



Using parallel measurements from German climate reference stations to analyze the homogeneity of time series

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High-quality time series of meteorological observations are required for reliable assessments of climate change. Inhomogeneities in such time series might be caused by external factors. One potential source for inhomogeneities could be the transition from traditional to automatic weather stations. Germany's national meteorological service DWD (Deutscher Wetterdienst) operates a network of climate reference station. At these stations manual and automatic observations have been taken in parallel. These parallel measurements therefore allow analyzing the impact of the transition on the homogeneity of time series of several meteorological parameters. In this presentation, we focus on results for the temperature series. In most cases, the homogeneity is not strongly affected by the transition of measurement methods except of few stations where breakpoints can be found. Based on station metadata these breakpoints are mostly documented in the metadata and can be related to changes in the measurement instruments. Breakpoints which are not documented in the metadata were identified by statistical methods.