University of California, Davis: Jason DeJong (EF Dir) and Dan Wilson (Assoc. Dir.) CGM
- University of California, San Diego: Joel Conte (EF Dir.,) LHPOST
- University of Colorado Boulder: Lori Peek (Dir., CONVERGE)
- University of Florida: Jennifer Bridge (EF Dir. and Council Chair) Powell Lab
- University of Texas at Austin: Ellen Rathje (CI Dir.) and Tim Cockerill (Dep. Proj. Dir.) DesignSafe-CI)
- University of Texas at Austin: Ken Stokoe (EF Dir.), Tricia Clayton (CoPi), and Sungmoon Hwang (syongmoon@utexas.edu) (Operations Manager) Texas Mobile Equipment Facility
- University of Washington: Joe Wartman (EF Dir. and Council Vice-Chair) and Jeff Berman (CoPI and Fac. Manager) RAPID
- National Science Foundation: Joy Pauschke (Prog. Dir, NHERI)
- Purdue University: Julio Ramirez (NCO Dir., Council Secretary), JoAnn Browning (NCO ECO Leader), and Dan Zehner (NCO Sch./Ops. Coord.)
- Florida International University: Arindam Chowdhury (EF Dir.), Ioannis Sizis (CoPI) and Steve Diaz (Site Operations Manager) WOW
- Lehigh University: Jim Ricles (EF Dir.), Liang Cao (<u>lic418@lehigh.edu</u>), Joe Saunders, (Facility Manager)
- Guests: Marti LaChance (NCO media manager) and Robin Nelson (NCO ECO), Hedda Prochaska (DesignSafe-CI), and Matt Stelmaszek (DesignSafe-CI)

Minutes

1. (5 min) Attendance and introductions (All)



Guests: Marti LaChance (NHERI NCO Media Manager) and Matt Stelmaszek (DesignSafe-CI) attended to participate in the discussion during Item 3c.

- (5 min) Review and Approval of Minutes of 5/02/24 Meeting No. 11 in Y-8 (Joe Wartman.)
 Minutes from the May meeting reviewed and approved as distributed.
 Approved Minutes posted at: https://www.designsafe-ci.org/facilities/nco/governance/nheri-council/
- 3. (25 min) Ongoing Business -

a. (5 min) Brief Post Summit Update (Julio Ramirez, Jenn Thornhill)

Julio and Jenn updated the Council and shared a message from Dan Cox summarizing the closing activities:

- 1. vibrant disaster research community, evidenced by excellent attendance and participation.
- 2. advances in basic research are being enabled by the NHERI infrastructure (would extremely difficult or in some cases not possible without NHERI);
- 3. the NHERI research is leading to impact including:
 - a. direct impact on fundamental knowledge
 - b. codes and standards and other technology like decision-support tools
 - c. impacting the way in which we do research collaborative, open-source, data-sharing, interdisciplinary, community-based in some cases,
- 4. strong links with other federal agencies (NIST, FEMA, etc.) for national-level impact
- 5. growing need to consider wider range of hazards, including climate change
- 6. growing need to increase scale (from building scale to community scale)

Some more nuts-and-bolts things about the Summit:

- Meeting a university campus was an overall positive. Shelby and Allison and their team at U MD were amazing. Most people I talked with viewed visiting another university campus to be a plus.
- Meeting near DC made it much easier to attract a large number of NSF personnel, including directorate of Engineering and <u>Directorate for Technology, Innovation and Partnerships (TIP)</u>
- Hard to say whether I'd prioritize a university campus vs. DC-area. Probably I'd go with DC-area, and there are several other DC-area universities that we can probably do both in the future.
- Meeting in May: Busy time of year for many people. We didn't want to compete with the Summer Institute in June or 'hurricane season' (summer/fall) but might need to consider dates during this time.
- Excellent turnout for posters. A few people recommended having two separate sessions to have 'half presenting/half visiting'.
- Lightning talks were well received. Took a fair amount of time to meet with each one to give feedback, but speakers seemed to appreciate it.
- Day 2 breakout sessions seemed to have 'something for everyone'. Very 'bottom up' in terms of how each session was organized. Allowed room for the students to self-organize their own session
- Potentially add a 'Day 3' or combine with SimCenter symposium to provide more outlet for research (parallel technical lightning talks)

I didn't hear about the Day 3 workshop, so might be good to ask Matt if they can give a brief update.

