

Meeting Title NTHMP Mapping and Modeling Subcommittee

Purpose MMS Project updates

Location: Teleconference

Date Tues, 21 May 2019

Participants Jon Allan, Diego Arcas, K. Fai Cheung, Marie Eble, Corina Forson, Daniel Eungard, Kara Gately, Stephan Grilli, Chip Guard, Juan Horillo, Jim Kirby, Stephanie Ross, Kelly Stroker, Rick Wilson.

Introductions (Attendee list taken at start of meeting)

Agenda

1. NTWC trip and SIM development (Corina); Note: SIMS are simulations, or “C grids” from PMEL that correspond to a “short list” of detailed tsunami forecast locations
2. Gap Analysis Spreadsheet, Inundation & Evacuation Maps (Jon & Dmitry)
3. NCEI DEMs (NCEI to provide an update on the submitted requests)
4. Powell Center Workshop (Rick/Dmitry/Stephanie/Marie)
5. Sediment transport workshop discussion (All)
6. Others

NTWC trip and SIM development (Corina):

WA WARNING COVERAGE: Attended 3-day meeting with folks at the National Tsunami Warning Center. Focus was on discussing gaps (and discrepancies) for alerting. Emphasized complicated nature of the WA State coastline (Puget Sound) and the limitations for existing alerting capacity. WA would like to further sub-divide their coastline (e.g. Puget Sound coastline vs open coast).

Discovered problems with alerting associated with special procedural areas (crustal faults). Currently, if an earthquake > 7.6 occurs, a warning is triggered for a specific defined area. However, what about those areas adjacent to the predefined ‘warning boxes’? Solution they are working on: develop a scenario catalog. Currently working with the NTWC to develop this.

SIMS: WA needs new forecasting capabilities that extend into Puget Sound. Described C grids (these DEM grids have a resolution of ~ 1 arc second), used to define travel times and forecasts of wave amplitudes.

Kara - indicated that the NTWC is working with WA to resolve issues. They will evaluate options in the future to extend forecasts into Puget Sound.

NTHMP Gap Analysis Work Group (Jon):

Met twice to date. Established the overall goals of the work group during the initial meeting. Recognized the need for two levels of information:

- A “high level” overview group of parameters that will be of broad use among all NTHMP partners, and for translating information to NOAA as needed.
- A second group of supplemental parameters was also identified. This latter group is expected to contain more detailed information addressing individual NTHMP member needs.

Most recent meeting of this work group (May 20) reviewed a matrix summarizing identified high priority parameters in order to find commonality among the work group members. Initial discussion of the various ‘gaps’ were discussed, including making a start towards the content that could be used to populate the gap spreadsheet. The expectation is for another follow-up meeting to finalize the gap spreadsheet.

Action Item(s) - Ongoing.

DEM Development (Kelly):

Priority areas for FY2019 include the following:

- 2 communities in Alaska
- WA state open coast
- Tillamook County, Oregon

Chip - noted the need for DEM updates in Guam/CNMI. Much of this is being implemented through COASTAL ACT (producing DEMs at ~ 1/9th Arc Sec resolution) for storm surge modeling. These data could be used to update the regional tsunami grids.

Jon and Kelly - noted that lidar data collection was ongoing in Guam/CNMI following post Hurricane coastline changes. Based on this, the decision was made to defer tsunami DEM development for those areas until the data collection was completed.

Additional background notes... we received requests for DEM development in a few other areas:

- Victor Huerfino - Puerto Rico/Virgin Islands. Lidar data is still being collected for these areas and the plan is to defer DEM development until this is completed.
- Juan Horrillo – Two communities on the Florida coast. The DEMs are complete but require a datum adjustment. Juan is working with Kelly to implement this change himself.

Action Item(s) – None.

Powell Center Workshop (Rick/Dmitry/Stephanie/Marie):

Met ~ 3 weeks ago for the third workshop focused on tsunami sources along the East Coast, Caribbean, and in the Gulf. Focused on 3 main sources:

- Subduction
- Non-subduction
- Landslide logic trees

Stephan - presented on an East Coast logic tree for landslide sources that integrates the latest USGS data. Noted that it is broadly similar to the existing East Coast sources already being used to model tsunamis caused by submarine landslide, but more refined. Noted that there is actually quite a bit of data out there that can be integrated into developing a refined logic tree and ultimately for probabilistic modeling. These data are to be summarized into a research paper.

Diego – What are the plans for compiling the sources? How will they be made available? Are sources constrained well enough? Answer to the latter was no!

Rick – Noted that much work is still needed to refine the logic trees being developed for each region.

Diego – Noted that NCEI has compiled seismic sources, which are available through a database.

Question on timeline – Rick/Stephanie noted that the work is taking much longer than expected. Anticipate products in the next 1-2 years????

Lots of discussion on PTHA in general, including the need to explicitly quantify various elements of uncertainty (related to tides, use of friction, DEMs, and of models of the geophysics).

Daniel – commented on the issue of uncertainty as they have specific needs now due to design considerations for constructing vertical evacuation structures.

Action Item(s) – None.

Sediment Transport Workshop Discussion (Everyone):

Jon – Following on from the San Diego meeting, MMS recognized a need to develop a workshop to discuss the role of sediment transport in tsunami modeling. Since there is no known dataset for benchmarking tsunami models, the focus of such a workshop would be directed more at the science for what could be done.

Stephan – agreed that there was a need to get something going on this. Noted that they are developing a 5-year plan for tsunami modeling. They have already completed some tsunami simulations that incorporates dune erosion caused by tsunami currents. A future workshop could/should focus on exploring errors in sediment transport.

Jim – Will not be at the annual meeting. Noted that we should begin discussion on this topic in Salt Lake City. Has developed powerpoint material that could be presented on the topic. Suggested that this be an agenda item, which Stephan could present on.

Noted also that benchmarking at this stage is probably questionable

Hence, the goal of such a workshop would be to develop recommendations for best practices for modeling dune erosion by tsunamis.

Rick – noted also the need to include discussion of role for sediment movement in harbors.

Action Item(s) – Agenda item for annual meeting. Stephan to present on status of tsunami sediment transport modeling.

Next Meeting: To be scheduled