

## Jamie W. McCaughey

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[Google Scholar](#)

### Education

#### **PhD, Environmental Systems Science, ETH Zürich, Switzerland**

2018, dissertation: Migration and evacuation decisions in response to coastal hazards.

#### **MS, Geological Sciences, University of Nevada, Reno, USA**

2003, thesis: Pleistocene glaciation of the southwest Tahoe basin, Sierra Nevada.

#### **BA, Geological Sciences, State University of New York at Geneseo, USA**

1998, senior study: Historical migration of Genesee River meanders.

#### **Postgraduate Certificate in Social Research Skills, University of Ulster, UK**

2016

#### **Certificate in Community-Based Development, Colorado State University, USA**

2010, International Institute for Sustainable Development.

#### **Secondary Teacher Preparation Program: Earth, Physical, and General Science**

2003, University of Nevada, Reno, USA.

### Work experience

#### **Senior Scientist (Oberassistent), Weather and Climate Risks, ETH Zürich, Switzerland**

2020-present (Senior Scientist / Oberassistent); 2018-2020 (Postdoctoral Researcher).  
Researching human migration and adaptation to sea-level rise in highly stressed coastal social-ecological systems.

#### **Community Engagement, Earth Observatory of Singapore, Nanyang Technological University, Singapore**

2010-2018

- Co-Investigator on 'Aftermath of Aid', an interdisciplinary social science research project investigating long-term outcomes of the international reconstruction following the 2004 tsunami in Aceh, Indonesia; co-director of field team with 41 full-time staff
- In western Sumatra, shared earthquake/tsunami hazard science and collaborated with local government and NGOs for risk reduction programmes
- Co-designed joint EOS / Science Centre Singapore permanent exhibit: 'Earth: Our Untamed Planet (~S\$2.5m, 550 m<sup>2</sup>)
- Led professional development workshops for teachers, developed teaching resources, and reviewed curricula and textbooks for the Singapore Ministry of Education (MoE)

#### **Research Experience for Teachers, Harvard-Smithsonian Center for Astrophysics Solar and Stellar X-Ray Group**

Cambridge, MA, USA, summers 2006-2009. Researched microflares and coronal mass ejections using IDL to process and analyze X-ray image data from Hinode/XRT.

### Science Teacher, Acton-Boxborough Regional High School

Acton, MA, USA, 2005-2010. Taught Accelerated/Enriched and Honors Earth Science, Biology, and Astronomy to students in grades 9-12 (ages 14-18).

### Teacher (Years 6-8), Brookfield School

Reno, NV, USA, 2003-2005. Taught science, math, history, and grammar.

## Publications

- Twenty years since the 2004 Indian Ocean earthquake and tsunami: Lessons learned from the Sumatran subduction zone, *Invited by the Editors at Nature Reviews Earth and Environment* (synopsis accepted), Gina M. Sarkawi, Lujia Feng, Anne Socquet, [Jamie McCaughey](#), Aron J. Meltzner, Susilo Susilo, Shengji Wei, Umar Muksin, Roland Bürgmann, Emma M. Hill.
- Socio-ecological impacts, limits to adaptation, and human migration under extreme sea-level rise, *In review* (2024), [Jamie W. McCaughey](#), Ashemir Velasco, Ibnu Mundir, Monchai Phongsiri, Severino Salmo III, Khanin Hutuanuwatr, and Albert Salamanca
- Navigating uncertainty and sensitivity analysis of future tropical cyclone risk estimates, *In review* (2024), Simona Meiler, Chahan M. Kropf, [Jamie W. McCaughey](#), Chia-Ying Lee, Suzana J. Camargo, Adam H. Sobel, Nadia Bloemendaal, Kerry Emanuel, and David N. Bresch. Preprint: <https://eartharxiv.org/repository/view/6884/>
- Overconfidence in climate overshoot, *In review at Nature Climate Change* (2024), Carl-Friedrich Schleussner, Gaurav Ganti, Quentin Lejeune, Biqing Zhu, Peter Pfliegerer, Ruben Prütz, Philippe Ciais, Thomas L Frölicher, Sabine Fuss, Thomas Gasser, Matthew J Gidden, Chahan M Kropf, Robin Lamboll, Rosanne Martyr Koller, Fabien Maussion, [Jamie W McCaughey](#), Malte Meinshausen, Matthias Mengel, Zebedee Nicholls, Yann Quilcaille, Benjamin Sanderson, Sonia Seneviratne, Jana Sillmann, Christopher J Smith, Emily Theokritoff, Rachel Warren, Joeri Rogelj, Preprint: <https://doi.org/10.22541/essoar.170158343.39134302/v1>
- Reversal of the impact chain for actionable climate information, *In review at Nature Geoscience* (2024), Peter Pfliegerer, Thomas L. Frölicher, Chahan M. Kropf, Robin D. Lamboll, Quentin Lejeune, Tiago Capela Lourenço, Fabien Maussion, [Jamie McCaughey](#), Yann Quilcaille, Joeri Rogelj, Benjamin Sanderson, Jana Sillmann, Chris Smith, Emily Theokritoff, Carl-Friedrich Schleussner, Preprint: <https://eartharxiv.org/repository/view/5883/>
- Human modification of the environment can amplify the secondary impacts of an earthquake, *Accepted at Nature Reviews Earth and Environment* (2024), Emma M. Hill, [Jamie W. McCaughey](#), Adam D. Switzer, David Lallemand, Yu Wang and Sharadha Sathiakumar
- Remarriage strategies for post-disaster widows and widowers following the 2004 Indian Ocean tsunami in Aceh, Indonesia, *Progress in Disaster Science* (2023), Saiful Mahdi, Patrick Daly, Ida Fitria, Ibnu Mundzir, Dian Rubianty, Eka Srimulyani, [Jamie McCaughey](#), <https://doi.org/10.1016/j.pdisas.2023.100289>
- A data-driven approach to rapidly estimate recovery potential to go beyond building damage after disasters, *Communications Earth & Environment* 4 / 40 (2023), Sabine Loos, David Lallemand, Feroz Khan, [Jamie W. McCaughey](#), Robert Banick, Nama Budhathoki & Jack W. Baker, <https://www.nature.com/articles/s43247-023-00699-4>
- Rebuilding historic urban neighborhoods after disasters: Balancing disaster risk reduction and heritage conservation after the 2015 earthquakes in Nepal, *International Journal of Disaster Risk Reduction* (2023), Patrick Daly, Sabin Ninglekhu, Pia Hollenbach, [Jamie McCaughey](#), David Lallemand, and Benjamin Horton. <https://doi.org/10.1016/j.ijdr.2023.103564>
- Sinking land intensifies sea-level rise: a global InSAR analysis of coastal cities, *Nature Sustainability* 5 / 1049-1057 (2022), Cheryl Tay, Eric O. Lindsey, Shi Tong Chin, [Jamie W. McCaughey](#), David Bekaert, Michele Nguyen, Hook Hua, Gerald Manipon, Mohammed Karim, Benjamin P. Horton, Tanghua Li, and Emma M. Hill, <https://www.nature.com/articles/s41893-022-00947-z>
- Uncertainty and sensitivity analysis for probabilistic weather and climate-risk modelling: an implementation in CLIMADA v.3.1.0, *Geoscientific Model Development* 15 / 7177-7201 (2022), Chahan M. Kropf, Alessio Ciullo, Laura Otth, Simona Meiler, Arun Rana, Emanuel

