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About the difference between sea level projections by 2100 using semi-empirical and process based models.

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Four new Representative Concentration Pathways radiative forcing scenarios are used to estimate sea level rise of 0.57-1.10 m by 2100 with semi-empirical model. In this study, a semi-empirical model is constrained by the 300 years of global sea level records from tide gauges and driven by various radiative forcing time series (solar, volcanic, greenhouse gases and aerosols) over the past 1000 years. We assume that global sea level is an integrated response of the entire climate system to the changes in radiative forcing that reflects alteration in the dynamics and thermodynamics of the atmosphere, ocean and cryosphere. The use of radiative forcing removes the substantial uncertainties in the relationship between forcing and temperature response and subsequent sea level response and implicitly includes the effects of feedback mechanisms.
We have performed several experiments to investigate the model ability to reproduce short- term and long- term sea level changes. We discuss the uncertainties of sea level projections simulated by our semi-empirical model. Furthermore the difference between the sea level projections using semi-empirical and process based models is argued.