

## ***Interactive comment on* “Field survey of the 2017 Typhoon Hato and a comparison with storm surge modeling in Macau” by Linlin Li et al.**

### **Anonymous Referee #2**

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The author conducted a field survey and made an inundation map indicating the depth and distance of flooding in the coastal areas of Macau. In addition to the field survey, the author also used the atmosphere model, storm surge model, and wave model (WRF + SCHISM + WWM3) to simulate and reproduce the event as the benchmark scenario and compared with the real event. In this paper, the benchmark scenario is used to investigate the situation which tide and sea level rise affect the events like HATO. In terms of the change in tide level, even if the typhoon HATO is landing in Macau at the time of the lowest tide record, there will still be a flood in the Inner Harbor area, indicating the urgency of adjusting the disaster prevention measures. In terms of sea level rise, the relevant situational simulations show that sea level rise will increase the overflow area. In addition to the linear superposition of water levels, there may be

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some reasons that the coastal waves are caused by some non-uniform spatial changes caused by rising water levels. This part is consistent with the literature.

Some minor comments are listed as below: 1. line 17-23: The purpose of this paper and the conclusion are suggested to be included in the abstract. 2. line 39: “Macau (and Hong Kong) commonly experience about 5-6 typhoons per year. . .”, references are required. 3. line 40: “. . .by storm surges during major typhoons.” The periods are doubled. 4. line 49: “. . .Although, Macau has 2 tidal level gauge”. Typo. 5. line 57: “which will be discussed in this paper.” Redundant. . 6. line 66-67: “The sudden intensification occurred because of the low vertical 67 wind shear and the high sea surface temperature of  $\sim 31^{\circ}\text{C}$  in the Northern portion of the SCS”. References are required. 7. line 68: “It is well-known that the . . . during a typhoon’s landfall plays. . . “. Missing words. 8. line 70: “OSU TPXO-atlas8”. References are required. 9. line 79-80. . . : “SCHISM (Semi-implicit Cross-scale Hydroscience Integrated System Model). . .” 10. line 80: “Weather Research and Forecasting (WRF) model. . .”References are required. 11. Fig 2: Table S: The location of the photo shall be added in the figure. 12. Fig 3a: The red texts are not clear. 13. line 106-107: The locations, Ponte Pou Heng on Avenida de Demétrio Cinatti, Rua Visconde Paco de Arcos, Rua do Almirante Sergio, are missing on the figures. 14. Fig 3b: No ‘Rua Do Camboa’ on the figure. 15. line 133-143: The information of timestep, domain, vertical resolution used in WRF shall be explained. 16. line 152-154: The way to determine the Manning coefficient shall be explained with related references. 17. line 160-161: How to setup the radiation stresses in SCHISM? 18. Fig 5a: The text on the figure are not clear enough. 19. Figure 6b : What are the reasons that the error at Chiwan is larger than other stations?. 20. line 195, Fig 6c, Fig 6d: The location name cannot be found on the figures.

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