Verification of decadal forecasts: Pacific decadal predictability in the U.K. Met Office's Decadal Prediction System

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The UK Met Office's decadal prediction system "DePreSys" was shown by Smith et al. (Science, 2007) to provide improved forecasts of global mean temperature, relative to a system which was not initialized with observations. In this study we are assessing the performance of DePreSys in the Pacific region, taking a process and event-based approach, with particular focus on: a) a major warming event that was observed in the North Pacific in the late 1980s; and b) the possibility of long-lead predictability in the tropical Pacific. An important stage in the analysis is careful attention to the handling of systematic biases that arise in the prediction system. Evidence of multi-year predictability has been found in both the north and the tropical Pacific regions. The mechanisms responsible for the warming event in the North Pacific have been identified, and the extent to which these are effectively captured in DePreSys evaluated. In the tropical Pacific, multi-year predictability is associated with the westward propagation of off-equatorial Rossby waves, and a fuller analysis of the mechanisms involved is ongoing. We will report our most up to date results at the time of conference.