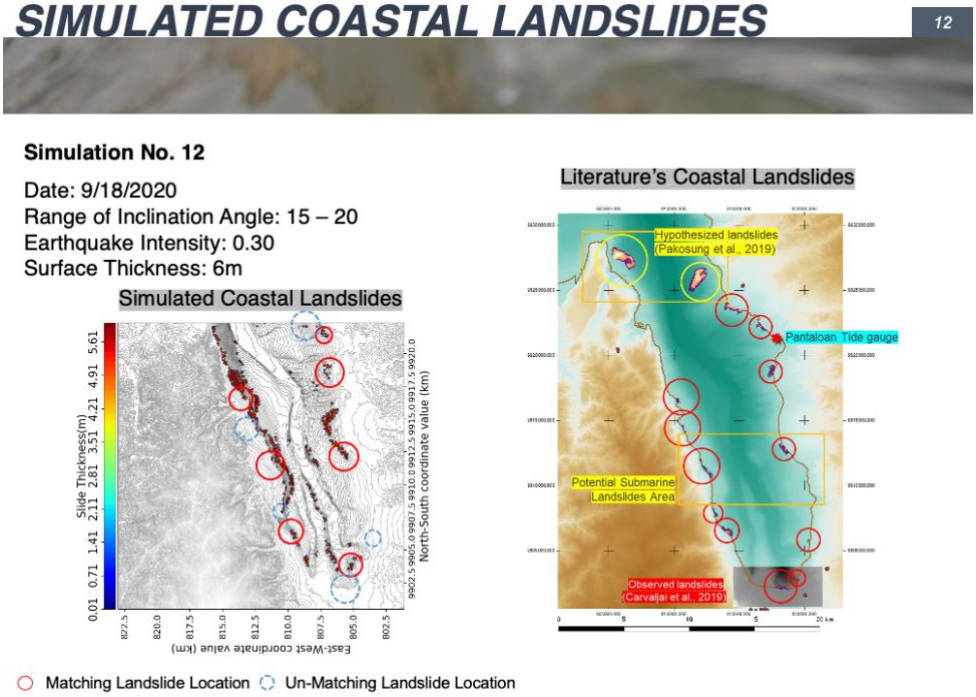
Responses to Reviewer I

Comment	Tsunami generation by strike slip earthquakes The USGS moment tensor of the Palu-Sulawesi earthquake is not a pure strike-slip (https://earthquake.usgs.gov/earthquakes/eventpage/us1000h3p4/moment-tensor) and thus, such a mechanism is capable of generating some tsunami waves, mainly due to the effect of the rake component. Recent studies (e.g. Elbanna et al., 2021; Frucht et al., 2019) have shown the complexity and importance of tsunamis generated by strike-slip earthquakes. Therefore, in my opinion, the potential contribution of the coseismic deformation induced by the Palu-Sulawesi earthquake to tsunami generation should not be ignored, or at least examined if relevant. Indeed, the authors mention the need for adding coseismic sources for the modeling and the important conclusion raised by Sepúlveda et al. (2020) (lines 355-357 in the present manuscript). However, they attribute the misfit between their modeling and field observations to variations on the time of landslide initiation, etc., rather than first modeling the combined effect of tsunami generation by both coseismic deformation and subaerial and submarine landslides, and then discuss the reasons of misfit. This line of investigation is not mentioned in the Conclusions section as well.
Response	Based on the simulation by Pakoksung et al. (2019), the tsunami component calculated by Finite Fault model developed by USGS. The authors have added this tsunami components to the previous results. Pakoksung et al. (2019) has shown the small effects of coiseismic fault to the tsunami and therefore, has unnoticeable changes or slightly changes from the past results. The tsunami waveform calculated by finite fault model were added to 10 and 11. All the results are revised by adding this tsunami induced by coseismic component.
Comment	Soil data I found it difficult to follow the various soil layers and strata described in the text (Section 2.1.2) and Table 2 (what is the meaning of ‘Underground’? Which of the base layer used for the modeling, the dry or saturated conditions?), and sketched in Figures 3 (two layers only) and Figure 5 (3 layers).
Response	In this model, soil mass was divided into 3 strata; stratum no. 1, no. 2, and the base layer as shown in Figure 5. Landslide occurs in the first 2 strata (sliding layers). The base layer does not fail. The orange sketched soil mass in Figure 3 is the same soil mass in Figure 5. Figure 3 shows the soil mass in assembly, while Figure 5 shows more details of the soil mass column. Underground in Table 2 represents the water conditions in the model such as mean sea level, groundwater table. ‘Underground’ is just naming for modeling's sake. The authors have changed change to ‘water level condition’ in the revised version.
Comment	There is much discussion on the potential, limitations, and uncertainties of the Hovland’s approach to identify the location of the submarine slope

