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Energy dissipation in the equatorial thermocline

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Maps of the work done by the wind on inertial motions in the ocean show a band of high values in the tropics, with highest values in the boreal winter. We present recent modelling work and observations that show (i) a significant amount of the energy input by the wind is trapped in the equatorial thermocline as high vertical wavenumber near-inertial waves, (ii) the shear associated with the waves promotes turbulent mixing, and (iii) the associated rate of energy dissipation is a significant fraction of the rate of energy input by the wind. As well as acting as an important sink of energy the wave induced mixing also affects the state of the equatorial ocean. The implications for equatorial ocean dynamics will be discussed.