EMS Annual Meeting Abstracts
Vol. 13, EMS2016-265, 2016
16th EMS / 11th ECAC

Comparison of different radar-based hail detection algorithms in Slovenia

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Hail related to summertime thunderstorms is a small-scale phenomenon, and it often has a short time duration but can nevertheless cause severe damage to agriculture, buildings and cars. Because of the high spatial and temporal variability of hail, the proper detection of hail occurrences is almost impossible using ground station reports alone. An alternate approach uses information from weather radars. During the last few decades several different algorithms that use single-polarization radar data have been developed for hail detection. The different criteria consider different levels or thresholds of radar reflectivity, some of them complemented by estimates of the height of the freezing level or cloud top temperature. In the study a verification of some commonly used algorithms, which included the search for the optimal threshold values, was performed for the region of Slovenia for the summers in period 2002-2010. The results of the verification along with the derived hail climatology in Slovenia will be presented.