	failures. Was this approach use to identify on-land and coastal slope failures that are well recognized and mapped along the Palu Bay, and thus validate the Hovland's approach for identifying potential submarine landslides
Response	The authors used Hovland's approach to identify the coastal landslides and validated them with observed coastal landslides as shown in Figure 1 in the manuscript. The results of our simulated coastal slope failures are presented in the attached figure. More than half of simulated landslides were found matched with the observations. However, the configurations of soil parameters in those simulations were different from measured ones as described in section 2.1.2. Coastal landslides are important for tsunami generation in this study. Thus, the authors used the coastal landslides from literature instead of our simulated coastal landslides. 
Comment	General impression The tone I felt while reading the Discussions and Conclusions sections is negative and thus discounts the achievements of this project. The critic approach displayed in these sections is highly appreciated, however it gives the impression that the project failed to achieve its goals – which in my opinion is not the case at all. I would suggest the authors to first emphasize their achievements in line with the stated goals (lines 100-108), then discus the shortcomings, and finally propose what should be done and improved next.
	The author has revised the discussion accordingly.
Comment	I suggest adding a general location map with an inset map that sows the study area. There is a need to add the location of the 2018 epicenter, the pattern of the seismogenic fault and surface rupture, in relation with the study area. Also, there is a need to show the various mechanisms proposed for this earthquake, because of the reasons mentioned above.

	Authors understand the reviewer's intention and have respect to this comment. However, the study area has already introduced in many past literatures and this study is more like the further study to them. Therefore, authors do not see the necessary to add the general location map. However, since this study added the tsunami generated by cosesimic deformation, authors have added the seismogenic fault in Fig. 6
Comment	11, 83, etc,: "visible landslides" – do you mean subaerial landslide, such that initiated on land, entered the sea and generated a tsunami? Or submarine landslides that produced visible cloudiness in the water? Please define the exact terminology in the abstract and explain it later on in the text where relevant.
	Authors mean observed subaerial landslides and have revised the abstract accordingly.
Comment	16-17: "surveyed soil properties" – If I understood correctly, properties of on-land, dry soil, were extrapolated onto submarine seabed conditions with some corrections? In my intuitive understanding, the word 'soil' refers to on-land areas and 'seabed' to the upper (soil) layer in marine environment. Please define and explain your terminology, describe the process of transforming on-land dry soil properties to seabed fully saturated conditions, in short in the abstract, and later on along the text in section 2.1.2, and where else relevant:
	Authors rather mean the former matter. They are untouched soil measured at observation site around inland areas and eventually assumed as seabed condition. The unit weighted are slightly increase from the observation (randomly increase to get the best results). Author have revised abstract accordingly.
Comment	17: After describing the landslide volume, location and mechanical properties used for the modeling, one expects to see the properties used to simulate the collapse process, i.e. speed of motion, distance to rest, etc. This should also be addressed and explained in the text, especially in the methodology and Figure 2.
	The submarine landslides were assumed as dense fluid mass in tsunami model part and the landslides movement was describe in Pakoksung et al. (2019).
Comment	18-19: "The results were combined with the other tsunami sources, i.e., earthquakes and observed coastal collapses,…" – I am not sure I understood correctly what exactly you mean: Did you mean in 'results' - tsunamis induced by submarine landslide that were modeled in this study, and in 'other tsunami sources' - tsunamis simulated by other researchers due to coseismic deformation generated by the Palu-Sulawesi earthquake, as well as tsunamis induced by the observed subaerial coastal collapse? In other words, do you mean that tsunami components generated by coseismic deformation and subaerial landslides were investigated in this study? Please clarify in the abstract and explain in details in the text.
	Authors mean the former description and revised the abstract and detail in section 2 Methodology.

