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Spatio-temporal interpolation of paleoclimate data based on $\delta 18O$ climate variability observations

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The survival and dispersal opportunities of Pleistocene hominins were strongly influenced by climate. Temperature was a major limiting factor, specially for hominins who did not used fire, but the main effect of climate on hominin survival was by determining primary production and ecosystem structure. GIS based modelling applications represent a promising and powerful tool to study hominin dispersals in the Pleistocene, but they require a sufficiently realistic representation of the paleoenvironment for the time period under investigation. In this study we present a method that allows to compute paleoclimate data for the last 1.2 Ma. in 1ky temporal resolution. We present this approach by computing an exemplary dataset containing 11 selected paleoclimate time slices, that represent eleven grades of exemplary paleoclimates from coldest (comparably to LGM) to warmest (comparably to LIG).
The computation is based on a spatio-temporal interpolation along δ18O measures, which provide a high resolution record of paleoclimate variability, between modelled paleoclimate and current observed climate data.
First applications of the presented method show promising results. A major focus of this presentation will be the evaluation of the interpolated results against modelled and observed published paleoclimate data sets, based on a set of well known raster comparison and evaluation methods known from the RS community, as well as qualitative evaluation of certain areas and time slices, based on published research and data.