Just my opinion, but it would be great if the Summit can be rolled into the next solicitation rather than request a supplement each time, although Joy was incredibly supportive each time. NSF really turned out for this – several ECI and HDBE program managers, Susan from ENG, Danielle from TIP . . . it was great to have them.

Jenn Thornhill is returning from travel on June 5 and may be able to attend and could potentially provide a few updates (number of attendees, no. of travel awards, posters, etc.) and the timeline for user surveys, etc.

For the Summit write up, Jennifer is contacting the session chairs directly to provide input to the report. We're envisioning a more streamlined report compared to what we did last time.

In general, though, it would be nice to hear from those who attended to get their overall impressions and how this could be improved in the future.

Action Item: Jenn Thornhill will be invited to join on July 11 or a convenient future Council meeting to provide updates on the number of attendees etc.

b. (10 min) United Nations Science Summit Update (Joe Wartman, Julio Ramirez)

Julio updated the Council about the status of the request for a session at the September 10-27, 2024, Science Summit UNGA 79 (https://sciencesummitunga.com/). The material used to request the session is attached to the Minutes. The session was accepted, and it could be held in-person, hybrid or virtual. After some discussion regarding the format, the Council expressed preference for a virtual only format based on impact.

Several additional comments were offered:

Jason: collect videos of all the presentations and organize them in a coherent way to maximize impact. Presentations should describe the facility and impact of the work conducted.

Joe W.: note global impact of NHERI.

Action Items: Julio as the convenor, will request virtual format and set it up on the Science Summit website. A planning committee from the Council was formed to work on this effort and report back to the Council. The planning committee consists of: Julio Ramirez, Joe Wartman, Jason DeJong and Ellen Rathje. Additional members can be added at any time. The planning committee will report at the next Council Meeting.

c. (10 min) New NHERI logos discussion (Matt Stelmaszek, Marti LaChance, Joe Wartman)

Matt received additional feedback from the Council regarding the new logos. The facilities noted that the capabilities such as Large Shake Table, Mobile Laboratory are not apparent in the logos (see figure below). He indicated that the comments received would be discussed with NSF.

Action Item: Matt will be invited to join at a future meeting after his exchange with NSF and report back to the Council.

	NHERI 🕬	
NETWORK COORDINATION		
EDUCATION & COMMUNITY OUTREACH		

4. (15 min) New Business

a. (3 min) Thanks to Joe Wartman for his service as chair of the Council

The Council members present extended their appreciation and thanked Joe Wartman for his outstanding service as Council chair and vice-chair.

b. (2 min) Council new officers (last term): Dan Cox (chair), Julio Ramirez (secretary)

Dan Cox became the new chair for the term from July 1, 2024, to June 30th, 2025. Julio will continue as Secretary for the same period.

c. (10 min) Election of new Council vice-chair (one-year term)

Ellen Rathje was nominated by Julio and elected as vice-chair for the term July 1, 2024, to June 30th, 2025.

5. Adjourn

The meeting adjourned at 3:00 PM Eastern. Steve Diaz moved, and Jason DeJong seconded the motion to adjourn.

Science Summit at UN General Assembly Science Summit at the 79 United Nations General Assembly, September 2024

NHERI Session Proposal

Title (up to 50 words): The Natural Hazards Engineering Research Infrastructure (NHERI): Enabling Science and Partnerships in Support of the UN 2030 Agenda for Sustainable Development

Summary (up to 500 words): Since 2016, the U.S. National Science Foundation (NSF) has supported Natural Hazards Engineering Research Infrastructure (NHERI) network to provide access to researchers from around the world to world-class experimental facilities and computational resources. NHERI user-scientists become part of a community that values interdisciplinary collaboration, open sharing of data and methods, inclusive and equitable research, mentorship of early career researchers, and development of the next generation of hazards experts. This cultural shift towards convergent, multi-hazard research that NHERI has helped catalyze has created a strong and engaged community of researchers that are wellpositioned to generate effective solutions that contribute to providing a safe and secure civil infrastructure and communities by helping prevent natural hazards from becoming national disasters. In this session, the audience will be informed about NHERI's capabilities to support research and collaboration in looking for solutions to improve the resilience and sustainability of civil infrastructure and enhance the safety and security of communities in support of the UN SDGs and Agenda 2030. Information will be provided on how the community can participate and leverage national and international partnerships to extend the reach of their research and the impact of its outcomes.

