

Kevin Miller, Long-Time California NTHMP Representative, Moving on to New Job

By Rick Wilson, California Geological Survey

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Kevin Miller, the manager of the Earthquake, Tsunami, and Volcano Program at the California Governor’s Office of Emergency Services (Cal OES), has taken a new job with the California Public Utilities Commission (CPUC). For many years, Kevin has been a key leader of tsunami preparedness and planning both in California and at the national level through his work in the NTHMP.

Kevin has led the California Tsunami Program for the past decade. He is respected for his collaborative nature and facilitation of new, forward-thinking products to help communities prepare for the next tsunami. During his time at Cal OES, Kevin helped publish the first statewide tsunami inundation maps, made over a hundred tsunami preparedness presentations to constituents, and facilitated dozens of tsunami response exercises. In 2017, Kevin received a Special Recognition Award from the California Emergency Services Association for his work implementing decision support tools known as tsunami “playbooks” to help local emergency managers and harbor officials address minor to moderate-size tsunami events more effectively.



Photo of Kevin Miller observing tsunami damage in Crescent City Harbor a week after the March 11, 2011 Tohoku-Oki event (photo by Rick Wilson).

Nationally, Kevin has been a member of the Coordinating Committee of the NTHMP for the past eight years. Since 2014, he has also served as the State Co-Chair of the NTHMP Mitigation and Education Subcommittee, advancing the Subcommittee’s efforts to improve tsunami preparedness guidance for states and territories. Kevin was instrumental in developing maritime tsunami guidance through the Subcommittee for states to create hazard products and response plans for harbor officials.

On a personal level, I have worked with Kevin for the past 13 years on tsunami planning activities in California, communicating with him on almost a daily basis. He is a good friend and has been a terrific, inspirational partner to collaborate with over that time. Although Kevin will be missed in tsunami preparedness circles, there is no doubt that he will continue to impress and inspire colleagues at this new job with the CPUC.

TsuInfo Alert

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NATIONAL TSUNAMI HAZARD MITIGATION PROGRAM LIBRARY CATALOG:

<http://d92019.eos-intl.net/D92019/OPAC/Index.aspx>

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World Tsunami Awareness Day In the News

Effective Disaster Risk Governance Saves Lives, UN Highlights on World Tsunami Awareness Day—UN News Staff <https://news.un.org/en/story/2020/11/1076902>

Hawaii Emergency Management Agency Reminds Public of World Tsunami Awareness Day—Hawaii Emergency Management Agency Staff
<https://dod.hawaii.gov/hiema/news-release-hawaii-emergency-management-agency-reminds-public-of-world-tsunami-awareness-day/>

November 5 is World Tsunami Awareness Day—Timothy "Seph" Allen, NASA LaRC
<https://appliedsciences.nasa.gov/our-impact/news/november-5-world-tsunami-awareness-day>

World Tsunami Awareness Day 2020—Lori Dengler, Times Standard
<https://www.times-standard.com/2020/11/01/lori-dengler-world-tsunami-awareness-day-2020/>

World Tsunami Awareness Day: Oregon offers maps of known coastal hazard areas—KVAL 13 Staff
<https://kval.com/news/local/world-tsunami-awareness-day-oregon-offers-maps-of-known-coastal-hazard-areas>



World Tsunami Awareness Day 2020 – Building a Global Tsunami Ready Community

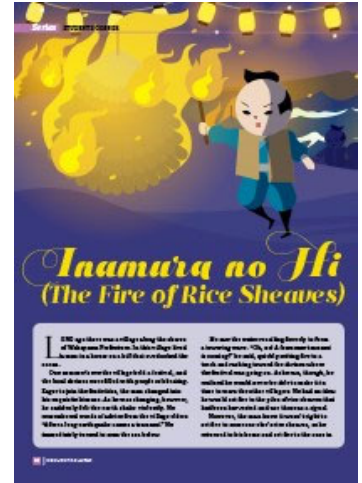
By Laura Kong (International Tsunami Information Center) &
Christa von Hillebrandt-Andrade (US NWS Caribbean Tsunami Warning Program)

In December 2015, the United Nations (UN) designated November 5 as [World Tsunami Awareness Day \(WTAD\)](#), aligning it with the International Day for Disaster Reduction (October 13) and the seven targets of the UN [Sendai Framework for Disaster Risk Reduction 2015-2030](#). The Sendai Framework, which followed the UN [Hyogo Framework for Action 2005–2015](#), provides a concise, focused, forward-looking and action-oriented framework for disaster risk reduction, and prioritizes better preparedness and *Building Back Better* in recovery, rehabilitation and reconstruction.

