Extreme Events Reconnaissance: Social Science and Interdisciplinary Research in the Disaster Aftermath

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We envision a just and equitable world where knowledge is applied to ensure that humans live in harmony with nature.


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ABUS 101

How can we collaborate even more effectively as social scientists and in interdisciplinary teams to reduce the harm and suffering caused by disaster?

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U.S. 2017 Billion-Dollar Weather and Climate Disasters

*This map denotes the approximate location for each of the **16 billion-dollar weather and climate disasters** that impacted the United States **during 2017**.*

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What if "the big one" strikes tomorrow?

How will the social science and interdisciplinary hazards and disaster research communities respond?

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What if "the big one" strikes tomorrow?

How will the hazards engineering and disaster social science research communities respond?

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Purpose

To establish a platform and network for all-hazards

Social Science Extreme Events Reconnaissance (SSEER) and Interdisciplinary Science and Engineering Extreme Events Reconnaissance (ISEEER)

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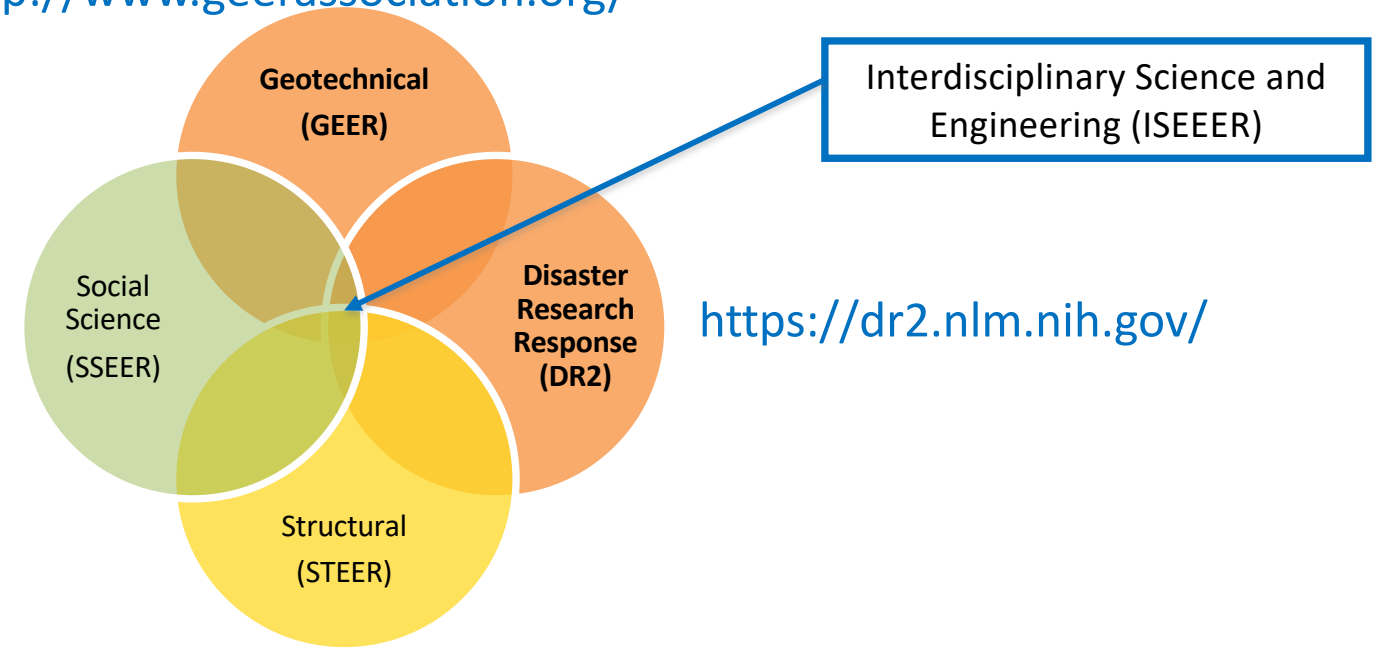
http://www.geerassociation.org/



https://dr2.nlm.nih.gov/

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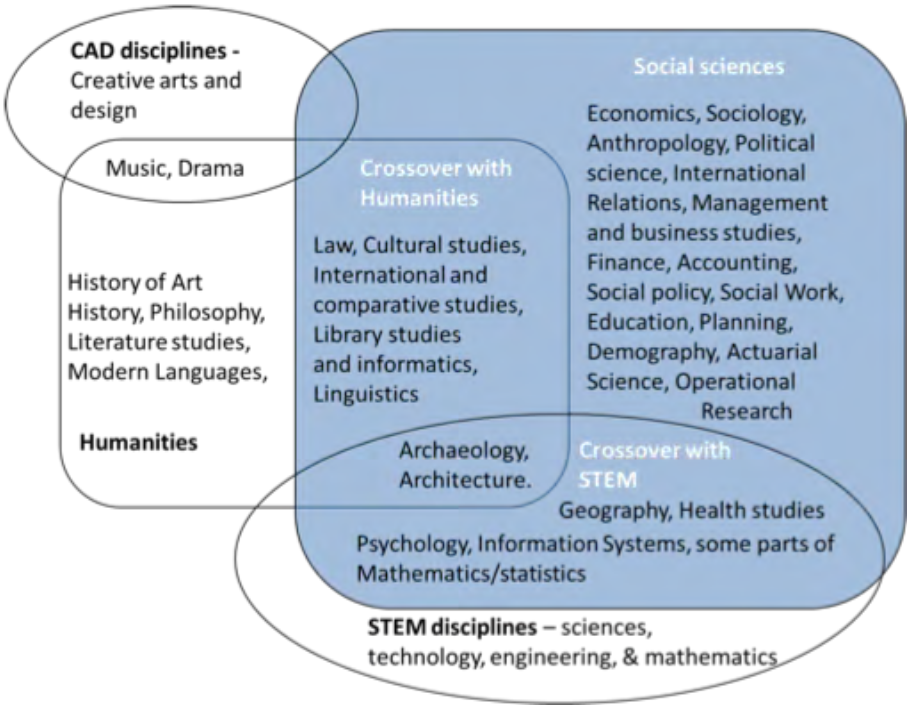

