



Subseasonal and Climate Variability of Tropical Cyclones in Idealized Convection-Permitting Simulations

Rosimar Rios-Berrios

NSF National Center for Atmospheric Research

Despite the powerful and devastating effects of tropical cyclones, many questions remain unanswered about these phenomena. For example, what are the precise mechanisms that allow tropical cyclones to form in clusters within a given hurricane season? Furthermore, should we expect more and/or more powerful tropical cyclones in light of our warming oceans? In this talk, I will address some of these questions using novel idealized numerical experiments with a global model. The experiments—known as aquaplanet simulations—capture the convective dynamics of tropical cyclones and other tropical phenomena by means of employing convection-permitting resolution in the tropics. These experiments reveal an uptick in tropical cyclogenesis events after the rainfall peak of convectively coupled Kelvin waves. While this result has been previously documented, the aquaplanet experiments shed new light on the physical mechanisms that explain the uptick in tropical cyclogenesis. I will discuss these results together with a preliminary overview of tropical cyclone activity in experiments with varying ocean temperatures.

Thursday, 3 October 2024, 2:00PM

Refreshments 1:45PM

Please also join colleagues for refreshments and informal discussion after the seminar until 3:30pm

NCAR-Foothills Laboratory, 3450 Mitchell Lane
FL2-1022, Large Auditorium

Seminar will also be live webcast

<https://operations.ucar.edu/live-mmm>

Participants may ask questions during the seminar via Slido.