

Relation of statistical structure of windy days with the weather situations

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Monthly frequency of windy days, a characteristic of the wind field which determines its energy content is analyzed at seven Hungarian weather station in the period between 1971 and 2000. A day is called windy if the daily maximum wind speed is higher than 10 m/s.

Basic statistics are analyzed then the time sequences of windy days are analyzed with the help of autocorrelation. It is demonstrated with statistical tests that our time series cannot be considered as white noise and the significant autocorrelation coefficients are selected. It was found that the generalized factorial (γ) function is the theoretical distribution which best approximates the empirical distribution of the untransformed elements in the time series.

Finally stochastic relation of monthly number of windy days with the different weather situations is investigated: with the macrosynoptic types of Hungary by Péczeley, with the macro-circulation types of Europe by Hess-Brezowsky and with the front types of Hungary.