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Purpose

To establish a platform and network for all-hazards Social Science Extreme Events Reconnaissance (SSEER) and Interdisciplinary Science and Engineering Extreme Events Reconnaissance (ISEEER)

Vision

For hazards and disaster researchers to be prepared to carry out extreme events reconnaissance research that is *coordinated*, *comprehensive*, *coherent*, *ethical*, and *scientifically rigorous*.

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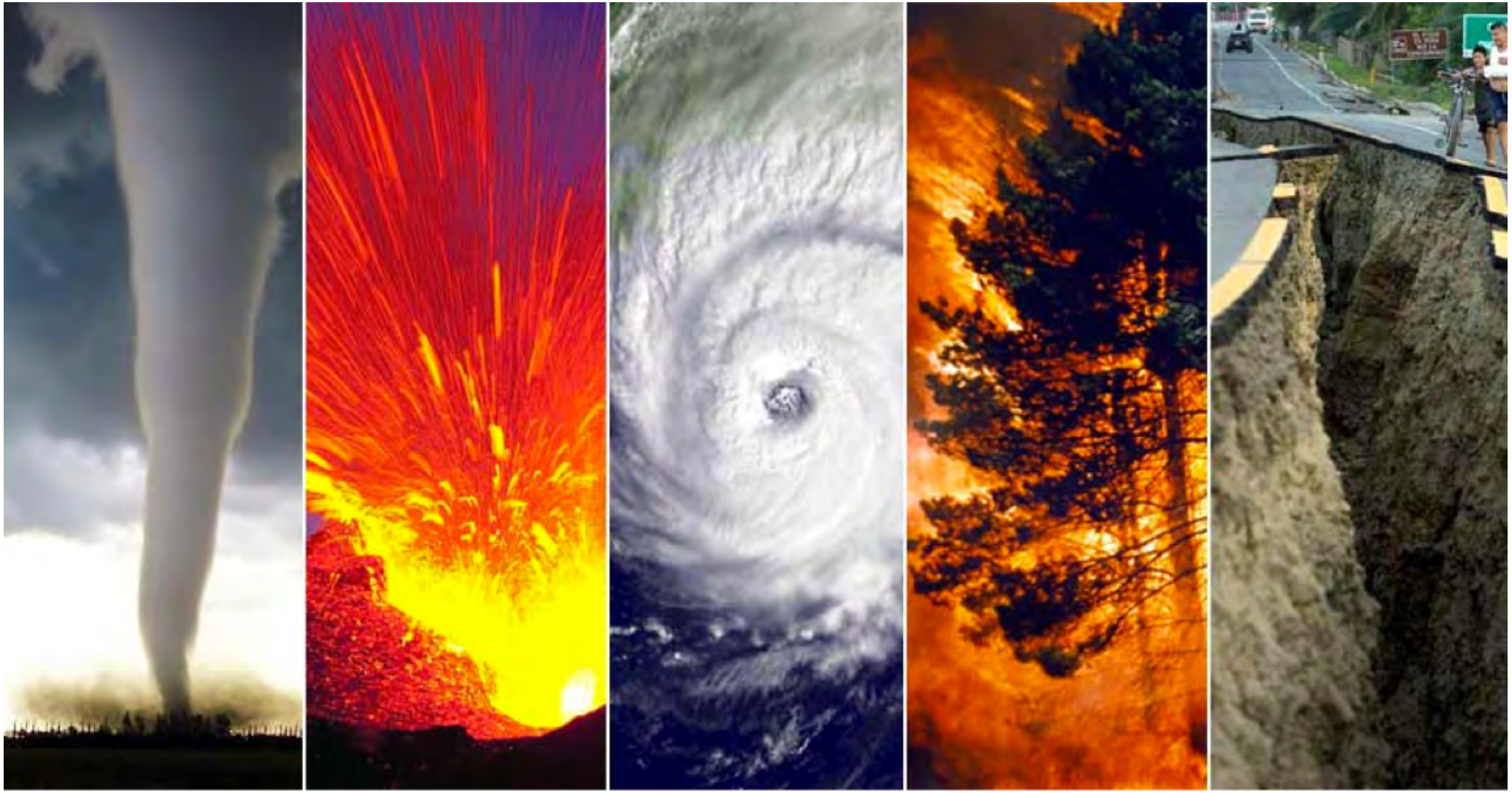