November 5 is based on an anecdote and example of a good practice known in Japan as [“Inamura-no-hi” \(the burning of rice sheaves\)](#) which took place on the 5th of November 1854. It is based on a historical event that took place during a massive tsunami disaster that resulted from the 1854 Ansei Nankai Earthquake.

The tsunami struck Hiromura, a little village on the Kii Peninsula in western Japan (present Hirokawa town, Wakayama Prefecture). After feeling the earthquake, [Hamaguchi Goryo](#), a farmer who lived in the village, anticipated that a big tsunami would come when he noticed the lowering of the tide and a rapid decrease in the level of well water (a natural tsunami warning sign). He guided his fellow villagers to evacuate to higher ground by setting fire to his precious sheaves of rice, his whole year’s harvest, as a signal

of warning. From the hilltop, the villagers saw the tsunami destroy their village. They understood that it was the fire that saved them. Japan proposed this date, because [“World Tsunami Awareness Day,”](#) is intended to serve to protect the precious lives of people, and thus it should be associated with an example of “traditional, indigenous and local knowledge and practices” such as “Inamura-no-hi.”



For 2020, World Tsunami Awareness Day (WTAD) focused was on Global Target (e): *Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020*. By the year 2030, an estimated 50% of the world's population will live in coastal areas exposed to flooding, storms and tsunamis. Having plans and policies in place to reduce tsunami impacts will help to build more resilience and protect populations at risk. Global conferences, regional seminars, Tsunami Ready communities, and tsunami survivors highlighted a 30-day campaign jointly organized by the UN Office for Disaster Risk Reduction (UNDRR) and the Intergovernmental Oceanographic Commission of UNESCO, in collaboration with other UN and external partners and the sponsorship of the Government of Japan.

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World Tsunami Awareness Day 2020 – Building a Global Tsunami Ready Community

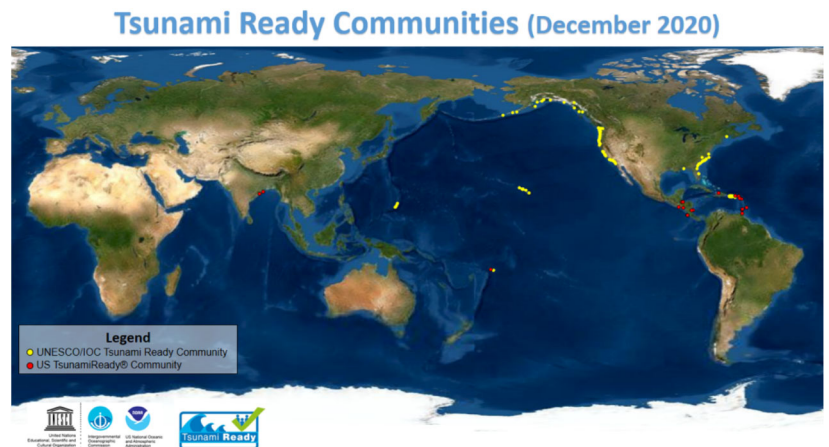
By Laura Kong (International Tsunami Information Center) &
Christa von Hillebrandt-Andrade (US NWS Caribbean Tsunami Warning Program)

(Continued from page 3)

Both a UN high-level seminar, *World Tsunami Awareness Day 2020, Ready for the next wave!* ([CLICK to view the taped conference](#)), and the Third Tsunami Museum Conference, *Preserving Past Tsunami Information for Future Preparedness*, ([CLICK to view the taped conference](#)), were held virtually. This year's Museum Conference focused on the importance of preserving memories of past disasters for educating future generations on tsunami risk and will demonstrate how museums and testimonies of survivors can raise awareness and educate more at-risk populations, particularly in light of COVID-19. Museums serve as local historical repositories and focal points for public awareness and education. The [Pacific Tsunami Museum](#) in Hilo, Hawaii, which was established in 1993 to collect the stories of Hawaii survivors from the 1946, 1952, 1957, and 1960 tsunamis that devastated Hawaii, was featured, as well as the [Museum Tsunami](#) in Aceh, Indonesia, which was established after the 2004 Sumatra tsunami that killed about 180,000 in Indonesia and nearly 230,000 across the Indian Ocean.

