

# **A climate study of severe convective storms over Bulgaria: frequency distribution and intensity**

P. Simeonov, L. Bocheva, T. Marinova and R. Petrov

National Institute of Meteorology and Hydrology

66 Tsarigradsko Chaussee, Sofia-1784, Bulgaria

Petio.Simeonov@meteo.bg, Lilia.Bocheva@meteo.bg

The subject of the present research is a severe convective storms (SCS) from the Small-scale Weather Phenomena (SCSWP). Such SCSWP events are spars in space and time but cause significant property damages and losses of life with considerable impact on the economics and society in small countries. The problem concerning the climate variability and change impact on frequency, intensity and scope of SCS phenomena especially thunderstorms, wind storms, and hailfall, is actual and discussible.

In this work a set of severe storms over Bulgaria are selected on the basis of defined criteria for extreme values and space-dissemination of complex meteorological records for the cases of thunders, hail and wind storms during the period 1961-2005.

The time-space variation of the thunderstorm days (as well as the ratio to hail days) is investigated. It was obtained an increase (about 15%) of the mean annual thunderstorm day's frequency for the period 1991-2005 versus those for 1961-1990, while the frequency of mean annual days with hail detection slowly decrease. For better investigation of hail-fall events and wind storms not only ground meteorological observation data is used, but also radar and upper-air sounding data.

A case study of typical summer SCS is compared with another one winter case.

The obtained results are the attempt in the knowledge of SCS variation and prediction.