A New Approach for Rapid Reconnaissance Research is Urgently Needed

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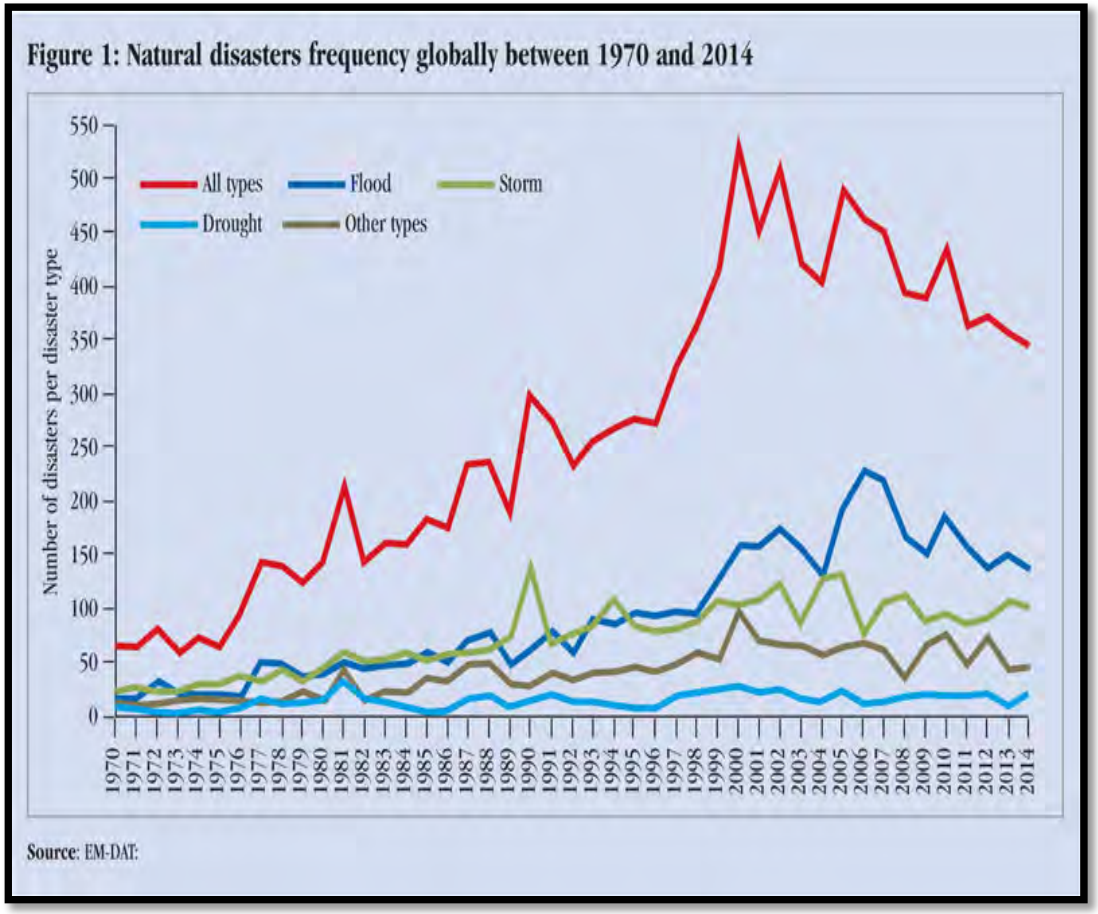

