



## **Sources of uncertainty in relative sea-level change projections from a probabilistic point of view.**

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A number of relative sea-level change projections now exist in the literature that use a method of offline summation of individual components. This approach combines the projected ocean volume changes from an assimilation of ocean model outputs (e.g. CMIP5 archive) with ocean mass changes that are derived by normalising the present-day spatial fingerprint of each component (ice sheets, glaciers, land water storage) scaled by the global average projection for that component. At each stage of making the projections there are assumptions that will alter the uncertainty of the final result. For example, it is assumed that the distribution of ocean model outputs for projected dynamic sea-level change is Gaussian everywhere and the present-day pattern of ice-mass loss will continue throughout the century, neither of which is strictly the case. We quantify these sources of uncertainty to show how scenario dependency also plays a part in the projected uncertainty.