REPORT TITLE*: *A Tsunami Forecast Model for Point Reyes, California
Comment Review Form

Name: xxxxx Date: 2nd January 2014

Affiliation: xxxxxx

General Comments

1. This report describes the method and results of testing a tsunami forecast model for Point Reyes, California which will be implemented operationally at TWCs.
2. The method described is highly appropriate for the development of an operational forecast system.
3. The results are well documented and demonstrate a high level of confidence in the use of the forecast model
4. The report is well-written and easily understandable.
The author is grateful for this careful and comprehensive review.

A mismatch between the text and the figures has been pointed out to the author	Corrected
The author should reconsider whether plotting time series correlation between the reference and forecast model is the best way to validate results. Perhaps the Hmax fields cases should be included in the report.	The graphics of the original draft were less than effective and were completely revised in the new version.
Comparison of Hmax fields between Reference and Forecast models should be done on two side by side filled plots rather than on a single filled plot of the reference field with a superimposed contour plot of the forecast field.	Same response as for previous comment.
A hard copy of the report has with minor corrections such as typos and typesetting errors has been provided to the author for correction.	These were corrected.

Specific Comments

1. The only major comment I have is in relation to the validation of the model for the Honshu 2011 tsunami (section 4.3). The author shows that the propagation results are in excellent agreement with the observations, once they are lagged and scaled-up (Figure 15 RH panel). Then for the reference and forecast model comparisons (Figure 16), the author applies the time lag, but not the amplitude scaling. Were the boundary conditions from the propagation model scaled up? If so, then this should be specified, if not, then this needs to be justified.	The reviewer correctly identifies an apparent inconsistency: that, in the case of Honshu-2011, the FM seems to do better at the reference point (first peak height in Fig 16) than might be expected given the 20% underestimate of the propagation solution at the offshore DARTs seen in Fig 15! In fact, together with many other west coast tide gages that lost about 18 minutes of data during the early part of the event, Point Reyes missed the first wave peak. In the absence of 15-second data, which was later available at some other sites, only the 6-minute tide gage data were available to bridge the Point Reyes record. Six minute data cannot capture the short time scales of the tsunami and the apparent close agreement of model and observation is most likely fortuitous and unreliable. The text and Figure 16 have been modified to explain this point.
3. page xi – Abstract. Last line of 2nd par. 'should also include'	Accepted
4. page xi – Abstract. Last par. Could note here that observations from numerous historical tsunamis are available for this case.	Addition to the text has been made.
5. page 1. C-grid is not yet described. Suggest using 'highest resolution' or 'smallest domain'	Text revised accordingly.
6. p2. Section 1.2 First sentence needs rewriting for grammar.	Grammar corrected.
7. section 1.2 par 1. Change 'first time series' to 'earliest time series'	Accepted.
8. p3 line 2. The term 'standard' is used here and a number of other times in the report. Presumably these are NCTR/PMEL internal standards. Suggest specifying this (at all points where 'standard' is used), otherwise it could be implied that these are international standards, which should have a formal reference.	Agreed. The word "standard" appears in several different contexts in the report. In this instance "preferred" would be a better choice and the full text has been modified to add clarity where needed for all occurrences of "standard".
9. p3 end of par 1. I can only see 26 events in fig 4	Corrected; the label but not the symbol for Chile-2007 had been omitted.

10. p3 SIFT is referred to in the second paragraph, but not introduced until section 1.3.	Text reorganized to address this.
11. p3 line 8 from bottom: is = in	Typo corrected.
12. P4 line 6, 'as little as'	Typo corrected
13. P4 section 2.2 Specify TWC acronym	Acronym was pre-defined (Section 1.2)
14. P6 last par. '…the author considers…' This is subjective and probably unnecessary anyway given the last sentence of the previous paragraph.	Text was left unchanged; this is the NCTR recommended form of words for this purpose.
15. P7 line 6 from bottom: ' places'	Grammar corrected.
16. P8 section 3.4 second line. Also Fig 6?	Suggestion adopted
17. P8. Remove comma from end of second last paragraph.	Typo corrected.
18. P9 line 4. Suggest not using the term 'the designer'. Change 'the designer must' to ' it is necessary to'	Suggestion adopted.
19. P11 section 4.1 first line. Table 6 refers to these as micro-tsunamis – should be consistent with terminology. Also would be clearer to list these null/micro-cases first in Table 6 as they are referred to first.	Text has been modified throughout to eliminate the word "null" in favor of "micro". The order of the scenarios in Table 6 has been altered to match the order of their discussion in the text as suggested.
20. P12 line 7. Strange characters here	Corrected.
21. P12 section 4.2 par 1 and 2. I count 21 locations in figure 10, with 5 highlighted.	Two extra synthetic sources have been added and highlighted in Figure 19. These are the other two "micro" cases and both the text and caption have been modified to reference them all.
22. P13 par 4. '…nearby fields of the FM..'	Corrected.
23. P13 line 11 from bottom. Suggest using replicate instead of reflect to avoid possible confusion with reflection of waves	Accepted.
24. P14 section 4.3 end of 1st par. Strange characters.	Corrected.
25. P14 par 3. 'several hours' how many, approximately?	Substituted "small compared to the transit time of over nine hours" in the text.
26. P14 last par. 2nd line. '…a may not have..'?	The text was reworked to clarify the lost thought revealed by this "glitch". The point being made was that model predictions other than at the reference point can be of use to enhance SIFT's "coastal forecast".
1. The only major comment I have is in relation to the validation of the model for the Honshu 2011 tsunami (section 4.3). The author shows that the propagation results are in excellent agreement with the	The reviewer correctly identifies an apparent inconsistency: that, in the case of Honshu-2011, the FM seems to do better at the reference point (first peak height in Fig 16) than might be expected given the 20%

