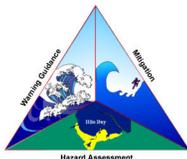


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NTHMP Holds Summer Meeting

By Jeffrey Lorens, NOAA/NWS Tsunami Program Coordinator (Acting)

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The National Tsunami Hazard Mitigation Program (NTHMP), a partnership between NOAA, FEMA, USGS, and U.S. coastal states and territories, held its Summer Meeting in Portland, OR, July 31-August 4. Oregon's Department of Geology and Mineral Industries (DOGAMI) hosted the meeting at the Oregon state office building. Dr. Ruarri Day-Stirrat, DOGAMI's Director, gave welcoming remarks and Mike Angove, NWS Tsunami Program Manager, provided an update on the NWS Tsunami program. The NTHMP's "Mitigation and Education" and "Modeling and Mapping" subcommittees (MES and MMS, respectively), and the "Island Caucus" held meetings summarizing their current and future activities through the rest of the first day. The MES, as part of its agenda, discussed the future of NWS' TsunamiReady® program, specifically, ways to improve and strengthen it. The MMS updated the status of its ongoing projects, including engineering codes for Post-Tsunami Hazard Assessments.



During a field trip to the Oregon coast, Dr. Laura Gabel (left) (Oregon Dept. of Geology and Mineral Industries), and Dante DiSabatino (right) (Washington State Emergency Management Division) examine a sediment core taken from a marsh near Cannon Beach, OR, for evidence of past tsunamis.

On the second day, discussion turned to two topics. For the first of these, FEMA joined the meeting and led a discussion and two working group sessions on their "National Risk Index", including potential incorporation of additional data to better characterize tsunami risk. The second session summarized the NTHMP's updated (2024-2029) "Strategic Plan". To close out the second day, there was a "poster session" in which several of the NTHMP's member state and territorial representatives presented posters or short slide presentations focused on their current tsunami-related work.

On Wednesday of that week, most of the group boarded vans and cars and traveled to the northern Oregon coast for a field trip. This was a highly successful and valuable experience, allowing the NTHMP membership to see and hear (first-hand) the benefits of engagement with emergency managers regarding tsunami hazards. This type of activity will be considered for future meetings, when and where possible.

(Continues on page 2)



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NATIONAL TSUNAMI HAZARD MITIGATION PROGRAM LIBRARY CATALOG:

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

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NTHMP Holds Summer Meeting

By Jeffrey Lorens, NOAA/NWS Tsunami Program Coordinator (Acting)

(Continued from page 1)

The Thursday meetings focused on the NTHMP's "Mitigation and Recovery Working Group" (MRPWG) and "Warning Coordination Subcommittee" (WCS). The MRPWG included two presentations, one on a recent "Tsunami Debris Workshop", and the other on "Visualization Tools", as well providing information on their work plan for the next year. The WCS updated its work plan, then split into work groups to prioritize future focus areas and identify other needs and gaps concerning tsunami alerts and warnings.

To close out the week, the NTHMP's "Coordinating Committee" (CC) met Friday morning to review the week's activities. The CC voted to approve the text of the draft 2024-2029 NTHMP Strategic Plan. Final formatting and addition of photos and figures is still needed, but this is expected to be accomplished by September. Additionally, the CC discussed preliminary plans for the next NTHMP Meeting. Tentatively, the meeting is planned to be held in American Samoa. If confirmed, this would be the first time for an NTHMP Meeting to be hosted by a U.S. Pacific island territory.



Dr. Elena Suleimani (Geophysical Institute, University of Alaska Fairbanks) leads a group discussion on tsunami program needs and priorities at the NTHMP Meeting.

SUMMER NTHMP MEETING

Mapping and Modeling Subcommittee of the NTHMP Holds its Summer Meeting in Portland, Oregon

By Alex Dolcimascolo, WGS; Elizabeth Vanacore, UPR; and Summer Ohlendorf, NTWC, MMS Co-Chairs

The NTHMP annual Summer Meeting took place from July 31st through August 5th in Portland, Oregon. Members of the Mapping and Modeling Subcommittee (MMS) met both in-person and virtually on July 31st to discuss an assortment of topics, including many updates to the general MMS work plan. In addition to the key updates discussed below, this meeting's agenda, detailed notes, and presentations can be viewed on the [NTHMP website](#).

