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Reliability of homogenisation corrections in Slovenian climate time series in period 1961-2011

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Homogenisation of climate time series by semi-automatic or manual methods may be considerably affected by the choices of expert performing homogenisation. This effect was studied on homogenised datasets of Slovenian meteorological network. Several experts homogenised time series of air temperature, precipitation sum, total and new snow depth and bright sunshine duration. Recently developed semi-automatic homogenisation tool HOMER was used with different parameter settings. Abundant metadata was used to refine statistically proposed dates of breaks and confirm or reject smaller breaks. Homogenised datasets of different experts were compared to each other and to the quality controlled dataset. Root-mean-squared-difference and linear trend on annual data was used to evaluate the differences. In most cases, homogenised datasets were clearly more coherent with each other than with the quality controlled dataset, indicating relatively reliable corrections during homogenisation process. This is especially true for mean and minimum temperature and bright sunshine duration as well. On the other hand, homogenisation corrections of total and new snow depth data seem the least reliable, i.e. heavily dependent on the expert.