DECADAL VARIABILITY AS THE RESULT OF DECADAL ENSO MODULATIONS

K.B. Rodgers (1), P. Friederichs (2), M. Latif (3)
(1) LODYC, (2) Meterologisches Institut, Bonn, (3) Institut fuer Meereskunde, Kiel

The 1000-year coupled ECHO-G (ECHAM4/HOPE) experiment has been analyzed to describe decadal variability in sea surface temperature and thermocline depth for the equatorial Pacific. It is found that the structures of SST and Z20 characteristic of Tropical Pacific Decadal Variability (TPDV) result from the combined effects of an asymmetry between the model’s El Nino and La Nina states, and decadal changes in the model’s ENSO behavior. In addition, an analysis of the model’s thermocline stratification in the NINO3 region reveals that decadal changes in the stratification are the result of, rather than the cause of, decadal modulations of ENSO in the model. TPDV in the model should not be understood as a slowly evolving perturbation to a basic mean state, but rather as something that is intrinsically related to nonlinearities in ENSO.