Tsunami seminars in the Caribbean, South American Pacific Coast, Ecuador, Pacific Islands, Indian Ocean, and Mediterranean highlighted progress in tsunami disaster risk reduction and tsunami readiness.

World Tsunami Awareness Day also highlighted communities that have joined the Tsunami Ready global community. Coastal communities can become better prepared through planning, education and awareness, and the strengthening of their local emergency actions. Recent tsunamis in Japan (2011) and Indonesia (2018) attest to the importance of readiness - when a tsunami arrives and communities are ready, lives are saved and fewer die.



The [US NOAA/NWS TsunamiReady®](#) and [UNESCO IOC Tsunami Ready](#) programs seek to build resilient communities through awareness and preparedness strategies that protect life, livelihoods and property from tsunamis. This is achieved through a voluntary collaborative effort by a community to meet a standard level of tsunami preparedness for recognition.

At the international level, work toward this goal was initiated in 2011 after the catastrophic Japan tsunami. Through a pilot, the US NOAA and UNESCO IOC recognized [Angilla](#) in 2011 and the [British Virgin Islands](#) in 2014 as the first two countries to be TsunamiReady®. The UNESCO IOC pilot programme is modelled after the US TsunamiReady® program (established 2001), which recognizes and facilitates tsunami preparedness through collaboration between federal, state and local emergency managers. In 2015, the UNESCO IOC Tsunami Ready guidelines were adopted by the IOC General Assembly, and the pilot expanded to the Pacific and Indian Ocean, to propose a consistent global framework for community preparedness.

(Continues on page 5)

World Tsunami Awareness Day 2020 – Building a Global Tsunami Ready Community

By Laura Kong (International Tsunami Information Center) &
Christa von Hillebrandt-Andrade (US NWS Caribbean Tsunami Warning Program)

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Tsunami Ready Plans Save Lives. Having a plan in place for your community can save lives. The number of countries and communities participating in TsunamiReady continues to expand:

- [Cedeño](#), Honduras
- [Ostional](#) and [Samara](#), Costa Rica
- [Corn Island](#) and [Bluefield](#), Nicaragua
- [Tamanique](#) and [La Libertad](#), El Salvador
- [Savaia Lefaga](#), Samoa
- [St. Kitts and Nevis](#)
- [Trinidad and Tobago](#)
- [St. George](#) and [Union Island](#), St. Vincent and the Grenadines
- [Barbados](#)
- [Antigua and Barbuda](#)
- [Haiti](#)
- [St. Patrick](#) and [Carriacou/Petite Martinique](#), Grenada
- [British Virgin Islands](#)
- [Anguilla](#)

For WTAD 2020, the UNDRR produced 2-minute videos on countries who have joined the Tsunami Ready global community. Two videos showcased the USA, with one video on Puerto Rico and another video on Tsunami Vertical Evacuation in Waikiki, Oahu, Hawaii.

- [Costa Rica](#)
- [India](#)
- [Indonesia, South Java](#)
- [Italy](#)
- [New Zealand](#)
- [Corn Island, Nicaragua](#)
- [Kos, Greece; Bodrum, Turkey](#)
- [Fiji](#)
- [Oman](#)
- [Philippines](#)
- [Samoa](#)
- [Tonga](#)
- USA: [Hawaii](#), [Puerto Rico](#)
- [Vanuatu](#)



SOCIAL JUSTICE & NATURAL HAZARDS

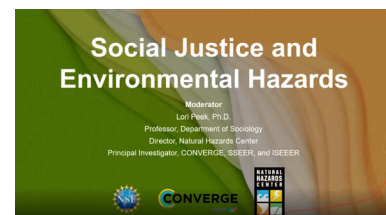
Social Justice and Environmental Hazards

Panel discussion held by the NTHMP on December 10th, 2020

On Dec 10th, 2020 the NTHMP hosted a panel discussion on Social Justice and Environmental Hazards. The discussion was moderated by Dr. Lori Peek, a professor in the Department of Sociology and Director of the Natural Hazards Center at the University of Colorado Boulder. She also directs the NSF-funded CONVERGE facility. The panelists were Dr. Tiffany Wise-West, Sustainability + Climate Action Manager City of [Santa Cruz Climate Action Program](#), Candice Colucci, Attorney [Colucci Law Group](#), and Dr. Nathan Wood, Research Geographer, USGS [Western Geographic Science Center](#).

