



Windstorms in the Czech Lands I: Wind speeds and ‘stiling’

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This contribution analyses the spatio-temporal variability of mean daily wind speeds (MDWSs) over the territory of the Czech Republic in the 1961–2015 period, using series from the 119 meteorological stations of the Czech Hydrometeorological Institute. These series were quality-controlled and homogenised by application of the Standard Normal Homogeneity Test, after Alexandersson, and the Maronna and Yohai test. The spatial variability of MDWSs is analysed in terms of annual and seasonal data, which exhibit a clear relationship to orographic character, with the highest values in the highland and mountain areas. The spatial relationships between stations are interpreted by means of correlation graphs, which express the dependence of MDWSs on the altitude of the stations and the distance between them. Analysis of monthly, seasonal and annual linear trends for four altitudinal intervals and the entire Czech Republic shows a decreasing tendency, almost statistically significant. Taking the 119 stations individually, a certain proportion of stations also display positive trends. Comparison of MDWS variability with circulation indices shows a closer relationship to the Central European Zonal Index than to the North Atlantic Oscillation Index. The results obtained are discussed with respect to the problems associated with wind speed measurements and a broadly-occurring decline in measured wind speed series in recent decades (“wind stiling”). (This work was supported by Czech Science Foundation, project no. 15-11805S “Windstorms in the Czech Lands during the past 500 years”.)