



Combined analysis of severe convective wind gusts in European data sets

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Wind measurements of ground based observation sites give important data to analyse severe wind gusts associated with convective storms. The national observation networks provide highly accurate long-term data sets of wind records that can be used to analyse the climatology of severe convective wind events. However, wind gust data are not routinely exchanged between European countries.

The relatively small size of European countries limits the number of events available for the analysis, especially with respect to extremely severe events. This is associated with a low confidence in results for the seasonal and regional frequency and intensity distribution, for example.

This work is a first attempt to combine data sets across different European countries to analyse severe convective storms. It is hoped to inspire further efforts to exchange data to allow more research in this field. To support this goal we propose to improve the submitting procedure of wind measurements from national observation networks to the European Severe Weather Database.

A first analysis of the combined data of France, Germany, Estonia, and Serbia is shown. It describes and compares the wind measurement networks and how we extracted severe convective wind gusts from the data archive. In detail, an analysis of severe wind gusts of at least 25 m/s is done with the support of lightning detection and radar data over the past 20 years. Lightning detection and radar data are displayed together to decide if the wind events were associated with convective storms. Results of this work are shown, e.g. the regional frequency of convective wind gusts and the path of wind events that frequently crossed the border between France and Germany.