The purpose of the panel discussion was to highlight a topic that many within the NTHMP community expressed an interest in learning more about: exploring ways to address social inequities in the communities they serve.

The diverse panel examined the meaning of social justice and vulnerability through their own experiences in preparing for hazards, action taken during disasters, and recovery after disasters. Each panelist highlighted different techniques in reaching vulnerable populations, and common themes surfaced throughout the discussion.



You can watch discussion here: <https://nws.weather.gov/nthmp/Minutes/SocialJusticeandEnvironmentalHazards.mp4>

Advancing Racial and Social Equity Through Natural Hazards Mitigation

Webinar held on November 10th, 2020 by the Natural Hazards Center at the University of Colorado Boulder as part of the *Making Mitigation Work* Webinar Series

Speaker: Alan Kwok, Director of Disaster Resilience, Philanthropy California and Northern California Grantmakers

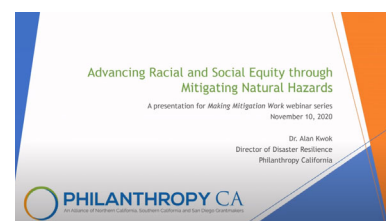
Webinar Description: The convergence of the COVID-19 pandemic, social uprisings for racial justice, and other hazard events has revealed deep-seated racial and economic inequities in the United States, with communities of color disproportionately at risk of and impacted by these crises. As climate change alters the frequency and intensity of natural hazards, individuals and institutions need to center racial equity in policy development and resource allocation so the disparities caused by such events can be reduced.

Using a racial equity lens, the webinar examines the following:

- How disasters and disaster aid programs exacerbate racial and economic inequities
- Why changing the narrative around disasters to emphasize the need for mitigation and preparedness is essential to advancing racial equity
- The importance of multi-sector partnerships to unlock financial, political, and relational resources for the benefit of communities of color
- The types of investment required to support both racial equity and disaster resilience

The speaker shared lessons learned in California, which has experienced the most destructive wildfire season in the state's history this year.

Link to webinar: <https://hazards.colorado.edu/training/webinars/advancing-racial-and-social-equities-through-mitigating-natural-hazards>



NTHMP UPDATES

COVID QUAKE Virtual Exercise PREMB 2020

By Wildaomaris Gonzalez, Puerto Rico Emergency Management Bureau

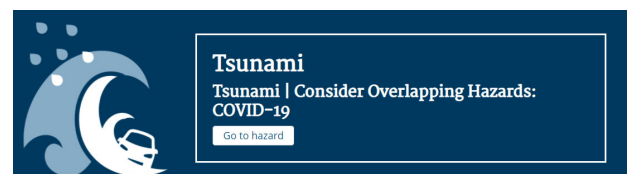
COVID QUAKE 2020 is a functional/virtual exercise developed by the Puerto Rico Emergency Management Bureau (PREMB) in coordination with FEMA and the Emergency Management Performance Grant (EMPG) program to evaluate the response of the local emergency management office in coordination with the state emergency management to a major earthquake and tsunami during the COVID-19 pandemic. Another objective is to evaluate the implementation of the new Joint Operational Earthquake Plan of Puerto Rico that includes timeframes, tasks, roles, contingencies, and its applicability to the municipal level during coterminous disasters. The new Operational Plan emphasizes possible damage to critical facilities that could be affected in an event of significant magnitude and how municipalities need to consider their limitations when managing an earthquake and tsunami emergency during a pandemic event.

