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Homogenization of wind speed and direction series together

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The wind speed and direction determine a vector variable consequently the task is equivalent with the homogenization of wind vector series. We present a procedure for solving this problem that was applied within CARPATCLIM project by using our software MASH (Multiple Analysis of Series for Homogenization; Szentimrey). CARPATCLIM (Climate of Carpathian Region) project was a consortium of ten organizations founded for a tender published by Joint Research Centre: http://www.carpatclim-eu.org/pages/home
The main steps of the wind vector homogenization are as follows.
i, Homogenization of the wind speed series using multiplicative model.
ii, Correction of the wind component series in magnitude based on the homogenized wind speed series.
iii, Homogenization of corrected component series systems using additive model. The break points detected during the wind speed homogenization may be meta data for the component series. The MASH system is able to use meta data automatically.
iv, Calculation of the homogenized wind direction series from the homogenized component series.
We present also the developed wind profile model with two parameters that was also applied within the CARPATCLIM project for the interpolation procedures performed by MISH (Meteorological Interpolation based on Surface Homogenized Data Basis; Szentimrey, Bihari).