

Interactive comment on “Development of a decision support system for tsunami evacuation in the South China Sea region” by Jingming Hou et al.

Anonymous Referee #2

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Title of this manuscript sounds interesting but the detail seems to be lower than what have stated in the title. The manuscript needs major improvement in their method, study area, explanation and English writing so that it can be reached to international standard. Please find my comments as shown below.

Major comments - Only one study area in China cannot represent the evacuation for whole SCS region. If the authors would like to do such quick and simple method, at least they should have one or two more target areas to show performance of the system in both near-field and far-field tsunamis. Verification of the model is needed to convince readers that even such simple method is applicable. - How fast is the processing time required for this decision support system? I suggest to add information of time in Fig.

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1. I believe that each country in SCS region has different timing of tsunami warning preparation. Please add information about this and tell readers how this system can help at each timing for SCS countries. - The use of English should be very much improved by a native speaker.

Specific comments - Title: The title should be more specific by mentioning the study area. - L36-37: This reference Benard (2005) is too old to support the statement “Currently, many governments..” - L53: Objective and purpose of this paper should be written at the end of section 1. - L55-67: More literature review is needed. There are more types of evacuation model than what have mentioned in this part. I don’t think that the agent-based model is only for evacuation drill. It can be for disaster planning as well. What do you mean by “the decision makes do not know well”? - L70-78: Should other items in Fig. 1 be explained? How much detail of fault mechanism considered in the database? Do they also have events outside of subduction zone in the database? Explain briefly about evacuation cost here. - L117-129: Evacuation time can also be a time from a natural warning (i.e. ground shaking) in case of no warning system. The authors should scientifically state why equation (1) is proper to be applied to this region. They should also more clear by saying that the tsunami travel time is estimated by dividing the distance from epicenter to target area by tsunami celerity, C (not to be confused with flow velocity). What do you mean by “numerical tsunami travel time model”? Fig. 4 should be improved by adding the location names (i.e. China, the Philippines, Hainan, Luzon, Manila Trench) and the estimated tsunami celerity during the deeper (4,000 m) and shallower (2,000 m) section in the figure - L133-142: “Influence area”, what is the meaning of “influence”? Is it from tsunami amplitude, arrival time or any other parameters? The simple radius based on earthquake magnitude shown in Fig. 5 is too simple. As the authors had mentioned in section 4.2 that the evacuation time is calculated by the sea depth, the sea depth, coastal topography of each communities for both sides of the Philippines are quite different and cannot be just simply represent by the radius. - L161: How do you relate “magnitude (do you mean earthquake magnitude?)” to “physical nature of tsunami”? - L182-191: I am not

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sure if the 8.3 km was really happened. Where was it and what kind of topography? Please scientifically explain why equation (2) is suitable to apply to your study area or other areas in SCS region. Only tsunami height is a parameter for equation (2). Such large overestimation can be occurred in mountain areas where tsunami is limited by the topography. The authors should also explain why they used the distance of 8 km as shown in Fig. 8. What is their expected Y_0 to get 8 km distance? - L221-237: There are many parameters related to the traffic during evacuation such as road width, traffic regulation during tsunami warning, distribution of evacuation shelters, ratio of evacuation using car, number of people in one car, day or nighttime that the authors did not mention. Explanations of the evacuation cost analysis is too simple and not enough to understand. - L247-262: The conclusion is rather simple. They should write, for example, major finding in their study or benefit (from their discussed results) to agent-based model or suggest how to develop your proposed system to other countries or regions.

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