



Evaluation of the ERA Interim surface winds over the Tropical Pacific

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Over the past 20 years, the ERA Interim reanalysis has been showing a strengthening of the trade winds in the tropical Pacific Ocean. Literature has shown that atmospheric reanalyses can present spurious signals due to changes in the observing system. ERA Interim has been assimilating various wind products over the past 30 years. Evaluating how robust are the changes in ERA Interim tropical winds is thus necessary. Comparisons with scatterometer winds, in situ observations, a satellite-free ECMWF reanalysis and an AMIP integration are conducted. The climate signal observed in ERA Interim from the early 1990s to 2013 is in agreement with both scatterometer winds and in situ wind observations from the TAO array. Comparisons to the ERA20C reanalysis that does not assimilate satellite winds are also very positive. A similar strengthening of the tropical surface winds is detected in the ERA20CM AMIP integration thus discarding any impact from the assimilation of other variables. These positive results strongly suggest that the signal detected in ERA Interim reflects an actual climate shift in the tropical Pacific winds.