October 10, 2014

A Tsunami Forecast Model for Santa Barbara, California

Comment Review Response Form

General Comments	Action Accepted/ Rejected	Brief Responder Comments
1. Good report. Adequate information on model development procedures and testing are provided. A few corrections and specific suggestions, below.	Accepted	I would like to thank the Reviewer for taking time to review this report and providing comments.
2. Small proofreading corrections can be found on the hard copy (changes in tense, etc).	Accepted	Revisions for standardization addressed the reviewer's corrections.
3. Overall well-written and fairly comprehensive.		
4. No forecast/reference time series comparisons at gauge location.	Accepted	Revisions for standardization addressed the reviewer's comment.
5. Needs tide gauge comparisons for a historic event.	Accepted	Revisions for standardization addressed the reviewer's comment.
6. Since no historical comparisons are made, expanding the description of the Reference Model and Forecast Model comparisons	N/A	Revisions for standardization addressed the reviewer's comment.
7. Report is missing Unit Source location figure, and SIFT Testing section	Accepted	Revisions for standardization addressed the reviewer's comment.

Specific Comments *(Field will expand upon reaching the end of each line)*	Action Accepted/ Rejected	Brief Responder Comments
1. No Table of Contents, List of Tables, List of Figures	Accepted	Revisions for standardization addressed the reviewer's comment.
2. References to Standby Inundation Model (SIM) should be changed to Forecast Model (FM) throughout the report for consistency.	Accepted	Revisions for standardization addressed the reviewer's comment.
3. References to Propagation Database source names should be capitalized.	Accepted	Revisions for standardization addressed the reviewer's comment.
4. Table 1 lists runup estimates from layperson observers. If historical gauge data exists (please check, perhaps recent events can provide a crucial comparison), perhaps a comparison using these estimates might be valuable. I suggest the 1946, 1964, and 2006 events as PMEL has source definitions for them based on the Propagation Database.	N/A	Revisions for standardization purposes removed the issue that prompted the reviewer's comment.
5. Switch the order of Table 2 and Table 3, as 3 is referenced first in the text.	Accepted	Revisions addressed the reviewer's comment.
6. Table 3 is accurate, but the choice of 1.0 seconds for FM time step is only 70% of CFL for that grid, perhaps introducing more numerical dispersion than necessary.	Rejected	The time step of 1.0 sec was selected so that the inundation model would complete within the 4 hr of simulated waves in 10 min criteria, which is

		necessary for a quick forecast. Also this was chosen so as to have a correct multiple for the time step in A and B grid and the required output time step of 30 seconds. In terms of numerical dispersion, comparisons were made at tide gauges for 6 historical events and the results were relatively good.
7. Table 4. Include an Mw column or simply state the Mw value in the title.	Accepted	The Mw value is added to the title.
8. Section 3.1. Figure 5 is referred to as "a typical day's tidal record", but it is actually showing detided residuals. I think the point you want to make is that this residual "noise" is as large as the tsunami wave "signal", and, hence, is difficult to determine whether the wave form matches the modeled time series.	N/A	Revisions for standardization purposes removed the issue that prompted the reviewer's comment.
9. Last paragraph, Section 3.1: instead of just reporting the maximum differences between reference and forecast models for the 3 events, also compare the forecast maximum amplitude at the gauge location and the maximum observation (which would be small).	N/A	Revisions for standardization purposes removed the issue that prompted the reviewer's comment.
10. Last paragraph, Section 3.1: mention that changes in bathymetry to keep the model stable (shown in Figure 6) were largely less than two-tenths of one percent, except for one or two grid nodes.	N/A	Revisions for standardization purposes removed the issue that prompted the reviewer's comment.
11. Page 8. Insert a reference to Figure 12 earlier in the discussion of that figure, where appropriate.	Accepted	Reference to Figure 12 has been added to appropriate location on previous page.
12. Section 4 shows FM 4-hour run times are 12.8 minutes, but on current hardware (tgrid20), I get 8.7 minutes (less than the 10 minute guideline)	Accepted	Data updated with report version update.
13. Page 17. Section 4.1. This states 25m slip was used for Mw=9.4, but Table 4 says x30. Correct of clarify.	Accepted	The text has been modified to 30m slip.
14.Page 17. Figure numbers are wrong. Change "The list of sources used are indicated in Table 3 for the artificial mega-tsunami and Table 4 for Mw=7.5 and Mw=6.2" to "The list of sources used are indicated in Table 4 for the artificial mega-tsunamis and Table 5 for Mw=7.5 and Mw=6.2	Accepted	The table number has been corrected.
5. Page 26-36. In Figure 10-21, many do not display tide gage data. If the tide gage data do not exist, state this in the text or in the figure titles. If the tide gage data do not exist, state why they are not displayed.	Accepted	Additional text 'Tide gauge data not available' has been added in the figure caption.
6. Page 68. Include a detailed definition figure for all the fault plane parameters.	Accepted	Additional figure added to define the fault plane parameters.
7. Throughout in all figures showing tsunami results, state the corresponding earthquake Mw value in the title.	Accepted	Mw value has been added in all figures showing tsunami results.
8. Pages iv-ix. Six pages of repetitive figure titles are		The report will go thru PMEL's

too many! Exploit the repetition in the titles to shorten the number of pages. For example… Figures of Maximum Tsunami Wave Amplitude Distributions in the forecast and reference models at C-grid level, for historical events. Dotted outline in the reference grid represents the extent of the forecast grid. Figure 9. 3 May 2006 Tonga……25 Figure 10. 13 Jan 2007 Kuril……26 Figure 11. 15 August 2007 Peru……26 Figure 12. 29 September 2009 Samoa……27		internal editor who will make necessary changes to follow PMEL's standard for list of figures format.