- Schmid, Jamie W. McCaughey, and David N. Bresch, <https://doi.org/10.5194/gmd-15-7177-2022>
- Global warming and population change both heighten future risk of human displacement due to river floods, *Environmental Research Letters*, 16 / 044026 (2021), Pui Man Kam, Gabriela Aznar-Siguan, Jacob Schewe, Leonardo Milano, Justin Ginnett, Sven Willner, Jamie W McCaughey and David N. Bresch, (2021), <https://iopscience.iop.org/article/10.1088/1748-9326/abd26c>
- Beyond building damage: estimating and understanding non-recovery following disasters, Preprint (2021), Sabine Loos, David Lallemand, Feroz Khan, Jamie McCaughey, Robert Banick, Nama Budhathoki, Jack Baker, [doi.org/10.21203/rs.3.rs-275410/v1](https://doi.org/10.21203/rs.3.rs-275410/v1)
- G-DIF: A geospatial data integration framework to rapidly estimate post-earthquake damage, *Earthquake Spectra* (2020) Sabine Loos, David Lallemand, Jack Baker, Jamie W McCaughey, Sang-Ho Yun, Nama Budhathoki, Feroz Khan and Ritika Singh, <https://journals.sagepub.com/doi/10.1177/8755293020926190>
- Informatics for equitable recovery: supporting equitable disaster recovery through mapping and integration of social vulnerability into post-disaster impact assessments; Final report to World Bank Innovation Fund (2020) David Lallemand, Sabine Loos, Jamie McCaughey, Nama Budhathoki, and Feroz Khan, [https://doi.org/10.32656%2FIER\\_Final\\_Report\\_2020](https://doi.org/10.32656%2FIER_Final_Report_2020)
- Rethinking relief, reconstruction and development: Evaluating the effectiveness and sustainability of post-disaster livelihood aid, *International Journal of Disaster Risk Reduction* 49 / 101650 (2020), Patrick Daly, Saiful Mahdi, Jamie W McCaughey, Ibnu Mundzir, Agus Halim, Nizamuddin, Ardiansyah and Eka Srimulyani, <https://www.sciencedirect.com/science/article/pii/S2212420919316711>
- Socio-economic consequences of post-disaster reconstruction in hazard-exposed areas, *Nature Sustainability* 1 / 38-43, (2018), Jamie W McCaughey, Patrick Daly, Ibnu Munder, Saiful Mahdi and Anthony Patt <https://www.nature.com/articles/s41893-017-0002-z>
- Trust and distrust of tsunami vertical evacuation buildings: Extending protection motivation theory to examine choices under social influence, *International Journal of Disaster Risk Reduction* 24 /462-473 (2017), Jamie W McCaughey, Ibnu Munder, Patrick Daly, Saiful Mahdi and Anthony Patt, <https://www.sciencedirect.com/science/article/pii/S2212420917302108>
- What determines the intensity of solar flare/CME events? *The Astrophysical Journal*, 665, 1448 (2007), Su, Y, van Ballegoijen, A, McCaughey, J, DeLuca, E, Reeves, KK, and Golub, L, [doi:10.1086/519679](https://doi.org/10.1086/519679)

## Grants

### **AXA Postdoctoral Research Fellowship**

€125,000, 2020-2022, Principal Investigator, Cooperation or conflict? Human migration and adaptation to sea-level rise in highly stressed coastal social-ecological systems.

