

MMS Subcommittee Meeting Notes (Feb 2 & 4th, 2016)

Due to inclement weather and a delayed opening at the NOAA building on Tuesday, the MMS subcommittee meeting scheduled for Tuesday afternoon was broken into two parts, with the Tuesday afternoon meeting running until 5pm (Part I) and then the MMS subcommittee meeting continuing again on Thursday afternoon (Part II).

Feb 2nd, 2016

Mapping and Modeling Subcommittee Meeting (Part I) Starts

3:30 PM

Discussion: NTHMP/NOAA priorities and MMS work for FY16-17, travel budget cuts and, future MMS meetings and Summer 2016 Landslide benchmarking workshop

- Rocky: will pay for every day you're authorized to be here, now have less than \$28,000 for summer meetings, no way to fund summer meeting for both subcommittees. Since historically MES has had summer meetings
- Rick: have been having separate MMS summer meeting for past 7 yrs
- Rocky: it's not visible based on what's in the budgets
- Tim: stopped funding travel from grants, made it invitational travel from NWS in 07 or 08
- Rocky: can't fund MMS 2016 summer meeting, doesn't mean you can't meet at all or can't fund landslide workshop, travel needs to be requested through grants. NOAA employees can't travel for meetings through grant funds, invitational travel will still be extended to them, summer meeting doesn't have to be in summer, can still meet in person between 9/1/16 and 8/31/17 and travel can be charged against grant funds, call it a MMS scientific exchange meeting/workshop, just can't do it between now and 9/1/16
- Rick: \$67,000 spent on this meeting was just for CC members?
- Rocky: yes, NOAA employees not funded through invitational travel
- Kara: MMS has funds for landslide workshop after 9/1/16, moving forward will MES always get a summer meeting and MMS won't?
- Rocky: every year we fight for support for invitational travel, told to just put it in the grants, not that simple since not everyone is grant funded, if there is a significant cost share for a MMS/MES meeting outside annual meeting there will be a pot of invitational travel to match it for those that can't be grant-funded, GSA rates have increased dramatically, can't afford many places (e.g. Seattle, San Francisco) but many other options
- Rick: putting travel funds in grants opens NOAAs budget for invitational travel
- Rocky: amount of money left for non-grant-funded meetings should allow for 2 meetings (3-day meetings)
- Rick: CA has \$5000 travel left over from workshop, available to possibly move to publication fund if it helps
- Rocky: can reprogram funds if done before 8/31/16, '14 grant can't be extended again

- Kara: if funding becomes issue in future years, could we make a 2 day meeting part of annual meeting? If MES is having 2 day meeting later in the year and MMS is not?
- Rocky: yes we could consider that
- Kara: we get same amount of time to meet as MES but we often use those other 2 days for a workshop
- Stephan: landslide workshop before next annual meeting then would we still have funding to have a summer meeting?
- Rocky: yes, those who are grant funded would be using funds for annual meeting, would still have travel for second meeting
- Marie: non-grant-eligible people would be funded more than MES, equity issue
- Kara: cost savings for MMS and MES to meet together?
 - Rocky: no, but good to meet at same time since working together
- Stephan: conference call to discuss budget and landslide workshop, can't hold it this summer, idea is to have it prior to annual meeting next year, would save some money to allow for another face to face meeting next year, post material online this summer and start inviting people, will annual meeting be decided by then?
- Rocky: usually June/July to start planning annual meeting, seems that MMS has a need to meet together to share information, when you have workshops it takes away time for scientific exchanges, suggest separate subcommittee meeting to focus on scientific exchanges not workshop
- Kara: there will be no chance to meet face to face until next year and that will be a landslide workshop... so something to think about, how to get more MMS collaboration done? can have more webinars/conference calls
- Stephan: what about meeting at AGU?
- Marie: can't say it's an MMS meeting
- Rocky: equity of what MMS does among all of its members, everyone should be offered equal opportunity to attend, not everyone is able/interested to attend AGU, suggest something outside conference venue
- Dmitry: for next annual meeting, is up to us to decide if we have MMS meeting or landslide workshop
- Kara: only get half day during annual meeting
- Stephan: preparing for workshops is tremendous amount of time not funded by anything, getting additional 2 days is not a bad reward
- Marie: in fairness, MES will not get extra 2 days of per diem, NOAA people are volunteering their time
- Rocky: if MMS asks for support to have landslide workshop in addition to an annual meeting and CC votes to approve it, even if MMS has one more day than MES if its approved by CC then it can be executed, everyone budget for it the same way in your grants
- Kara: 2 day workshop w/ annual meeting or 2 day MMS meeting with annual meeting and 2 day workshop in spring/summer/anytime, since annual meeting is time to collaborate with MES then it might be good to have more than just half day at annual meeting and just 2 day workshop sometime after annual meeting
- Jonathan: couldn't we cover some information in webinar meetings?

