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Climate data supporting climate services

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ZAMG

International longterm climate database HISTALP

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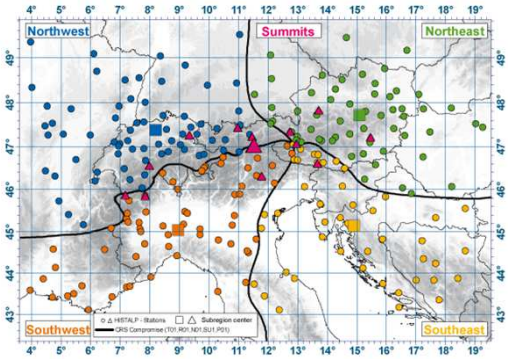
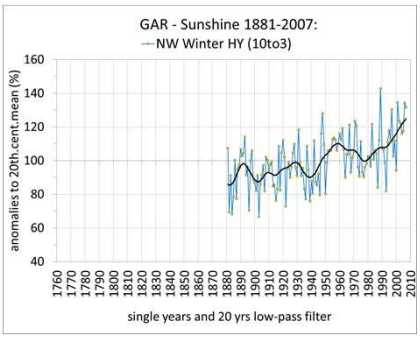
As climate zones do cross borders an easy access of climate data in neighbouring countries can be of great value. Individual data request can be tiring for both the institution needing data for their research and the institution in charge of these data. The installation of a common database in combination with a webpage containing the essential information on the dataset can be an easy solution for those problems, as the data will be updated regularly and can be accessed by the user via web.

HISTALP is an example for such a database for the Greater Alpine Region (GAR).



GAR (4-19°E, 43-49°N) including information on station location (dots) and climate regions (colors, black lines)

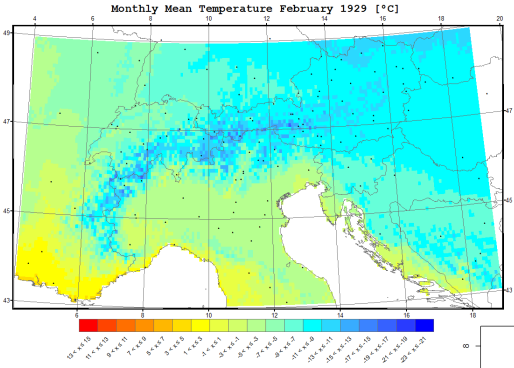
Aim of HISTALP: Providing easy access to high quality data for climate research and the interested public



Content of HISTALP:

- quality controled, homogenised monthly data for the GAR for different climatological parameters
- climate information on different climate regions in the GAR
- Gridded datasets (monthly resolution) for different parameters and resolutions for GAR of absolute values or differences to climate mean 1961-1990

- Main Climate Parameters: Temperature, Precipitation, Sunshine duration, Pressure



Operational activties

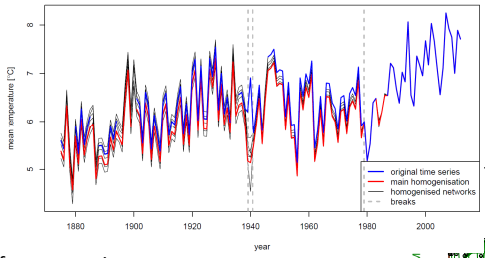
- data collecting
- data quality control
- writing newsletter informing about the current year/half-year in the context long term climate change
- personal communication
- every~10 years redoing homogenisation run

Data quality

Correction of outliers
Plausibility check

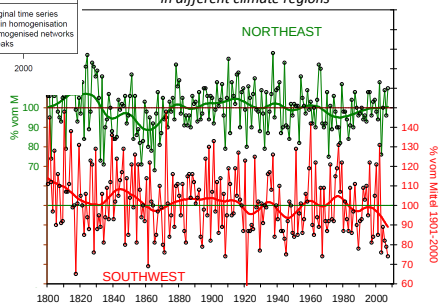
Homogenisation

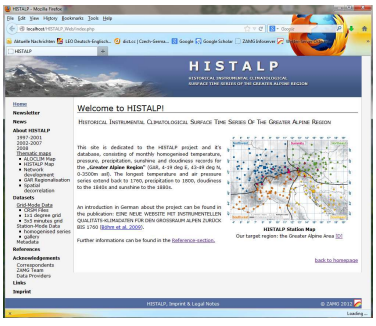
former method: Craddock
new method: HOMER
Breakdetection using network of at least 5 reference stations
Breakdetection using maximum likelyhood approach
choice of additive and relative adjustments according to parameter
correction with ANOVA-method
successfully implemented at MeteoFrance
already startet re-homogenisation of monthly temperature



Example of a homogenised time serie (red), the changes to the original data (blue) and information on the uncertainty of the homogenisation.

Comparision of precipitation time series in different climate regions





Future of HISTALP

- Finishing rehomogenisation for temperatur, precipitation, pressure and sunshined duration
- Improving quality of humidity information and cloudiness
- Including daily data (at least for Austria)

Literature:
A more complete list of citations can be found at : www.zamg.ac.at/histalp
Auer I, Böhm R, Jurkovic A, Lipa W, Orlik A, Potzmann R, Schöner W, Ungersböck M, Matulla C, Briffa K, Jones PD, Efthymiadis D, Brunetti M, Nanni T, Maugeri M, Mercalli L, Mestre O, Moisselin J-M, Begert M, Müller-Westermeier G, Kveton V, Bochnicek O, Stastny P, Lapin M, Szalai S, Szentimrey T, Cegnar T, Dolinar M, Gajic-Capka M, Zaninovic K, Majstorovic Z, Nieplova E, 2007. HISTALP – Historical instrumental climatological surface time series of the greater Alpine region 1760-2003. International Journal of Climatology 27: 17-46
Mestre O, Domonkos P, Picard F, Auer I, Robin S, Lebarbier E, Böhm R, Aguilar E, Guijarro J, Vertachnik G, Klancar M, Dubuisson B, Stepanek P, 2013: HOMER: a homogenization software – methods and applications, IDŐJÁRÁS- Quarterly Journal of the Hungarian Meteorological Service, 117, 47-67