



## **Analysis of extreme wind speed indices for Hungary using homogenized data series**

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Long term observations involve inhomogeneities due to changes in instrumentation, measuring methods and surroundings of stations or moving into a new location. Therefore quality control and homogenizing of available daily wind speed and wind gust data sets (1975–2012) were completed in order to assess Hungarian wind climate trends, variability, frequency and intensity of extreme wind events reliably. The MASH (Multiple Analysis of Series for Homogenization) procedure developed at the Hungarian Meteorological Service was applied to homogenize 19 Hungarian stations' daily wind speed and wind gust data sets.

Extremes can be analysed through well-chosen indices. Therefore, similarly to the widely used temperature and precipitation climate indices, wind related climate indices were defined, e.g., annual numbers of days with daily maximum wind speed exceeding 30 m/s, 25 m/s, 20 m/s; annual numbers of days with daily average wind speed exceeding 15 m/s, 10 m/s, 8 m/s; length of consecutive days with average wind speed exceeding 15 m/s, 10 m/s, 8 m/s or below 5 m/s, 3 m/s, 1 m/s.

Analysis of the above listed indices can answer whether the frequencies of windy, gusty days and calm periods have increased or decreased in the recent past. This is especially important from the urban point of view where air pollution is a major environmental issue leading to many health problems.