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The role of atmospheric noise on the predictability of Pacific decadal variability

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The main goal of this study is to investigate the role of the noise at the air-sea interface in limiting the decadal predictability in the sea surface temperature of the North Pacific. We address this question by comparing two forecast experiments with version 2 of the NCEP Climate Forecast System initialized from observed states. In the first experiment, the noise due to internal atmospheric dynamics is forcing the ocean via the air-sea coupling, typical of contemporary coupled climate system models. In the second experiment, the atmospheric noise is reduced using the interactive ensemble strategy, in which 6 identical atmospheric component models are coupled to the one ocean component model. In addition to challenges in decadal predictability such as the intrinsic predictability, we focus our analysis on whether the limit of predictability in the extratropics is established by the ocean time scale and the atmospheric forcing is not important.