- Kara: yes, question is how to organize MMS meeting at annual meeting
- Rocky: at time of next annual meeting will be time for strategic planning, benefit to have all subcommittees together to work on strategic planning at annual meeting
- Chip: landslides are not an issue in the Pacific, island people won't need to attend workshop
- Kara: not taking time to collaborate with MES at annual meeting seems like a waste of resources
- Rocky: most people burn out after 3 ½ days, adding more days onto annual meeting will not be best
- Rick: landslide workshop is big issue, already been postponed, states already putting out maps and need to be able to compare models
- Kara: need to utilize collaborative time with other NTHMP subcommittee
- Rocky: Grant Cooper will attend annual meeting, not at other subcommittee meetings, if we need his and Mike Angove's participation then it needs to be done at annual meeting
- Kara: November or December an option for workshop?
- Rocky: never know when Congress will pass continuing resolution, October not possible, November pushing it, more likely December ok
 - Organize around AGU? Too expensive, getting into holiday time
- Rocky: hold workshop in area where more of an issue (Gulf coast, East coast)
- Stephan: University of Rhode Island was original plan
- Rocky: sounds like there is a desire to hold landslide workshop at separate time outside annual meeting
- Kara: (to Stephen) what's the latest date we could *feasibly* have the landslide workshop?
- Stephan: need to talk to Jim, so much work to do afterward
- Kara: if moving forward with workshop not with annual meeting need full day of MMS meeting at annual meeting
- Rocky: figure out what we want to ask for, then ask for recommendation for CC endorsement, don't need to know exact dates/location
- Dmitry: meeting for landslide workshop, then meeting at annual meeting, then after that we don't convene?
 - Yes, not until after 9/1/17
- Stephan: need 6 months or so after workshop to get information together
- Dmitry: can we add one day to workshop to discuss MMS business?
 - not all of MMS will be there, can have them call in
 - Rocky: 1 additional day organized into annual meeting (3 days total)
- Rocky: if plan is approved by CC, will come back and say how to budget for it in grants
- Kara: plan: go to CC, ask for 2 days at annual meeting, one full day of MMS and one day with MES, then 2 days of landslide workshop + 1 extra day (3 days of facetime)

- Rocky: non-grant-funded people have 3 days of face time outside of annual meeting, only CC members are eligible for invitational travel outside of grant funded travel
- Kara: NOAA people probably only get to attend annual meeting
- Possibility of having workshop separate from MMS (not defined as an MMS meeting), then have regular annual meeting, then have second MMS meeting sometime in summer
 - Extra task in grants for those states that will want to attend workshop – Rocky: note that as additional travel lower on the priority scale it's more likely to get cut depending on budget
 - Fair if MES gets to do same thing
- Rocky: travel priorities:
 - 1: travel for CC members to NTHMP meetings
 - 2: travel to execute tasks
 - 3: PRIMO conference
 - 4: grant-funded staff to NTHMP meetings (not CC members)
 - 5: travel to present NTHMP-funded work at scientific conference or meeting
 - 6: travel to attend conference/meeting where not presenting
- Kara: to summarize:
 - More MMS webinars
 - Determine landslide workshop date/location
 - Proposal to CC: 3 day MMS meeting, 1 day separate MMS + 1 day joint MES/MMS at annual meeting, separate landslide workshop (non-MMS, “scientific technical”)
 - If CC approves, Rocky will go back to states with grant request guidance
- Rocky: workshop is extra item in grant, adding one more task-driven requirement
- Stephan: 8-10 modeling groups represented for landslide workshop
- Questions or concerns to have landslide workshop separate from annual meeting? – none, big plus to also be able to have summer meeting
- With workshop separate from NTHMP meetings, not dependent on invitational travel/federal budgeting restrictions
- Kara: MMS follow-up webinar/call in 2 weeks to decide on date/location of workshop
- Frank G: in addition to scientific benefit of workshop, will there be certification/validation of models as acceptable to use for landslides?
 - Yes
- Meet again Thursday 3pm, discuss Tsunami Current Workshop then
- Rick: to Stephanie: feedback from USGS?
 - Stephanie: overall positive, Joan appreciated information for purposes of subduction zone initiative (possible new funding for USGS)

