



Sensitivity of ENSO characteristics to a new low-order flux correction scheme in a coupled GCM

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A fast coupled climate model (CCM) that consists of the atmospheric general circulation model SPEEDY and the ocean model MICOM is used to study the sensitivity of ENSO characteristics to a new low-order flux correction scheme, whereby adjustment is only applied to the model's SST as follows: Once per day we calculate the heat fluxes twice to separate between fluxes seen by the atmosphere and those seen by the ocean. The latter are based on actual, unaltered SST and therefore are uncorrected. Fluxes into the atmosphere, on the other hand, are based on anomalies of the actual SST that are superimposed onto an observed climatology. One way to obtain the required model's mean SST is to accumulate SST when spinning up the CCM ("training"). The adjustment leads to a notable reduction in the drift of the climate state of the CCM, in particular, in the cold bias of the equatorial cold tongue, and, consequently, to an improved ENSO. A suite of sensitivity runs with varying training periods is utilized to study the effect of different biases in the background state on important ENSO properties, namely on the amplitude and frequency of Nino indices, teleconnections and non-linearity of the ENSO phenomenon.