The exercise gives the municipalities the opportunity to evaluate their operational coordination with regions/PREMB Zones in cases where mass search and rescue operations are involved, and to demonstrate the response, onsite incident management, and resource management capabilities of the local government agencies within the first 24 hours of an incident. In a situation like this, the local government would be dealing with a medical surge and potential mass casualties after a major earthquake has disrupted most of the utilities including water, power, transportation, and communications. It is vital that they evaluate their local response plans, and practice their capability to receive, develop, and disseminate a public notification in order to minimize the loss of life and property. The exercise is held virtually using text messages, phone calls and emails. The exercise begins with the local emergency management office receiving notification that a significant earthquake/tsunami has occurred. Action needs to be taken immediately including establishing a plan, determining their capacity to deal with that specific situation, and following additional guidelines as outlined in Incident Command System documents. The first phase of the exercise took place in October 2020 and included 15 municipalities from PREMB Zones Guayama and Ponce (southern region of Puerto Rico). Participants received an After Action Report to encourage them to strengthen their emergency plans according to the weaknesses found during the exercise. The next phase will include another 15 municipalities from PREMB Zones Aguadilla and Mayaguez (western region of Puerto Rico).



New FEMA Website—Overlapping Hazards: Tsunamis and COVID-19

Consider how multiple hazards occurring at the same time may affect your planning. This new FEMA website includes information about how to prepare for, and survive during and after simultaneous hazards like a tsunami and pandemic crisis like Covid-19.



<https://community.fema.gov/ProtectiveActions/s/article/Tsunami-Consider-Overlapping-Hazards-COVID-19>

NTHMP UPDATES & EVENTS

High Ground Hike 2020

By PreparedBC, British Columbia's official emergency preparedness education program serving the general public, local authorities, Indigenous communities and schools.

Preparing for a tsunami is about planning and practice. What will you do if you receive a tsunami warning? Where will you go? What if you're not home? Answering these questions, then practicing your plan, helps ensure a quick and safe response when a tsunami does occur.

That's where High Ground Hike comes in. Every year in British Columbia, coastal communities are encouraged to organize a High Ground Hike where residents come together to learn about tsunami risks and practice their local tsunami evacuation routes.



This year, with the presence of COVID-19, we had to find a new way for people to safely participate within their core "bubbles". To that end, PreparedBC introduced the #HighGroundSelfie Contest.

From November 23 to December 14, 2020, residents of coastal communities were encouraged to practice their tsunami response by identifying high ground where they live, then walking, running or hiking there with members of their immediate household. Residents could then enter to win a set of deluxe grab-and-go bags by snapping a pic and sharing it on Twitter or Facebook tagging @PreparedBC and #HighGroundSelfie.



The intent of the DIY hike was to empower coastal residents to research their area's safe ground locations, with the incentive of a high-value prize. Grab-and-go bags were selected since they reinforce the principle of evacuation preparedness.

Under normal circumstances, High Ground Hikes are held every April during Tsunami Preparedness Week in BC. To learn more about the program, and other initiatives, visit www.PreparedBC.ca.

UPCOMING NTHMP & RELATED EVENTS

- ◆ January 22, 2021—NTHMP WCS Winter Meeting (Virtual) <https://nws.weather.gov/nthmp/index.html>
- ◆ January 26, 2021—NTHMP MMS Winter Meeting (Virtual) <https://nws.weather.gov/nthmp/index.html>
- ◆ January 26, 2021—NTHMP MES Winter Meeting (Virtual) <https://nws.weather.gov/nthmp/index.html>
- ◆ January 26, 2021—NTHMP CC Winter Meeting (Virtual) <https://nws.weather.gov/nthmp/index.html>
- ◆ March 11, 2021—CARIBE WAVE 21 Tsunami Exercise <https://www.weather.gov/ctwp/caribewave21>
- ◆ April 19-23, 2021—SSA Annual Meeting (Virtual) <https://www.seismosoc.org/annual-meeting/ssa-2021/>



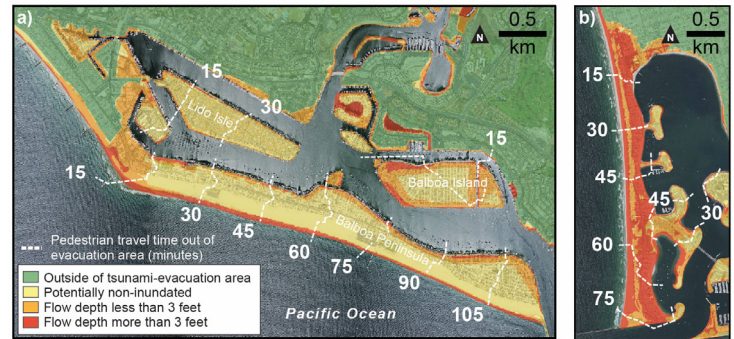
SSA Seismological Society of America

NEW TSUNAMI RESEARCH

New California Tsunami Research

CITATION: Wood N, Peters J, Wilson R, Sherba J, Henry K, 2020, Variations in community evacuation potential related to average return periods in probabilistic tsunami hazard analysis, *International Journal of Disaster Risk Reduction*, 50: 14 p.

