Ocean Diurnal Cycle and its Rectification into Longer Time Scale: Impact on Tropical Variabilities

Tropical variability at longer time scale is primarily governed by surface boundary conditions (sea surface temperature (SST), turbulent heat, and momentum fluxes) across the ocean and atmosphere. Limitations in predicting coupled processes such as the Monsoon, Indian Ocean Dipole (IOD) and El Niño–Southern Oscillation (ENSO) across various time and spatial scales has been reported by earlier studies. Improper diurnal phase and amplitude in intra-daily SST and precipitation are among the well-known problems in most global coupled general circulation models. Although efforts have been made to achieve the accuracy in surface fluxes and SST in observation and reanalysis products, less attention has been paid towards achieving similar accuracy in coupled model simulations. The present study attempts to improve the representation of ocean-atmosphere surface boundary conditions in coupled model, primarily used operational seasonal forecasts. In this direction, the diurnal warm layer and cool skin temperature corre

Maheswar Pradhan, Suryachandra A. Rao