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A climatology of severe convective wind events in western central Europe

Michaël Kreitz (1), Christoph Gatzen (2), Lisa Schielicke (2), Sébastien Leprince (1), and Maud Martet (1)
(1) Météo-France, Toulouse, France, (2) Free University of Berlin, Berlin, Germany

In this work we present an analysis of convective wind gusts across western central Europe. Wind measurements from combined networks of Météo France and Deutscher Wetterdienst have been used to search for severe wind events in the past 20 years. Lightning detection and plan-view radar displays were consulted to distinguish between convective and non-convective wind events.

The analysis includes an overview of the regional frequency of convective wind gusts and its seasonal and diurnal variability. Both the two countries as well as different regions are compared regarding the individual frequency and intensity distribution of convective wind gusts. Single wind events are compared with respect to the path length, start- and end location.

Moreover, radar data has been used to classify convective modes (isolated cell, supercell, group, bow echoes, squall lines, and derechos) associated with severe wind gusts. For each convective mode, the regional frequency and intensity distribution is shown as well of the seasonal variability of these numbers.

Finally, we can show that severe convective wind events frequently cross the border between France and Germany as their paths are typically oriented from south-west to north-east. We will illustrate some of these events that had a high impact in France as well as in Germany.