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SLIVISU, a concept of an interactive visualization framework for the analysis of geological data

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The geological record of past sea levels is unevenly distributed, both temporally and spatially. Further interrogation of this data (e.g. for geophysical or glacial-isostatic modeling purpose) necessitates compiling data from literature or data repositories and amounts to the collection of thousands of individual sea-level index points. The spatio-temporal context is often lost during this process. The heterogeneity of the data with respect to significance and content also prevents the application of many statistical techniques. A solution to this problem is the application of advanced visualization concepts, which maintain the connection between data points and associated metadata (e.g. location, dating control, type of sample, etc.) during modeling. This allows fore a more complete overview and communication of sea-level data and modeling output.

We present the visualization framework, SLIVISU, developed by GFZ-Potsdam, which provides multiple linked views including synoptic analyses of the geological data, model configurations and predictions. SLIVISU is applied to variations in past sea levels during the last glacial cycles using geological and archaeological data.