



Tropical characteristics of severe storms in Romania

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Over recent years, like most European countries, Romania has experienced unusual destructive meteorological events associated with climate change. Among the features that impressed the forecasters in the last years, is the so called “tropical-like structure” of some severe cases. The convective structures observed with Doppler radars gave valuable insights that helped to develop regional conceptual models for initiation of deep convection. However, some particularities remained unexplained with the classic conceptual models used in forecasting and nowcasting severe weather. 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 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. All these tropical-like storms produced destructive flash-floods, tornadoes and severe hail. In this presentation we will focus on identifying tropical-like structures and unusual behavior of these storms, rather than in the associated phenomena, in order to better describe the particularities of these storms initiation. Thus, we hope to bring important information for the operational service that has to identify early these structures.

The present study analyzes the meteorological systems relating to the most severe events that presented tropical features, over a six-year period (2002-2007) using radar Doppler and Meteosat imagery combined with conventional meteorological data and

numerical weather models.