

## ***Interactive comment on “Runup, Inundation, and Sediment Characteristics of 22 December 2018 Indonesia Sunda Strait Tsunami” by Wahyu Widiyanto et al.***

### **Anonymous Referee #1**

Received and published: 24 December 2019

NHESS-2019-325: Runup, Inundation, and Sediment Characteristics of 22 December 2018 Indonesia Sunda Strait Tsunami

Authors: Wahyu Widiyanto, Wei-Cheng Lian, Shih-Chun Hsiao, Purwanto B. Santoso, Rudy T. Imananta

#### Overview:

Widiyanto et al. conducted field surveys of the 22 Dec 2018 Anak Krakatau volcano tsunami along the coastlines of Sunda Strait and reported wave runup distribution. They also collected sediment samples and performed tsunami deposit analysis.

C1

I believe that this is an important study and the results are very useful. The manuscript reads well; its figures have good qualities and the structure of the manuscript is appropriate. However, I found some unclear points in the manuscript that needs to be corrected before publication. The details of runup survey are unclear and I made comments to help authors to correct it. Also the manuscript needs to compare its results with published papers on the Anak Krakatau tsunami and explain how this work connects with existing literature.

My recommendation is “Moderate Revision” with following comments. I encourage the authors to do the revisions quickly and resubmit soon in order to publish the paper earlier.

#### Comments:

Page 2, Line 13: please show two locations “Merak” and “Bakahueni” in Figure 1.

P2, L1-9: in this part of introduction, I think it would be very useful if you report the two recently published papers on the same event. They are:

Muhari, A., Heidarzadeh, M., Susmoro, H., Nugroho, H.D., Kriswati, E., Supartoyo, Wijanarto, A.B., Imamura, F., Arikawa, T. (2019). The December 2018 Anak Krakatau volcano tsunami as inferred from post-tsunami field surveys and spectral analysis. *Pure and Applied Geophysics*, <https://doi.org/10.1007/s00024-019-02358-2>.

Heidarzadeh, M., Ishibe, T., Sandanbata, O., Muhari, A., Wijanarto, A.B. (2020). Numerical modeling of the subaerial landslide source of the 22 December 2018 Anak Krakatoa volcanic tsunami, Indonesia. *Ocean Engineering*, 195, <https://doi.org/10.1016/j.oceaneng.2019.106733>.

You could say like this: “The numerical modelling of the Dec 2018 Anak Krakatau tsunami was performed by Heidarzadeh et al. (2020) while Muhari et al. (2019) conducted field surveys of this event to record tsunami runup along the coasts of Sunda Strait”.

C2

P3, L36: here please clarify which coastline? We have two coastlines which are High Tide Coastline (HTC) and Low Tide Coastline (LTC). You measured runup based on HTC or LTC? This is very important to clarify.

P3, L13-16: here you talk about runup measurements; but you do not explain about tidal level corrections. The tide level at the time of actual tsunami was different from tidal level at the time of surveys. Please explain about this and the corrections that you made.

P3, L34-40: please compare your runup heights with those of Muhari et al. (2019) [Pure and Applied Geophysics, <https://doi.org/10.1007/s00024-019-02358-2>] and explain why Muhari et al. reported maximum runup height of 13 m but you report max runup of 8? Is that because you did not survey same points? Please clarify.

P3, L34-40: Here also please compare your surveyed runup heights with published tide gauge records of Heidarzadeh et al. (2020) [Ocean Engineering, 195, <https://doi.org/10.1016/j.oceaneng.2019.106733>]. For example, your runup heights how many times are larger than tide gauge heights reported by Heidarzadeh et al.? this information can be very useful.

P4, L1: please show location "Sumur" in Figure 1.

P4, L3; 250 m. Add "m".

P4, L6: same comment as before for coastline; HTC or LTC?

P5, L27; how much is the value of gamma?

Figure 1: Please make the distance scale more clear and visible.

Figure 2: please increase fontsize. Most texts cannot be read.

Figure 3: please add name of each location after the letters "a", "b", ... in each panel.

Figure 4; please add some location names in this figure'; for example location names

C3

of 2, 4, 10 and 14.

Figure 5: Please add location name in each panel.

Figures 6 and 7: please combine these two figures to only one figure with two panels.

Figure 8: Please add location name in each panel.

Table 1: in column 3, please add time as well. You have only date now. What time of the day? This is very important because we can see how tidal status was at the time of your survey.

- Regards.

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2019-325>, 2019.

C4