



## **Storminess in Eastern Canada, Northern and Central Europe**

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Climate change impacts a substantial part of our lives. For some meteorological parameters such as global temperature for instance, it was shown that changes can be attributed to human activities (i.e. changing the chemical composition of the atmosphere by introducing greenhouse gases). Attribution of climate change to human activities generally focuses on meteorological parameters that are spatially rather evenly distributed and over vast geographical areas. On smaller scales and for more localized meteorological fields, as for instance the appearance of storms, detection of human influence is lacking. The rise of violent storm activities as observed in North Western European areas from the 1960s to the 1990s may serve as a prominent example. It was widely believed to be caused by human activities, but eventually found to be well located within the natural variability when taking into account long time series of storm proxies of about 100 years or more (WASA 1998). Hence a proper assessment of the current state of storminess ought to be grounded on time series spanning at least a century. We present the evolution of storminess in Eastern Canada, Northern and Central Europe. Because direct wind measurements are fraught with inhomogeneities, we utilize so-called ‘storm-proxies’ such as geostrophic winds or percentiles of pressure readings. Moreover we apply statistical downscaling techniques to reconstruct storm-proxies during periods where no measurements are on hand. Altogether we are able to cover more than a century of storminess in Eastern Canada, Northern and Central Europe.

WASA 1998: Changing waves and storms in the northeast Atlantic. *Bulletin of the American Meteorological Society* 79(5) 741-760