

Social Science Overview

1	Davidson, Rachel	University of Delaware	RAPID: Post-Earthquake Fires in the March 2011 Japan Earthquake and Tsunami
2	Holguin-Veras, Jose	Rensselaer Polytechnic Institute	RAPID: Field Investigation on Post-Disaster Humanitarian Logistic Practices under Cascading Disasters and a Persistent Threat: The Tohoku Earthquake Disasters
	Taniguchi, Eiichi	Kyoto University	Field Investigation on Humanitarian Logistic Practices under Cascading Disasters and a Persistent Threat: The Great Eastern Japan Earthquake
3	Lindell, Michael	Texas A&M University	RAPID: Immediate Behavioral Response to Earthquakes in New Zealand and Japan
4	McCay, Bonnie	Rutgers University New Brunswick	RAPID: Disasters, Resilience, and Vulnerability of Fishing Communities in Post-Tsunami Japan
5	Watanabe, Tomoaki	International University of Japan	Social Networking Services in the Crisis and Immediate Post-Catastrophe Response Processes

6+ Sutton, Jeanette and other New Zealand Researchers

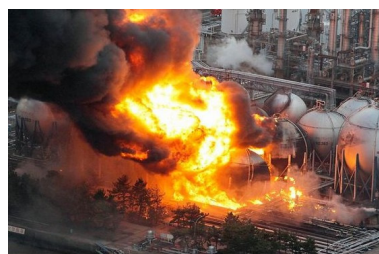
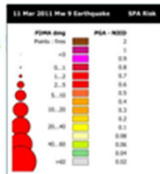
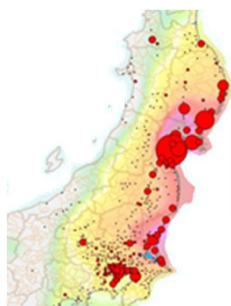


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Project Description/Objective

1 Post-earthquake fires in the March 2011 Japan earthquake and tsunami



PI: Rachel Davidson, U. Delaware
 Consultant: Charles Scawthorn, U. Calif. Berkeley and Waseda U. (Tokyo)
 Intl. Counterparts: A. Sekizawa (Tokyo Univ. of Science), M. Hamada, Waseda U.

Objectives

- Collect perishable data on ignitions and fire spread / compile into a database
- Analysis for new statistical ignition model including tsunamigenic ignitions



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Key Findings

1. Nearly 300 post-earthquake ignitions, more than in all previous earthquakes.
2. About half of all fires are tsunami-related, rather than due to shaking. Fires have been seen in previous tsunamis, but the number of fires in this event, and their mechanism of spread via flaming liquids (primarily oil) floating on the incoming tsunami, may have grave implications for a possible event in Tokyo Bay, Los Angeles or the Pacific Northwest.



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2 Project Description/Objective

- RAPID: “Field Investigation on Post-Disaster Humanitarian Logistic Practices under Cascading Disasters and a Persistent Threat: The Tohoku Earthquake Disasters”
- Team Leaders: José Holguín-Veras (Rensselaer Polytechnic Institute) and Eiichi Taniguchi (Kyoto University)
- Objectives:
 - To identify lessons learned both positive and negative
 - To assess the impacts of the cascading disasters
 - To assess the impacts of the persistent nuclear threat
 - To identify policy changes to improve disaster response efforts



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Key Findings

- Consider and prepare for worst case scenarios
 - Response for Catastrophes are significantly more complex than the ones for Disasters
 - Prepare for local distribution of relief supplies
 - Conduct training and realistic exercises on logistics
- Need to engage private sector, contrasting examples:
 - Construction: Played a key role; Had specific agreements in place; Knew what they were supposed to do; Brought to bear expertise/assets
 - Transportation: Helped as volunteers; Participation was improvised, unanticipated, not sought after...and even refused because of lack of fuel for return trips; Had general agreements but not for specific local distribution, Did not know what they were expected to do; Brought resources/assets, not clear who was in charge; Had major difficulties transitioning out...



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3 Project Description/Objective

- Immediate Behavioral Response to Earthquakes in New Zealand and Japan
- Investigators
 - Michael K. Lindell & Carla S. Prater Texas A&M Hazard Reduction & Recovery Center
 - David Johnston & Julia Becker GNS Science (New Zealand)
 - Hideyuki Shiroshita Kansai University (Japan)
- Objective: To achieve a better understanding of people's immediate emotional and behavioral responses during earthquakes.



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Key Findings

Key findings

- Only a minority of the respondents engaged in the recommended protective action—drop, cover and hold.
- Demographic, contextual, and emotional variables, as well as situational perceptions are related to people's immediate responses to earthquake shaking, but the magnitudes of the correlations are small, so further research is needed to better explain why so many people took inappropriate actions and to develop programs that guide them to taking appropriate protective actions.



