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## Global Mean Sea-level Changes in the Last Two Millennia

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Instrumental records show that global mean sea level (GMSL) rose by approximately 15 cm in the 20<sup>th</sup> Century, with estimates of contributing factors suggesting the major components are ocean thermal expansion and melting of continental ice sheets and glaciers. However, little is known about the individual contributions to GMSL changes over the preindustrial common era (PCE) and the potential differences in the mechanisms controlling those changes between different time periods. Here, we describe the GMSL changes in the PCE by comparing proxy-based reconstructions with estimates derived from model experiments. The ocean thermal expansion is estimated on the basis of Coupled (Paleoclimate) Model Intercomparison Project (CMIP/PMIP) experiments. The contributions of ice sheets and glaciers are based on simulations with an ice-sheet model (IMAU-ICE) and a global glacier model (The Open Global Glacier Model), respectively. We also describe the thermal expansion response in the different ocean basins over the last millennium. The findings provide new insights on the current anthropogenic warming and sea-level rise in a wider context.