The morning session of the MMS meeting consisted of hearing updates on the tasks included in MMS work plan. Stephanie Ross (USGS) and Jay Patton (CGS) first presented on the current status of the Powell Center efforts with regard to developing probabilistic tsunami sources for the next generation of tsunami hazard assessments (PTHA). To date, five Powell Center meetings have taken place. These have focused on developing tsunami sources from the Alaska-Aleutian Subduction Zone (AASZ), the Caribbean/Gulf/East Coasts, the Cascadia Subduction Zone (CSZ), and additional subduction zone tsunami sources in the Pacific Basin other than the CSZ and AASZ. As of now, there is one more Powell Center meeting scheduled for January 8-12, 2024, which will address tsunamigenic crustal fault sources. However, there are some rumblings to add another workshop on volcanos and other non-seismic tsunami sources to the Powell Center framework in late 2024. Stay tuned on that front.

Following the Powell Center update, Kelly Carignan (NOAA NCEI) gave a progress report on DEM development. For Washington, new DEMs have been completed for the central Puget Sound region and NCEI is working to update the rest of Puget Sound and Strait of Georgia areas. For California, an updated DEM for Santa Cruz is planned to be completed this year. For Alaska, NCEI has completed an update for the Gustavus area. Additionally, NCEI has also updated the Coastal Relief Models for the East and Gulf Coasts. All completed DEMs can be viewed on the [NCEI website](#).

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Home Products Coastal Elevation Models

Coastal Elevation Models

Coastal digital elevation models (DEMs) help researchers and decision-makers understand and predict environmental changes that affect coastal regions. DEM data is used in a wide range of critical monitoring activities, including coastal process modeling, tsunami inundation, storm surge, sea level rise, contaminant dispersal, etc. Ecosystem management, habitat research, coastal and marine spatial planning, hazard mitigation, and community preparedness.

Data Access About

Access Methods

Coastal DEM data can be accessed in a variety of formats and file structures using a variety of services.

Bathymetric Data Viewer

The Bathymetric Data Viewer is an interactive map application that provides access to a variety of bathymetric data, including Coastal DEMs.

[Launch Interactive Map](#)

Direct Access

- [TheEODS Data Server](#)
- [Metadata](#)

Tiled Coastal DEMs

Search by map at NOAA's Digital Coast Data Access Viewer:

- [Continuous Updated Digital Elevation Model \(CUDDEM\) - 1/8 Arc-Second Resolution Bathymetric Topographic Tiles](#)
- [Continuous Updated Digital Elevation Model \(CUDDEM\) - 1/2 Arc-Second Resolution](#)
- [Global Continuous Updated Digital Elevation Model \(CUDDEM\) - 1/8 Arc-Second Resolution Bathymetric Topographic Tiles](#)
- [Global Continuous Updated Digital Elevation Model \(CUDDEM\) - 1/2 Arc-Second Resolution Bathymetric Topographic Tiles](#)
- [Global Continuous Updated Digital Elevation Model \(CUDDEM\) - 1/8 Arc-Second Resolution Bathymetric Topographic Tiles](#)
- [Global Continuous Updated Digital Elevation Model \(CUDDEM\) - 1/2 Arc-Second Resolution Bathymetric Topographic Tiles](#)
- [American Samoa Continuous Updated Digital Elevation Model \(CUDDEM\) - 1/8 Arc-Second Resolution Bathymetric Topographic Tiles](#)

Continuing our work plan updates, Jim Kirby (U. Delaware) gave a preview of the Sediment Transport Benchmark Modeling Workshop held from August 5-6, 2023, and Stephan Grilli (U. Delaware) presented on the status of the landslide PTHA methodology and planned publication. The MMS morning session and work plan updates were concluded by setting a timeline to review the guidelines and best practices for tsunami hazard analysis, planning, and preparedness for maritime communities. The MMS is accepting feedback on these maritime guidelines until August 25, 2023. The MMS will vote to approve these guidelines in the next MMS meeting.

After lunch, a variety of new topics were discussed in addition to the MMS work plan. These consisted of 1) needed MMS contributions to FEMA's National Risk Index (Nate Wood, USGS); 2) the standardization of sea level data formats and data access (Liz Vanacore, UPR); 3) tsunami wave arrival times (Alex Dolcimascolo, WGS); 4) potential mapping products for tsunami debris modeling (Rick Wilson, CGS); 5) NCEI's marigram digitization process (Lindsey Wright, NOAA NCEI); and 6) the migration process of USGS's Pedestrian Evacuation Analyst tool into ArcGIS Pro (Nate Wood, USGS). For more information, please refer to the specific MMS notes from this meeting on the NTHMP website (linked in the first paragraph) or contact the respective lead for each of these topics. The MMS plans to pursue these additional topics, along with reviewing the general mapping standards and modeling guidelines in future meetings.

