



Wind forcing and dissipation in three-dimensional High Order Spectra deterministic sea state modeling

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This work presents a numerical method able to take into account wind wave coupling and energy dissipation related to wave breaking in a deterministic sea state model. We carry out such simulations with an HOS model developed at LMF [U+2010] ECN since 2002 and based on the work of West et al. (1987) and Dommermuth & Yue(1987). This model performs direct numerical simulations of the nonlinear primitive equations by mean of a spectral method in term of decomposition on a basis of eigenfunctions. A parametric coupling for wind forcing is achieved under Miles(1957)'s formulation, and an associated parameterization following Hasselmann(1974)'s theory enables to account for dissipations. The formulation and set parameters referred as BAJ [Bidlot et al.(05)] commonly used in phase averaged spectral model solving the balance equation of energy spectra is implemented. Time evolution for both regular and realistic wave field is then studied.