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Ocean Science
Discussions

Interactive comment on "Multivariate extreme value analysis of storm surges in SCS on peak over threshold method" *by* Y. Luo et al.

Anonymous Referee #1

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General Comments
This paper uses a Multivariate approach to model extreme storm surges of two series in two different locations. Based on my reading, I am unable to recommend the publication of this paper in its current form. In particular, the manuscript is hard to follow reporting many misleading information on Extreme Value Theory.

Some Specific Comments:

- The introduction is unclear. The authors describe methods instead of introducing the scope and motivation of the study. Moreover many information on Extreme Value Theory are Misleading. In the section Introduction (line 4) the authors report that "the Multivariate Generalized Extreme Value Distribution (MGEVD)

is the natural distribution of annual maxima". It seems that the MGEVD works only with annual maxima whereas it is defined for each block of time. Differently from what is written in this manuscript, the MGEVD does not "ignore the multiple severe storm waves that occur in the same year" if it is applied to a block period shorter than one year (e.g. one month, three months, etc...).

Introduction line 27: If the MGEVD is the natural distribution why the authors use another distribution?

- The method description is confused and explained in general without any reference to the considered variables.

- Section 4. In the introduction the authors wrote that the MGEVD is the natural distribution for annual data but that they have preferred to use a Peak Over threshold method. In this section it seems that the author are using the MGEVD contradicting what was stated in the introduction.