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Modelling of eternal and internal intermittence of rainfall data via a simple event based stochastic model

M. Giorgio (1) and R. Greco (2)

(1) Seconda Universita di Napoli, DIC, Dipartimento di Ingegneria Aerospaziale e Meccanica, Aversa (CE), Italy, (2) Seconda Universita di Napoli, DIC, Dipartimento di Ingegneria Civile, Aversa (CE), Italy (roberto.greco@unina2.it, 0039-081-5037370)

In this paper, an event-based model is presented which enables to fully and accurately describe (in probabilistic sense) both internal and external time intermittence of point rainfall data series at sub-daily timescale.
The proposed approach allows identifying a series of storms in a rainfall height data series and to formulate unambiguously the probability of the observed hyetograph of each storm. The calibration of the proposed methodology is carried out on the basis of time series of point rainfall data provided by the rain gauges of the meteorological warning network of the civil protection agency of Campania Region.
All the hypotheses upon which the model relies have been checked using proper statistical tests. The application of the proposed model for generating synthetic data as well as for performing real time prediction of future temporal evolution of local rainfall is also discussed.