SUMMER NTHMP MEETING

Report from NTHMP Mitigation and Education Subcommittee (MES) Summer Meeting – July 31, 2023

By Nic Arcos (NCEI), Regina Browne (VITEMA), Todd Becker (Cal OES)

The Mitigation and Education Subcommittee (MES) met on Monday, July 31st during the weeklong National Tsunami Hazard Mitigation Program (NTHMP) Summer Meeting in Portland, Oregon, hosted by the Oregon Department of Geology & Mineral Industries. Over 25 people gathered both in-person and virtually from NTHMP participating territories, states, and federal agencies.

The meeting began with lightning briefs from NTHMP partners, highlighting recent and planned efforts throughout our regions. The following MES partners provided briefs on their accomplishments as well as challenges and gaps since the last NTHMP Summer Meeting: International Tsunami Information Center, Washington State, U.S. Virgin Islands, TsunamiZone, Puerto Rico, Oregon, East Coast Region, Commonwealth of the Northern Mariana Islands, State of California, and American Samoa.

The aforementioned State and Territory focused activities was a great lead into the next session on the agenda, MES Work Plan activities for 2022/2023. The MES annual work plan includes projects that are of mutual interest to stakeholders. The briefings revealed progress in all activities, with two activities being completed. The first completed activity, led by California, was to consider the “Expansion of TsunamiReady® to support and/or encourage recognition for maritime communities such as ports and harbors”. It was determined that there was not a need to develop a new Tier or Category of TsunamiReady® specifically for maritime, but that more could be done to work with the “Maritime Communities”. The “Tsunami canned messaging” activity, completed by Washington in June 2023, developed canned public messaging for use during tsunami events. One aspect of this effort includes pre-written alt text for every graphic created so partners can ensure they are making their social media posts accessible for people using screen readers. Editable versions of the canned message products have been made available to all NTHMP partners.



The latter part of this session involved drafting up MES Work Plan activities for 2023/2024, many of which were carried over from the prior year’s Work Plan. The 2023/2024 MES Work Plan is expected to be finalized in Fall 2023. It will provide milestones with metrics to measure progress and be tied to one or more strategies and outcomes in the recently released NTHMP Strategic Plan.

A new activity expected to be on the MES Work Plan is the MES recommendations for the TsunamiReady® program and guidelines. The afternoon included discussions in small groups to identify potential issues and make recommendations about the TsunamiReady® program, as well as developing a way forward to evaluate the program. A “TsunamiReady® Tiger Team” was developed within the MES to spend the next ~10 months assessing the TsunamiReady® program and guidelines. The Tiger Team has great geographic representation, with 9 States and Territories as well as three program partners. Any resulting recommendations for the TsunamiReady® program and guidelines are expected prior to the 2024 NTHMP Summer Meeting.

Finally, the MES co-chairs encouraged nominations for a new co-chair, to replace Todd Becker. In Todd’s 3-year term, he helped move the Subcommittee forward while establishing a foundation for how MES performs its business. The MES co-chairs and membership expressed their deep gratitude for Todd’s service, and were thankful he will remain as an MES member.

SUMMER NTHMP MEETING

Mitigation and Recovery Planning Work Group (MRPWG) Meets at Summer NTHMP Meeting

By Rick Wilson, California Geological Survey, and Elyssa Tappero, Washington Emergency Management Division

The NTHMP Mitigation and Recovery Planning Working Group (MRPWG) met for two hours on August 3, 2023, during the 2023 NTHMP Summer Meeting in Portland, Oregon. The MRPWG meeting had good representation from state, territory, and federal partners.

During the first hour, Dr. Patrick Lynett of University of Southern California was invited to provide briefings on the recent tsunami debris model benchmarking workshop held in Newport, Oregon, and to talk about potential uses of new interactive visualization tools in the tsunami field. The preliminary findings from the debris model workshop provide promising results that models can identify pathways and final resting points for movement of single debris particles. Additional research and testing of models for interactions between multiple debris particles is still needed. Potential tsunami debris movement products were also discussed at the workshop and will be the focus of future work by the NTHMP through work initiated by the State of California. Dr. Lynett also presented his work on the use of virtual reality tools for real-world tsunami simulations (Figure 1). The group discussed potential applications related to tsunami education, evacuation, and other response actions.