The following agenda items were moved to Thursday afternoon's meeting

~~3:05 – 3:15PM – Updates on the Tsunami Current Modeling Workshop (Rick Wilson)~~

~~3:15 – 3:35PM Discussion of the Maritime Guidance Document, minimum distance from~~

~~reefs, and other issues (Charles Guard, others)~~

~~3:50 – 4:30PM MMS Housekeeping (website maintenance, completing final draft documents, new co-chair vote)~~

~~-----Mapping and Modeling Subcommittee Meeting (Part I) Ends-----~~

Feb 4th, 2016

Mapping and Modeling Subcommittee Meeting (Part II) Starts

3:00 PM

MMS Housekeeping (website maintenance, completing draft documents, etc)

- Dmitry: Additional requests for additional DEMs can be asked for
 - Crowd sourcing of Data... started with the Yacht community
 - NTHMP cannot fund data collection... but if you have the data you can put in the request
 - Army Corp of Engineers updates every harbor every 5 years
 - Is anyone getting data from the NAVY, there's a navy and air force liaison in Asheville, NC.
 - Let's keep our shared DEM document going, and make it available to all MMS... maybe even the web.
 - Beat the wave brings home the need for very accurate TTT
- Kara: Website updates
 - Getting all the NTHMP links and locations for tsunami inundation GIS data, KML/acrGIS overlays, and apps, organized and summarized in a single location. This effort is being combined with the work effort being done by Christa Rabenold. The idea is to have a website page with a map, where the location of interest can be clicked on and an info bubble would open with the proper link for the associated states GIS overlays or apps.
 - Laymen's Model Summary will be passed along to MES for feedback before updating from DRAFT to final version on the website

Discussion of the Maritime Guidance Document, minimum distance from reefs, and other issues (Charles Guard, others)

- Dmitry: Guidance document - The tsunami currents section still needs review. Given the results of the workshop we need to figure if the binning is the same... possibly they need adjusted.

- Offshore safety depths
 - Aurelio: advised 80 fathoms depth is too steep... 50 fathoms is the final
 - Gulf and EC, due to the long shallow shelf, the maritime offshore distance (based on depth) is not feasible for boaters to reach in a sufficient amount of time... Hence, better wording is needed for these regions where it is not very applicable
 - Charles Guard (brief presentation): Special maritime needs for Guam and CNMI
 - Inundation alone is not sufficient – we need tsunami currents etc.
 - 2011: 10 knot currents caused two US Navy submarines to lose their moorings resulting in \$\$\$ and damage
 - Big lagoons, fringe reefs and barrier reefs are also a large concern for this area.
 - Marshall Islands, atolls, full of fishing ships
 - Kwajalein, 15,000 people on a 2 foot high 2 football field space
 - The USCG is an interested party... they need to move ships out
- Kara: Summarize Action Items for the next MMS meeting
 - Finalize table offshore safety distance table at the next meeting.
 - Landslide Workshop location and date

Updates on the Tsunami Current Modeling Workshop by Pat Lynett (via Skype):

- Journal paper to focus on BM #1&2
- Will be sending out an email to ask the modelers to review and confirm he got it right
- Currently in the paper, the models are represented by generic numbers with no information about which model is which. The need to ID a particular model and accuracy is not necessary, esp. not for the journal. The purpose is to specify a threshold that we think defines a reasonable model. Then determine models that meet that threshold.
- BM#1: In figure 1 to pass a model must be between .5-1.5 for all four velocity components – this is +/-50%, and he thinks this is reasonable
 - Possibly highlight the models that meet this criteria.
 - With currents you need to have confidence in direction and if you're missing any of these components significantly then you are not getting direction. He recommends that those modelers not passing this test should revisit the problem.
 - Keep in mind, the lab data that we are using for BM#1 is dated. While the simplified configuration with reduced numerical errors is ideal, it's recommended that problems similar to this be redone in the lab.
 - The BM results show that the overall model results are more accurate when taken as an ensemble product.

