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[Volume 9, Issue 1 \(January 1979\)](#)

Journal of Physical Oceanography

Article: pp. 128–135 | [Abstract](#) | [PDF \(678K\)](#)

The Mutual Response of the Tropical Cyclone and the Ocean

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(Manuscript received April 17, 1978, in final form July 21, 1978)

DOI: 10.1175/1520-0485(1979)009<0128:TMROTT>2.0.CO;2

ABSTRACT

An axisymmetric hurricane model and an axisymmetric ocean model are integrated simultaneously for 24 h to investigate the mutual response of the two systems. The feedbacks between the hurricane and the ocean are negative. The weakening of the hurricane in response to the cooling of the ocean's surface by upwelling and mixing results in a lessened response of the ocean. The results suggest that appreciable weakening of a hurricane due to the cooling of the oceanic surface will not occur if it is translating at typical speed.

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