

Hazards, Risks, and Disasters Specialty Group

2019 Newsletter

Welcome to the new HRD newsletter!

The purpose of this newsletter is to highlight the exciting work that our specialty group members are doing, whether in the field, in the classroom, or in our communities. While this format cannot capture the breadth and depth of our efforts, it at least provides an introduction to the projects in progress and the people working on them. I hope that we build a stronger community by staying informed about each others' efforts and accomplishments. If you would like to be featured in a future newsletter, be sure to join the HRD specialty group and watch for the email call for submissions.

Congratulations to all of the individuals featured in this inaugural edition of the newsletter. I look forward to seeing you in D.C.!

Ashley R. Coles, Editor

About the HRD Specialty Group

Hazards, Risks, and Disasters is a specialty group of the American Association of Geographers. As of March 24, 2019 there are 523 members from over 30 countries.

Mission

To promote research, education, and the application of knowledge about natural, technological, and social hazards; to strengthen communication and collaborative activities among geographers pertaining to hazards; to encourage communication between geographers and the members of other disciplines and professions that share an interest in hazards.

Chair

Eric Tate, University of Iowa
Email: eric-tate@uiowa.edu



Fissure 8 lava fountain, Kilauea, Hawaii. June 2018.

Photo credit: US Geological Survey

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Spotlight on Student Scholarship: White and Kasperson Awards

About the awards

The Gilbert F. White Award is open to anyone who has finished a hazards-related thesis or dissertation within the last three years. The selection committee recognizes one thesis and one dissertation as outstanding examples of hazards geography research. The winners receive \$500 and are announced at the HRDSC Business Meeting at each AAG meeting.

The Jeanne X. Kasperson Student Paper Competition is open to all graduate students presenting at AAG. The winners are selected on the basis of an extended abstract. They each receive reimbursement for AAG registration and are featured in a special session. This year the session is Thursday, April 4, 1:10-2:50pm in the Maryland A room on the Lobby Level of the Marriott.

This newsletter features some of the 2018 Gilbert F. White winners and the Kasperson winners from 2018 and 2019. Links to the AAG abstracts are provided in the sidebars. Let's celebrate the outstanding scholarship among our student members!

Gilbert F. White Award 2018 Winners

Maria Khristine (Tin) Alvarez
(MA)

*Discourses of 'danger zone'
slum evictions and the aes-
theticization and territoriali-
zation of disaster risk in
post-Ondoy Manila*

Rejina Manandhar (Ph.D)

*Return-entry risk communi-
cation following 2012 Hurri-
cane Sandy*

Gilbert F. White Thesis Award, 2018

Tin Alvarez

Maria Khristine (Tin) Alvarez is an urban sociologist and geographer previously based in Manila, and currently a PhD student at The Bartlett Development Planning Unit (DPU), University College London. She is the recipient of the 2018 Gilbert F. White Thesis Award given by the AAG-HRDSC, as well as the 2018 DPU 60th Anniversary Doctoral Scholarship Award. Her research aims to understand how 'danger zone' evictions, as both requirement and consequence of resilience



Tin Alvarez

seeking in post-Ondoy (2009-present) Metro Manila, spatially reorganise the metropolitan region and its peri-urban fringe. Through a critical genealogy and ethnography of the Metro Manila Flood Management Project and the Informal Settler Families Housing Program, her project aims to weave a critical account of resilient city making, and theorise the new drivers and new modes of dispossession that re-configure urban and peri-urban space in vulnerable Southern coastal cities.

Jeanne X. Kasperson Award, 2018

Aparna Kumari

My name is Aparna Kumari, and I am currently a Ph.D. candidate in the Department of Geography, at the University of Idaho. I have completed my Bachelors, Masters, and M.Phil. (Master of Philosophy) in geography from the University of Delhi, India. The research I am completing for my Ph.D. focuses on the impact of natural hazards on society, specifically the role of social capital that influences social vulnerability and recovery post-disaster. For my dissertation, I am developing a comprehensive theoretical framework of social capital to evaluate the role and impact of social capital on disaster response, and recovery.