- For NTHMP tsunami current modelers wanting to do ensemble runs, only models that pass this BM should be used in the ensemble.
 - We need a baseline threshold for accuracy before we move forward.
 - All are accurate if they are modelling currents without eddies. Does inter-model variability in the areas of eddies match the physical variability of eddies... an important question in order to use model ensembles.
 - Pat: We don't currently have data that shows what the physical variability of an eddy is
 - Further work should evaluate data that shows what the physical variability of an eddy is in ensemble modelling.
 - We need to evaluate effectiveness of ensemble (or stochastic based approach)
 - Frank: is there an obvious reason for the bias towards overestimation on BM#1...?
 - Pat: Probably, the dissipation is too low.
 - Chip: lower limit is capped, but you can go *up* to infinity... which *could* be an argument to set the lower limit to something greater than 0.5.
 - Fig. 10 is showing the error in measure of scaled total kinetic energy of the flow... and the errors are very large
 - If the model is to be used for momentum flux then the error in Fig 10 has to be below 0.5, otherwise you are not accurately getting the forces on structure. Currently only 2 models pass this measure (others not recommended for use in determining momentum flux, or for calculations of forces on building structures)

- BM#2: Hilo Harbor
 - Inter-model comparison platform – NOT an accuracy comparison platform
 - Only accuracy of mean inter-model
 - (Note: because the 6 min sampling ADCP data is too under-sampled not high enough precision for accuracy tests)
 - Fig 11 data as envelopes
 - Fig 12 inter-model standard deviations grow with higher resolution
 - The finer you resolve eddies, the more the models diverge.
 - The finer your resolution, the greater your resolvable velocity shear, hence eddies are tighter... tighter separation, stronger eddies
 - Kara: Is there a preferred resolution that we should be using in the harbors... he's going to think about that, but 10 m?

- Stephen: Overtopping of dykes which are only 1-2 meters wide is negated, and don't get resolved.
- Pat: Yep, a fundamental problem. You will need to resolve them and it will have to be a trade-off. Once you are in areas of eddies everything is fundamentally 3D. Low-order 3D models perform better than high-order 2D models.
- Pat: Notes that there are problems with only having velocity data at a single location point. A larger problem with lack of event tsunami current field observations and benchmarking
- Fig 14: Spatial Averaging - is just for the mean (not the variances... Stephen asked about this)
 - An argument for ensemble modelling instead of spatial averaging
- Fig 15: An ensemble threshold map where a fraction of models that predicted a threshold speed is displayed (this figure includes all models in the paper)
 - Again, ensemble model runs was recommended for increasing the forecast product accuracy,
 - Rick: Running multiple models at each location might not be cost effective for NTHMP partners
 - An alternative method would be binning single-model currents into damage-level categories which would help address potential straight-line current inaccuracies.
 - This method combined with qualitative identification of areas where eddies form and travel on map products, is another potential alternative.
- Pat: The paper is ready to be distributed to MMS and then the modelers.
- Some discussion within MMS about the need for a MMS review before sending out to the modelers. MMS has not had a chance to mull over the paper findings and it was felt that if the paper is circulated to the modelers, then there is a sense that MMS agrees with and stands behind the overall findings of the paper.
 - It was decided that the paper be distributed to everyone. Timeline and response for feedback and review is approximately 6 weeks.

MMS Housekeeping (new co-chair vote)

- Kara Gately had served her two year term as MMS co-chair (representing NOAA) and abstained from being nominated again
- Marie Eble was nominated for new MMS co-Chair (representing NOAA)
- MMS voted and Marie Eble was unanimously elected as the new MMS co-chair for FY2016-2018.

