

National Tsunami Hazard Mitigation Program (NTHMP) Mapping and Modeling Subcommittee (MMS) Meeting Draft Notes Oregon Department of Geology & Mineral Industries
800 NE Oregon Street, Portland, OR 97232

Monday 30 January 2017

08:00 – 08:15 Coffee Social

08:15 – 08:30 Overview of agenda, review previous MMS meeting notes/outcomes

08:30 – 09:30 MMS-related outcomes from 2013-2017 NTHMP Strategic Plan Publication, use, and implications of Currents Benchmarking Report (see PPT)

Input to FEMA HAZUS model

(Marie) Yong Wei provided paper – data to FEMA about inundation extents

State partners have also provided input: GIS from HI, WA - ASCII grids, CA – extent of 1964 flooding, PR – shape files

OR work with FEMA: doing beta testing for new tsunami HAZUS model, Tillamook country, inventory data being fed into their models, done as contractors – pushing it out to the HAZUS user groups.

Washington – Greys Harbor Pilot Project

(Kara) There is a need for a clearing house of this GIS data for other user groups, FEMA, FAA, EMs, Tview, etc

Post Tsunami Protocol – CA & HI published a paper, worked with Laura K. and ITIC

Pilot project in PR with Herman Fritz, some sort of agreement to mobilize and measure after the fact

(Juan) We have equipment for post survey, hand held GPS measurement instrument can be used for vertical measurements (Dmitry) Are these used for regular storm season too? (Juan) Good info from Galveston storm, EMs there have them – they also measure inundation, atmospheric pressure.

(Dmitry) is there any connection between your and Ricks work. No.

WA - Been in touch with NASA on using pilots post event surveys. 10s of thousands of dollars to purchase, large scale view – such as used for agriculture.

OR – smaller scale drone view. Also looking into drones with lidar capability... (OR, CA too)

Off topic:

(OR – Jon) Does that mean that the models that have been benchmarked need to be revisited at some point?

(Jim) If you change the model substantially you should run through a new test.

Model benchmarking: have document from Pat – with recommendations about thresholds

- (Rick) We need to look back and see how we turn the recommendations into procedures for MMS
- Need to create the best product available (Marie) and represent the uncertainty (Kara)
- Use of ensembles? Use of partnering with states where a single model did well? (Boussinesq models did well)

(Jon) Talking about models doing well, we need to be mindful that bathymetry WILL change. Eddies change. 10-30 m resolutions had lots of variance.

(Rick) Take this and put into guidance document... did the binning approach because of issues with preciseness, and then circled eddies areas. Been working with AK and OR on producing similar types of maps.

Archive for the Benchmarks at NGDC - for Inundation, Currents, & Landslide workshops

(Jim) NSF program (design safe interface)? Designsafe-ci.org

(Rick) Is this temporary? Is it private?

(Jim) Is this storage or platform for new stuff? (Juan) MATLAB script and everything? Yes.

Yes, we do WANT modeler results. (send out email in advance to make sure okay with modelers)

*****Path forward: Try to utilize NCEI for storage archive**

Kelly is the point of contact for NCEI and MMS will investigate possibilities for secure, long term storage of Benchmark problems, the associated data, and modeler results

State partner point-of-contacts for the three MMS led workshops are as follows:

(Rick) -> tsunami currents (Jim) -> for landslide (Juan & Kara) -> Inundation

Ensure all NTHMP inundations maps meet guidelines

MMS has not updated anything from the 2014 Inundation guidelines... an ongoing process, but was not recently necessary

American Samoa and Guam still maybe not on GIS, otherwise requirement is good. Kara to work with states and keep ensuring data is available and current, and also looks into possibilities for a single website where all GIS data can be easily pulled. Nation-wide GIS overlay is missing.

Support Hazards...

Are all models shared? MOST is not shared – though available through ComMIT, and available to anyone who wants one, just email Marie.