Comment	18-19: “The results were combined with the other tsunami sources, i.e., earthquakes and observed coastal collapses,…” – I am not sure I understood correctly what exactly you mean:
	Authors have changed accordingly to all specific comments where reviews marked.
Comment	30: What was the tsunami type of the ninth event?
	The references did not mention the type of tsunami also.
Comment	46-47, 50-51: Are these the reasons why tsunami component due to coseismic deformation were not simulated in this work?
	Yes, however, authors have added the tsunami component derived by coseismic deformation in this study and they are shown in revised Figure 6-11. According to the main comments.
Comment	53: Please consider mentioning the relevant references, since this is the first time you mention the Pantoloan tide gauge record and other studies of landslide sources.
	Authors have revised accordingly.
Comment	94: you mean previous studies of the Palu-Sulawesi event?
	Yes.
Comment	103-104: not clear, please rephrase
	Authors have revised as follow. 1) *Generate the potential submarine landslide using a sophisticated landslide model based on 3D slope stability analysis (which has never been performed according to the existing literature), also based on the existing observational soil data, and to investigate whether the simulated submarine landslides match the observations or are located within potential areas suggested by past studies.*
Comment	108: you mean: …with parameters calculated by tsunami simulation that are based on the developed landslide model… ?
	Yes, authors have revised accordingly.
Comment	153: should be “… safety factor > 1” ?
	Yes, authors have revised accordingly.
Comment	217-218: Are Upper-, Middle- and Lower- Bay refer to Northern, Central and Southern parts of the Bay?
	Author has changed line 172-173 for smooth reading, and the definition of upper, middle, and lower zone. *northern, central, and southern zone (named as upper, middle and lower Palu Bay respectively, as shown in Fig. 4).*
Comment	252: …in the range of ???? m error?
	Authors mean in the range of -2.1m to 2.1m error.
Comment	267: What does it mean : “Moreover, the simulation in this study can slightly overestimate.”?
	Authors have revised as follow. *Moreover, the tsunami simulation results in this study can be slightly overestimated.*

Comment	279-280: Figure 10 reads first apparent signal as positive wave of few cm within the first 1-2 minutes, then the first negative wave at minus ~2 m… within 5 minutes, and then the maximal positive… ?
	Author has revised accordingly as follow; *The record tsunami wave amplitude time series at the Pantoloan tidal gauge with detided sea level is depicted in Fig. 10. The first positive wave reach ~0.20 m within the first 1-2 minutes and was followed by the first negative wave at ~-1.80 m within 5 minutes. The reccord tsunami wave peak of ~1.95 m was reached at the tidal gauge within 6 minutes.*

Response to reviewer 2:

Comment	Suggest improving the quality and readability of Figures 1, 4, 5, 6, 7, and 8
	The authors appreciate the reviewer's compliments and constructive comments. They have greatly improved and polished the content of this article. The authors have improved the quality and readability of Figures 1, 4, 5, 6, 7, and 8 in the revised version. The topography (onshore, offshore) and inundation area will be more visible and clarified in Figure 9c.
Comment	Define onshore and offshore in Figure 9.
	Author has revised the figure accordingly.