Mapping and Modeling Subcommittee Meeting (Part II) Ends -----

Thank you all for a productive and successful meeting! –Kara Gately and Dmitry Nicolsky

MMS Meeting July 5th, 2016 (11-12PM PDT)

In attendance via conference call:

- [Marie C Eble](#), NOAA Pacific Marine Environmental Laboratory
- [Dmitry Nicolsky](#), University of Alaska at Fairbanks
- [Kara Gately](#), National Tsunami Warning Center
- California: [Rick Wilson](#), California Geological Survey
- East Coast: [Jim Kirby](#), University of Delaware
- [Stephan Grilli](#), alternate, University of Rhode Island
- Gulf Coast: [Juan Horrillo](#), Texas A&M University at Galveston
- Hawaii: [Kwok Fai Cheung](#), University of Hawaii
- Oregon: [Jon Allan](#), Oregon Department of Geology and Mineral Industries
- Washington: [Tim Walsh](#), Washington Department of Natural Resources
- Elinor Lutu-McMoore, NWS American Samoa
- Victor Huerfano, University of Puerto Rico at Mayaguez

1. Landslide Workshop:

(update by Stephen Grilli)

Proposed: Jan 9th-11th, located in Galveston, TX. Preliminary email sent to participants, date seems to be good. (Juan agrees works well for TX). Going to finalize and send out formal invite soon. Then evaluate where we are with funding. Concerning benchmarks, plan to have something on the temporary website in 4-6 weeks. (Marie) Can this be announced at next CC meeting? (Stephen/Jim response) YES.

Q. (Marie) Funding for invitees... are there guidelines for who gets priority and covered? Guidelines left up to steering committee (Landslide Workshop Organizing Group). Invited presenters first, students if funds remain.

Date and location will be announced during the upcoming NTHMP Coordinating Committee conference call.

2. Scheduling an MMS Science Exchange Meeting:

Feds who want to attend will have to fund themselves.

(Kara) request webinar capability or at least conference call capability

(Dmitry) Should we include USGS? Other science research?

(Jim) Lots of east coast specialized research involving the wide shelf.

(Kara) Is this in addition to a MMS Summer Meeting for 2017? I thought we bargained for the return of NTHMP funded MMS summer meetings in 2017? Some discussion and it's unclear.

- **Marie sending Rocky an email concerning funding for a 2017 MMS Summer Meeting.**

Rocky's reply:

"There will *not* be funding from NWS for invitational travel for future MES or MMS summer meetings for grant-funded NTHMP partners due to both budget cuts and the travel cap. If states/territories don't include this travel in grants, there will not be funding for travel for any summer meetings; only annual meeting w/subcommittee meetings at that time. However, appointed Coordinating Committee Science Members who are not eligible to use NTHMP grant funding for travel may be offered invitational travel by the NWS to attend the MMS Science Collaboration meeting. As of this date, there is only one person from FEMA and one from NOAA who fit that category.

NTHMP is not a funded entity. NTHMP never sponsored travel. It has no budget. So there is not "travel sponsored by NTHMP." Travel when available has been sponsored by the National Weather Service. NTHMP folks need to understand that there is no dedicated funding for NTHMP, especially since the expiration of TWEA and funds designated by Congress for NTHMP activities. Since TWEA expired and appropriations by Congress went with it, NTHMP has remained at the mercy of the NWS for funds for anything."

(Marie) More of a workshop format than just presentations. How many days? (MMS Response) 3 days.

Note: Marie confirmed 3 days of travel requested by the sampling of grantee proposals looked at quickly.

(Fai) A forum to discuss what we are doing...

(Dmitry) How do we address agenda? Do form a tiger team? (MMS Response) NO.

(Marie) Begin with presentations and continue onto discussion and specific issue forums.

(Marie) Suggest after the landslide workshop. (MMS Response) NO.

(Dmitry) Not summer, too much USGS field work

(Stephen) Looking to: End of May Places: Rhode Island or Delaware... or? Let's define who we want first.

(Kara, Rick) Get feedback via email, have attendees provide their topics. Based on that consider the agenda, who will be attending, and the location.

