

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC1
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Comment on nhess-2021-375

Anonymous Referee #1

Referee comment on "Tsunami scenario triggered by a submarine landslide offshore of northern Sumatra Island and its hazard assessment" by Haekal A. Haridhi et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2021-375-RC1>, 2022

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Tsunami scenario triggered by submarine landslide offshore of northern Sumatra Island and its hazard assessment

Haekal A. Haridhi et al.

Overall evaluation:

I think this is a good work and is helpful for tsunami hazards in Sumatra region. I recommend publication after the following revisions.

Comments:

Figure 1: Some text in Figure 1a cannot be read. Please increase fontsize.

L25-28; what is meant by this: "In an extreme case, an earthquake of Mw 7 or more occurred, and

the strong ground shaking triggered a submarine landslide off the northern shore of Sumatra."? Is this about a real event? Or hypothetical?

Abstract: make your abstract more specific by adding some numbers and values from your modelling, like wave heights and etc.

L43-55: Another good example of tsunami from strike-slip event from this region is the event of March 2016. See reference below. You could add something like this: "Heidarzadeh et al. (2017) showed potential tsunami hazards from strike-slip events by analysing the tsunami from the Mw 7.8 strike-slip earthquake in the Wharton Basin".

Heidarzadeh, M., Harada, T., Satake, K., Ishibe, T., Takagawa, T. (2017). Tsunamis from strike-slip earthquakes in the Wharton Basin, northeast Indian Ocean: March 2016 Mw 7.8 event and its relationship with the April 2012 Mw 8.6 event. *Geophysical Journal International*, 47(3), 1601-1612, <https://doi.org/10.1093/gji/ggx395>.

Figures 2 & 3: here we have two issues: the fonts are small; and please write the owner of the data in the caption; is that from Malod and Kemal, 1996? Please also write that they are digitized from paper versions. These two figures are key figures of the paper and you need to be very clear about them.

L93: what type of reprocessing? Please clarify.

L295: Another good ref here: Tsuji et al. (2011):

Tsuji, Y., Satake, K., Ishibe, T., Kusumoto, S., Harada, T., Nishiyama, A., Kim, H. Y, Ueno, T., Murotani, S., Oki, S., Sugimoto, M., Tomari, J., **Heidarzadeh, M.**, Watada, S., Imai, K., Choi, B. H., Yoon, S. B., Bae, J. S., Kim, K. O., Kim, H.W., (2011), Field surveys of tsunami heights from the 2011 off the Pacific Coast of Tohoku, Japan Earthquake. *Bulletin of Earthquake Research Institute of University of Tokyo*, 86, 29-279.

L170: Yes, it is true that COMCOT can model landslide tsunamis as well. Would be useful to add another reference here of other people who used COMCOT for landslide tsunamis. I

recommend Heidarzadeh and Satake (2015):

Heidarzadeh, M., & Satake, K. (2015). Source properties of the 17 July 1998 Papua New Guinea tsunami based on tide gauge records. *Geophysical Journal International*, 202 (1), 361-369.

L316: I think here you could cite one more article; I suggest Heidarzadeh et al. (2019):

Heidarzadeh, M., Muhari, A. & Wijanarto, A.B. (2019), Insights on the Source of the 28 September 2018 Sulawesi Tsunami, Indonesia Based on Spectral Analyses and Numerical Simulations. *Pure Appl. Geophys.* **176**, 25–43.
<https://doi.org/10.1007/s00024-018-2065-9>
