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Water waves over a random topography

We discuss the problem of nonlinear wave motion of the free surface of a body of fluid over a variable bottom. The object is to describe the character of wave propagation in a long wave asymptotic regime. We assume that the bottom of the fluid region can be described by a stationary random process whose variations take place on short length scales. It is a problem in homogenization theory. Our principal result is the derivation of effective equations and a consistency analysis.