

MMM SEMINAR SERIES



What Sets the Climatology of CAPE?

Kerry A. Emanuel

MIT

Severe convective storms are a significant source of weather-related losses and injury, worldwide. Yet very little is known about what sets their climatology in the current climate, and why climate models generally indicate increased severe storm activity as the climate warms. In this talk, I will focus on one of the main ingredients in severe convective storms: Convective Available Potential Energy (CAPE). The global climatology of CAPE differs significantly from that of deep convection in general; for example, high CAPE values are quite rare over the ocean. Using both an observational analysis and a 1-D model coupled to a model of soil and vegetation, I will argue that high CAPE results when air masses that have been significantly modified by passage over dry, lightly vegetated soils are advected over moist soils with moderate to extensive vegetation. This suggests that widespread agricultural practices may significantly modify the climatology of severe convection and points to how climate change might effect the prevalence and intensity of severe convective storms.

Thursday, 23 March 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.