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Homogenisation of relative humidity necessary and possible?

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Data homogenisation is an essential part of reliable climate data analyses for example concerning trend analyses. Up to now mainly methods for homogenising monthly data have been developed. For daily data homogenization tests especially for temperature and precipitation have been worked out as those are of main interest concerning climate change.
But more sophisticated attempts of analyses need additional climate parameters as well. Therefore the existing homogenisation methods are applied on relative humidity. In order to have a possibility to estimate performance of the different methods those tests have been applied on a so-called surrogate dataset, resembling the statistical properties of the measured time series. Artificial inhomogenities were introduced to this dataset in three steps: (1) deterministic change points: within one homogeneous sub-period (HSP) a constant perturbation is added to each relative humidity values, (2) deterministic + random changes: random changes do not change the mean of the HSP but can affect the distribution of the parameter, (3) deterministic + random changes + a clear trend signals.
The methods MASH (Szentimrey, 1999), ACMANT (Domonkos, 2011), PRODIGE (Caussinus and Mestre, 2004), SNHT (Alexandersson, 1986), Vincent (Vincent, 1998), E-P method (Easterling and Peterson, 1995) and Bivariate test (Maronna and Yohai, 1978) were selected for break detection. Break detection is in all methods restricted to monthly data. Since we are dealing with daily relative humidity data, the amount of methods for break correction is reduced to MASH, ACMANT, Vincent, SPLIDHOM (Mestre et al., 2011), Percentile method (Stepanek, 2009).

Information on the surrogate dataset will be given and the results in break detection and break correction in 2 different datasets (deterministic and deterministic + random changes + trend signals) are shown and discussed.