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Joey A Cimochoowski* (jcimocho@asu.edu). *Real and Idealized Simulations of Tropical Cyclone Dynamics: The Impact of Environmental Flow.*

Real and idealized simulations of tropical cyclones are performed to explore how their trajectories change as the initial and environmental conditions are varied. In particular, we consider the speed and direction of the cyclone's drift, the presence of a background flow induced by an additional cyclone, and mean winds. Results show that the orientation of the cyclone's secondary circulation, which arises nonlinearly due to the conservation of potential vorticity, is the main ingredient responsible for the cyclone's evolution. These conclusions explain patterns of motion obtained from observations and high resolution parallel simulations of twin cyclones and Hurricane Sandy. (Received September 22, 2015)