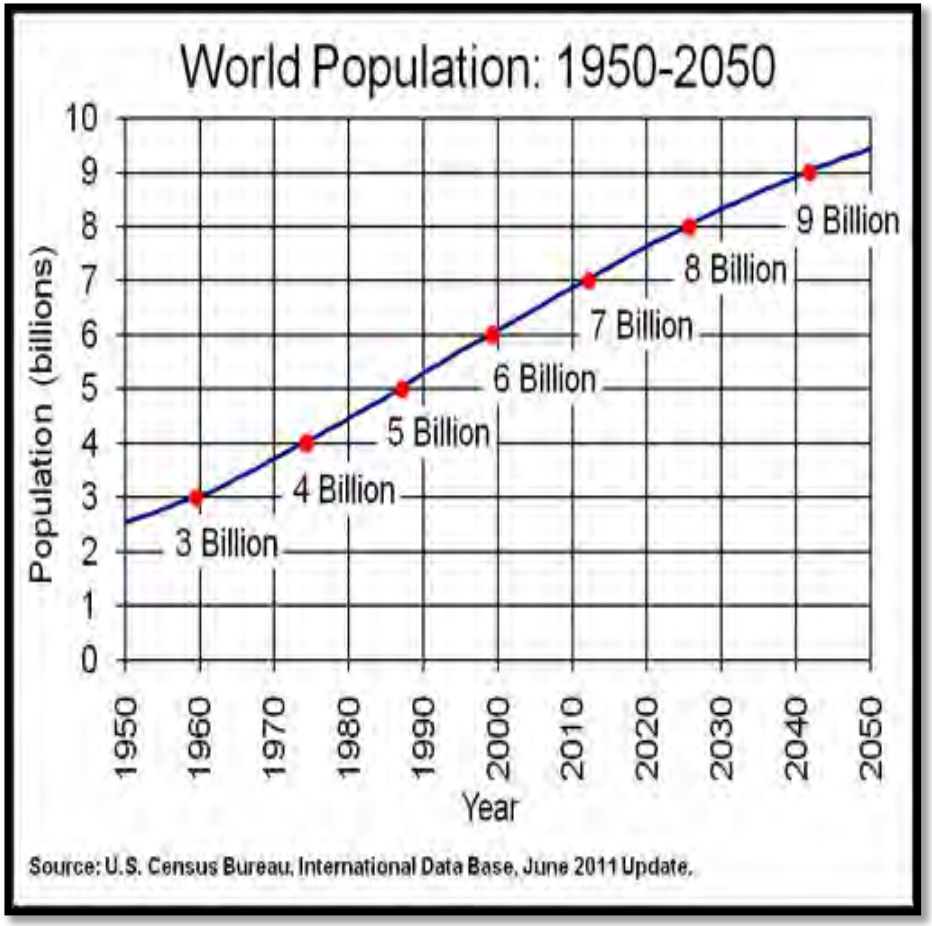

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Challenges to the Advancement of Extreme Events Reconnaissance

1. *Lack of Identification and Coordination of Researchers*
2. *Inadequate Guiding Research Frameworks and Insufficient Catalog of Research Approaches*
3. *Over-Emphasis on Large-Scale, Sudden-Onset Extreme Events*
4. *Cross-Sectional Data Collection, Time Scale Deviations, and Lack of Replication*
5. *Lack of Interdisciplinary Integration in Rapid Reconnaissance Teams*

1. Lack of Identification and Coordination of Researchers

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1. Lack of Identification and Coordination of Researchers

- Duplication of effort

If engineers go off “like cowboys riding on their own, you end up with five reports on the same building collapse” – Tracy Kijewski-Correa, Univ. of Notre Dame

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1. Lack of Identification and Coordination of Researchers

- Duplication of effort
- Ethical issues
  - researchers with limited knowledge of affected areas, no time for literature reviews, lack of cultural competence
  - negative impacts for researchers in affected communities and emergency response operations
- **Opportunity:** Identifying and mapping core, periodic, or situational researchers in the field
- Ethics training in advance for all

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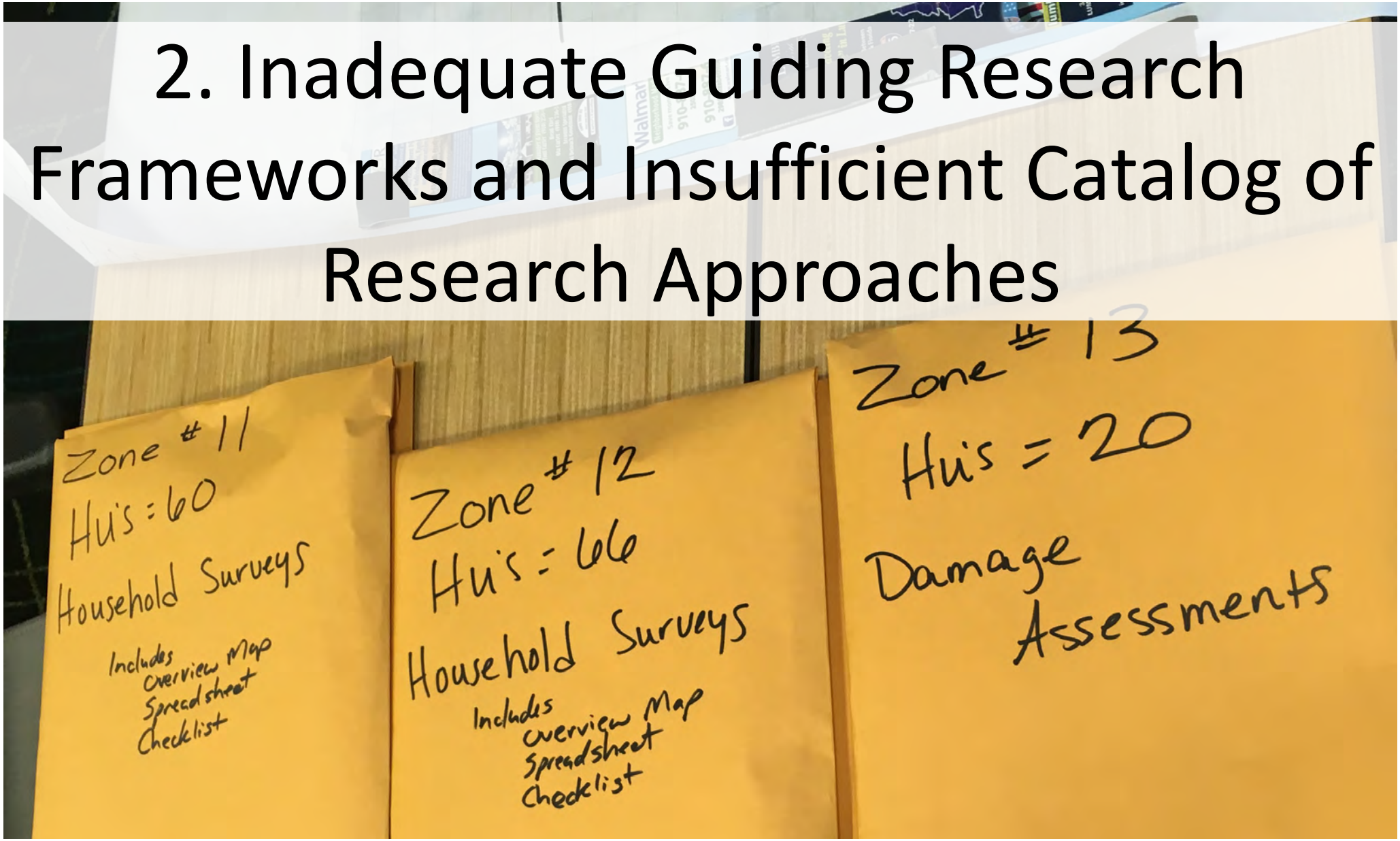
2. Inadequate Guiding Research Frameworks and Insufficient Catalog of Research Approaches