The second hour of the MRPWG meeting was devoted to the annual work plan. Break-out groups were formed to discuss what can be accomplished this next year for each of the identified MRPWG tasks. The ability of MRPWG partners to work on these projects typically depends on leveraging similar work that is supported or is an area of expertise for that partner. There are four broad task areas where the MRPWG is developing checklists and guidance for communities:

Maritime planning and funding for tsunami mitigation and recovery – New mitigation and recovery products will be added to the existing NTHMP Maritime Tsunami Guidance website. These include planning tools developed by officials from Hawaii and Puerto Rico coordinating with the U.S. Coast Guard. California will work with officials from FEMA to contribute case study summaries where previously funded mitigation activities helped protect harbors during the 2022 Tonga event. They will also continue to work towards developing Hazus risk analysis tools for ports and harbors.

Tsunami debris and sediment planning – The State of Oregon plans to complete a tsunami debris guidance document by spring of 2024. Numerical model methods and product ideas from the NTHMP tsunami sediment and debris modeling workshops will be incorporated into the guidance. MRPWG partners will contribute brief case study summaries and work with Oregon to review, finalize, and facilitate the use of the guidance.



Figure 1 Slide from presentation by Pat Lynett (USC) demonstrating potential use of virtual reality methods to show impacts from tsunami inundation.

(Continues on page 6)

SUMMER NTHMP MEETING

Mitigation and Recovery Planning Work Group (MRPWG) Meets at Summer NTHMP Meeting

By Rick Wilson, California Geological Survey, and Elyssa Tappero, Washington Emergency Management Division

(Continued from page 5)

Probabilistic tsunami hazard analysis uses and communication – MRPWG partners in Washington and American Samoa will focus on a simplified definition of “probabilities” and other risk communication language that is clear and can be easily translated. This will include working with the NWS, social scientists, and other groups that have developed similar definitions. California will more fully define how probabilistic analysis products are being used in tsunami planning efforts.

Funding opportunities and planning for vertical evacuation sites – MRPWG members are working closely with partners from FEMA to explore funding opportunities for tsunami mitigation and recovery planning and projects. Information from existing guidance developed by Washington and Puerto Rico will be evaluated to see what additional work may be needed. Oregon is developing a similar guide which will also be integrated into general national guidance. Reducing funding complications, such as underserved communities not able to afford the local funding match requirements, will be a focus of MRPWG this coming year.

The MRPWG will also work on developing a user friendly, public facing website that incorporates these and other tsunami mitigation and recovery planning tools. Anyone in the tsunami community interested in learning more about MRPWG or that would like to help out, please contact the authors of this paper.

Fair Winds and Following Seas Ian!

By Michael D. Angove, NOAA/NWS Tsunami Program Lead

This month we gave a fond farewell to Mr. Ian Sears, who had been serving as the NTHMP Administrator for over four years.

Ian came to us with deep senior agency experience, serving as the Executive Officer for the NWS Deputy Assistant Administrator before accepting an assignment as the NWS Tsunami Program Coordinator. One of his primary duties in the role was to provide administrative oversight for the NTHMP. Among Ian’s many accomplishments, he helped ensure the full ramifications of the NWS HAZSIMP initiative were understood by NTHMP Member States and Partners as it applied to tsunami, spearheaded efforts to help align NTHMP and FEMA in terms of ensuring the National Risk Index properly represented the tsunami threats, and was instrumental in developing the next generation of the NTHMP Strategic Plan.



As much as we will miss Ian, we congratulate him on his new position as the Mission Control Center Branch Chief at the National Data Buoy Center (NDBC). Ian will likely stay deeply involved with tsunamis given the importance of NDBC assets in supporting the tsunami enterprise. Ian can be reached at ian.sears@noaa.gov.

NTHMP PARTNER UPDATES

Puerto Rico and the Urgency of a New Generation of Emergency Managers

By Mayra Santiago (CERT Instructor), Carlos Flores (Director) – Lajas Municipal Emergency Management Office (OMME) and Roy Ruiz-Vélez – Puerto Rico Seismic Network (PSRN) Tsunami Program

In April 2023, the TsunamiReady Municipality of Lajas, Puerto Rico, hosted a Community Emergency Response Team (CERT) Training Program. The program specifically targeted students and teachers from Leonides Morales Rodríguez High School. Participants, selected by their teachers and authorized by their parents, included students from ninth to twelfth grade.

