Characteristics of overshooting tops as seen by Meteosat – selected cases in 2014 over Slovenia

Mateja Irsic Zibert (1) and Janez Zibert (2)

(1) Slovenia (mateja.irsic-zibert@gov.si), (2) (2) University of Primorska, Faculty of Mathematics, Natural Sciences and Information Technologies, Glagoljaška 8, 6000 Koper, Slovenia

Special features like cold rings and cold U/V shapes (Setvak et al., 2012) as observed in enhanced infrared (IR) window satellite imagery atop of deep convective storms are important when studying severe weather. We use data from SEVIRI/METEOSAT measurements. The cold rings and cold U/V shapes are automatically detected during daytime and night-time using SATSEVERE algorithm (Iršič Žibert et al., 2012).
Since in studding overshooting tops also High-resolution Visible image give additional information during daytime, we have proposed the algorithm updates to include also HRV data during daytime to get more accurate cold U/V features detection.
In the year 2014 there were not many days with hail causing damage on property, but the case June 2014 was outstanding since the hail was up to 5 cm, causing damage on properties. The case is presented in details as concering special features on satellite data (IR and HRV) and also lighting detection and radar data as well as ground reports. The results are discussed in the light of previous years statistics.

References:
Iršič Žibert, M., J. Žibert. Monitoring and automatic detection of the cold-ring patterns atop deep convective clouds using Meteosat data, Atmos. Research, 2012.
http://dx.doi.org/10.1016/j.atmosres.2012.08.007
Setvák, M., K. Bedka, D. T. Lindsey, A. Sokol, Z. Charvát, J. Šťástka, P. K. Wang . A-Train observations of deep convective storm tops, Atmos. Research, 2012. http://dx.doi.org/10.1016/j.atmosres.2012.06.020