### **World Bank Data Innovation Fund**

US\$248,000, 2018-2019, Matching funds from Earth Observatory of Singapore Research Grant, Co-Investigator and lead social scientist, Informatics for equitable recovery: long-term impacts and resilience following the 2015 Nepal earthquake.

### **Aftermath of Aid (Earth Observatory of Singapore Research Grant)**

SGD\$570,000 (equiv. US\$450,000), 2013-2017, Co-Investigator, interdisciplinary social science research project on long-term outcomes following 2004 tsunami and international reconstruction in Aceh, Indonesia.

### **ETH Zürich Rector's Impulse Fund**

CHF 13'891, 2022-2024, Principal Investigator, Application of machine learning in climate risk assessment and climate adaptation options appraisal: building BSc student competence in data analysis

### **Education for disaster risk reduction, Mentawai Islands and Padang City, Indonesia (Earth Observatory of Singapore Research Grant)**

SGD\$75,300, 2011-2014, Co-Investigator, supported efforts to communicate earthquake/tsunami hazard and collaborate with local stakeholders for risk reduction.

### **Geological Society of America Summer Research Grant**

US\$2440, 2000-2001, supported field work for my M.S. thesis on the glacial geology of the southwest Tahoe basin.

## Awards

### **Outstanding Student Poster and PICO Award**

2017, European Geosciences Union General Assembly, for 'Societal acceptance of unnecessary evacuation'.

### **Outstanding Masters Degree Student in Geological Sciences**

University of Nevada, Reno, academic year 2000-2001.

### **Women's Auxiliary to the American Institute of Metallurgical Engineers**

#### **Scholarship-Loan**

2000-2001, supported academic and living expenses during the academic year, US\$8000.

### **Megathlin Award for Outstanding Senior in Geological Sciences**

1998, SUNY Geneseo.

## Teaching

Lead instructor, Human-Environment Systems Practicum (Praktikum Mensch-Umwelt Systeme), ETH Zürich Department of Environmental Systems Science, B.Sc. programme, Spring Semesters 2022-2024. [Course Link](#)

Lead instructor, Human-Environment Systems Seminar (Seminar Mensch-Umwelt Systeme), ETH Zürich Department of Environmental Systems Science, B.Sc. programme, Fall Semesters 2022-2023. [Course Link](#)

Co-instructor, Certificate of Advanced Studies in Technology and Public Policy, Co-instructor, Spring 2024. [Course Link](#)

Advisor (Fachberater) for the B.Sc. Major in Human-Environment Systems (Vertiefung Mensch-Umwelt Systeme), B.Sc programme in Environmental Systems Science, 2022-present.

Deputy Advisor (Fachberater) for the M.Sc. Major in Environmental Systems and Policy, M.Sc. programme in Environmental Systems Science, 2023-present.

## Student thesis supervision

Lukas Wirth (Supervisor) B.Sc. Thesis, Humanitarian sector needs for advance warning of temperature extremes in refugee camps, ETH Zürich Department of Environmental Systems Science, In progress.

Dominik Hauser (Supervisor) B.Sc. Thesis, User behavior in response to weather warnings from the MeteoSwiss app, ETH Zürich Department of Environmental Systems Science, In progress.

Natalia Feringa (Supervisor) B.Sc. Thesis, Transparency in Climate-related Financial Disclosure, ETH Zürich Department of Environmental Systems Science, 2023.

Sonja Burkard (Supervisor) B.Sc. Thesis, Assessing Tropical Cyclone and Earthquake Risks to UNESCO World Heritage Sites in Japan, ETH Zürich Department of Earth Sciences, 2023.

Jasmin Schmid (Supervisor) B.Sc. Thesis, Klimawandel in Küttigen (CH): Betroffenheit und Massnahmen für mehr Klimaresilienz, ETH Zürich Department of Environmental Systems Science, 2023.

Leo Basig (Evaluator) M.Sc. Thesis, Spatial factors of natural hazard risk awareness and preparedness in the Swiss population, ETH Zürich Department of Environmental Systems Science, Master of Environmental Science, 2023.

Xue Sun (Evaluator) M.Sc. Thesis, Analysis of a Swiss panel survey on natural hazard risk awareness: Changes and stability in attitudes, ETH Zürich Department of Environmental Systems Science, Master of Environmental Science, 2023.

Laura Otth (Supervisor) M.Sc. Thesis, Analyzing the sensitivity of climate impact model outputs to ethical and epistemic uncertainties, ETH Zürich Department of Environmental Systems Science, 2021.

Ursula Wicki (Supervisor) M.Sc. Thesis, Climate adaptation: Needs assessment methodology for small communities in Switzerland, ETH Zürich Department of Environmental Systems Science, 2021.

Mei Yueru (Supervisor) M.Sc. Thesis, Incorporating land subsidence toward better estimates of the impacts of sea-level rise, ETH Zürich Department of Environmental Systems Science, 2020.

