



Ocean mixing and ENSO

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The coupling between the ocean and atmosphere in the tropics on ENSO timescales is heavily influenced by the state of the thermocline in the equatorial ocean, which in turn is very much affected by oceanic mixing. We present recent observations and numerical experimentation that show that both conventional measurements and climate models are missing a significant source of that mixing. High resolution measurements reveal that the vertical shear in the thermocline is dominated by small vertical scale features that are strongly related to regions of active mixing. Sources for this small scale activity include wind-generated near-inertial waves and instabilities of the current system. Accounting for this mixing in a coupled GCM induces a large change in the state of the coupled system and the characteristics of the model ENSO.