Revisiting HISTALP Precipitation dataset

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HISTALP is a long-term climatological database for the Greater Alpine Region, including monthly data of precipitation, temperature, sunshine duration and air pressure. The activities leading to this dataset started in 1997 with the final database being in place in 2003. Since then annual updates of the data are done. The dataset is freely available for research and education and frequently used in different climate related studies.

Due to the long existence of the HISTALP dataset, a new homogenisation activity was due in order to ensure the homogeneity of the updated time series. This was done in the course of the creation of a new version of the gridded precipitation dataset of the Greater Alpine region (LAPrec, https://surfobs.climate.copernicus.eu/dataaccess/access_laprec.php) within an international Copernicus project. Before starting the homogenisation activity, the existing data was revisited and an exchange with the data owners on the original data took place. This lead to corrected, historical original data as well as to the replacement of some stations used in HISTALP. Homogenisation was mainly done within the four climate regions of HISTALP (www.zamg.ac.at/histalp), with some special networks e.g. for especially long time series. The results were compared to the former version of homogenised HISTALP-precipitation data as well as to national homogenised datasets.

The analyses of the resulting dataset on trends and data range support the idea of a generally good quality of the homogenisation. For all comparisons with other homogenised datasets the timing of the homogenisation had to be taken in to account, additional differences were to be expected due to the availability and selection of reference series, choice of homogenisation method and availability of metadata (especially for interactive methods). The results of the comparison show that in the national homogenisations more breaks were detected than in the HISTALP one. This was to be expected due to the higher number of highly correlated reference
series. Overall, the comparison gives confidence in the HISTALP dataset and its homogenisation. Nevertheless, for a small number of stations strong differences between the different homogenisations have been detected. Those will be assessed by a future step.