## Student internship supervision (academic advisor for external internships)

Noel Högger, M.Sc. Internship with Our Sea of East Asia Network, Tongyeong, South Korea. Area of Focus: Environmental Non-profit focusing on protection of the marine environment in East Asia and Asia Pacific, 2023.

## Policy papers / general audience

The Social and Economic Impacts of COVID-19 Mitigation Measures on Citizens and Permanent Residents During the Circuit Breaker Period in Singapore, *NTS Insight*, No. IN21-02 Singapore: RSIS Centre for Non-Traditional Security Studies (NTS Centre), Nanyang Technological University Singapore (2021), Patrick Daly, Caroline Brassard, Jamie McCaughey, Reuben Ng, Laavanya Kathiravelu, and Benjamin Horton. [Article link](#)

Perceptions of COVID-19 Mitigation Measures by Singaporean Citizens and Permanent Residents, *NTS Insight*, No. IN21-04, Singapore: RSIS Centre for Non-Traditional Security Studies (NTS Centre), Nanyang Technological University Singapore, (2021), Patrick Daly, Caroline Brassard, Jamie McCaughey, Reuben Ng, Laavanya Kathiravelu, and Benjamin Horton. [Article link](#)

Access to Resources and Support for Singaporean Citizens and Permanent Residents during the COVID-19 Circuit Breaker, *NTS Insight*, No. IN21-03, Singapore: RSIS Centre for Non-Traditional Security Studies (NTS Centre), Nanyang Technological University Singapore (2021), Patrick Daly, Caroline Brassard, Jamie McCaughey, Reuben Ng, Laavanya Kathiravelu, and Benjamin Horton. [Article link](#)

Gender Differences in Resident Perceptions of Singapore's Covid-19 Circuit Breaker, *Global-is-Asian*, Lee Kuan Yew School of Public Policy (2021), Patrick Daly, Caroline Brassard, Jamie McCaughey, Reuben Ng, Laavanya Kathiravelu, and Benjamin Horton. [Article link](#)

How Singapore's Covid-19 Circuit Breaker disrupted everyday life, *Global-is-Asian*, Lee Kuan Yew School of Public Policy (2021), Patrick Daly, Caroline Brassard, Jamie McCaughey, Reuben Ng, Laavanya Kathiravelu, and Benjamin Horton. [Article link](#)

Skenario Kejadian Tsunami yang Diakibatkan oleh Gempa 8,8 SR di Provinsi Sumatera Barat: Rangkuman untuk Rapat Antara Ilmuwan dan Pemangku Kepentingan di Provinsi Sumatera Barat, Padang, tanggal 24 Februari 2012. (Policy paper on earthquake and tsunami hazard and disaster risk reduction options in Padang City and Mentawai Islands, to support workshops with local governments, NGOs, and community organisations working to reduce disaster risk) Danny Hilman Natawidjaja, Kerry Sieh, Jamie McCaughey, and Ashar Lubis.

## Conference presentations

Heat impacts in Islamabad and Lisbon: eliciting local knowledge to inform quantitative modelling; *General Assembly of PROVIDE (EU H2020)*, Lisbon, Portugal (2023) [Jamie McCaughey](#), Carolina Vieira, Inês Gomes Marques, Hugo Costa, Tiago Lourenço, Khadija Irfan, Sumayya Ijaz, Mariam Saleh Khan

Bringing diverse datasets on societal vulnerability and resilience into assessments of post-disaster recovery needs; *American Geophysical Union, Fall Meeting* (2019) [McCaughey, J. W.](#) ; Loos, S. ; Singh, R. ; Budhathoki, N. ; Lallemand, D.

Towards Human-Centric Rapid Post-Disaster Impact Assessments Through Transdisciplinary Informatics; *American Geophysical Union, Fall Meeting* (2019) David Lallemand, Sabine Loos, [Jamie McCaughey](#), Feroz Khan, Nama Budhathoki, Ritika Singh, Mhairi Elizabeth O'Hara.

Finding the right metrics of vulnerability and resilience: Correct and incorrect simplifications of behavioral factors; *European Geosciences Union General Assembly, Vienna* (2018) [McCaughey, J](#), Feener, M, Mundzir, I, Hayatullah, and Daly, P.

Migration and evacuation in response to coastal hazards (2018), *Riederalp Workshop on Exposure, Vulnerability, and Resilience of Human Societies*; [McCaughey, J](#)

Societal acceptance of unnecessary evacuation; *EGU General Assembly* (2017) [Jamie W McCaughey](#), Ibnu Mundzir, Anthony Patt, Rizanna Rosemary, Lely Safrina, Saiful Mahdi, Patrick Daly