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2. Inadequate Guiding Frameworks and Catalog of Research Approaches

- Research approaches at present: inductive and exploratory, small scale, convenience samples
- No systematic inventory of research instruments and standardized scales and measures leads to "homemade scales"
- No catalogue of publically accessible and privately available secondary data sets and sources
- **Opportunity:** create multi-scale frameworks
- Inventory and catalog standardized validated scales and measures

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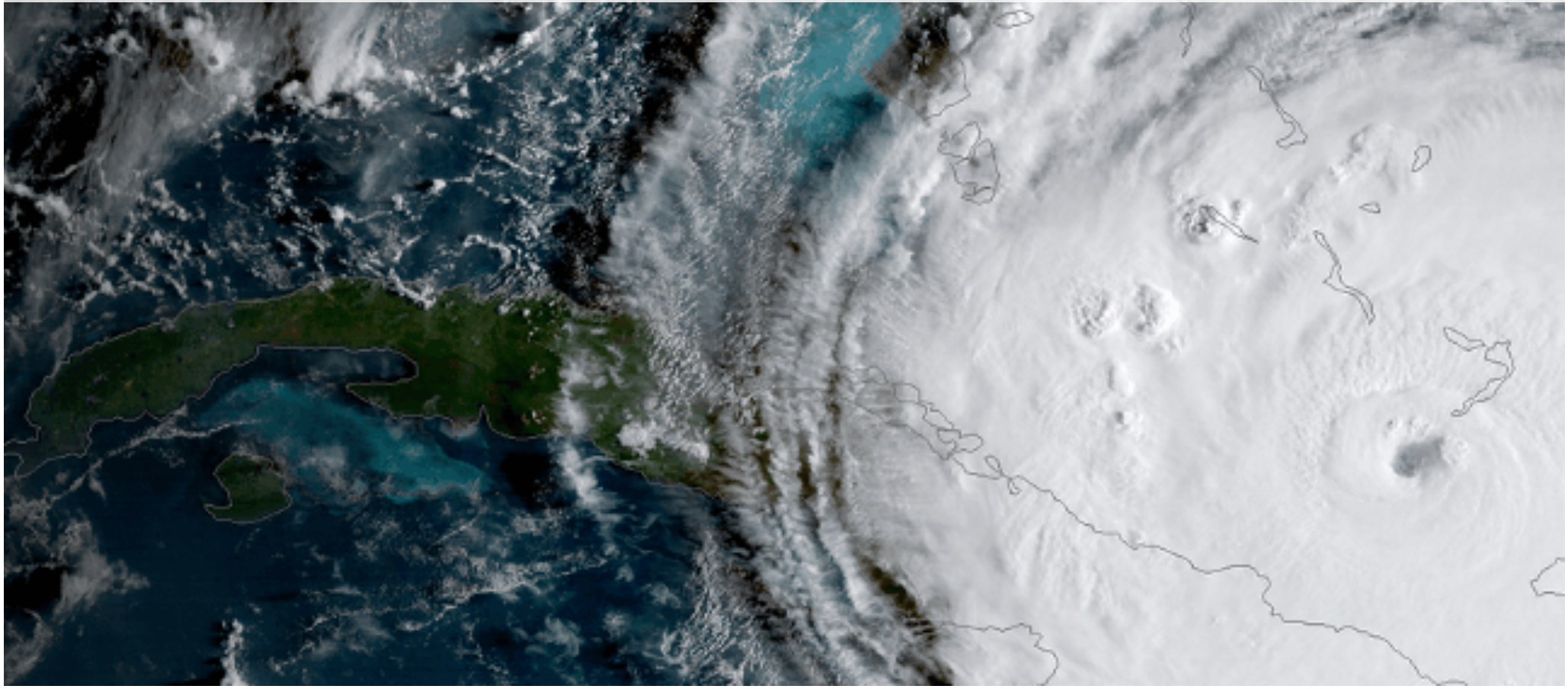
3. Over-Emphasis on Large-Scale, Sudden-Onset Extreme Events



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3. Over-Emphasis on Large-Scale, Sudden-Onset Extreme Events

- "Paradigm of the Extreme"
  - Large scale
  - Urban
  - Developed nations
- **Opportunity:** Learn from chronic, small-scale, repetitive loss events to test theoretical and conceptual applicability of prior rapid reconnaissance studies

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4. Cross-Sectional Data Collection, Time Scale Deviations, and Lack of Replication

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4. Cross-Sectional Data Collection, Time Scale Deviations, and Lack of Replication

- Engineers and social scientists need to enter and exit the field at different moments post-disaster
- Data Collection
  - Short-term, single point in time, completed within one year of event
- **Opportunity:** prepare to enter the field, sync up time scales, encourage long-term studies, replicate studies

