



Mature convection distribution over Europe based on 6-years Meteosat observations of anvils and overshooting tops.

Ján Kaňák
(jan.kanak@shmu.sk)

Satellite data are crucial in monitoring of severe weather not only in real time but also as statistical dataset which can help us to understand variability of storms occurrence in time and space. This work is devoted to estimation and interpretation of time and space distribution of strong convection over Europe based on 6-years of observations by IR, WV and HRV imagery from Meteosat satellite. Several spectral channels were used to detect occurrence of anvils and overshooting tops in 15-minutes time step for summer months April – September of years 2009 – 2014. Special attention is devoted to dependence of mature convection distribution over Europe on following parameters: spreading from East to West, from South to North, Sun elevation, daytime, day/decade and month of year. Studied are relations between anvil and overshooting tops (OT) occurrence and connection of OT penetration height to these parameters.

Dataset used in this work was created at Slovak Hydrometeorological Institute in combination of automatic image processing with manual OT localizations and their penetrating height measurements. This dataset contains in total 105408 processed Meteosat timeslots in IR, WV spectral bands and 8984 manually processed overshooting tops in HRV spectral band. This unique dataset enable us to show how wide variability of severe convection from satellite point of view is over Europe in recent years.