



Relating Thunderstorm Occurrence to Flow Types in the Eastern Alpine Region

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For the period between 2010 and 2014 an investigation was conducted to show the relation between occurrence and types of thunderstorms in Austria in comparison to predominant circulation patterns in the eastern alpine region.

For the classification of the flow patterns, the automated method WLKC733 was chosen, which is also used operationally at the Austrian national weather service ZAMG.

This method analyzes the distinction between nine classes of the dominating mean real wind at 700 mbar. The second property is the cyclonicity, represented by the vorticity at two atmospheric levels.

For the given period, days with thunderstorms have been identified with the help of the Austrian Lightning detection system ALDIS, based on a lightning activity threshold.

Furthermore, a mapping of mesoscale convective systems with data from the Austrian RADAR composite was produced with the focus on the four most frequent weather types in the convective season between May and September.

We show the frequency distribution of storms and their respective characteristics for all flow types in the eastern alpine region. Furthermore, case studies for the four most frequent circulation types will be presented in the context of their synoptic background.