

EGU2020-8807

<https://doi.org/10.5194/egusphere-egu2020-8807>

EGU General Assembly 2020

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



Homogenization of long-term snow observations

Gernot Resch¹, Barbara Chimani², Roland Koch², Wolfgang Schöner¹, and Christoph Marty³

¹University of Graz, Austria

²Central Institute for Meteorology and Geodynamics, Austria

³WSL Institute for Snow and Avalanche Research SLF

Climate data contains vital information about the global climate system. To get the desired information out of measurements, they have to be homogenous, where the variability of a time series is only caused by variations in weather and climate and not due to external influences.

Snow is an important component of this system, treated as one of the most obvious visual evidences of climate change and important for countries with mountainous environments. But most of the existing tools and algorithms that are being used for homogenization have been developed for air temperature and precipitation, whereas their application to snow depth measurements has only been rarely attempted. Until now, there have only been smaller efforts to develop methods and tools for snow series.

We are trying to break new ground by developing innovative methods that can be applied to the homogenization of longterm snow observations, as well as to demonstrate the impact of the developed adjustments on climatologies and trends. For that, we are using daily longterm snow measurements of the two most frequently measured parameters, snow depth (HS) and new snow height (HN) from the Swiss-Austrian domain.

As a first approach, we are applying the existing methods PRODIGE for the detection of multiple inhomogeneities and INTERP for the calculation of corrections with a quantile-mapping approach on a seasonal basis on selected time series.