

Xavier and Herwart 2017, an evidence for a changing seasonality of severe storm activity in Central Europe?

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Within a project started in August 2017 together with the company Deutsche Bahn to assess the vulnerability of the transport sector under climate change we analyzed long-term trends of climatic parameters derived from long-term meteorological observation data provided by the German Meteorological Service (DWD) from 1961-2016. One of the most important measures are wind gusts above a certain threshold characterizing severe storm activities. These often cause severe damages on the railway infrastructure due to fallen trees.

The analysis of such events revealed two general findings. First, the number of days with severe storms in Germany is currently lower compared to the eighties and nineties. After this preliminary statement in September 2017, two severe storms (Xavier and Herwart) hit especially the north-eastern part of Germany with dramatic impacts on the society. It follows a deeper analysis of the seasonality. The results show, that on the one hand the ratio of winter storms (Nov-Feb) compared to the total number has decreased from about 75% to 55% after 1990. On the other hand, the ratio of storms within March and October has increased from 25% to 45%. Consequently, we came to the second statement, that the storm season has shifted in months where the trees are still heavily leafy. Under these circumstances, the damages can be more severe, as shown by Xavier and Herwart 2017.