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# "Investigating dynamical impacts of tropical cyclones on the ocean using observations and models"

Abstract

Ocean mixing is an important physical process, because it affects large-scale circulation patterns, heat transport, and biogeochemical cycles. Current climate models lack a realistic representation of oceanic mixing due to their inability to resolve mechanistic processes responsible for the mixing. Tropical cyclones are efficient ocean mixers, and it has been hypothesized that mixing by these events may contribute significantly to large-scale ocean transports. Here I utilize observations to estimate the contribution of transient, extreme wind forcing by tropical cyclones to global upper ocean mixing budgets, and I explore the potential impact of these events on ocean dynamics using climate models of varying complexity. I weave together several lines of evidence to assess the role of tropical cyclones within the context of climate change.