EMS Annual Meeting Abstracts
Vol. 10, EMS2013-287, 2013
13th EMS / 11th ECAM

Extreme wind events in the Czech Republic in period of 1961-2010

A. Valeriánová (1), L. Crhová (1), E. Holtánová (1), P. Zahradníček (2), P. Štěpánek (2), and M. Stříž (1)

(1) Czech Hydrometeorological Institute, Climatology, Prague, Czech Republic (anna.valerianova@chmi.cz), (2) Czech Hydrometeorological Institute, Climatology, Brno, Czech Republic

A lot of attention has recently been paid to analysis of extreme weather events and frequency of their occurrence. Assessment of the magnitude and frequency of extreme wind speed is important for both the sectors of civil and power engineering and financial applications. In present contribution we concentrate on detection of extreme wind events in the Czech Republic in the period of 1961-2010, their spatio-temporal extent and evaluation of extremity. First, the extreme value distribution is fitted to samples of annual extremes and distribution parameters are used to estimate return periods of daily observations. The two estimation methods, the block maxima method with the generalized extreme value (GEV) distribution and the peak-over-threshold method in the combination with generalized Pareto distribution (GPD) are used for assessing the rarity of wind speeds. Further, the extreme wind events are detected using the Weather Extremity Index (WEI) combining return periods an extent of affected area. The temporal evolution of frequency of occurrence is analyzed. The work has been supported by the grant P209/11/1990 funded by the Czech Science Foundation.