observations, once they are lagged and scaled-up (Figure 15 RH panel). Then for the reference and forecast model comparisons (Figure 16), the author applies the time lag, but not the amplitude scaling. Were the boundary conditions from the propagation model scaled up? If so, then this should be specified, if not, then this needs to be justified. (All further comments are very minor and mainly suggestions for clarity or typos.)	underestimate of the propagation solution at the offshore DARTs seen in Fig 15! In fact, together with many other west coast tide gages that lost about 18 minutes of data during the early part of the event, Point Reyes missed the first wave peak. In the absence of 15-second data, which was later available at some other sites, only the 6-minute tide gage data were available to bridge the Point Reyes record. Six minute data cannot capture the short time scales of the tsunami and the apparent close agreement of model and observation is most likely fortuitous and unreliable. The text and Figure 16 have been modified to explain this point.
27. P15 line 12 from bottom. '...indicates that over 60% of…'	Typo corrected.
28. P16 line 18 from bottom. '...installation of the tide…'	Omission corrected.
29. P17 par 3. Figures 26, 27, 28 not referred to (but should be). And ensure they are discussed in the same order as the figures are presented.	A blanket reference "Figures 25-28" was in fact present (final para, line 7 of Section 4.4). However, in light of this comment, the text has been modified to more directly reference the figures and untangle their descriptions. The transposition of Figs 26 and 28 in the original draft has been corrected.
30. P17. Line 5 from bottom. Suggest change to 'The quality of the modelling of the historical…'	Suggestion adopted.
31. P18 par 2. 'For the latter..'	Typo corrected.
32. P18 end of par 2. Suggest changing 'without extensive comment' to 'with limited comment' as I was expecting no comment at all, when in fact there are 2 paragraphs devoted to these events. Also could not see any run-up values on any of the graphics.	Suggestions adopted. For the second one, rather than relying on matching information in the text with the observed time series plots, runup values from the NGDC database have been inserted in the appropriate graphics.
33. P18 par 3 line2. It's = Its	Typo corrected.
34. P19. Par 3. Suggest moving this brief summary to the end of section 4.6, to avoid summarizing something before it is described.	Suggestion adopted.
35. P20. Line 15 from bottom. consonant = consistent?	Suggestion adopted.
36. P22 line 9. 'tool for use'?	Suggestion adopted.

37. P22 par 2. Could refer here to: Titov, V.V., Moore, C., Greenslade, D.J.M., Pattiaratchi, C., Badal, R., Synolakis, C.E. and U. Kanoglu, 2011: A new tool for inundation mapping: Community Modeling Interface for Tsunamis (ComMIT), Pure Appl. Geophys. Topical Volume, doi:10.1007/s00024-011-0292-4	New reference added.
38. P53 Figure 15. Need legend for black/red lines	Legend was added to the graphic and to both caption and main text.
39. P150 section C3 par 1. Table C1 shows some significant differences between SIFT and the development model in the minima. Not clear how these might arise? This should be explained, particularly as the second paragraph of section C1 says that you are aiming for identical results.	The cause of the disparity has been identified. These extreme minima are associated with "drying out" at the reference point. A later modification to the C-grid bathymetry reduced the depth there to a lower value resulting in a new "drying out" value. The cases used in Appendix C were rerun in the development environment using the new bathymetry and, as expected, both maxima and minima now match; the table has been modified accordingly.