Dear Editor Marilaure Grégoire,

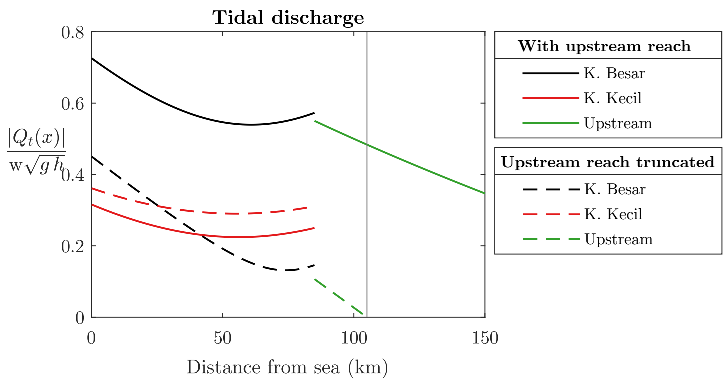
Thank you for sending me the revised manuscript "Modeling interactions between tides, storm surges, and river discharges in the Kapuas River delta" by Sampurno et al. for review. I enjoyed reading the manuscript very much. The authors study with a detailed numerical model a compound flood induced by a storm surge in the city of Pontianak. The authors have responded to the review comments and improved their manuscript accordingly. In particular flooding in the city through the drainage channels is now reproduced. The study addresses a pressing issue facing many cities in Southeast Asia and beyond. Therefore I recommend the manuscript for publication. I give some short comments below for finalizing the manuscript.

Kind regards,

Minor comments

Nested model: This approach is interesting. Is there a particular reason why the mesh of the large scale SLIM model has not simply been refined at the drainage channels? Since SLIM allows for local mesh refinement and uses implicit time-stepping, I would not expect a large penalty on the runtime. Even with two models, why was HEC-RAS chosen over SLIM for the nested model?

Upstream boundary: The authors explain that they placed the upstream boundary near Terentang about 100 km upstream from the sea, to avoid missing discharge from tributaries (mostly Tayan and Meliau) downstream of the head of tides at about km 300, near Sanggau. While this approach indeed reproduces the river discharge at the inflow boundary, it cuts the tidal prism, and thereby reflects the tidal wave and reduces the tidal discharge. The figure below shows the tidal discharge estimated with the theory of tides (*Hill and Souza*, 2006; *Kästner et al.*, 2019). Truncating the domain as in the numerical model reduces the tidal discharge in the Kapuas Besar branch by 50% and increase the tidal discharge in the Kapuas Kecil branch by 30%. To get both the river and tidal discharge right the boundary could be moved to Sanggau while the inflow is set to the discharge measured at Terentang.



Bathymetry: My comment on erroneously shallow cross-sections in the original manuscript was not clear. What I mean is not the mouth bar but that the raw bathymetry data of (*Kästner et al.*, 2017) erroneously contains shallow cross-sections between Pontianak and the upstream bifurcation. This is due to glitches of the echo sounder used for the measurement. The SLIM model results show jumps in surface elevation at km 30 and 45. This seems physically implausible and is probably due to backwater caused by erroneous constrictions of the cross-section. I suggest verifying this and if applicable, filtering the bathymetry along-channel.

Terminology: I agree with the first reviewer who commented that the adopted zone-terminology is somewhat confusing. The terms tidal energy and maximum water level are used interchangeably throughout the manuscript. However, there is no direct correspondence between the maximum water level and the (kinetic) energy. The maximum water level is a combination of the tidal amplitude and tidally averaged water level. The effect of tides on the mean water level is largest upstream of the point where most of the tidal energy has already been dissipated, as it integrates along channel, while the tidal amplitude decreases gradually along channel. The storm surge, furthermore, contributes an important part to the energy budget. Therefore, I recommend referring to water levels throughout the manuscript, and avoiding the term "energy".

Typography

19 could divide → divide

105 For the wind shear stress a surface roughness is required, similar to c_d for the bed shear stress. What value was chosen?

188,189 new mesh → second mesh

194 0.09m → 0.09 m

197 semidiurnal components explain the rest → there is no rest (90.69 + 9.31 = 100)

231 will drop → drops

234 leads to a reduction in the water levels → reduced the water level

236 not too significant → not significant

242 State in here that the reference for the 2.8 m water level is the lowest astronomical tide (LAT) and that the 2.8 m correspond roughly to 1.8 m above mean sea level and 0.7 m above highest astronomical tide (HAT). State also the river discharge for this day.

245 Please state the Kapuas discharge and tidal range (without storm surge) for that day!

251 top → high water level?

263 Landak river streams → Landak River

277 the wind velocity less than 9 m/s or more than 24 m/s, it does not → wind velocities less than 9 m/s or more than 24 m/s do not

281 zone border → boundary

281 mix-energy → mixed-energy

282 border → boundary

293 from the river mouth to the upstream → upstream from the river mouth

293 was coincidentally met with a high river discharge → I would call this more an intermediate discharge, as it seems to be less than 1/2 of annual peak discharge of the river.

321 where ebbs no longer impact → where tides no longer impact

Figure 7 It would be insightful to complement this figure with an along channel plot of tidal range and tidally averaged water level.

Figure 13 Limit the colourmap of water depth between 0 m and 2 m, to better distinguish flooding in the city.

References

Hill, A. E., and A. J. Souza, Tidal dynamics in channels: 2. Complex channel networks, *Journal of Geophysical Research: Oceans*, *111*(C11), 2006.

Kästner, K., A. J. F. Hoitink, B. Vermeulen, T. J. Geertsema, and N. S. Ningsih, Distributary channels in the fluvial to tidal transition zone, *Journal of Geophysical Research: Earth Surface*, *3*(122), 696–710, 2017.

Kästner, K., A. J. F. Hoitink, P. J. J. F. Torfs, E. Deleersnijder, and N. S. Ningsih, Propagation of tides along a river with a sloping bed, *Journal of Fluid Mechanics*, *872*, 39–73, 2019.