The training program extended over three days, with two days dedicated to theory and a final day that included an exam and a practical exercise. Its primary objective was to equip volunteers with the skills necessary to respond effectively to various disasters that could potentially impact their community. Participants received comprehensive instruction on emergency preparedness, covering topics such as tsunami awareness, fire safety, search and rescue techniques, team organization and more.

The successful implementation of the program was made possible through the collaborative efforts of teachers, who actively participated as part of the CERT team. Support was provided by the Lajas Municipal Emergency Management Office (OMME) and the Puerto Rico Emergency Management Bureau (PREMB), Mayagüez Regional Office. The training was conducted by three certified CERT instructors, alongside personnel from the PREMB Zone.

This program signifies a notable achievement for the Municipal Emergency Management Office, as it facilitated the dissemination of disaster education and preparedness within public schools. Furthermore, it serves as a crucial step toward the goal of training a larger number of young individuals in schools, ensuring they are well-prepared to tackle the challenges that life presents and promoting a generational transition in emergency management.



Washington State's 2023 Tsunami Exercise Identifies Next Steps for the State's Tsunami Program

By Elyssa Tappero, Washington Emergency Management Division

Washington State Emergency Management Division hosted its annual tsunami seminar and workshop (in-person at the state emergency operations center for the first time since 2019) on June 22nd, 2023. This event brought together over 90 in-person and virtual attendees representing the private sector, first responders, the military, and local, county, tribal, state, and federal government agencies. Morning seminar presentations updated attendees about ongoing tsunami-related projects in Washington and set the stage for afternoon workshops focusing on tsunami alerting and response. These workshops involved breakout groups which discussed alerting and response processes, responsibilities, and challenges from the local to federal levels, as well as potential solutions and opportunities for increased collaboration.

(Continues on page 8)

NTHMP PARTNER UPDATES

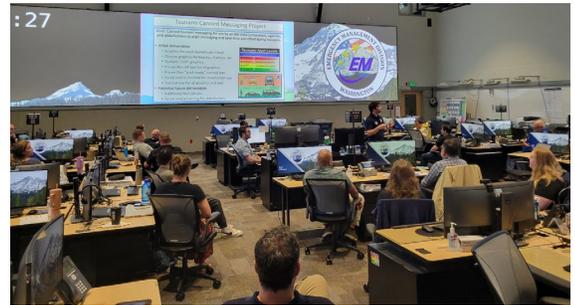
Washington State's 2023 Tsunami Exercise Identifies Next Steps for the State's Tsunami Program

By Elyssa Tappero, Washington Emergency Management Division

(Continued from page 7)

While some gaps and challenges discussed during the workshop breakout sessions were unique to a particular geographic area or stakeholder group, **attendees identified many shared challenges which could be summed up at a high level in the following 5 focus areas:**

- **Key stakeholders missing at the table** – Comprehensive tsunami planning is difficult when key stakeholder groups are not involved; this includes the tourism/hospitality industry, volunteer organizations like CERT, and the maritime sector.
- **Situational awareness & communication** – Many attendees voiced concerns over the reliance on other agencies for key information during tsunami response and the necessity for constant communication and collaboration at all levels, especially during a local tsunami when communication methods may be severely impacted.
- **Continuity** – Continuity of staff and knowledge continues to be a major challenge for many agencies and jurisdictions. This is due to staff turnover and retirements, lack of training and real-world opportunities to respond to tsunamis, lack of written procedures, and reliance on “handshake agreements” or agreements set in place between agencies/organizations which are primarily verbal and not recorded anywhere.
- **Capacity** – Many of Washington's local jurisdictions doubt their capacity to respond effectively to a long, complex hazard like a tsunami given a lack of staff and/or volunteers, especially if key personnel are unavailable when the time comes.
- **Geography** – Geography proved a major concern for many attendees for different reasons, including: the already increased vulnerability of rural areas and lack of infrastructure; the location of needed response resources in the inundation zone; and the physical distribution of personnel and uncertainty of them being able to reach their EOC after a major local earthquake.



Dante DiSabatino, WA EMD Tsunami Program Coordinator, discusses the WA State tsunami social media canned messaging project to a packed room during the 2023 WA State Tsunami Seminar and Workshop.

While many of these challenges come as no surprise, discussing them in a group setting with stakeholders of such varied backgrounds and expertise allowed a valuable opportunity for attendees to make connections, collaborate, and share ideas. **It also enabled Washington's tsunami program to identify the focus areas of highest priority for future work.** At a recent meeting of the Outer Coast Tsunami Workgroup, for example, participants discussed the above list and agreed that bringing key stakeholders to the table, especially the hospitality industry, is an area in which they would like to focus increased work with the Washington team over the next year. Since rentals like hotels, Airbnb's, campgrounds, and RV parks represent a significant source of temporary visitors to Washington's coasts, providing tsunami education to their staff and customers and including these organizations in tsunami alerting and response planning is essential.