Christina Greene

Christina Greene was one of the 2018 Jeanne X. Kasperson award winners for her presentation entitled “Dynamics of Drought Vulnerability in Rural Communities of California’s San Joaquin Valley.” This research draws from Greene’s dissertation work on the dynamics of drought vulnerability among farmworkers during the 2012-2016 drought in California. Funded by the USDA NIFA Predoctoral Fellowship, Greene’s dissertation analyzes how changes in water resources and agricultural practices interact with social processes in farmworker communities to produce drought vulnerability. Greene’s research also engages with discourses of vulnerability, both in the context of drought and in climate services. Greene completed her Ph.D. in Geography at the University of Arizona’s School of Geography and Development in January 2019 and is now an Assistant Research Scientist with the Climate Assessment for the Southwest (CLIMAS) at the University of Arizona.

Asif Ishtiaque

Asif Ishtiaque is the recipient of the 2018 Jeanne X. Kasperson award. He is a PhD candidate at the School of Geographical Sciences and Urban Planning in the Arizona State University. He received this award for his work on coastal vulnerability at multiple levels of governance using spatial multi-criteria decision analysis approach. The objective of his dissertation research is to understand how government and non-government actors perceive vulnerability, manage adaptation actions, and encounter governance barriers. His research interest further includes climate change resilience, disaster management, and environmental governance. He uses a variety of techniques in his research including social network analysis, GIS, remote sensing, spatial statistics. Asif published eight articles (six are first-authored) since 2016. His research works appeared in different journals, such as Natural Hazards, Ocean & Coastal Management, Ecology & Society. For a complete list of his work, please see his [Google Scholar profile](#). Asif can be reached at Asif.Ishtiaque@asu.edu.



Asif Ishtiaque

Kasperson Award 2018 Winners

Aparna Kumari

[Understanding social capital/network and/or structural social process for short and long-term post-disaster recovery: A case study of Manatee County, Florida](#)

Asif Ishtiaque

[Multilevel governance of climate change vulnerability management in coastal social-ecological systems: Evidence from Bangladesh](#)

Emily Esplin

[Stay Cool! Understanding heat risk communication practices in Utah](#)

Christina Greene

[Dynamics of Drought Vulnerability in Rural Communities of California’s San Joaquin Valley](#)

Jeanne X. Kasperson Award, 2019

Aaron Flores

Aaron Flores is a Doctoral student in the Department of Geography and a Graduate Assistant for the Center for Natural and Technological Hazards at the University of Utah. His research has focused on social vulnerability to environmental hazards and health disparities. He has researched Hurricane Harvey and its impact on residents in the greater Houston, Texas area and extreme heat vulnerability in Lubbock, Texas. He has been selected as a 2019 Kasperson award winner for his research on Hurricane Harvey. Aaron obtained a Bachelor of Arts and Master of Science in the Department of Geography at Texas Tech University. He has interned for the South Central Climate Adaptation Science Center, the Texas Tech University Climate Science Center, and was a UC Santa Cruz Climate Engagement Program Fellow in 2017. He has also completed training in Community Resilience and Community Planning for Disaster Recovery through the National Disaster Preparedness Training Center.



Aaron Flores

Kirsten Goldstein

I am a Geography Masters student at Utah State University. Prior to joining the field of Geography, I studied dance at the University of Minnesota. My dance training prepared me to enter the field of Geography with an understanding of relationships across space. I finished my BA in Geography from Bemidji State University in northern Minnesota. I have applied my skills as a

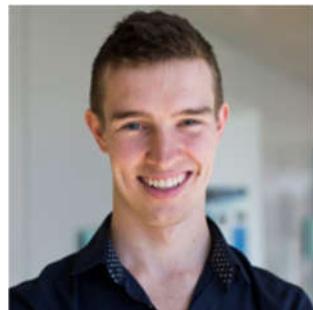


Kirsten Goldstein

geographer as both a spatial analyst for Apple Maps, and as a housing project coordinator in rural Montana. I am pursuing my MS where I am studying risk perceptions of extreme heat in tourist populations. I am fascinated by the real-world application of spatial analysis to environmental hazards, risks, and policies and to humanitarian aid. I enjoy studying human perceptions of a variety of topics including sacred geography, natural hazards, and climate change.

