

Dear Editor,

Thank you for your time and sending us your decision. We have made corrections to both reviewers as shown below. Corrections made based on suggestions are shown in red.

Reply to reviewer no. 2

We highly appreciate the time spent for the review comments from the reviewer especially those minor corrections (our type errors) and pointed out many points that clarifications are needed. We are happy that the reviewer is happy and highly evaluated our manuscript. Please find our responses and corrections as shown below.

Reviewer comments	Our answers	Corrected manuscript
- Page 2 Line 60-74: in terms of the sediment transport models induced by tsunami waves, the author should give certain credit to previous work (e.g. (Apotsos et al., 2011a; Apotsos et al., 2011b; Li et al., 2014) which use different sediment models while addressing similar problem.	Gave certain credit to previous work	Please see Page 3 Line 83-88 ...(Takahashi et al., 1999; Gelfenbaun et al., 2007; Takahashi et al., 2008; Apotsos et al., 2011a; Apotsos et al., 2011b; Apotsos et al., 2011c; Takahashi et al., 2011; Gusman et al., 2012; Li et al., 2012; Takahashi et al., 2012; Li et al., 2014; Morishita & Takahashi, 2014; Yamashita et al., 2015; Yamashita et al., 2016; Arimitsu et al., 2017; Yamashita et al., 2017; Yamashita et al., 2018)...
- Page 2 Line 70: I'm not sure what "the movable bed model" refers to? Does it refer to a specific model or it represents all the sediment models assuming the bed is movable? If it refers to the former, then a definition is required to prepare the readers for the following context.	I made a mistake in the English translation. "Numerical modeling of tsunami sediment transport" is correct.	Please see Page 3 Line 82-83 ...In recent years, the numerical modeling of tsunami sediment transport has been developed, ...
- Page 3 Line 106-109: the presentation is confusing. Why using "Although..."? The second sentence seems contradictory with the first one.	Corrected.	Please see Page 3 Line 110-112 Due to the largely natural environment, Phra Thong Island is a rare case that is useful for verifying tsunami sediment transport models where few artificial features can generate model uncertainties.
Page 5-6, Section 2.3: about the tsunami source model, many source models have been proposed for the 2004 earthquake (e.g. (Banerjee et al., 2007; Chlieh et al., 2007; Grilli et al., 2007; Ioualalen et al., 2007; Rhie et al., 2007)). Different models could produce quite different tsunami wave heights in the same coastal area. Since the source model is	I wrote explaining why the current model is chosen.	Please see Page 5 Line 154-155 Suppasri et al.'s (2011) source model was focused on the coast of Thailand and accurately reproduced the inundation area and surveyed trace height of the 2004 IOT.

<p>one of the key factors which decide the reliability or accuracy of the simulation results, I feel the author should write a few sentences explaining why the current model is chosen. Does it produce better match with the measured data in this specific coast?</p>		
<p>- Page 7-9 Section 2.4.2: about the “Tsunami movable bed model”, two coefficients α and β in formula (7) and (8) play significant role in the simulations, how these coefficients are specified? are the results sensitive to the choice of these coefficient?</p>	<p>Wrote the explaining detail.</p>	<p>Please see Page 9 Line 252 - 261</p> <p>The grain-size dependent parameter for bed load (α) and exchange rate (β) in Equation (9) and (10) are derived from Equations (12) and (13) based on the hydraulic experiments by Takahashi et al. (2011):</p> $\alpha = 9.8044e^{-3.366d} \quad (12)$ $\beta = 0.0002e^{-6.5362d} \quad (13)$ <p>However, the functions should not be applied when d is outside the 0.166 mm to 0.394 mm range as he validity of extrapolated d values may produce erroneous results.</p>
<p>- Page 10 Section 3.1.1: How to define tsunami trace height?</p>	<p>“Tsunami height” is correct. Unified some expressions.</p>	<p>Please see Page 11 Section 3.1.1</p>
<p>- Page Section 3, I feel the author tend to describe the result qualitatively instead of quantitatively, especially when mentioning the erosion and deposition results. Although the simulation results suffer from many uncertainties, I believe some quantitative explanation is necessary, e.g. the thickness of erosion or deposition Thickness</p>	<p>Added</p>	<p>Please see Page 14 Table 3 and Page 13 Line 354-356.</p> <p>...Although the modelled layer thickness typically overestimates the observed layer thickness by +7%, such low variation suggests a relatively successful reproduction of the observed dataset (Figure 7)...</p>
<p>The figure quality needs to be improved, at least make sure the fontsize is consistent in all figures, not extra large (Figure 7-9) or extra small (Figure 10). Pay attention to the caption of each figure, make sure they are consistent with the legends inside the figure (see Figure 7 and Figure 8).</p>	<p>Revised</p>	<p>Please see all figures</p>