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[Volume 17, Issue 8 \(August 1987\)](#)

Journal of Physical Oceanography

Article: pp. 1156–1162 | [Abstract](#) | [PDF \(512K\)](#)

The Effect of Wave Breaking on the Wave Energy Spectrum

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(Manuscript received April 28, 1986, in final form January 23, 1987)

DOI: 10.1175/1520-0485(1987)017<1156:TEOWBO>2.0.CO;2

ABSTRACT

The effect of wave breaking on the wave energy spectral shape is examined. The Stokes wave-breaking criterion is first extended to random waves and a breaking wave model is established in which the elevation of breaking waves is expressed in terms of that of the original ideal waves, which are assumed to be stationary and Gaussian. Based on this model, a simple but approximate expression for the spectrum of breaking waves is derived and applied to the case in which a deep water unidirectional wave train enters a region of adverse current steady in time and uniformly distributed in depth.

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