Tom Logan

Tom Logan is a civil systems engineer working to build community resilience through data-driven planning. He uses methods from risk science, stochastic and complex-system simulation, and data analytics to improve how we design our cities for a changing climate. He is finishing his PhD in Industrial and Operations Engineering at the University of Michigan and will join the University of Canterbury later this year as an Assistant Professor in Civil and Natural Resources Engineering.



Tom Logan

Yago Martin Gonzalez

I am a PhD candidate at the Department of Geography at the University of South Carolina. I am originally from Spain, where I obtained a B.A. in Geography and Spatial Planning and a Master's degree in GIS and Remote Sensing prior to receiving a Fulbright fellowship to pursue a doctorate in the US. My overall research interests encompass the application of geospatial technologies for disaster risk reduction. Working within the Hazards and Vulnerability Research Institute and in collaboration with the Geoinformation and Big Data Research Lab, my dissertation investigates the suitability of geotagged social media (Twitter) as an innovative approach for the study of human spatial behavior during emergencies. More specifically, my research strives to test the validity of geotagged tweets for estimating hurricane evacuation compliance, the extent to what this source of data is valuable to characterize hurricane evacuation behavior of different groups, and how suitable it is for determining post-disaster displacement and tourist-flows.



Yago Martin Gonzalez

Pam Rittelmeyer

I have a passion for solving real-world environmental problems. Broadly, I am interested in expanding opportunities for effective governance at the human-environment interface. My experiences working for a state agency in coastal and ocean policy and as an environmental planner before returning to graduate school incited my desire to delve deep into research on the barriers and opportunities for solutions to conflicts over natural resources, especially those that are at risk from hazards that are exacerbated by climate change. My PhD research examining risk perceptions of flooding from levee failure on the mostly agricultural islands in the California Delta, an area that is of statewide importance for water supply, lies at the intersection of socio-cultural theory, governance, issue framing, and climate modeling. Using frameworks from these fields, I investigate the meanings behind people's perceptions of natural hazards and resource scarcity in a dynamic environment.

2019 Kasperson Winners

The winners of the 2019 Jeanne X. Kasperson Student Paper Competition will be presenting their award-winning work in a special AAG session.

Thursday, April 4, 1:10-2:50pm

Maryland A, Lobby, Marriott

Aaron Flores

[Disparities in Health Impacts and Access to Care among Houston Area Residents in Hurricane Harvey](#)

Pam Rittelmeyer

[Meanings behind perceptions: Flood Risk and Management of the California Delta Levee System](#)

Tom Logan

[Neglecting behavioral feedbacks in quantitative risk assessment can lead to maladaptation to natural hazards](#)

Kirsten Goldstein

[Thermal sensations and risk perceptions of extreme heat among outdoor recreation visitors](#)

Yago Martin Gonzalez

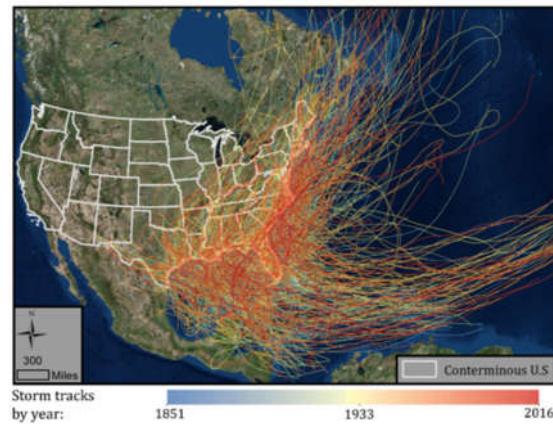
[Tracking the Disruption of Hurricane Maria on Population Flows in Puerto Rico Through Geotagged Tweets.](#)