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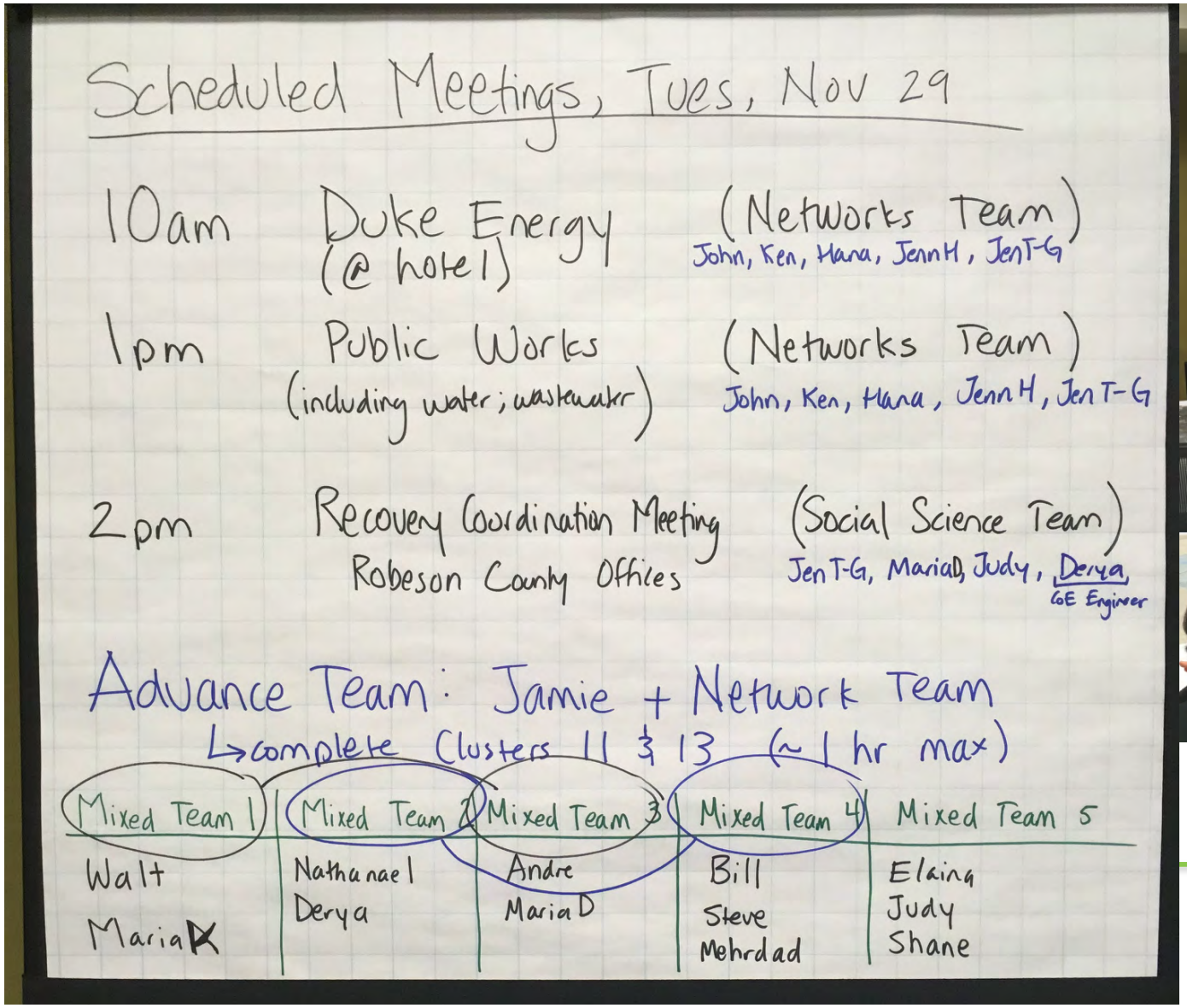
5. Lack of Interdisciplinary Integration in Rapid Reconnaissance Teams



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5. Lack of Interdisciplinary Integration in Rapid Reconnaissance Teams

- Interdisciplinary work is difficult and time consuming – rapid reconnaissance studies, by their very nature, necessitate rapid team formation and deployment
- **Opportunity:** establish interconnected platforms, take a systemic and measured approach, advance the field