The tsunami seminar and workshop could not have been so successful without the dedicated time and expertise of those who presented. The Washington Emergency Management Division tsunami team extends their deepest gratitude to the Washington Geological Survey, National Weather Service Seattle, National Tsunami Warning Center, US Coast Guard District 13, Grays Harbor County Emergency Management, and Pacific County Emergency Management. Thank you!

NTHMP PARTNER UPDATES

Cascadia Coastlines and Peoples Hazards Research Hub Workshop on Risk, Uncertainty, and Science Communication Friday, July 21st, 2023

By Alessandra Burgos, Project Manager for Cascadia CoPes Hub, Oregon State University

The Cascadia CoPes Hub organized a science communication workshop held on July 21, 2023, centered around the topics of risk, uncertainty, and science communication in relation to natural hazards. Hosted at the University of Washington, this in-person event brought together experts to delve into the complexities of communicating scientific information about potential coastal hazards. The workshop featured a lineup of prominent speakers, including visiting scholars from New Zealand, who added a global perspective to the discussions. The presentations and discussions primarily aligned with theme 2 of the Cascadia CoPes Hub's work, which revolves around the crucial aspects of science, risk communication, and decision support. The speakers shared insights and strategies for effectively conveying information about hazards and uncertainties to the public, policymakers, and stakeholders. Attendees gained valuable insights into the challenges of conveying complex scientific concepts, especially in the context of natural disasters. By focusing on theme 2, the workshop underscored the pivotal role that clear and accurate communication plays in enabling informed decision-making and mitigating the impact of natural hazards. Overall, the event provided a platform for fostering collaboration and knowledge exchange among professionals striving to enhance the communication of scientific information related to risks and uncertainties associated with natural hazards.



Emma Hudson-Doyle is a Senior Lecturer in Emergency Management at the Joint Centre for Disaster Research, Massey University, and seconded part-time into New Zealand's Toka Tū Ake Earthquake Commission through a partnership focused on informing interdisciplinary research into effective disaster risk reduction. She adopts mixed methods at the interface of psychology and geosciences to develop needs-led research that informs effective communication of science advice, risk, and uncertainty during natural hazards. She advises responding agencies during natural hazards crises regarding the effective communication of forecasts, probabilities, risks, and uncertainty.



Lauren Vinnell is a lecturer of emergency management at the Joint Centre for Disaster Research, Massey University, Wellington, Aotearoa New Zealand. She specializes in applied social psychology, using experimental survey design and quantitative analysis to understand people's judgments and behavior around preparation for and response to various natural hazards. This includes exploring human behavior during earthquake shaking, the impacts of drills, and how people respond to multi-hazard risk communication.



Michael K. Lindell is an emeritus professor from Texas A&M University who currently works at the Department of Urban Design & Planning, University of Washington Seattle. He is also an affiliate Professor at Oregon State University School of Civil and Construction Engineering, and Boise State University Department of Geosciences. Michael has over 45 years experience in conducting research on household and organizational emergency preparedness and response to environmental hazards for a wide range of natural and technological hazards. He has written extensively on emergency management.



Ann Bostrom is the Weyerhaeuser endowed Professor in Environmental Policy in the Evans School of Public Policy & Governance at the University of Washington. She studies risk perceptions and communication, with a focus on mental models of hazardous processes—that is, how people understand and make decisions about climate change, extreme weather, and earthquake hazards and risks. She co-directs the Cascadia CoPes Hub and co-leads risk communication research in the NSF AI Institute for Research on Trustworthy AI in Weather, Climate, and Coastal Oceanography (AI2ES).



Julia Becker is an Associate Professor at the Joint Centre for Disaster Research in the School of Psychology at Massey University. She undertakes social science research on a range of natural hazard and environmental issues. Her areas of expertise include perceptions, preparedness, community resilience, emergency management and warnings. She has worked extensively in New Zealand on recent events (e.g. Canterbury and Kaikōura earthquakes) and internationally (e.g. U.S.A, Australia, Japan).