Hazards highlights: Research, teaching, and outreach

Human settlement in hurricane-prone areas

Xiao Huang

Hurricanes, as one of the most devastating natural disasters, have posed great threats to people in coastal areas. A better understanding of spatiotemporal dynamics of human settlement in hurricane-prone areas is demanded for sustainable development. This study uses the DMSP/OLS nighttime light (NTL) data sets from 1992 to 2013 to examine human settlement development in areas with different levels of hurricane proneness. The DMSP/OLS NTL data from six satellites were intercalibrated and desaturated with AVHRR and MODIS optical imagery to derive the vegetation-adjusted NTL urban index (VANUI), a popular index that quantifies human settlement intensity. The derived VANUI time series was examined with the Mann-Kendall test and Theil-Sen test to identify significant spatiotemporal trends. To link the VANUI product to hurricane impacts, four hurricane-prone zones were extracted to represent different levels of hurricane proneness. Aside from geographic division, a wind-speed weighted track density function was developed and applied to historical North Atlantic Basin (NAB)-origin storm tracks to better categorize the four levels of hurricane proneness. Spatiotemporal patterns of human settlement in the four zones were finally analyzed. The results clearly exhibit a north-south and inland-coastal discrepancy of human settlement dynamics. This study also reveals that both the zonal extent and zonal increase rate of human settlement positively correlate with hurricane proneness levels. The intensified human settlement in high hurricane-exposure zones deserves further attention for coastal resilience.



Atlantic Basin hurricane tracks. Credit: Xiao Huang

Where there's smoke, there may be wildland fire

Andries Heyns

Dr. Andries Heyns from the Laboratory for Location Science at the University of Alabama has been collaborating with South African-based ForestWatch to improve the effectiveness of their state-of-the-art camera-based wildfire detection systems - currently spread across four continents. Using geographical analysis and evolutionary algorithms, the best site locations for maximum smoke detection capability are being identified for their ultramodern tower-mounted cameras. Their research has been submitted for publication in the International Journal of Wildland Fire and Dr. Heyns (a former volunteer wildland fire fighter) attended the Fire Technology Innovation Summit in Sacramento in March to promote his work and discover new research opportunities. Dr. Heyns will present his tower site optimisation research at the AAG's annual meeting.

Trajectories of social vulnerability to Hurricane Harvey in the Greater Houston area

Jayajit Chakraborty

Hurricane Harvey struck Texas on August 25, 2017, and caused catastrophic flooding and unprecedented damage in the Greater Houston metropolitan area, Texas. Timothy W. Collins and Sara E. Grineski from the University of Utah, and Jayajit Chakraborty from the University of Texas-El Paso have been involved in a collaborative research project that has examined social inequalities and vulnerabilities associated with flood experiences, impacts, and short-term recovery following Hurricane Harvey in Greater Houston. This project was funded by a RAPID award from the National Science Foundation (NSF) Humans, Disasters, and the Built Environment Program. Two studies (Chakraborty et al. 2019a; 2019b) focused on social inequalities in the spatial distribution of flooding caused by Harvey, based on a digital flood inundation grid known as Harvey's Inundation Footprint developed by the U.S. Federal Emergency Management Agency. Findings from these studies indicated that the areal extent of Harvey-induced flooding was significantly greater in neighborhoods with higher proportions of racial/ethnic minorities, socioeconomically deprived residents, and people with disabilities. Disabled individuals with cognitive and ambulatory difficulties were more likely to reside in neighborhoods with higher flooding, compared to those facing other types of difficulties. Another study (Grineski et al. 2019) utilized household-level data to compare pre-event preparedness with post-event health effects, event exposures, and recovery. This study leveraged survey data collected in 2017 from a random sample of Greater Houston households who participated in a previous survey on flood hazard vulnerability (2012), which enabled implementation of a pre/post event study design that is relatively uncommon in disaster research. Results revealed that greater pre-event mitigation was associated with fewer physical health problems and adverse experiences, lower post-traumatic stress, and faster recovery. The pre/post design allowed us to discern broad benefits of home structure flood hazard mitigation for households post-Harvey. In the coming year, we plan to continue analyzing the survey data, focusing specifically on health disparities and short-term recovery.

Using 3D-printed models to teach about hazards and topography

Ashley Coles

A 3D-printed model of Mount Saint Helens is helping Physical Geography students at TCU learn more about the disaster—and how to read a topographic map. After a brief lecture about the inner structure of the volcano and

video about the 1980 eruption and its aftermath, students interpret landforms and land cover created or destroyed in the blast. The 3D model is topographically contoured, which makes it easier to grasp the concept of contour lines and relative scale of landforms. The distinctive cone shape makes it easier for first-time topographic map readers; choose a different model for a more challenging assignment. Ready-to-print digital models of Mount Saint Helens and other landforms are available at <https://www.thingiverse.com/>.