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4 Project Description/Objective

- **Tide Us Over: Disasters, Resilience, and Vulnerability of Fishing Communities in Post-Tsunami Japan**
- **Bonnie J. McCay, Rutgers University (PI)**
- **Satsuki Takahashi, University of Tokyo (Co-PI)**
- **Research Questions**
 - “Natural” and “Human” Disasters
 - 3.11 Disaster: quake, tsunami, and nuclear accident
 - How do people respond to challenges caused by both natural and human disasters?
 - How do concepts of “natural” and “human” matter for ways in which people respond to a disaster?
- **Research Methods**
 - Interviews; Participant observation; archival research



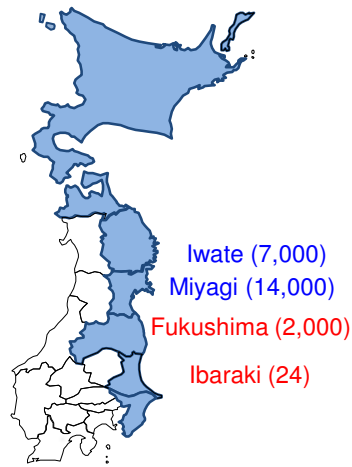
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Key Findings

Twofold and Fourfold Disaster

- Iwate and Miyagi Pref.
- Natural disaster
- Quake and Tsunami
- (“Twofold” Disaster)
- Fukushima & Ibaraki Pref.
- Natural/Human disaster
- Quake, Tsunami, Radiation Contamination, and Reputational Damage
- (“Fourfold” Disaster)



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5 Project Description/Objective

“What is the role interpersonal connections play in disaster response, when much of the government and corporate services do not work or work only partially? “

- Title: Role of SNS and Virtual Organizations in the Crisis and Post Immediate Post-Catastrophe Response Process of the 3/11 Japan Disaster
 - Masahiko Shoji, GLOCOM (Center for Global Communications), International U of Japan
 - Shimpei Toyofuku, Adam Peake, & Tomoaki Watanabe (GLOCOM)
 - Eiko Ikegami, Dept. of Sociology, New School for Social Sciences)

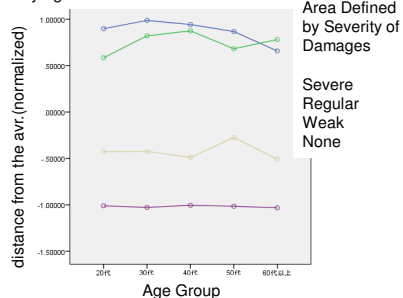


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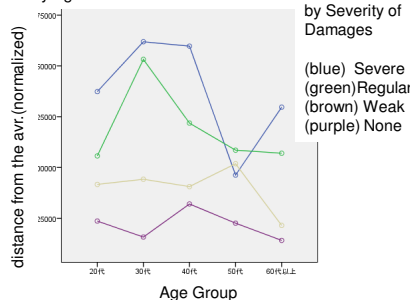
Key Findings

Experienced Damages to Life Infrastructures, by Age and Area.



- Utilities and other damages were experienced in disaster areas.
- The trend was very consistent across age groups.

Info. -related Help Behaviors, By Age and Area.



- People helped each other more re: info-related needs in areas with more damages.
- Helping in affected areas were most active with people in their 30's and 40's.



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6 Project Objectives

When Online is Off: Public Communications Following the February 2011 Christchurch, NZ Earthquake.

In collaboration with GNS Science and Massey University.

Co-Investigator, Dr. David Johnston

1. Investigates the strategies used by local government to communicate electronically with disaster affected individuals,
2. Individual access to information in the immediate aftermath of the earthquake
3. Effects of information access on individual perceptions of community resiliency.



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Major Findings

1. Public officials had no strategies in place to communicate via social media; no plans to coordinate with digital volunteers
2. The public who were directly affected searched for information across multiple sources; established their own information flow; found local information most useful.
3. Digital volunteers sought out and curated open data onto locally relevant maps



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7+ New Zealand: Some Projects

- Effects of the Canterbury earthquakes on organizations and sectors of the economy.
 - Ability to mitigate a disaster's effects and recover in the aftermath.
 - Pre-earthquake performance and resilience in a crisis.
 - Influence between/among organizational recovery within the spatial context of an urban environment.
- Resilience and recovery of rural organizations impacted by multiple hazards including earthquake,
- Lifeline services and waste management: implications for community recovery.
- Resilience of the tourism, construction and other sectors.
- Human behavior—preparedness and recovery.
- *From David Johnston, John Vargo, Erica Seville, et al.*



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Opportunities for Future Research From Research Projects

- A fire following research program with projects related to ignition, spread, water supply, post-earthquake firefighting and decision-making, and mitigation is needed.
- Catastrophes and Disasters require qualitatively different responses---what are the logistical needs in human response protocols?
- Systematically assess earthquake hazard awareness programs in terms of reaction, learning, behavior, and outcome criteria.
- Long term impact on displaced persons-- experience with uncertainty and anxieties? How will “radiation contamination” and “reputational damage” look after another month, 6 months, or a year?
- How people used different means of communication to disseminate /obtain survivor information. Is it accurate? Does trust effect this?
- How to promote efficient mutual help in chaotic circumstances?



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Opportunities for Future Research Overarching Topics

- Social Science Research covers many fields and topics: Behavioral, Social, Economics, Policy etc.
- Both Events have Important Lessons for US
- **What are lessons from Japan due to multiple hazards and catastrophic impacts?**
- **What are the lessons from New Zealand due to long-sequence damaging aftershocks?**
 - How do people obtain/use/trust information? How do they make decisions with regard to health, jobs, resettlement?
 - What are the institutional responses, in the short and long term?
 - What does recovery look like? For people, business, the cities?
 - What decisions made in the public and private sector in the first 6 months to one year will influence recovery—positively or negatively?



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Opportunities for Future Research Influence on Modeling and Theory

NEW QUESTIONS

- In all Social Science fields—models and theory need to be reviewed in light of the events in Japan and New Zealand.
 - Question all models in light of the data.
 - Collect data and undertake longitudinal studies.
 - Coordinate with engineering studies.
- What can we learn about scalability?
- What can we learn about response to catastrophic events for the US?
- What can we learn about the uses of technology?
- What can we learn about recovery?
- All need work in pre-disaster, response, and recovery time frames

