Dr. Alex Kinsella

Woods Hole Oceanographic Institution

Wednesday, March 5th, 5 pm. Osborne A204

Clouds, Climate, and the Ocean: A String Theorist Becomes an Oceanographer

Clouds over tropical oceans are key regulators of global climate due to their effects on radiative balance and the transport of heat, moisture, and momentum through the atmosphere. These clouds interact with the upper ocean in a complex, coupled system where heat and momentum are constantly exchanged across the air-sea interface. In this talk, I will present findings from recent field campaigns focused on air-sea interaction and atmospheric convection in the tropical Indian Ocean, East Pacific, and the Atlantic US continental shelf. I will discuss how the control of air-sea interaction transitions from atmospheric to oceanic during the onset of the South Asian summer monsoon, the largest cloud system in the world.

I will also describe the instrumentation and methods used in physical oceanography and meteorology, highlighting tools that may be less familiar to physicists, such as Doppler wind lidars, flux buoys, and cloud radars. Finally, I will share my journey from a Ph.D. in string theory to a research position in ocean and climate science, illustrating how a physicist's skill set can advance our understanding of Earth's climate system.

Short Bio

Dr. Alex Kinsella is a research associate at Woods Hole Oceanographic Institution in the department of physical oceanography. His research is centered on air-sea interaction from the submesoscale to the basin scale and its effects on weather and climate. Alex transitioned to physical oceanography after he completed his PhD in physics in 2021 at UC Santa Barbara, where his dissertation work focused on string theory and geometry. Beyond his research, Alex engages in science communication through a cloud-focused blog as well as by leading walks on Cape Cod to see clouds, birds, botany, and more.