Develop inundation maps – ASCE7 now... OR has done this several times over, in compliance, but still feel more needs done. (Rick) How's the progress coming along for inundation mapping in the Virgin Islands - they are moving along, TBD (AK) 50% (American Samoa) 100%

Other updates include:

- CA - Modeling resolution was 30m and 90m in 2009; did modeling at 10 meters to compare, but found no need for an update
- AK - Kodiak was modeled with a 1964 type scenario in 2002, now using SAFFR type scenario
- GoM - Increased mapping to include three additional landslide sources
- HI – updated to 10 m resolution
- WA – larger source scenario (L1 – made current evacuation procedures no longer conservative, haven't been published), used better bathy/topo
- (OR) Multiple scenarios in two communities using HR LIDAR data
- (PR) Multiple scenarios on new HR DEM
- (Jim) we still on 1st generation, but have done some work looking at 10 meter versus 30 m – didn't see much difference (Grilli) So far we have only used bare DEMs, new DEMs will make a big difference. For bare DEMs not a hug difference between 10 and 30 m.

So far, states do not need to update to 30m resolution inundation maps. However, moving forward... it is noted that higher resolution may be more necessary for input on interior waterways, as well as navigation hazards and input to HAZUS, for example, 10 meter resolution is pretty necessary for good modeling in narrow islands, sand bars, etc.

Develop Inundation zones for communities with no HR resolution

Maritime: see PPT (Rick)

- Draft guidance for Mapping and Modelling – being consistent as possible with output
- Benchmarking is complete.
- Develop prototypes for high hazard areas, guidance for harbor master, GoM has done, AS not yet
- 25% milestone being worked towards for 2017
- We need to work with MES on this... to determine what each state territory wants to go forward with, need feedback from EMs

09:30 – 09:50 Kirby report out on Landslide Modeling Benchmark Workshop (see PPT)

Timeline: All modelers asked to provide additional information within 4 months, expecting a 1 year process for results summary – technical report, and paper. Many good presentations, all of which are posted on workshop website.

Summary of Benchmark Problems (BPs) #2, 4, 7:

- #2: solid slide 3D
- #4: granular slide 3D
- #7: field case: AK 1964 Valdez (two separate slides)

All workshop BPs will be moved to NTHMP website after finalizing and review

Looking at variability between models in inundation lines

Workshop Lessons and further actions:

- BPs were biased towards dispersive models...
 - If modeling on a large scale – you NEED to use a dispersive model
 - possibly non-dispersive models are still useful for run-up behind the slide in submarine cases
- Is a detailed description of slide rheology needed for tsunami runup, period, etc??
- More effort in getting data for candidate field cases for further benchmark testing

(Jon) field data has way more information concerning the rheology... how much of this detail can be brought into the model? ...moving forward?

(Grilli) Tann will make a good subaerial BP

Still need an underwater...

(Kara) We could use the same survey team that goes out to study post-tsunami events, they could be mobilized for landslide event... and then the team of geologists could be mobilized later using RAPID NSF funding (like Lynett did) etc.

(Jon) can any of the data come from LIDAR or satellite

(Grilli) HR radar could be helpful for capturing wave height data

(Rick) From Pat's talk at Workshop, uncertainties are HUGE in source characterization – are much greater in the model uncertainty

10:00 – 11:00 NTHMP Review Team Session (see upcoming notes from NTHMP reviewers)

Job of the review panel: To inform NTHMP when they develop next strategic plan.

The following are questions provided by the NTHMP review panel. Feel free to follow up with the reviewers with you input.

1. The Tsunami Warning and Education Act (33 U.S.C. §3201, et. Seq., [P.L. 109-479]) has not been replaced or updated since its original passage in 2006. Some language in the Act is outdated and the budget authorizations have expired. What are the implications to the NTHMP as a body

regarding the status of TWEA and failure of Congress to pass updated legislation and budget authorizations? (Two attempts to update TWEA in 2016 by Congress did not pass.)

