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Projections of future sea level change from a global perspective and with a focus on South Africa

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In this work we explore projections of future sea level change using methods that build upon those used for the IPCC 5th Assessment Report (AR5) and Special Report on Oceans and Cryosphere in a Changing Climate (SROCC). These methods use a large Monte Carlo simulation to represent the uncertainty across components of sea level change. The Monte Carlo approach for global mean sea level is extended to local projections for individual tide gauge locations to ensure traceablity to the global mean projections and preserve correlations between terms in the sea level budget. As part of the WCSSP South Africa programme (which is a collaborative initiative between the Met Office in the UK and the South African Weather Service), we explore the sea level components for locations around the coast of South Africa and examine the physical drivers of local sea level change signals. For the individual tide gauge locations, the projection uncertainty is larger than it is for the global mean, but several key details emerge and the drivers of these will be discussed.