



Outstanding past decadal-scale climate events in the greater alpine region analysed by 250 years data and model runs

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The goal of this study is to investigate climate and its variability of the past 250 years within the Greater Alpine Region and an attempt to enhance knowledge about the interaction of the scales by a comparison with climate model data as simulated by the AOGCM ECHO-G.

We are investigating climate and its variability within the Greater Alpine Region (GAR 43N4E to 50N19E) during the last 250 years, which is the span covered by instrumental climate measurements in the region. Based on homogenized temperature data we detect 'special periods', which are multi-annual to decadal sequences of years that show for a large fraction of stations significantly higher or lower values as the de-trended long-term course.

During these periods we investigate the synoptic scale behaviour as simulated by ECHO-G. Several model runs driven by different external forcings are analyzed. Although it should not be expected to establish a direct link between external forcings on one hand and the climatic state at the regional scale on the other, such comparisons between historical observations and model simulations may still contribute to enhance our knowledge about the interaction of the scales and possible physical-dynamical background of such outstanding sub-intervals.

Precipitation records as well as time series of sunshine-duration and cloud cover are used to confirm existing model-data-matches and also help to understand some existing mismatches.