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Laboratory Studies of Langmuir Circulations

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ABSTRACT

Laboratory studies of the interaction of crossed waves (on water) and a wind-induced shear are found to be in quite general agreement with the Craik-Leibovich (CL) theory of Langmuir circulation (LC's). The LC's develop rapidly, convect turbulent fluid to the bottom, and significantly modify the surface current by a vertical exchange of momentum. Reversal of the wind direction relative to the waves is found to reverse the sense of rotation of the LC's, a specific prediction of the CL theory.

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