

## **Case study of splitting hailstorms over Bulgaria on 20 May 2013**

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The paper is focused on two successive thunderstorm developments, which show specific splitting behavior in the same track over Bulgaria with time difference of 5 hours and have produced severe weather (hail and wind gusts). Each one of these cases (storm A and storm B) developed in two individual cells: Left and Right – in valley regions north and south of Balkan mountain correspondingly, and show opposite characteristics regarding the severity of each individual splitting cell.

The aim of the study is to show specific features of the convective developments as seen on time-synchronized radar and satellite pictures showing different splitting behavior and strength of the thunderstorms. Features associated with severity of storm are pointed, like zones with high maximum radar reflectivity (around 60 dBz), WER (weak echo regions), hook echo - on radar pictures and cloud top features as cold U/V shape forms and overshooting tops on Meteosat pictures.

The two successive convective cases on 20 May 2013 developed in a strong right wind shear from low to middle levels. The paper analyzes the additional factors, which govern the splitting behaviour and lead to differences in development of the individual cells of storm A and storm B. The pre-convection environment is studied by NWP fields, upper level sounding and synoptic observation at different altitudes. Satellite imagery and advanced products are used for inferring atmospheric instability and low-level moisture. Images of Meteosat water vapour channels are considered for analysis of specific double jet-stream configuration directly connection with the splitting process of the convective storms.

The results show that the main differences between storm A and storm B are linked to complex factors of land surface conditions and orography as well as upper level dynamics, in addition to the specific environmental wind shear characteristics.