- **Co-Chairs to circulate email accordingly**

3. Maritime Guidance:

(Dmitry) Basically finalized. Some edits to the graphic incorporating feedback from Kara. Needs a title and full descriptions in columns so it can be used and understood when "stand-alone"

(Rick) Get it as finalized as best we can and I will share it at the MMS meeting. They are expecting an update. Rick will circulate and provide feedback.

- **If anyone wants has additional input for the document, provide feedback to Rick by July 15th.**

4. Update on tsunami currents. ATFM paper was pulled, so all the graphics are being redone (without the ATFM results included). Kara will follow up with Pat Lynett if we haven't seen it disseminated in a week.

(Dmitry) There is a need to add new/updated models to the Appendix of the workshop proceedings.

(Rick/Kara) The proceedings document is results. How does MMS use those results to move forward with tsunami current modeling and products? Discussion concerning the path forward (aka guidance) for use of the models within NTHMP and final model products. How does a model "Qualify"? How should they be used? What products should be created? Possibly a separate document will need to be created by MMS providing clear guidance for these purposes.

(Rick) A good topic for the MMS Science Meeting. (Marie) Agreed.

5. CLIFFs

(Marie) What constitutes a new model? Do we as a group wish to take the time to benchmark everything that is modified? Who determines when it's a new model?

(Fai) Changes to the numerical method or computational scheme would need to be benchmarked again. Parameters or option changes, bug fixes, possibly grid changes, likely do not need to be re-benchmarked.

(Stephen) Concerning CLIFFs, it's not a new model, but her implementation of the physics is different. Different run-up algorithm than MOST (Dmitry). (Rick) The MMS Guidance on the website explicitly states that when a run-up algorithm is changed the model needs to be re-benchmarked.

(Marie) Inundation computation in 2014 say's "modified" the run up algorithm, (plus a changed reflected boundary condition).

(Stephen) Numerical algorithm has been re-implemented, with new code.

Summary of major issue: There is a large time consideration that needs to be taken into account when a modeler seeks MMS approval for their benchmarking. All benchmark problems, data sets, and NTHMP model results are publicly available. Modelers wishing to use the benchmarking process for validity may do so and publish their results with or without MMS approval. Do we want to spend time (presentation to MMS, formal review, discussion, and approval by MMS, posting of approved model to MMS website list and model results to the proceedings journal addendum) doing this process for models that are NOT being used for NTHMP purposes?

(Kara) Does MMS WANT to spend it's time on approving models that are not for NTHMP?

(Stephen) What does a modeler gain from MMS approval versus just passing the benchmarks and publishing to a peer reviewed journal?

MMS approval should only come for models used for NTHMP products. Agreement (Jon, Tim, Rick, Fai, Stephen, Kara, Marie, Dmitry) General MMS agreement.

(Kara) I will update the Benchmarking procedures document on the website to clearly address this oversight and recirculate to the group.

(Dmitry) As the wording was not exclusive to NTHMP models initially, and we have already begun the process with CLIFFs, do we go ahead and (based on the grandfather clause) allow MMS review and approval for CLIFFs?

(Stephen) Have we already committed ourselves? if so we should honor it.

(Marie) If not being used for NTHMP work, should not be in MMS approved model list on website.

Some mixed opinions and of a controversial nature. Hence, requesting feedback via email.

- Kara to update the Benchmarking document and disseminate to group. Will also request feedback concerning moving forward with CLIFFs.

6) USGS/NTHMP Workshop Updates

(Rick) We need to keep momentum and follow through with the creation of an initial WORK GROUP – the one to find the best path forward for USGS/NTHMP collaborations. Recall, a source database was first priority. Thinking ~ 4 NTHMP & 4 USGS for size of committee. Rick to pick up a MES representative while at MES meeting this month.

- **Marie, to take the lead and help get this going**

Other Items:

(Kara/Dmitry) Suggest meeting again after the MES Meeting and before the next NTHMP CC Meeting.

(Marie) Asked if this time was good for everyone, possibly we can schedule without a Doodle poll or set a regular meeting time.

Next meeting: Will be scheduled in the next few weeks. Preference is for teleconferences to be held every other month, so next meeting should be held the week of 29 August, 5 September (Labor day week), or 12 September.