EMS7/ECAM8 Abstracts,
Vol. 4, EMS2007-A-00342, 2007
7th EMS Annual Meeting / 8th ECAM

Extreme rainfall events triggering flash floods in the Romanian Carpathians

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Precipitations represent a phenomenon very variable in time and space and its consequences are sometimes dramatic for environment and society. Flash floods is one of the most dangerous phenomenon triggered by extreme precipitation. This paper aims at analyzing the extreme rainfall events that might trigger flash floods in the Romanian Carpathians.

The study is based on data from 1961-2005, covering 20 weather stations situated in the Romanian Carpathians or in the close proximity. Since in many cases flash floods develop in hours, two types of precipitation data were analyzed: hourly data, referring to precipitation fallen in 1 h-interval, and event data, referring to precipitation accumulated during an entire event. These data were statistical analyzed in order to identify temporal and spatial patterns that might relevant for flash floods. For each station, Intensity-Duration-Frequency (IDF) curves have been drawn, for 10 minutes-interval, based on the available data.

Historical flash floods were selected and the rainfall events that probably had been triggered them were investigated in terms of amounts, duration and intensity. Further, they were compared with the IDF drawn for maximum rainfall.

As a result, we can conclude that in the Romanian Carpathians the intensity of the hourly rainfall follow an increasing trend, and one may expect a similar trend for the flash floods events.