Link to presentations: <https://cascadiacopeshub.org/the-cascadia-coastlines-and-peoples-hazards-research-hub-workshop-on-risk-uncertainty-and-science-communication/>

NTHMP PARTNER UPDATES

Shoalwater Bay Indian Tribe Updates

By Kenneth Ufkin, Shoalwater Bay Tribe

As we continue our journey to improve our community's resilience to natural disasters, the Auntie Lee Tower serves as a symbol of our determination and inter-agency cooperation in preparing for earthquakes and tsunami events. Positioned just about 1.2 miles from the end of the Tokeland peninsula in Washington State, this beacon of hope is strategically located within a 30-minute walking distance for approximately 150 Tokeland citizens. This proximity ensures that those living close to the tower can quickly reach it as a refuge during a potential tsunami.

August 5, 2022, marked the official grand opening of the Shoalwater Bay Tsunami Tower, dedicated as the Auntie Lee vertical evacuation structure. In October of the same year, the Shoalwater Bay Indian Tribe held an evacuation exercise during the Great Shake Out to begin the process of educating the public about this structure and when it is most appropriate to use. This was done in collaboration between the Shoalwater Bay Indian Tribe's Emergency Management, Pacific County Emergency Management, and Washington State Hazard Mitigation. This exercise was crucial in familiarizing citizens living within a 30-minute walking distance of the tower with its purpose and facilities. The drill's focus was on these nearby residents, encouraging them to head towards the tower and ascend it when the AHAB sirens sounded. Despite it being a particularly rainy, cold and blustery day, about ten nearby residents made the trek from where they lived and made the ascent up the tower.



The Shoalwater Bay Indian Tribe has taken meticulous steps to equip the Auntie Lee Tower with essential resources such as emergency communication radios, medical supplies, food, water, and basic sanitation facilities. Despite basic needs being considered and stored atop the tower, the community's awareness of the necessity for a 3-day ready kit, including these supplies, when heading to the shelter is being actively emphasized.

Before the Auntie Lee Tower's establishment, the peninsula's residents had an arduous task seeking higher ground after an earthquake. Now, it provides a viable alternative, notably enhancing the survival chances of those residing within a 30-minute walk.

With October 2023 approaching, we are planning another community exercise, set for the 19th of October, 2023, at 10:19 a.m., with a strong emphasis on engaging those citizens living close to the tower. We aim to enhance their understanding of effective earthquake and tsunami preparedness measures and stress the importance of having a 3-day ready kit when heading to the shelter. By reinforcing familiarity with the Auntie Lee Tower and its specific function, we hope to strengthen the safety protocols that protect our community from the catastrophic realities of earthquake and tsunami risks.

NTHMP PARTNER UPDATES

Should Governments Plan for a US East Coast Tsunami?

By Ed Fratto – Executive Director, Northeast States Emergency Consortium (NESEC)

WAKEFIELD, MA – Yes, in the context of all-hazards planning, governments should plan for a potential US East Coast tsunami despite it being a low-probability event. It is essential for governments at various levels (federal, state, county and local) to include tsunamis in their disaster preparedness, response and hazard mitigation plans.

[NESEC can help for FREE](#) and here's why planning is important:

- **Hazard Mitigation:** Planning allows governments to identify areas at higher risk of tsunamis, assess vulnerabilities, and implement mitigation measures to reduce potential impacts.
- **Emergency Preparedness and Response:** Developing comprehensive preparedness and response plans ensures that government agencies, emergency services, and relevant stakeholders are prepared to act swiftly and effectively during a tsunami event.
- **Public Safety and Education:** Governments play a crucial role in raising public awareness about tsunamis and educating communities on preparedness measures. They can disseminate information through various channels including social media platforms to ensure that residents understand the risks and know how to respond in the event of a tsunami.
- **Early Warning Systems:** Governments can continue to invest in and maintain robust early warning systems that provide timely alerts to coastal communities.
- **Research and Monitoring:** Governments can continue to support scientific research and monitoring efforts related to tsunamis along the US East Coast. This includes funding studies on potential sources, mapping potential tsunami inundation areas, investing in monitoring equipment and technologies, and collaborating with research institutions to enhance our understanding of regional tsunami hazards.

