



## **Spiral gravity waves radiating from tropical cyclones: Observations, simulations, and theoretical findings**

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The recent paper by Nolan and Zhang (2017, GRL) introduced observational and numerical evidence for small-scale gravity waves that radiate outward from tropical cyclones. These waves are wrapped into tight spirals by the shear of the tangential wind, but they can be detected hundreds of kilometers from the storm center. This presentation will describe further progress on observing and understanding these waves. More in-situ observations have been obtained from analyses of additional hurricane research flights by the NOAA P3 aircraft and from surface observations. The basic dynamics of the waves are investigated with a linearized model of vortex dynamics that supports both vortex-Rossby waves and nonhydrostatic gravity waves. The linear model shows that multiple wave structures, consistent with observations, are produced by low-wavenumber convective asymmetries as they rotate around the eyewall.