

Abstract Submitted
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Project micro-meddy: doubly-diffusive experiments with heated vortices MICHAEL BURIN, ANDREW GONZALES, MARGARITA SANZ, CSU San Marcos, JOEL SOMMERIA, SAMUEL VIBOUD, Univ. Grenoble Alpes, CNRS, Grenoble INP, LEGI — We report on experiments that feature anticyclonic vortices embedded in linearly stratified, rotating tanks. When heated with respect to their surroundings there are two conspicuous instability features. First, prominent early, is that the circumferential edge appears serrated with cusp-like features from lateral intrusions, which are surmised to be due to thermal convection. Second, prominent later, a stepped layer develops above the vortex due to thermohaline diffusive convection. Observations are described from both the Coriolis platform (13m diameter tank, ~1.5m diameter vortices) and a prototype smaller vessel (0.3m diameter tank, ~0.1m diameter vortices). Our observations are considered with respect to previous laboratory work as well as to geophysical vortices that are thermally distinct from their environs, such as Atlantic Meddies.

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