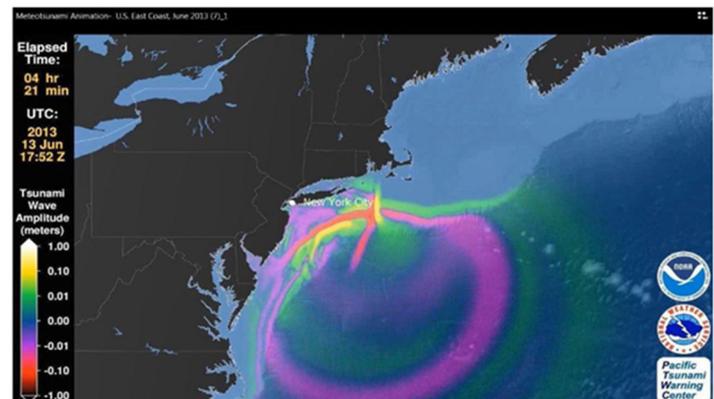


Fig. 1 Real-time Inundation Forecasting of Tsunamis (RIFT) depiction of the June 13, 2013, meteorite tsunami on the northeast U.S. coast as it moves along the shelf (top) and reflects off the shelf break back toward the coast (bottom)
Credit: Pacific Tsunami Warning Center

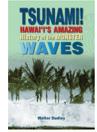
While the probability of a tsunami along the US East Coast is relatively low, the impact could be significant due to the density of coastal population, property and infrastructure. In addition, the US East Coast is vulnerable to meteorite tsunamis, also known as meteorological tsunamis. This is a type of tsunami that is generated by atmospheric disturbances, such as changes in atmospheric pressure, severe thunderstorms, squalls, or other weather related events. It is important for coastal communities to be aware of the potential risks posed by meteorite tsunamis and to have appropriate monitoring and warning systems in place.

Comprehensive planning allows governments to be proactive, mitigate risks, and protect lives, property and infrastructure. It ensures that the necessary infrastructure, systems, and preparedness measures are in place to respond effectively in the event of a tsunami or other tsunamigenic events.

TSUNAMI RESEARCH & EVENTS

RESEARCH

- Dudley, Walter, 2023, Tsunami! Hawaii's Amazing History of the Monster Waves: Mutual Publishing, LLC, 152 p. <https://mutualpublishing.com/product/tsunami/>
- Karstens, Jens; Preine, Jonas; Crutchley, G.J.; et al., 2023, Revised Minoan eruption volume as benchmark for large volcanic eruptions: Nature Communications, v. 14, article 2497. <https://doi.org/10.1038/s41467-023-38176-3>
- Lee, Woo-Dong; Mizutani, Norimi; Kim, Taeyoon, 2023, Experimental analysis of Tsunami–Current interaction in river channel: Estuarine, Coastal and Shelf Science, v. 291, article 108434. <https://doi.org/10.1016/j.ecss.2023.108434>
- Ren, Zhiyuan; Liu, Hua; Li, Linlin; Wang, Yuchen; Sun, Qiliang, 2023, On the effects of rheological behavior on landslide motion and tsunami hazard for the Baiyun Slide in the South China Sea: Landslides, v. 20, p. 1599–1616. <https://doi.org/10.1007/s10346-023-02058-y>
- Suleimani, E. N.; Salisbury, J. B.; Nicolsky, D. J., 2023, Tsunami inundation maps of Anchorage and upper Cook Inlet, Alaska: Alaska Division of Geological & Geophysical Surveys Report of Investigation 2023-2, 56 p., 9 sheets. <https://doi.org/10.14509/31018>
- Wood, Nathan; Peters, Jeff; Cheung, Kwok Fai; Yamazaki, Yoshiki; Calvo, Denille; Guard Charles, 2023, Modeling non-structural strategies to reduce pedestrian evacuation times for mitigating local tsunami threats in Guam: International Journal of Disaster Risk Reduction, v. 95, no. 2, article 103859. <https://doi.org/10.1016/j.ijdrr.2023.103859>
- Yamazaki, Yoshiki; Bai, Yefei; Goo, Linyan Li; Cheung, Kwok Fai; Lay, Thorne, Nonhydrostatic Modeling of Tsunamis from Earthquake Rupture to Coastal Impact: Journal of Hydraulic Engineering, v. 149, no. 9. <https://doi.org/10.1061/JHEND8.HYENG-13388>



UPCOMING NTHMP & RELATED EVENTS

- September 19-24, 2023—AEG Annual Meeting (Las Vegas, NV) <https://www.aegannualmeeting.org/>
- October 15-18, 2023— Geological Society of America (Pittsburg, PA) <https://community.geosociety.org/gsa2023/home>
- October 19th, 2023—The Great Shakeout <https://www.shakeout.org/>
- November 5, 2023—World Tsunami Awareness Day <https://tsunamiday.undrr.org/>
- December 11-15, 2023—AGU Fall Meeting (San Francisco, CA) <https://www.agu.org/fall-meeting>