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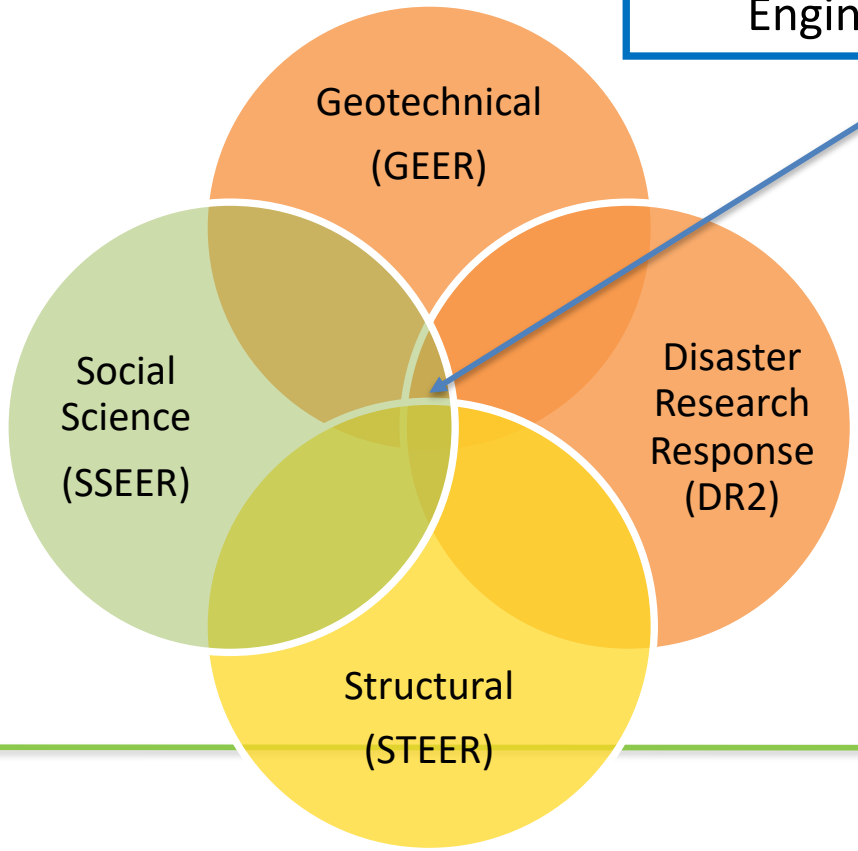
Responding to Rapid Reconnaissance Challenges



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NHERI RAPID Facility

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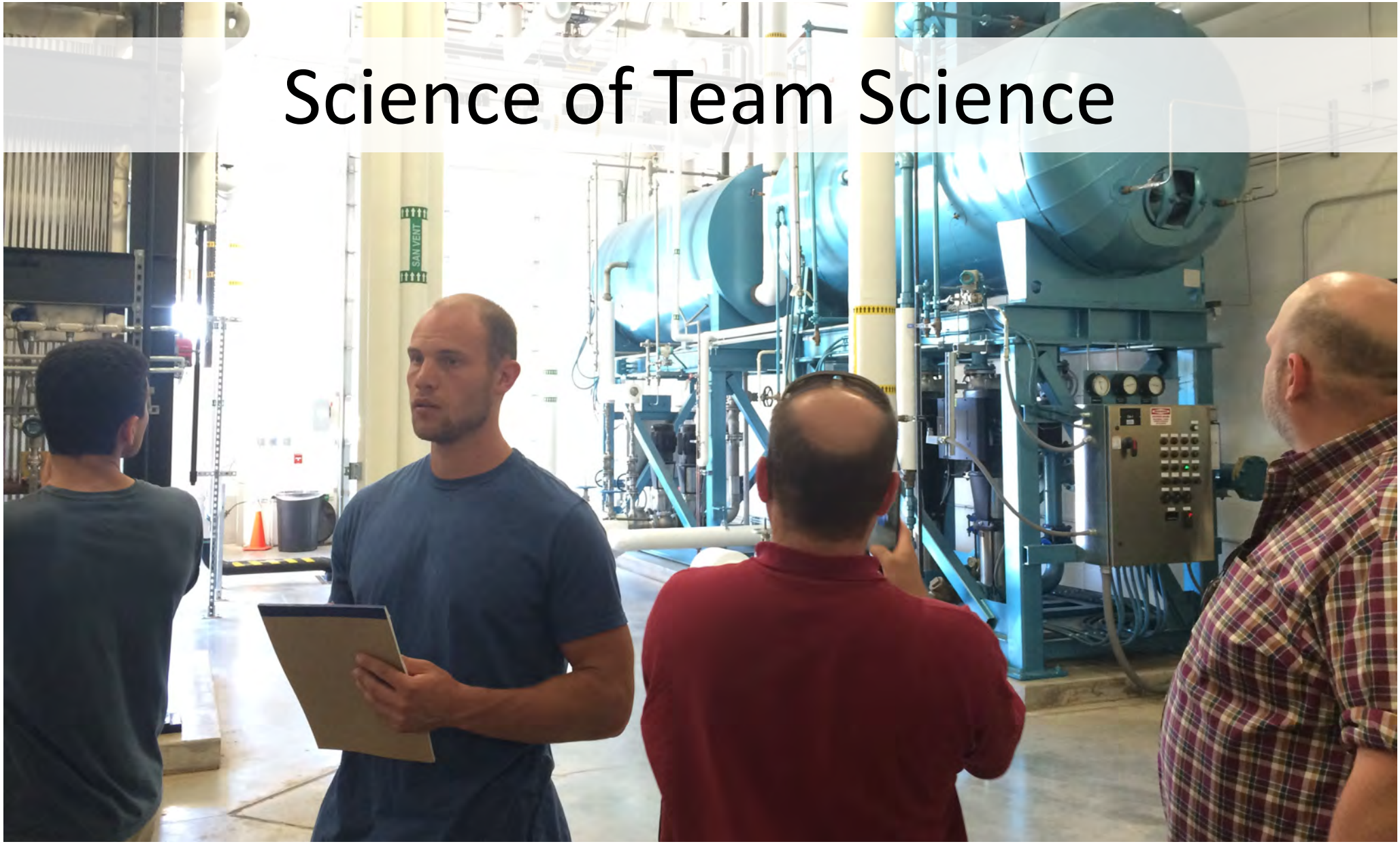
Science of Team Science



