Hydrology and Earth System Sciences Discussions

Interactive comment on "Effects of runoff thresholds on flood frequency distributions" *by* A. Gioia et al.

A. Gioia et al.

We would like to acknowledge the valuable work made by the Referees with their constructive comments. Following reviewers' suggestions we re-organized and revised the entire manuscript. The introduction of the paper was modified clarifying the main object of this paper which is to propose a generalized version of the theoretical probability distribution of Iacobellis and Fiorentino (2000) introducing a two component derived distribution where the role of runoff thresholds is emphasized. The model parameters and their estimation procedures were described further in details with particular attention in the distinction between the parameters estimated from regional data and those estimated at-site. A new estimation procedure, based on a Monte Carlo approach, for the parameters related to the runoff thresholds (r_L, r_H, $f_{A,L}$, $f_{A,H}$) was also introduced.

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The description of the two runoff processes has been modified taking into account the suggestions given by the referee N.4. Moreover, results and implications of the present research have been better addressed giving more emphasis to the behaviour of the two runoff thresholds: one acting as an infiltration rate (L-type event) and the second as a storage threshold (H-type event).

References

Iacobellis, V. and Fiorentino, M.: Derived distribution of floods based on the concept of partial area coverage with a climatic appeal, Water Resour. Res., 36(2), 469-482, 2000.

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