Constraining decadal variability in climate projections to attribute climate variability and predictability to regional ocean contributions

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Abstract

Climate change information on multi-annual to decadal timescales is important for planning tailored adaptation, increasing agricultural production and designing resilient infrastructures. However, on these timescales, obtaining accurate, actionable and reliable climate change information from global model projection simulations remains very challenging mainly because of the uncertainties related to internal climate variability and model uncertainties. This study explores the potential of utilizing observed regional sea surface temperatures for constraining projection simulations and thus reducing the uncertainty related to climate variability in near-term climate change information. By sub-selecting ensemble members from a large ensemble of projection simulations according to their agreement with observed SST anomalies in different ocean regions, we outline an approach to attribute regional climate variability and predictability to the conditions in specific ocean regions.

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