- Using systems gaming to explore decision-making under uncertainty in natural hazard crises; *European Geosciences Union General Assembly, Vienna* (2017) McCaughey, J. and Finnigan, D,
- A toolkit of systems gaming techniques; *European Geosciences Union General Assembly, Vienna* (2017) Finnigan, D, and McCaughey, J.
- Rebuilt risk: involuntary return, voluntary migration, and socioeconomic segregation in post-tsunami Aceh (2016) *Global Risk Forum International Disaster and Risk Conference, Davos*; McCaughey, J.
- Societal acceptance of unnecessary evacuation (2016), *Global Risk Forum International Disaster and Risk Conference, Davos*; McCaughey, J., Mundzir, I, Patt, A, Rosemary, R, Safrina, L, Mahdi, S, and Daly, P.
- Rebuilt risk: involuntary return, voluntary migration, and socioeconomic segregation in post-tsunami Aceh (2016) *International Geographical Congress, Beijing*; McCaughey, J, Daly, P, Mundzir, I, Mahdi, S, and Patt, A.
- Distrust of tsunami vertical evacuation buildings; *Global Risk Forum International Disaster and Risk Conference, Davos* (2016) McCaughey, J., Mundzir, I, Daly, P, Mahdi, S, and Patt, A.
- The Earth as a physics laboratory; Physics Instructional Programme Support Group Conference, Singapore Ministry of Education (2016) McCaughey, J.
- Rebuilt risk: involuntary return, voluntary migration, and socioeconomic segregation in post-tsunami Aceh; *European Geosciences Union General Assembly* (2016) McCaughey, J., Daly, P, Mundzir, I, Mahdi, S, and Patt, A.
- Science and Societal Lessons from a Decade of Giant Megathrust Earthquakes; *American Geophysical Union Fall Meeting, San Francisco, Calif.* (2014) Andrew Vern Newman, Lujia Feng, Jamie McCaughey, Aron J Meltzner
- Technologies for Inquiry-Based Learning in the Geography Classroom; *International Conference on Teaching and Learning with Technology, Singapore* (2014) McCaughey, J.
- The science between tsunami science and evacuation decisions; *American Geophysical Union Fall Meeting, San Francisco, Calif., USA* (2014) McCaughey, J., Dewi, PR, Mundzir, I, Rosemary, R, Safrina, L, Daly, P, and Patt, A.
- The dynamic nature of relative sea level in Southeast Asia: tectonic effects and human impacts; *American Geophysical Union Fall Meeting, San Francisco, Calif.* (2013) E Hill, Q Qiu, L Feng, A Lubis, AJ Meltzner, LL Tsang, P Daly, J McCaughey, P Banerjee, CM Rubin, K Sieh
- From direct instruction to inquiry learning in the earth sciences: common challenges and opportunities across cultures in the Singapore context; *Fall Meeting, AGU, San Francisco, Calif.* (2013) McCaughey, J., Rubin, CM, Eriksson, SC, Hill, EM, Phua, A, and Yong, F.
- Field seminars take inquiry to the volcanoes of Southeast Asia; *Annual Meeting, Geological Society of America, Denver, Colo., USA* (2013) Eriksson, SC, McCaughey, J., and de Silva, S.
- University-NGO connections for earthquake and tsunami risk reduction: lessons learned in West Sumatra; *Fall Meeting, AGU, San Francisco, Calif.*, (2013) McCaughey, J., and Dewi, PR.
- Constructivist learning at the science-policy interface: tsunami science informing disaster policy in West Sumatra; *Fall Meeting, AGU, San Francisco, Calif.* (2012) McCaughey, J., Dewi, PR, Natawidjaja, D, and Sieh, K.
- Partnerships for outreach: earthquake and tsunami hazard in West Sumatra, [Invited]; *AOGS-AGU Joint Assembly, Singapore* (2012) McCaughey, J., Lubis, AM, Sinaga, B, Huang, Z, Yao, Y, Hill, E, Dewi, PR, Eriksson, S, Sieh, K, and Natawidjaja, D.
- Numerical simulations of tsunami inundation for the Mentawai Islands, Indonesia - a scenario study using high-resolution topographic data; *AOGS-AGU Joint Assembly, Singapore* (2012) Yao, Y, Huang, Z, Lubis, A M, Hill, E, McCaughey, J., and Li, L.
- Earthquake and tsunami hazard in West Sumatra: integrating science, outreach, and local stakeholder needs; *EGU General Assembly, Vienna* (2012) McCaughey, J., Lubis, A M, Huang, Z, Yu, Y, Hill, EM, Eriksson, S, and Sieh, K.
- Measuring plate movement with GPS to understand earthquake hazard; *AGU-National Earth Science Teachers Association GIFT: Geophysical Information for Teachers Workshop, AGU Fall Meeting, San Francisco, Calif.* (2012) Olds, S, Pratt-Sitaula, B, and McCaughey, J.
- An active volcano - where scientists and teachers cause explosive inquiry-based learning to erupt; *AOGS-AGU Joint Assembly, Singapore* (2012) Chong, E, McCaughey, J., Tan, GCI, Ng, HK, Nadarajah, VR, Costa, F, Bouvet de Maisonneuve, C, Ratdompurbo, A, and Eriksson, S.

User-driven science: earthquake and tsunami scenarios for Mentawai Islands, western Sumatra; *American Geophysical Union Fall Meeting, San Francisco, Calif.* (2011) McCaughey, J., Lubis, A, Qiang, Q, Huang, Z, Hill, E, Natawidjaja, D, and Sieh, K.

Earth science, science centre, and classroom: collaboration for communication; *AOGS-AGU Joint Assembly, Singapore* (2012) McCaughey, J., Goh, KK, Chong, E, and Tan, D.

Enhancing the earth-science content and inquiry basis of physical geography education in Singapore schools; *Fall Meeting, AGU, San Francisco* (2011) McCaughey, J., Chong, ESF, and Eriksson, S.