3D printed model of Mount Saint Helens with corresponding USGS Quadrangle. Credit: Ashley Coles

Recent publications (2018-)

- Alvarez, M. K. (2018) #OccupyPabahay and the politics of placelessness: Dispatches from Manila, Philippines. *The Funambulist*, 20, November -December: 4-5.
- Alvarez, M. K. (In press) Benevolent evictions and cooperative housing models in post-Ondoy Manila. *Radical Housing Journal*, 1(1).
- Alvarez, M. K. & Cardenas, K. (2019) Evicting slums, 'building back better': Resiliency revanchism and disaster risk management in Manila. *International Journal of Urban and Regional Research*, 43(2): 227-249.
- Chakraborty J, Collins T W, and Grineski S E, 2019a. Exploring the Environmental Justice Implications of Hurricane Harvey Flooding in Greater Houston, Texas. *American Journal of Public Health*, 109(2), 244-250.
- Chakraborty J, Grineski S E, and Collins T W, 2019b. Hurricane Harvey and People with Disabilities: Disproportionate Exposure to Flooding in Houston, Texas. *Social Science & Medicine*, 226, 176-181.
- Chhetri, N., Stuhlmacher, M., and Ishtiaque, A. (2019) Nested pathways to adaptation. *Environmental Research Communication* 1, 015001.
- Coles, A.R. and Quintero, M. (2018). From silence to resilience: prospects and limitations for incorporating non-expert knowledge into hazard management. *Environmental Hazards*, 17(2): 128-145.
- Estoque, R., Myint, S.W., Wang, C., Ishtiaque, A., Aung, T.T., Ooba, M., Emerton, L., Mon, M.S., Wang, Z., and Fan, C. (2018) A new estimate of mangrove forest cover changes in Myanmar (2000 to 2014): Assessing Environmental Impacts. *Global Change Biology* 24 (11): 5391-5410.
- Grineski S E, Flores, A, Collins T W, and Chakraborty J, 2019. The Impact of Hurricane Harvey on Greater Houston Households: Comparing Pre-Event Preparedness with Post-Event Health Effects, Event Exposures, and Recovery. *Disasters*, in press.
- Ishtiaque A., Eakin, H., Chhetri, N., Myint, S.W., Dewan, A. and Kamruzzaman, M. (2019) Examination of coastal vulnerability at multiple levels of governance using spatial MCDA approach. *Ocean & Coastal Management* 171: 66-79.
- Rabby, Yasin Wahid and Yingkui Li (2019). An Integrated Approach to Map Landslides in Chittagong Hilly Areas, Bangladesh, using Google Earth and Field Mapping. *Landslides*, 16(3): 633-645.
- Rudd, Murray, et al., 2018. Climate Research Priorities for Policy-Makers, Practitioners, and Scientists in Georgia, USA. *Environmental Management*, 62(2): 190-209.
- Rufat, S., E. Tate, C. Emrich, and F. Antolini* (2019). "How Valid are Social Vulnerability Models?" *Annals of the American Association of Geographers*. DOI: 10.1080/24694452.2018.1535887
- Torres, H. R., Alsharif, K. A., & Tobin, G. A. (2018). Perspectives on Adaptive Capacity to Climate Change in Hazardous Environments: Insights from Broward County, Florida. *Weather, Climate, and Society*, 10(2): 361–372. <https://doi.org/10.1175/WCAS-D-17-0094.1>

Upcoming opportunities

Research Experience for Undergraduates (REU): Resilient and Sustainable Building

The Resilient and Sustainable Building (RSB) is a collaborative NSF-funded research project at Virginia Tech to develop a comprehensive framework for the early design of mid-rise office building. The main goal of this project is to optimize office buildings performance in terms of economic constraints and environmental impacts.

