

**Monday, February 11, 2019, 4pm-5pm; Guyot 220.**

**"Extratropical forcing and tropical rainfall distribution: Recent progress using the energetics framework"**

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**Abstract:** I briefly review the energetics framework that connects extratropical energy perturbations to shifts of the Inter-Tropical Convergence Zone (ITCZ), and then discuss limitations of this framework. First of all, despite ample modeling evidence of the extratropical influence on the ITCZ, we currently lack evidence of this in observations. We address this with idealized experiments in which the extratropics are perturbed by a cyclic thermal forcing with a varying frequency. These show that only extratropical forcings on multidecadal timescales can shift the ITCZ. Secondly, the application of energetics framework is complicated by ocean dynamics, as recent fully coupled model studies suggest that the ITCZ is much less sensitive to extratropical forcing than previously thought. Although theoretical studies have attributed this to Ekman transport, we argue that the Ekman damping effect is limited due to its small gross stability. Instead, we identify the importance of the Atlantic Meridonal Overturning Circulation and the circumpolar upwelling over the Southern Ocean for damping the effect of extratropical forcing.

Light refreshments will be served.