The Neupert effect in microflares with Hinode/XRT and RHESSI; *Hinode-2 Science Meeting, Boulder, USA* (2008) McCaughey, J., Hannah, I, Reeves, KK, Grigis, P, and DeLuca, E.

Relative dating of Pleistocene moraines, southwest Tahoe basin, California; *Abstracts with Programs - Geological Society of America, 32(7): 67* (2000) McCaughey, J., and Schweickert, RA.

### **Invited lectures/workshops: Academic**

Ateneo de Manila University, Manila, Philippines, 'The policy relevance of environmental science', Oct-2019.

Stockholm Environment Institute, Bangkok, Thailand, 'Adapting to sea-level rise and coastal disasters in a changing climate', Oct-2019.

College of Agricultural and Marine Sciences, Sultan Qaboos University, Oman, 'Adaptation to sea-level rise and coastal disasters', Feb-2019.

International Institute for Population Studies, Mumbai, India, 'Disasters and migration in a changing climate', Feb-2019.

Institute for Environmental Decisions Seminar, ETH Zürich, 'Poverty as a proxy for vulnerability: Impacts and recovery from the 2015 Nepal earthquake', Jan-2019.

Weather and Climate Risks Group Seminar, ETH Zürich, 'Cooperation or conflict? Adaptation to sea-level rise in highly stressed social-ecological systems', Dec-2018.

Weather and Climate Risks Group Seminar, ETH Zürich, 'Socio-economic vulnerability to natural hazards', Oct-2018.

Paris School of Economics, Climate Change Impacts, Modelling, and Regulation Summer School, 'Migration in response to coastal hazards, Jun-2018.

Earth Observatory of Singapore Seminar Series, 'Migration and evacuation in response to coastal hazards', Feb-2018.

Asian School of the Environment, Nanyang Technological University, Singapore, annual guest lecture for 400-600 undergraduate students in *Natural hazards, climate change, and society*, 'Living with natural hazards', 2014-2017.

Graduate Institute of International and Development Studies (IHEID), Geneva, Centre for International Environmental Studies Lunch Seminar, 'Rebuilt risk: involuntary return, voluntary migration, and socioeconomic segregation in post-tsunami Aceh', Mar-2016.

Climate Policy group seminar, ETH Zürich, 'Adjusting to tsunami risk: migration and evacuation decisions in post-tsunami Aceh', Feb-2016.

Earth Observatory of Singapore Seminar Series, 'Adjusting to tsunami risk: migration and evacuation decisions in post-tsunami Aceh', Jan-2016.

Future Cities Laboratory, Singapore-ETH Centre, National University of Singapore, Lunch Talk, 'Living with tsunami risk: migration and evacuation decisions', Nov-2015.

Environment and Sustainability Research Cluster, Nanyang Technological University, Sustainability Salon, 'Living with tsunami risk', Oct-2015.

Roundtable with Prime Minister's Scholarships for Asia recipients (New Zealand undergraduates), Banda Aceh, Indonesia, Jun-2015.

Climate Policy group seminar, ETH Zürich, 'Living with tsunami risk: individual and household decisions', Apr-2015.

Human-Environment Systems group seminar, ETH Zürich, 'The social side of tsunami early warning', Mar-2014.

School of Humanities and Social Sciences, Nanyang Technological University, Singapore, guest lecture in *The Environment in History*, 'Convenient fuels and inconvenient truths: a short history of carbon', Oct-2013.

Padjajaran University, Bandung, Indonesia, Seminar with Faculty of Communication and the Indonesian Institute of Sciences, 'Salah kaprah dalam komunikasi dan pendidikan ilmu

- pengetahuan alam: case study pengurangan risiko bencana', Seminar: Diseminasi Informasi Penelitian Kebencanaan Fakultas Ilmu Komunikasi Universitas Padjajaran dan Pusat Penelitian Geoteknologi, Lembaga Ilmu Pengetahuan Indonesia, *'Misconceptions in science communication and education: case study of disaster-risk reduction'*, Seminar: Dissemination of disaster research, Jatinangor, Java, Indonesia Oct-2013.
- Islamic State University Ar-Raniry, Banda Aceh, Indonesia, Seminar: Towards Improving Islamic Higher Education Quality, 'Pendidikan ilmu pengetahuan alam di universitas: gempa/tsunami di Aceh dan pengintegrasian ilmu alam dengan ilmu sosial' (*'Science education at the university level: case study of earthquakes and tsunamis in Aceh integrating earth science and social science'*), Sep-2013.
- International Centre for Aceh and Indian Ocean Studies, Banda Aceh, Indonesia, Dialogue Forum Between Science and Religion, 'Gempa dan tsunami di wilayah Aceh: pengetahuan dari perspektif ilmiah' (*'Earthquakes and tsunami in Aceh: knowledge from the scientific perspective'*), Jun-2013.
- Earth Observatory of Singapore Seminar Series, 'A private universe: the challenge of misconceptions and implications for science communication'. (w/ Susan Eriksson), May-2012.

