

## Turbulence induced by near-surface inertial oscillations and its impact on sea surface temperature variability

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It is well known that inertial oscillations in the surface mixed layer impact the evolution of sea surface temperature (SST) through turbulent mixing. SST is a key parameter controlling the climate and its variability. On the diurnal timescale, diurnal warm layers are observed to form in diverse oceanic regions under calm conditions. Properly modeling their formation and erosion in tropical areas is key to improving simulations of intraseasonal variability. Inertial oscillations may be present even under fairly calm conditions and are an important factor impacting both the formation and erosion of diurnal warm layers. We will present and discuss results from observations and modeling studies. We focus on the role that inertial oscillations play in the dynamics of diurnal warm layers and SST, through the analysis of several case studies, covering different background regimes and a variety of strengths of the inertial oscillation. Our results, suggest the important role that background stratification plays, both directly and indirectly (via internal wave radiation) in moderating the exchange of heat between surface and thermocline, more so than the intensity of the turbulence at the mixed layer base.

Keywords: turbulence, inertial oscillations, sea surface temperature , mixing, stratification