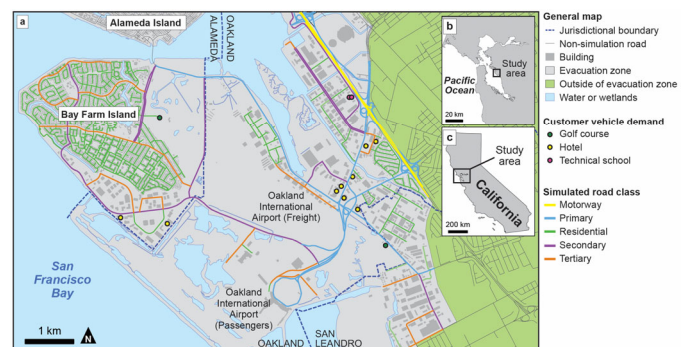
SUMMARY: Estimating pedestrian evacuation potential for California probabilistic tsunami hazard zones: Researchers at the USGS Western Geographic Science Center and the California Geological Survey (CGS) recently published an analysis of taxlot parcels relative to pedestrian-evacuation modeling for hazard zones based on CGS probabilistic tsunami hazard analysis (PTHA) products. The analyses focused on three hazard zones based on different PTHA average return periods (475-year, 975-year, and 2,475-year). The study quantifies the number of parcels in areas where successful pedestrian evacuations from local tsunami associated with Cascadia subduction zone earthquakes may be challenging. The study also identifies places where vehicular evacuations are likely during distant tsunamis and where traffic congestion is possible due to limited egress options and significant evacuating populations. Results of the study supports the CGS' Tsunami Advisory Workgroup current efforts to develop state-level guidance on non-structural uses of PTHA products. The journal article is available online for free from the *International Journal of Disaster Risk Reduction* at <https://doi.org/10.1016/j.ijdr.2020.101871>.



Maps of (a) Balboa Peninsula and surrounding land in the City of Newport Beach and (b) Mission Beach in the City of San Diego showing modeled tsunami-flow depths and modeled pedestrian travel times out of the 975-year ARP tsunami-evacuation area. Modeled pedestrian travel times out of the evacuation areas are based on a 0.89 m/s travel speed and are summarized here using lines at every 15 -minute interval.

CITATION: Wood N, Henry K, Peters J, 2020, Influence of demand and capacity in transportation simulations of short-notice, distant-tsunami evacuations, *Transportation Research Interdisciplinary Perspectives*, 7: 14 p.

SUMMARY: Estimating vehicle clearance times for distant tsunami threats in California: A new publication by USGS Western Geographic Science Center researchers summarizes methodological advances in agent-based transportation modeling to support distant-tsunami evacuations. The coastal community of Bay Farm Island (City of Alameda, California, USA) and the distant-tsunami threat posed by Alaska-Aleutian subduction zone earthquakes serve as the case study for the analysis. Results demonstrate that complete evacuation of the study area is feasible before the estimated wave arrival time. Results demonstrate that (a) optimal traffic routing had a minor impact on overall clearance times, (b) changes in vehicle demand had the greatest influence on clearance times, and (3) doubling the capacity of certain segments actually increased clearance time in some cases. The article is available online for free in the journal *Transportation Research Interdisciplinary Perspectives* at <https://doi.org/10.1016/j.trip.2020.100211>.



Study area maps of (a) Bay Farm Island in the City of Alameda, California, and portions of the cities of Oakland and San Leandro within a common maximum, tsunami-evacuation zone, (b) the location of these communities within San Francisco Bay, and (c) their location relative to the state of California. Road segments used in the evacuation simulation are color coded by the class attribute in OpenStreetMap data.