### **Invited lectures/workshops: Government agencies and NGOs**

- Área Metropolitana de Lisboa (Officials from the Metropolitan Area of Lisbon and constituent municipalities, organised by PROVIDE): 'Heat impacts in Islamabad and Lisbon: eliciting local knowledge to inform quantitative modelling', Lisbon, Portugal, Nov-2023.
- Sphere Project: Humanitarian Charter and Minimum Standards in Humanitarian Response, Consultation and input on Sphere Handbook 2018 revision, S. Rajaratnam School of International Studies, Nanyang Technological University, Singapore, Nov-2017.
- Bengkulu Province Disaster Management Agency & Indonesian Agency for Meteorology, Climatology, and Geophysics, 'Pengetahuan gempa dan tsunami: Pengalaman dalam hal komunikasi risiko bencana', (*'Understanding earthquakes and tsunamis: Experiences in communicating disaster risk'*), Bengkulu City, Indonesia, Nov-2013.
- Singapore MoE Security and Emergency Planning Office, 'Singapore: an often-quiet corner of a very active region of our planet', May-2013.
- Padang City Government (convened by Disaster Management Agency w/ Kogami), Indonesia, Workshop Penyusunan Rencana Kontinjensi Menghadapi Bencana Tsunami di Kota Padang, Badan Penanggulangan Bencana Daerah Kota Padang, 'Gempa bumi dan tsunami di Sumatera: bagaimana memperkirakannya?' (*'Earthquakes and tsunamis in Sumatra: how can we estimate the hazard?'*) Workshop to develop a tsunami contingency plan for Padang City, Padang City Regional Disaster Management Agency, Sep-2012.
- West Sumatra Provincial Government (convened by Disaster Management Agency w/ Danny Hilman & Kogami), Discussion Forum: Skenario Kejadian Tsunami yang Diakibatkan oleh Gempa 8,8 SR di Provinsi Sumatera Barat (*Discussion Forum: Scenario of a Tsunami and M8.8 Earthquake in West Sumatra Province*), Feb-2012.
- Mentawai Islands Regency Disaster Management Agency (w/ SurfAid), Workshop Membangun Strategi dan Keberlanjutan Rencana Penanggulangan Bencana di Kabupaten Kepulauan Mentawai (*Workshop to develop strategy and planning for disaster-risk reduction in the Mentawai Islands Regency*), 'Ancaman gempa dan tsunami di Kepulauan Mentawai' (*'Earthquake and tsunami risk in the Mentawai Islands'*), Tuapeijat, Mentawai, Indonesia, Sep-2011.
- Mentawai Islands Regency Department of Education, joint teacher workshop with SurfAid (NGO), Sikakap, Mentawai, Indonesia, 'Memasukkan pengurangan risiko bencana ke dalam mata pelajaran sekolah dasar: gempa bumi dan tsunami di wilayah Kepulauan Mentawai'. (*'Integrating disaster-risk reduction in the elementary-school curriculum: earthquakes and tsunamis in the Mentawai Islands'*), Aug-2011.
- Ready Mentawai (NGO), Sikakap, Mentawai field office, 'Ancaman gempa dan tsunami di Kepulauan Mentawai' (*'Earthquake and tsunami risk in the Mentawai Islands'*), Aug-2011.
- SurfAid (NGO), Sikakap, Mentawai field office, 'Ancaman gempa dan tsunami di Sumatera Barat' (*'Earthquake and tsunami risk in West Sumatra province'*), Aug-2011.
- Tsunami Alert Community (Kogami, NGO), 'Ancaman gempa dan tsunami di Sumatera Barat' (*'Earthquake and tsunami risk in West Sumatra province'*), Aug-2011.



Disaster Management Agency for West Sumatra Province (w/ Kogami), 'Ancaman gempa dan tsunami di Sumatera Barat' (*'Earthquake and tsunami risk in West Sumatra province'*), May-2011.

Disaster Management Agencies for Mentawai Islands Regency and West Sumatra Province, joint workshop with MercyCorps, Padang, 'Kesempatan kerjasama di antara para ilmuwan dan para pemangku kepentingan dalam pengurangan risiko bencana.' (*'Collaboration between scientists and stakeholders in disaster risk reduction.'*) Workshop Semiloka Peningkatan Kapasitas Pemerintah Dalam Penganggulangan Bencana, Padang, Indonesia, May-2011.

### **Invited lectures/workshops: Teacher professional development provided**

Singapore Ministry of Education & Academy of Singapore Teachers, 'Volcanoes and plate tectonics in the classroom' (w/ Dawn Ruth), Jul-2016.

Singapore Ministry of Education & Physics Instructional Programme Support Group, 'The Earth as a physics learning laboratory', Jan-2016.

Singapore Ministry of Education, Educational Technology Division, 'Technologies of scientific inquiry, technologies of inquiry learning', Apr-2014.

Singapore Ministry of Education & Science Centre Singapore, 'Weather and climate through inquiry learning', Apr-2014.

Singapore Ministry of Education, Educational Technology Division, 'Interactive GIS applications to help students learn plate tectonics', Feb-2014.

Singapore Ministry of Education & Academy of Singapore Teachers, 'Plate tectonics through inquiry learning', Feb-2014.

Singapore Ministry of Education, Academy of Singapore Teachers, & National Institute of Education, 'Volcanology field seminar at Batur volcano' (w/ Antonius Ratdomopurbo, Kaler Surata), Kintamani/Tampaksiring/Ubud, Bali, Indonesia, Jun-2013.

