

Interactive comment on “Threshold effects in catchment storm response and the occurrence and magnitude of flood events: implications for flood frequency” by D. I. Kusumastuti et al.

Anonymous Referee #2

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The analysis of effects of non-linearity in runoff generation mechanisms on flood frequency is a topic of primary importance in hydrology. A previous paper that the authors do not mention was provided by Fiorentino M. and V. Iacobellis, Non-Linearity Effects in the Process of Floods Generation, Proc of the EGS Plinius Conference on Mediterranean Storms, 1999. In particular in that case the flood frequency derivation was tackled with respect to different runoff thresholds depending on different generation mechanisms.

Results provided in the reviewed paper are interesting and useful in the understanding

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of main characteristic of the probability distribution of flood events, nevertheless the following points could be better addressed in the paper:

1) the flood frequency curves in figure 7 for M3 and M4 models seem to show a shift in position rather than a change in the slope of the curve. Is this possibly due to the schematic representation of the deterministic rainfall-runoff model ? 2) What is the impact of different thresholds with respect to distribution moments of floods ? 3) The rainfall-runoff model completely neglect possible hydrologic losses due to infiltration as well as discharge component due to groundwater flow. Is this due to the lack of any observed base flow within the river ? 4) The evaluation of evapotranspiration and its annual variability is not mentioned as well as the variability in Eb and Eveg. 5) The parameter M is practically never mentioned within the paper apart from section 2.2. I assume that it is not that important with respect flood frequency which is to paper main focus. Then, is it absolutely necessary to introduce Eb and Eveg, thus replacing Ep, in models 3 and 4 ?

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