

Numerical method for propagation of surface waves over a rectangular trench in presence of finite dock

The problem involving propagation of surface water waves over a rectangular trench in presence of finite dock is examined for its solution using a boundary element method. The boundaries of the domain are discretized into a finite number of elements by which the system of Fredholm integral equations of second kind are obtained. A system of linear algebraic equations is produced with the aid of boundary element method, which is finally solved numerically to obtain the physical quantities, namely, the reflection and transmission coefficients. These coefficients are plotted in different graphs to investigate their behaviour for various system parameters. These results are helpful to coastal and marine engineers to construct the offshore structures towards the protection of seashore.