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Discussions

Interactive comment on "Projecting flood hazard under climate change: an alternative approach to model chains" *by* J. M. Delgado et al.

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The paper of Delgado et al. submitted in the NHESS discussion provides a very interesting study using non-stationary extreme value models with covariates to infer the possible changes on flood quantiles. The paper is well written and to my opinion it provides a valuable contribution to NHESS.

I have two (very) minor comments / remarks about this paper:

1- The authors state that annual maximum discharge in the Lower Mekong River can be modelled with a lognormal distribution (page 7362, line 26) from the Phd thesis of Dung (2011), however it would be nice to see a plot to verify this assertion, such as a quantile-quantile plot, for example.

2- From the Introduction and the section 2.2, it almost sounds like the use of extreme value models with covariates is a new method. It can be argued that a quite large amount of studies used a similar approach and the previous literature on the subject may be better acknowledged. For instance, Katz et al. (2002) provided some examples of such non-stationary models for precipitation and stream flow. For extreme precipitation, El Adlouni et al. (2007) or Tramblay et al. (2012, 2013) developed non-stationary models including climatic covariates. For floods, López and Francés (2013) considered climatic and reservoir indices as covariates in extreme value models. Similarly, Seidou et al. (2012a, 2012b) used such a framework by linking the parameters of a GEV model for floods with the SWAT model monthly outputs.

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