Theme: Security

Abstract (up to 2000 words): The target theme for this session is enhancing community resilience and sustainability through robust civil infrastructure that can withstand natural hazards, including extreme events exacerbated by climate change. These efforts directly support the UN Sustainable Development Goals (SDG) and Agenda 2030 (Including Target 11.5, Reducing the adverse effects of natural disasters). The Natural Hazards Engineering Research Infrastructure (NHERI) is a geographically distributed, multi-user, national facility that provides the scientific community with state-of-the-art research infrastructure, ensuring that it has the fully coordinated testing and computational facilities required to meet the research challenges of the 21st century and achieve global leadership in natural hazard risk mitigation. The presentations in this session will illustrate how NHERI, through its experimental and computational capabilities, enables researchers to explore and test ground-breaking concepts to protect people and the places they live from earthquakes, landslides, windstorms, and coastal hazards, including tsunamis, storm surge, and waves. This enables innovations to help prevent natural hazards from becoming societal disasters. The NHERI Science Plan development led by the NHERI Network Coordination Office (NCO) and with contributions from all the NHERI components and members of the user community will be described. The Science Plan provides

a roadmap for high-impact research activities in the areas of earthquake, wind, and coastal hazards. The session will also outline efforts undertaken during the development of the 3rd edition of the Science Plan, including the results of the recent NHERI Science Plan Workshop, and the inclusion of additional hazards in the plan (e.g., wildfire, riverine flooding, and climate change). The Science Plan audience includes researchers, funding agencies, and the broader community to provide them with a shared vision for developing research initiatives to address the resilience and sustainability of the built environment. The information shared in this session will also illustrate how research infrastructures can work as drivers for international cooperation. Specifically highlighting NHERI's interest in international collaborations facilitated by several current formal agreements. These agreements enable research exchanges between scientists and engineers and overseas laboratory work using NHERI experimental and computational facilities and resources. Another aspect of the session will illustrate scientific discovery efforts through the analysis using machine learning (ML) of large data sets available in the DataDepot of the NHERI cyberinfrastructure platform, DesignSafe-CI and elsewhere, and the tools and resources provided by the NHERI Center for Computational Modeling and Simulation.

Outcomes (up to 2000 words): Climate change is causing natural hazards such as windstorms, wildfires, landslides, and storm surges to occur more frequently and intensely. These events often cause significant disruptions to our built environment, including buildings, infrastructure, and utility systems, highlighting the need for resilient solutions. Research in natural hazards engineering aims to develop tools and methods that will mitigate such damage in the future and make communities more secure, thus supporting the UN SDGs. NHERI's 14-institution network includes eight experimental facilities, a social science component, a center for computational modeling, and a post-event reconnaissance facility, and a cyberinfrastructure. Two additional facilities to study tornadic winds and coastal hazards are in the planning phase. In 2023, NHERI focused on the technology transfer from research undertaken at NHERI-affiliated institutions. Technology transfer took the form of regulatory changes, updates to post-disaster reconnaissance procedures to account for multiple hazards events, approaches to community engagement that led to earlier technology adoption, and tools that enabled end users to prioritize hazard mitigation efforts.

Now, with ten years in existence, this session will illustrate how the NHERI network has enabled a transformational change in how scientists and engineers practice and conduct research in natural hazards engineering. From state-of-the-art, unique experimental facilities that tackle hazards from wind, waves, storm surge, and earthquakes to a real-time resource for field reconnaissance equipment, to a cyberinfrastructure that publishes and archives natural hazards data for reuse, to the coordination office that has developed an education pipeline for future natural hazards researchers, to a social sciences hub that has reshaped how post-event reconnaissance is undertaken, and to modeling and simulation tools that deliver risk analyses, the NHERI network researchers have advanced engineering research and practice.

Keywords (0 to 8): Infrastructure, Data, Laboratories, Hazards, Partnerships, Resilience, Science Plan