



Is there a difference in the environmental conditions at the development of severe and non-severe hailstorms over Bulgaria?

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Geographical location and climate features determine Bulgaria as one of the countries with high frequency of hailstorms. The study of environmental conditions responsible for hail formation has a fundamental significance and a practical purpose related to forecasting hailstorms.

The present study is directed to answer the question whether there is a difference between the environmental conditions at the formation and development of severe and non-severe hailstorms over Bulgaria. The separation of hailstorms in two groups (severe and non-severe) is based on data from S-band Doppler weather radar network and rain gauge network of Bulgarian Hail Suppression Agency. The detailed analyses is in progress using various thermodynamic characteristics (instability indexes, dew point depression at different levels, etc.), and several in-cloud characteristics (maximum updraft velocity, liquid and ice water content and others) obtained by the simulation with 1D numerical cloud model. Surface level meteorological data (pressure, humidity and temperature) are taken from National Institute of Meteorology and Hydrology (NIMH) and from Hail Suppression Agency close to the location of hailstorm formation. The temperature, humidity and wind profiles are taken from proximity sounding, obtained by the numerical model GFS. Statistical analyses will be performed to establish if there is a difference in the environmental conditions (instability and moisture) at the formation and development of severe and non-severe hailstorms over Bulgaria.