

Response to 3rd Referee's Comments on
Has dyke development in the Vietnamese Mekong Delta shifted flood hazard downstream?
by Nguyen Van Khanh Triet et al.

We would like to thank the reviewer for taking time and evaluating our work and the manuscript as interesting and useful for the scientific community and the Vietnamese administration. Our answers to the raised comments are as follows:

General comments: *The paper shows an interesting finding about the correlation between the dyke system and the flooding in Vietnam Mekong Delta by observing the changes in flood characteristics to high-dyke constructions and other possible causes. The paper was well organized and mechanism of the flooding in VMD was explained clearly by the trend analysis and hydrodynamic flood model though there are some other factors than largescale dykes that can cause the hazard, especially in downstream. The findings of the paper will be very useful not only for the academia but also the local governments in the deltaic regions.*

AUTHORS' REONSE: Thank you for the nice comment

1. Comment 1. *The authors used Monte Carlo experiment for uncertainty analysis of the detected trend. However, it seems that more explanation about the method of analyses measurement error should be clarified, for example, the Reliability Method with median value and variation of error.*

AUTHORS' REONSE: Thank you for your comment. However, in this paper our aim is not to analyse the actual measurement errors, which are in fact unknown, but rather show that potential measurement errors do not yield different results. That means we want to show that the results of the trend tests are robust against potential but unknown measurement errors. The range of the potential errors were defined according to typical instrumental errors of water level monitoring instruments plus additional errors caused by human operation and unforeseeable events.

2. Comment 2. *Inundation levels in the Mekong Delta are predominantly determined by ocean tides, sea-level rise, and land subsidence. Although the authors took in account the changes in the tidal dynamics, it is hard to understand well about the tidal propagation model, how it effects to the inundation level in Mekong Delta by tidal harmonic analysis.*

AUTHORS' REONSE: Thank you for the comment. The “tidal propagation model” is actually the hydrodynamic model, i.e. the quasi 2D model using MIKE11, which translates the pre-defined lower boundary, i.e. the tidal water levels of the sea, into changing flows and water level in the river system. Because the upper boundary (mekong flow at Kratie) and lower boundary (tidal water levels at the river mouths) are predefined, the hydrodynamic code, which is a numerical representation of the St.-Venant

hydrodynamic equations describing the physics of river flow, calculates the propagation of the tides upstream the river as a consequence of the interplay of tidal water levels and river discharge.