MMM SEMINAR SERIES

Tropical Cyclone Projections using Environmental Proxies and Statistical-Dynamical Downscaling

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This talk will explore the tropical cyclone projections in the CMIP6 models. Standard environmental proxies for tropical cyclone activity, such as potential intensity, genesis indices, and the ventilation index have been calculated in the CMIP6 ensemble. First, I will discuss how the global historical climatological patterns of these environmental proxies in the CMIP6 models compare with the ERA5 reanalysis climatology and show the systematic biases across the CMIP6 models. Then, the expected range of future projections of these proxies will be shown for three future scenarios, namely ssp245, ssp370 and ssp585, for the end of the 21st century and specific global warming levels.

The role of ENSO diversity in the modulation of TC environmental proxies will also be discussed, as model biases in simulating ENSO diversity can lead to significant model differences, both in present and future climates. The role of ENSO diversity in shaping the tropical cyclone-ENSO relationship in present and future climates will be explored.

In the last part of our talk, a statistical-downscaling model that generates synthetic tropical cyclones from reanalysis and climate models large-scale fields will be presented. I will show the results obtained when downscaling the CMIP6 models and what we can learn from them.

Thursday, 13 July 2023, 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.