Natural Hazards and Earth System Sciences
Discussions

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC2
https://doi.org/10.5194/nhess-2022-248-RC2, 2022

Comment on nhess-2022-248

Anonymous Referee #2

Referee comment on "Modeling compound flood risk and risk reduction using a globally applicable framework: a pilot in the Sofala province of Mozambique" by Dirk Eilander et al., Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2022-248-RC2, 2022

This manuscript presents a case study of a modelling framework that could be applied globally to investigate the impact of compound flood risk, at least for initial investigation. The manuscript is for the most part very well written and has a very clear structure.

Despite this, there are a small number of comments that need to be addressed. These are listed in page order below but the more important ones are hightlighted by *.

Section 2.2.3 Rainfall. Lines 152-153: Design rainfall events with a 24- hour duarion were created. Why was this duration chosen? How is this related to catchment response for the chosen area?

Line 160: How was the plus/minus ten days determined?

Line 176 and throughout the manuscript. The authors use both Pair Copula Constructions and Vine Copula interchangeble throughout the manscript.

*Section 2 and in particular section 3 (3.2). The authors present the results and talk about inaccuracies (Line 243). However, these are never combined . In Section 3.2 there is a lack of quantifying the statements and relating to the relevant inaccuracies in the data. For example, Line 322-323, the authors states interactions decrease flood depth in the esturary but upsteam increases flood depth. By how much and how does this related to the overall errors in the datasets. This is needed to understand if these changes are significant relative the data errors. Again Line 326, the authors do not quantify the lower volume of costal water entering the river mouth and if this is a significant amount.

Section 3.3. (Line 345-348). The authors state that the damage caused by pluvial damage is mostly related to the infiltration capactiy. Can this is quantified and what are the other factors that influence this.

*Section 3.5 Limitations and way forwards (Line 390 - 395). The authors mentiond the accuracy of the input data should be considered. It would be nice to see this point discussed in more detail. This is similar to the point above.

*Line 436-439. This statement is sums up the entire manuscript excellently. However, it needs to be stated more strongly throughout the manuscript and include in the manuscript (more clearly) the weaknesses in the approach.