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The Physical Oceanography of Two Rings Observed by the Cyclonic Ring Experiment. Part I: Physical Structures

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ABSTRACT

Eight cruises over a 10-month period in the North Atlantic have provided the Cyclonic Ring Experiment with observations of two rings. Life histories, structure and structural changes have been studied with emphasis on the effects of Stream interaction and spindown processes. Ring AL was generated in September 1976 with a central water mass composed of Slope and anticyclonic ring waters. Ring BOB separated from the Stream in March 1977 with a Shelf and Slope Water core. Both rings had a 7-month lifetime, interacted with the Gulf Stream and were regenerated. The Stream interaction altered the core structures, and in the case of BOB, cruise observations show significant changes in ring size and shape. BOB's spatial extent decreased with interaction and increased during spindown while eccentricity of the ring behaved in an opposite manner.

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