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# A Simple Analytical Model of Low-Frequency Wind-Driven Upwelling on a Continental Slope

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### ABSTRACT

A simple closed-form analytical solution of a classical coastal upwelling is found in terms of two-dimensional baroclinic waves trapped in a two-layer ocean on a steep continental slope and forced by the wind-driven reversals of currents on an adjoining wide and vertically well-mixed continental shelf. Bottom friction on the continental shelf plays a dominant role. This solution agrees qualitatively with the sparse available records of low-frequency oscillations of currents and temperature on the upper continental slope of the Great Barrier Reef.

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