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# Interaction Subrange Spectra of Turbulent Wind Over an Air-Water Interface

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### ABSTRACT

The nonlinear interaction of wave-induced air motion and the turbulent wind is examined in spectral space with the aid of a model developed through two averaging processes. The averaging periods are determined by the time scales of turbulent and of wave-induced air motion. It is shown that an interaction subrange spectrum characterized by a  $-1$  slope may exist in the turbulent wind over the air-water interface. A method which involves the calculation of energy spectra in frequency and in wavenumber-frequency space is described. It permits an assessment of nonlinear interactions in these spectral domains. We are concerned particularly with interactions with the wave-induced motion and with the contribution which this may make to the total turbulent kinetic energy.

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