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Investigation of the LIG sea-level highstand with massive ensembles

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Paleoclimatic sea-level analysis is based upon the evaluation of sparse indirect observational data, the sea-level indicators, and models for sea-level fluctuations, with a wide range of complexity. Individual records of paleo sea level depend not only upon the change in global ice volume, but also on the crustal deformation and gravity changes that are significant both near the glaciers and around the world. Understanding of these processes for the past is essential for interpreting the observations and generating better estimates of future changes.

We use massive ensemble approaches to analyse sea-level changes during the last interglacial (LIG). Employing a Bayesian statistical analysis, we compare the sea-level indicators to model-generated sea-level estimates. As a result we gain insight into the development of the ice sheets, the influence of the Earth deformation and the evolution of higher-than-present-day sea level during that period.

This contribution gives an overview of our sea-level analysis during the LIG. We focus on the highstand of sea level during the LIG and the duration of higher than modern sea level. The analysis helps to answer questions of the effect of the uncertainties in the indicators, both in height as well as in time, on features of the estimated global-average sea level. In particular, we address how well the data resolve sea-level oscillations during the LIG.