2. What are the strengths of the state/territory/federal partnerships?
3. What are the weaknesses of these partnerships?
4. Is there an appropriate distribution of roles and responsibilities between federal and state/territory partners?
5. Is the program achieving its goals?
6. Have the NTHMP really developed products that are actually creating a foundation for change and preparedness in the community
7. Please list any suggestions which would be beneficial to the management and outcomes of the NTHMP.
8. What has been the long-term impact of NTHMP Grants which have been appropriated by Congress for NOAA/NWS to provide since 2008 of about \$6M per year? What would be the impact to the NTHMP if these grants were reduced or eliminated?
9. How has the subcommittee structure of the NTHMP worked? What worked well, what has not? What changes may be recommended regarding subcommittees?
10. Other questions as may come up during dialogue with NTHMP members.

Discussion ended before all questions could be addressed. (More time to complete dialogue with Reviewers and the MMS was provided on January 31. ..ed/RL)

11:00 – 11:45 Benchmarking of (3) models (intention of use expressed by MMS members) *

Note: allocated time for each is 10-min presentation & 5-min Q&A

11:00 – 11:15 HySEA (EDANYA Group) – see presentation for details

(Grilli)- last table – summary results table, looked like the runups were maybe higher than other NTHMP models, (A) some yes, others no, could be resolution differences, hard to say without looking farther into it.

- Please email further questions directly to modeler.

11:15 – 11:30 Cliffs (Tolkova) – see presentation for details

(Chip) Okoshiri, why so high

- Please email further questions directly to modeler.

11:30 – 11:45 NHWAVE (Kirby) 11:45 – 12:00 – see presentation

- Please email further questions directly to modeler.

BREAK 12:00 –13:00 Working lunch: Products discussion with WCS & MES

Some topics deferred until later combined meeting with MES

~~1. Sharing of products and links to products~~

2. Cross-state and federal tsunami inundation lines comparison

Hawaii is moving to a two-tier evacuation method. The evacuation lines have been requested by PTWC for use in operations with SIFTView and Kara will be ensuring they are implemented appropriately. There is also a request for all the states to provide their inundation and/or evacuation lines in GIS format for the TView project – states to provide to Kara. However, as inundation forecasts have not been disseminated before, the states want to ensure that MOST inundation forecasts are accurate and do not want them going to EMs through Tview until they have been vetted. MMS would like to see SIFT inundation forecasts shown with the sources used for state inundation lines. Sources would need to be provided, (please send sources to Kara). Possibly a good case scenario would be the playbooks... can the TWCs using SIFT forecasting match how the playbooks would be invoked?

Path Forward / Evaluation Team: Kara*, Rick, Jon, Dmitry, Chip, Marie** to follow through with definitive project details and work plan

(*Kara - project lead, and to follow up with all state partners to receive Inundation and/or evacuation lines in GIS format plus send SIFT Operational Testing and Evaluation (OT&E) results from 2012 which include an inundation comparison study.

(**Marie - to send SIFT SIM reports as available)

~~3. Incorporation of pedestrian evacuation into products~~

4. DEM plans & prioritization

DEMs, (Kelly) Tiled map for Key, FL... the first tiled map plot for NTHMP DEMs (Jim) can we get Bellingham Bay to the North by Sept. (yes) (Jon) moving forward how many states use NCEI for DEM development... OR and HI develop their own, but there is definitely benefits for using NCEI... consistency

13:00 – 14:00 Modeling Activities

1. Potential multi-state mapping/modeling projects (see above)

2. Buffering of tsunami inundation lines (mainly info request)

How do we deal with this? 20% buffer ... by distance and location...

(Tim) The modelling is buffered - So you don't need a buffer zone. The evacuation maps do not need an uncertainty represented.

(Jon)

Good discussion –

(Tim) have a multi-state project - two different molders model a location using the same grid, do Jim and Dmitry will look at this idea for more information on how to implement

3. Tsunami sources database and Global Tsunami Model group

This is a pending activity, looking how to proceed forward.

14:00 – 14:30 Wrap-up; Science Exchange meeting date

Meeting is scheduled on July 31-August 4. The location is to be selected such that participants from the USGS could come.

Election of State Co-chair - Dmitry Nicolsky was elected for a second two-year term – congratulations Dmitry!

Kirby presentation – “Does morphological adjustment during tsunami inundation increase levels of hazard?” – see presentation.

Adjourn