For Details, Contact:

Istvan Geresdi

Janus Pannonius University
7626 Pecs Ifjusag u. 6
Hungary
geresdi@ttk.jpte.hu

Conference on European Tornadoes and Severe Storms

Severe convective storms and associated phenomena in Hungary

Istvan Geresdi, Janus Pannonius University, Akos Horvath,Hungarian Meteorological Service

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In Hungary in the last few years the number of reported tornadoes has grown. It is not exactly clear whether it is the result of the growing number of telecommunication and media networks, or the weather patterns of the last few years supports of these phenomena much more. Investigations show that thunderstorms, generating tornadoes, need high value of buoyancy, wind shear, and convergence. The optimal synoptic pattern where these three conditions have the highest value is the so called "Slovenian Instability Line" which is a characteristic prefrontal squall line in an open wave cyclone in the Carpatian Basin. There are some case studies which indicates that sometimes only one of the above mentioned conditions is enough to generate a tornado. That was a tornado event, happened in middle of November, when a destroying tornado could develop at a weak CAPE value when the wind shear was extremely strong.

During the summer of 1999 the convective activity was unusually strong in the Carpatian Basin, flash floods caused serious damages. Almost all of these events happened in wave cyclones, associated to Mediterran cyclone-genesis. The main characteristics of these events were slow moving line organized thunderstorms. The mean reflectivity of these phenomena were lower (45-50 dbz) than that of a fast moving squall line had (55-60 dbz) but the produced precipitation value sometimes was more then 200 mm / 24 hours. The thunderstorm activity had daily period but some thunderstorm centers were recognizable through several days, showed some features of MCC.

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In this presentation features and characteristics of tornadoes and heavy convective precipitations of Carpatian Basin would be showed through case studies.