

MODELING OCEAN-ATMOSPHERE COUPLED FEEDBACKS OVER THE TROPICAL OCEANS

The ocean and atmosphere interact with each other through fluxes of energy, momentum, water, gas, and biological and particulate matter across the air-sea interface. While these exchanges are fundamentally molecular or microscopic in nature, they are regulated by processes that span enormous ranges of time and space, which affect the energetic properties of the upper ocean and lower atmosphere. In the tropical atmosphere, these fluxes can influence ocean surface freshening and currents, and atmospheric convection and circulations, all of which feed back to flux. Consequently, realistic simulation of marine surface fluxes in coupled models is important for understanding many atmospheric, oceanic, and biological processes.

In this talk, I will give an overview of processes that regulate tropical ocean-atmosphere interactions on a variety of time and space scales. I will then discuss how these processes may or may not be represented in a variety of coupled model configurations, with a focus on how such representations may affect simulated large-scale atmospheric convection.