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A model for asymptotic dynamics of wind waves

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The main purpose of this work is to present a simple model equation for the nonlinear dynamics of monochromatic surface waves coming from the wind action. We suppose that such a surface wind/waves are the result of superposition of two surface motions: an oscillatory flow and a laminar flow. The oscillatory flow correspond to mechanical perturbation of an ideal fluids which propagate like a wave. The laminar flow is created by the wind action. More specifically the main hypothesis is that wind drives the particles belonging to the free surface at constant velocity. The model is obtained through a perturbative multi-scale expansion on a generalized version of the Green-Naghdi approximation.