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Science of Team Science

- Examines the processes by which scientific teams *organize, communicate,* and *conduct research*
- *Micro-level processes and macro-level conditions*
- Helps to understand how teams collaborate to achieve scientific breakthroughs that would *not be attainable* through either individual efforts or a sequence of additive contributions

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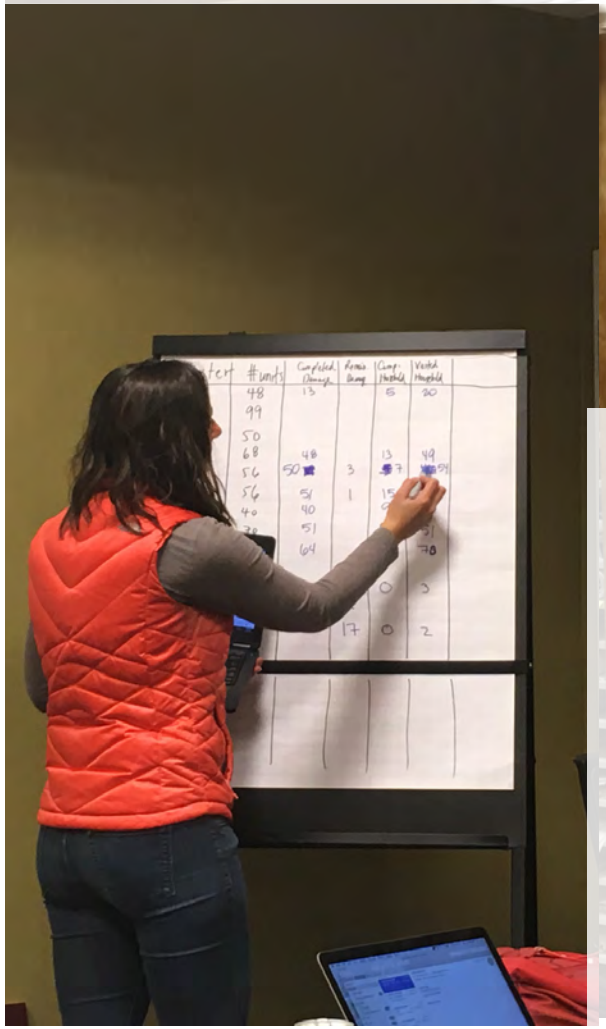
Next Steps

1. *Establish Social Science and Engineering Advisory Committees*
2. *Convene a Meeting of Science of Team Science and Rapid Reconnaissance Team Leaders*
3. *Identify and Coordinate SSEER Researchers*
4. *Identify and Coordinate ISEEER Researchers*
5. *Establish Scientific Frameworks for Rapid Reconnaissance Research*
6. *Catalog Research Instruments and Data Sets*

7-9. *Convene Meetings of SSEER and ISEEER Researchers and Widely Disseminate Project Deliverables*

Thank you!



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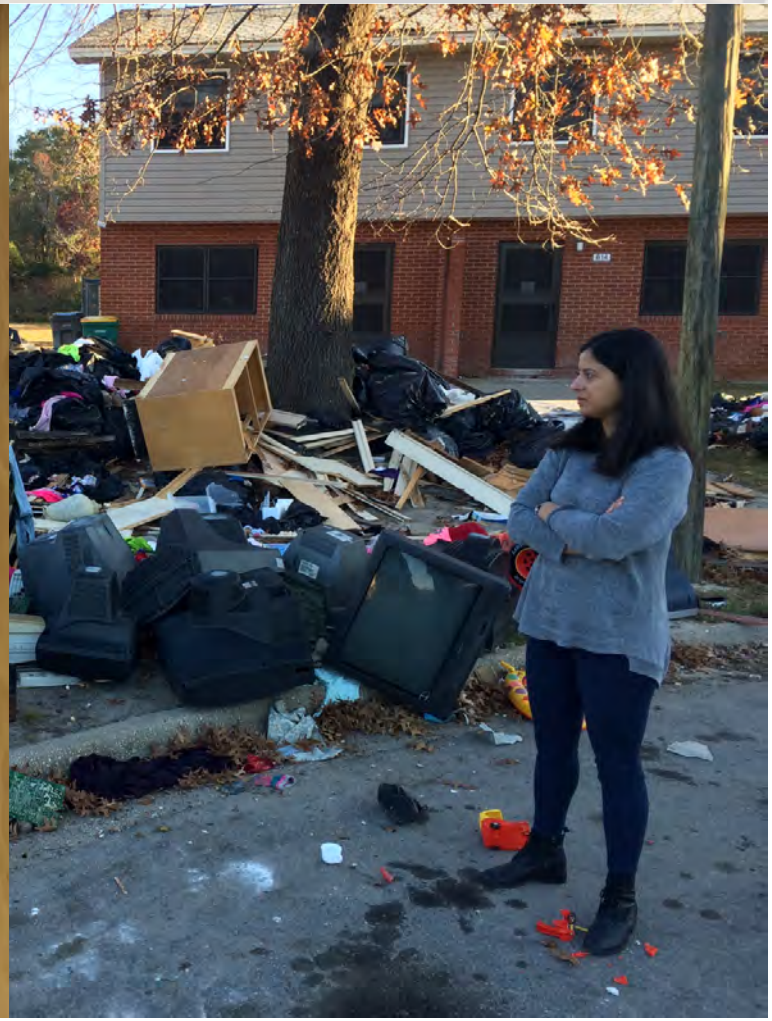

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