



Tropical-like characteristics of flash-floods in South-Eastern Europe

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Over recent years, like most European countries, Romania has experienced destructive precipitation events, many of which have generated flash floods resulting in the loss of lives and economic damage. Europe has not yet a common database for flood events, which continue to be monitored by different national and/or local authorities, with different criteria. Our study underpins the need to improve the knowledge of Mediterranean and Black-Sea systems, possibly introducing new regional conceptual models and/or refining the current ones.

The main aim of the present work was to find a classification scheme for a South Eastern European-level flash flood database, in which severe episodes are related to meteorological conditions and mesoscale settings. Surprisingly, the most difficult cases presented tropical features that are shown here. We analyze the vertical structure of the systems, the precipitation type and vertical cross section characteristics of radar reflectivity and radial velocity together with other atmospheric parameters.

The paper analyzes the meteorological systems relating to the most severe events over a six-year period (2002-2007) using radar Doppler and Meteosat imagery combined with conventional meteorological data and numerical weather models. Most of the observed events were related to extra tropical cyclone development and to mesoscale convective systems developed inside these cyclones. The results are discussed in terms of conceptual models currently used for extra tropical cyclones: the structure and dy-

namics of Atlantic cyclones can very often be interpreted in terms of well-known conceptual models, while characteristics of some Mediterranean and Black-Sea systems are not fully explained by current descriptions, as already mentioned in some recent publications.