Response to Reviewer #2's Comments and Suggestions

1. *please add protection information along the Huangpu River and coastlines.*
Response: We added information about flood protection infrastructure along the Huangpu River in the revised figure 2 and labeled the height of flood walls.

2. *There is little inundation along the coastline, is it because of coastal protection?*
Response: In this study, we focus specifically on compound flooding along the Huangpu River and investigate water level changes at the outlet of the Huangpu River (Wusongkou tide gauge). We do not consider the coastal region over the sea. However, we acknowledge the presence of protective structures along the coastline, which mitigate the impact of storm surges and reduce the extent of coastal flooding. This aspect is clarified in the manuscript, particularly in the discussion section.

3 *Line 155-160, the description of how to develop a flood inundation model looks quite simple, but it is a complicated process and did not describe how to validate. I suggest adding more information here, at least, to put some information in the supplementary. For example, "River, flood wall and discharge data obtained from the Shanghai Municipal Water Authority, to develop the urban inundation model", it is too simple.*
Response: Thank you for suggestions. The model utilized in this study integrates rainfall and storm surge boundary conditions, incorporating flood walls along the Huangpu River in Shanghai, as developed and validated by Ke et al. (2021). Digital elevation model data obtained from the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, along with river, flood wall, and discharge data from the Shanghai Municipal Water Authority, were utilized to develop the urban inundation model. The overland flooding model employs a combination of regular rectangular and irregular triangular meshes, with a mesh grid resolution set at 150 m. Storm surge data from the Wusongkou gauge serve as the downstream boundary condition for the overland inundation model. Hourly rainfall hyetograph data sourced from the CMA are inputted into the overland inundation model to ascertain the spatial and temporal distribution of rainfall across Shanghai. For further details regarding the inundation model process for compound flooding, please refer to Ke et al. (2021).

References:
Ke, Q., Yin, J., Bricker, J., Savage, N., Buonomo, E., Ye, Q., Visser, P., Dong, G., Wang, S., Tian, Z. and Sun, L.: An integrated framework of coastal flood modelling under the failures of sea dikes: a case study in Shanghai. Nat. Hazards, 109(1), 671-703, doi:10.1007/s11069-021-04853-z, 2021.