



Is the PDO predictable?

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Decadal variability in the Pacific is thought to drive important climate impacts including drought in parts of the US and the recent slowdown in global temperature trends. Pacific decadal variability is commonly assessed by looking at the Pacific Decadal Oscillation Index (PDO). Here we assess the level of predictability of the PDO using both initialised and uninitialized simulations from the 5th Coupled Model Intercomparison Project (CMIP5). We find that initialised decadal hindcasts from CMIP5 models simulate the spatial pattern associated with the PDO in very good agreement with observations. However, the ensemble mean of uninitialised simulations also captures this spatial pattern, suggesting that external forcing projects onto this mode of variability. Similarly, we find some skill in the decadal hindcasts at predicting the PDO, but that there is no improvement from initialisation beyond the first year. Furthermore, the level of skill is highly dependent on the period assessed and the post-processing techniques used to first remove the warming trend. In particular, the skill can be artificially inflated by detrending over the period since 1960, contrary to our expectations. Simplifying the PDO in terms of the difference between temperatures in the north and tropical Pacific shows that beyond the first year, skill is dominated by the northern Pacific.