



Interactions between the ocean diurnal cycle and the intraseasonal variability of sea surface temperatures

V. Guemas (1,2), D. Salas-Mélia (1), H. Giordani (1), A. Voltaire (1), M. Kageyama (2)

(1) Centre National de Recherches Météorologiques / Groupe d'étude de l'Atmosphère Météorologique, Météo-France, CNRS, Toulouse, France, (2) Laboratoire des Sciences du Climat et de l'Environnement, UMR 1572, CEA-CNRS-UVSQ, Gif-Sur-Yvette, France (virginie.guemas@meteo.fr)

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. This work presents global diagnostics of the impact of the diurnal cycle on the SST variability. 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 in the other forcing fields) conducts to realistic diurnal cycles of the oceanic upper-layers. This control simulation is compared to a set of experiments forced with daily mean data. The non linear processes responsible for the modulation of the simulated SST will be investigated.