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Vortical Freak Waves in Water Under External Pressure Action

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A vortical model for freak wave formation in water is presented. The wind action is simulated by nonuniform pressure on the free surface. The motion of the fluid is described by an exact solution of 2D hydrodynamic equations for ideal inviscid fluid in Lagrangian variables. Fluid particles rotate in circles of different radius. The model describes the appearance of a freak wave in the field of the Gerstner wave. The physical parameters of the wave and feasibility of the proposed scenario are discussed.

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