Singapore Ministry of Education & Academy of Singapore Teachers, 'Plate tectonics through inquiry learning' (w/ Susan Eriksson), Jan-2013.

Academy of Singapore Teachers, 'MRT to magma chamber: field inquiry on plate tectonics and the rock cycle at Little Guilin, Singapore', Mar-2013.

Singapore International Science Teachers Conference, Singapore Ministry of Education & Science Centre Singapore, 'Using science to understand how the Earth works', Nov-2012.

Southeast Asian Geography Association 11th Conference, 'MRT to magma chamber: field inquiry on plate tectonics and the rock cycle at Little Guilin, Singapore', Nov-2012.

Singapore Ministry of Education, Academy of Singapore Teachers, & National Institute of Education, 'Volcanology field seminar on Merapi volcano' (w/ Antonius Ratdomopurbo, Fidel Costa, Caroline Bouvet de Maisonneuve, Susan Eriksson) Yogyakarta, Indonesia, Jun-2012.

Humanities Educators Conference, Singapore Ministry of Education, Raffles Institution, 'Simple messages are not simple: connecting earthquake and tsunami hazard research to risk-mitigation practice in West Sumatra', May-2012.

Humanities Educators Conference, Singapore Ministry of Education, Raffles Institution, 'Volcanoes, earthquakes, and plate tectonics in Sumatra: an inquiry workshop with authentic data.' (w/ Susan Eriksson), Singapore, May-2012.

Singapore Ministry of Education, Academy of Singapore Teachers, & Science Centre Singapore, 'Secondary geography classroom integration of the exhibition Earth: Our Untamed Planet', Apr-2012.

Singapore Ministry of Education, Academy of Singapore Teachers, & Science Centre Singapore, 'A-level geography classroom integration of the exhibition Earth: Our Untamed Planet', Apr-2012.

Hwa Chong Institution, Singapore, 'How can we live safely and sustainably on this dynamic planet?' Apr-2012.

Republic Polytechnic, Singapore, Science Congress 2012, 'GPS: a new view of earthquakes', Jan-2012.

Rotary Club of Singapore West, 'Singapore: an often-quiet corner of a very active region of our planet', Sep-2011.

Singapore Ministry of Education & Raffles Institution, 'Climate-change science: an inquiry approach', Apr-2011.

Singapore Ministry of Education & Raffles Institution, 'Atmosphere and weather: an inquiry approach', Mar-2011.

Hwa Chong Institution, Singapore, 'Earth systems science', Mar-2011.

Singapore Ministry of Education, Academy of Singapore Teachers, & National Institute of Education, 'Volcanology field seminar on Merapi volcano', (w/ Chris Newhall, Antonius Ratdompurbo) Yogyakarta, Indonesia, Nov-2010.

## **Other service**

### **Reviewer:**

#### Academic journals:

PNAS

Nature Sustainability

World Development

Climate Risk Management

Economics of Disasters and Climate Change

Earthquake Spectra

Natural Hazards

Natural Hazards Review

International Journal of Disaster Risk Reduction

Geoenvironmental Disasters

City and Environment Interactions

Asian Journal on Environmental and Disaster Management

Cogent Social Science

#### Research funding:

Environmental Protection Agency Ireland, Research Programme

University of Hawai'i Sea Grant Program

### **Committees/boards:**

Research Steering Committee, Environmental Protection Agency Ireland, for research project 'Climate change impacts costing study and an economic appraisal of adaptation measures in Ireland', 2023-2025.

Teaching Commission (Unterrichtskommission) for Doctoral, Master's, and Bachelor's degree programmes in Environmental Systems Science, ETH Zürich, Switzerland, 2021-present

Admissions Commission (Zulassungskommission) for Master's degree programme in Environmental Systems Science, Major in Environmental Systems and Policy, ETH Zürich, Switzerland, 2020-present

International Advisory Board, International Centre for Aceh and Indian Ocean Studies, Aceh, Indonesia, 2014-2018

Hiring Committee for Education and Outreach Director, Earth Observatory of Singapore, Nanyang Technological University, Singapore, 2014

Co-chair, Northeastern Association for Schools and Colleges (NEASC, USA) Accreditation Committee for Curriculum and Instruction, Acton-Boxborough Regional High School, MA, USA, 2008

### **Conference/seminar organiser:**

Organiser, Institute for Environmental Decisions Seminar Series in Climate, Energy, Resources, Risk, and Resilience, ETH Zürich (2020–2022)

Co-convener, Society for Risk Analysis Europe Annual Meeting, 2016, symposium: 'The social side of early warning and evacuation decisions' (w/ Anna Scolobig)

Co-convener, American Geophysical Union Fall Meeting 2014, Seismology session: 'Science and societal lessons from a decade of giant megathrust earthquakes'. (w/ Andrew Newman, Lujia Feng, Aron Meltzner)

## **Skills**

### **Languages:**

English: *native*

German, Indonesian, French, Spanish: *working knowledge*

### **Computer:**

*Proficient:* R (statistical programming), MaxQDA (qualitative data analysis), LaTeX (typesetting)

*Some experience:* Python, QGIS, ArcGIS, GMT (Generic Mapping Tools), SQL, IDL (Interactive Data Language), NetLogo

### **Laboratory:**

Luminescence dating, SEM, sedimentology, rock thin-section preparation, petrographic analysis, paleomagnetism