

Second revision of manuscript: *“Flooding in the Mekong Delta: Impact of dyke systems on downstream hydrodynamics”*.

Overview and general remarks

The second version of the manuscript has been improved compared to the first one. The authors put obvious effort in editing the text after the referee’s comments and suggestions. There are significant improvements in the Methods and Discussion/Conclusions section in terms of the content required for the study and readability. The Figures were improved. Nevertheless, the authors did not consider one of the most important remarks. The pre-processing of DEM and possible errors related to vertical accuracies of SRTM need to be described.

Large stripe noise and speckle noise have been extensively investigated in numerous studies (See Fig.1). For instance, Rodriquez et al 2006, Tarekegen et al 2013 and Kuenzer et al 2013 have reported that inaccuracies coming from data acquisitions for SRTM can cause significant errors in flood modelling, as such errors “... can seriously affect DEM derivatives such as slope, aspect and flow direction that affect the flow accumulation and consequently results in uncharacteristic channel network introducing a directional bias into subsequent flow routing in hydraulic and hydrologic modelling” (Tarekegen et al 2013). Recent advances of the Yamazaki et al 2017 have reported that original SRTM may have vertical errors to up to 10m.

One of the previous studies the authors referred to, Triet et al. 2017, used higher-resolution LiDAR DEM obtained from the Ministry of Natural Resources and Environment of Vietnam (MONRE), not SRTM.

First, in order to prove the validity of the results (sub-centimetre mean water level changes) the information on SRTM pre-processing and uncertainties coming from DEM data must be included in the manuscript. Without this crucial information, overall validity of the current study is compromised.

Second, I suggest authors to include a deliberate review on the previous studies done to model floods in Mekong delta (a table). Data used, domain modelled, modelling tools used.

Therefore, I suggest to return the manuscript for major revisions.

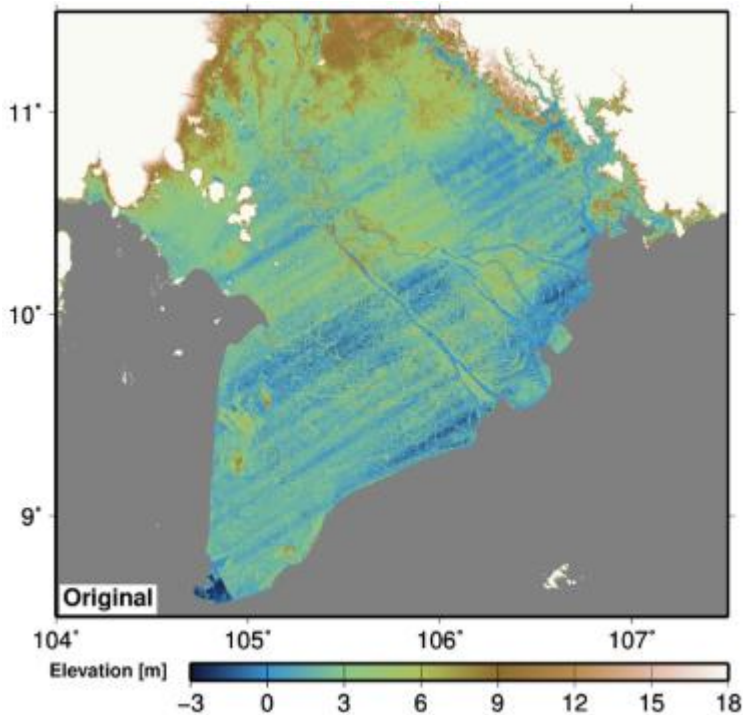


Figure 1. Image representing original SRTM data over Mekong data. Taken from http://hydro.iis.u-tokyo.ac.jp/~yamada/MERIT_DEM/.

References

- Kuenzer, C., Guo, H., Huth, J., Leinenkugel, P., Li, X., & Dech, S. (2013). Flood mapping and flood dynamics of the Mekong Delta: ENVISAT-ASAR-WSM based time series analyses. *Remote Sensing*, 5(2), 687-715.
- Rodriguez, E., Morris, C. S., & Belz, J. E. (2006). A global assessment of the SRTM performance. *Photogrammetric Engineering & Remote Sensing*, 72(3), 249-260.
- Tarekegn, T. H., & Sayama, T. (2013). Correction of SRTM DEM artefacts by Fourier transform for flood inundation modeling. *Journal of Japan Society of Civil Engineers, Ser. B1 (Hydraulic Engineering)*, 69(4), I_193-I_198.
- Triet, N. V. K., Nguyen, V. D., Fujii, H., Kummu, M., Merz, B., & Apel, H. (2017). Has dyke development in the Vietnamese Mekong Delta shifted flood hazard downstream?. *Hydrology and Earth System Sciences*, 21(8), 3991.
- Yamazaki, D., Ikeshima, D., Tawatari, R., Yamaguchi, T., O'Loughlin, F., Neal, J. C., ... & Bates, P. D. (2017). A high-accuracy map of global terrain elevations. *Geophysical Research Letters*, 44(11), 5844-5853.