



Temporal and spatial variability of the diurnal warming amplitude

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Some recent studies have shown that the diurnal cycle could affect the intraseasonal variability of the Sea Surface Temperatures (SST) in the tropics and even modify the trend on longer timescales. The impact of the atmospheric variability on the variability of the diurnal cycle amplitude is assessed and the associated impact on the intraseasonal variability is investigated. To conduct these analyses, a mixed layer model is forced with the ERA40 reanalysis data. The turbulent vertical mixing scheme (Gaspar et al., 1988) is based on the parameterization of the second-order turbulent moments expressed as a function of the turbulent kinetic energy. The model has 192 vertical levels with a vertical resolution of 1m near the surface and 500m at the bottom. This high vertical resolution combined with a frequency in solar heat flux of 3 hours (6h hours for the other forcing fields) conducts to realistic diurnal cycles of the oceanic upper-layers. For each atmospheric mode of variability, the role of thermal and dynamic productions of turbulence in the modulation of the diurnal cycle will be investigated.