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Effect of constant vorticity on the statistical properties of extreme sea waves.

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Here a comparative analysis of the statistical properties of surface gravity waves in water of deep and finite depths is discussed by analysing numerical simulations with and without vorticity. It is restricted to one-dimensional direction of propagation of water waves with constant vorticity and without dissipation.
Numerical simulations of nonlinear surface waves on a linear shear current are performed using an extension of the well-known high-order spectral method (HOSM) (Francius et al. 2013).
An adjustment procedure for initializing the nonlinear free surface simulations with linear solutions is validated and used to study the nonlinear evolution of a sea wave obtained from dressing a JONSWAP spectrum (Soriano et al, 2006).