

## **Nonlinear Three-Dimensional Free Surface Flows in Finite and Infinite Depth**

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Steady three-dimensional free surface flows generated by disturbances (distributions of pressure, ships or submerged objects) moving at a constant velocity in a fluid of finite or infinite depth are considered. The fluid is assumed to be inviscid, incompressible and the flow is supposed to be irrotational. On the free surface the fully nonlinear kinematic and dynamic boundary conditions are used. The three dimensional problem is formulated as a nonlinear integro-differential equation by using Green's functions. This equation is then discretised and the resulting algebraic equations are solved by Newton's method. Numerical results are presented for subcritical and supercritical three-dimensional free surface flows. The importance of nonlinearity is demonstrated by comparing the numerical results with the classical linear theory.

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