Geophysical Research Abstracts, Vol. 8, 08155, 2006
SRef-ID: 1607-7962/gra/EGU06-A-08155

Comparison and Classification of Models: IF vs DREAM.

M. Fiorentino (1), A. Gioia (2), V. Iacobellis (2), S. Manfreda (1)

(1) Dipartimento di Ingegneria e Fisica dell'Ambiente (DIFA) University of Basilicata, Potenza, Italia, (2) Dipartimento di Ingegneria delle Acque e di Chimica Politecnico of Bari, Italia. (a.gioia@poliba.it / Phone: +39-080-5963285)

In the present research, we exploited a continuous hydrological simulation to investigate on key variables responsible of flood peak formation. With this purpose, a distributed hydrological model (DREAM: Manfreda et al., Ad. Geo., 2005) is used in cascade with a rainfall generator (IRP-Iterated Random Pulse: Veneziano and Iacobellis, WRR, 2002) to simulate a large number of extreme events providing insight into the main controls of flood generation mechanisms. Investigated variables are those used in theoretically derived probability distribution of floods based on the concept of partial contributing area [IF model: Iacobellis and Fiorentino, WRR, 2000] such as: runoff per unit contributing area, infiltration, lag-time, and partial contributing area. The study suggests interesting simplification for the theoretical probability distribution of floods according to the different climatic and geomorfologic environments, leading to an explicit analytical solution for the cumulative probability distribution of floods under the hypothesis of rainfall intensities exponentially distribuited.