This summer, RSB is offering four paid undergraduate research positions to help with two ongoing thrusts of the project: structural analysis under natural hazards and environmental life cycle assessment. The anticipated duration of REU is 8-weeks and the interested applicants should be US citizen or permanent resident and enrolled in a US undergraduate program related to civil engineering, construction or architecture for Fall 2019.

Full announcement: <https://stostruct.com/2019/02/19/reu-opportunity-at-vt/>

ICL International Summer School on Rockslides and Related Phenomena in the Kokomeren River Valley (Kyrgyzstan)

An annual field training course that teaches participants identification, mapping, dating, and detailed composition analysis of planar, rotational, wedge, and compound rockslides. The school runs August 3-18, 2019. Cost of participation is €500 and includes food, local transportation, a guidebook, and a campsite. For more information, visit the announcement website or contact the course organizers, Dr. Alexander Strom (strom.alexander@yandex.ru) or Prof. Kanatbek Abdrrakhmatov (kanab53@yandex.ru).

Full announcement: http://iplhq.org/icl/wp-content/uploads/2018/09/Summer_School_announcement_2019.pdf

HRD Specialty Group-sponsored sessions, AAG 2019

	Wed 4/3	Thu 4/4	Fri 4/5	Sat 4/6	Sun 4/7
8:00-9:40am		Hazards, Risks, and Disasters 1 . Balcony B, Marriott, Mezzanine Level	Hazards, Risks, and Disasters 5 . Balcony B, Marriott, Mezzanine Level	Hazards, Risks, and Disasters 10 . Balcony B, Marriott, Mezzanine	Historical Risk: The Role of Memory in Risk Reduction Wilson A, Marriott, Mezzanine Level
		People and Wildfire . (Guided Poster) Roosevelt 3.5, Marriott, Exhibition Level	Social Media and Big Data for Disasters Forum Room, Omni, West		Understanding resilience and adaptation using social-ecological network analysis Wilson A, Marriott, Mezzanine
9:55-11:35am		Hazards, Risks, and Disasters 2 Balcony B, Marriott, Mezzanine Level	Hazards, Risks, and Disasters 6 Balcony B, Marriott, Mezzanine Level	Hazards, Risks, and Disasters 11 Balcony B, Marriott, Mezzanine	
			Social Media and Big Data for Disasters I Forum Room, Omni, West	Hazards, Risks, and Disasters 11 (Guided Poster) Roosevelt 3.5, Marriott, Exhibition Level	
1:10-2:50pm	Devalued Populations: Diversity in Environmental Justice Cabinet Room, Omni, West	Hazards, Risks, and Disasters 3 Balcony B, Marriott, Mezzanine Level	Hazards, Risks, and Disasters 7 Balcony B, Marriott, Mezzanine Level		
		Jeanne X. Kasperson Award Winners Maryland A, Marriott, Lobby Level	Place Geographies in Spaces of Disaster and Tragedy 1 Roosevelt 4, Marriott, Exhibition Level		
			Risk Communication and Resilience Forum Room, Omni, West		
3:05-4:45pm		Hazards, Risks, and Disasters 4 Balcony B, Marriott, Mezzanine Level	Hazards, Risks, and Disasters 8 Balcony B, Marriott, Mezzanine Level	Transformation as an adaptive response to climate change: Drivers, processes and outcomes Madison B, Marriott, Mezzanine Level	
			Place Geographies in Spaces of Disaster and Tragedy 2 Roosevelt 4, Marriott, Exhibition Level		
			Recalling Gilbert White (Panel) Marriott Ballroom Salon 2, Marriott, Lobby Level		
			Transformation as an adaptive response to climate change: Drivers, processes and outcomes Madison B, Marriott, Mezzanine Level		
5:00-6:40pm			Mountain Weather Stones Throw 1 – Granite, Marriott, Mezzanine Level		
4:30-6:10pm	GIScience and Hazards in the Era of Big Data Forum Room, Omni, West				
	Leveraging Crisis and Delegating Risk: Securitized Discourses and the State (Panel) Balcony B, Marriott, Mezzanine Level				

Hazards, Risks, and Disasters Business Meeting: Thursday April 4, 6:50-7:50pm, Wilson A, Marriott, Mezzanine