



Spatial calculation of extreme wind climate of Bohemian Forest

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Weather situations connected with extreme wind speed can cause significant damage in both urban and natural areas. If it happens, the latter is affected mainly with new forest disturbances changing the whole landscape dynamics. In order to successfully run a landscape model of a large forested area, the spatial distribution of extreme wind speed statistics is needed. The presented method suggests using sector-wise wind field calculations together with extreme value statistics fitted at a reference station. The numerical calculations are based on linear model of WAsP Engineering methodology. The fitting is done with several extreme value distributions including GEV and Gumbel distribution. A special algorithm is suggested to provide the data in the form expected by the landscape model, i.e. raster data of annual wind speed maxima.

The method is demonstrated on the area of Bohemian Forest that represents one of largest and most compact forested mountains in Central Europe. The reference meteorological station Churanov is located within the selected domain. The observations are cleaned of inhomogeneity and classified to convective and non-convective cases using index CAPE, and finally fitted with an extreme value distribution. The output of numerical simulation is presented for the windiest direction sector and as a map of occurrence of extreme wind speed in a sufficiently long model run.