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Forecasting the weather
- ensemble techniques
in probabilistic weather prediction

Quality control and homogenization of wind speed data using covariate variables

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In recent years, data quality control and homogenization has been carried out for various meteorological elements on a daily scale for the area of the Czech Republic in the period 1961–2010. One of the elements also included in the processing was the daily mean of wind speed. As for methods used for correction of inhomogeneities in the daily data, several were applied and evaluated on the series with known inhomogeneities but all were applied in single mode so far (applying a single given element only). With this work, we are trying to improve the quality control and correction of inhomogeneities in daily wind speed data by using a covariate variable (such us wind direction, air pressure, weather types and others). The study was carried out on series with artificially created (i.e. with known) errors and breaks. Again, several methods of correction were applied: e.g. the HOM method of Paul Della-Marta, the SPLIDHOM of Olivier Mestre, our own method (DAP), Lucie Vincent's approach, the QM of Xiaolan Wang. The performance and improvement of the available correction methods (on a daily scale) is shown through an example of Central European series. The comparisons among the methods and application of various covariates was carried out by means of the ProClimDB software (about which more can be read at www.climahom.eu).