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The transient sensitivity of sea level rise

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We are warming our planet, and sea levels are rising as oceans expand and ice on land melts. This instigates a threat to coastal communities and ecosystems, and there is an urgent need for sea level predictions encompassing all known uncertainties to plan for it. Comprehensive assessments have concluded that sea level is unlikely to rise by more than about 1.1m this century but with further increase beyond 2100. However, some studies conclude that considerably greater sea level rise could be realised and an expert elicitation assign a substantially higher likelihood to this scenario. Here, we show that models used to assess future sea level in AR5 & SROCC have a lower sea level sensitivity than inferred from observations. By analyzing mean rate of change in sea level (not sea level itself), we identify a near linear relationship with global mean surface temperature in both model projections, and in observations. The model projections fall below expectations from the more recent observational period. This comparison suggests that the likely range of sea level projections in IPCC AR5 and SROCC would be too low.