The 10th International Conference on Coasts, Ports and Marine Structures (ICOPMAS 2012)
Tehran, Iran, 19-21 Nov. 2012

Forecasting scour depth of standing waves vertical breakwaters using SVMs

[Mahmoud . Ramzanpour محمود رمضان پور]

[Ghasem . Rasooli Moghadam قاسم رسولی مقدم]

Keywords: *scour depth, Support Vector Machines (SVM), vertical breakwaters*

1- INTRODUCTION

A breakwater is a structure protecting an area from wave action. Vertical breakwater is a rigid vertical structure that transmits most of the impinging wave force to its foundation. The vertical breakwater is susceptible to foundation damage and local scouring in front of its foundation [16]. Hence, forecasting of local scouring near a vertical breakwater is an important issue in coastal and harbor engineering.

The incident waves impinge on and reflect from the vertical breakwater at nearshore area that produces a series of standing waves in front of the vertical breakwater. Standing waves have significant influence on the scouring in front of vertical breakwaters. Carter et al. [4] studied the effect of standing waves on formation of parallel pattern of scour/deposition in sand bars. They also mentioned that standing waves develop a field of steady streaming system of recirculating cells in front of vertical breakwater and indicated that the recirculating cells of the steady streaming system consist of top and bottom cells as illustrated in Fig.1. The bottom cells of steady streaming system are attributed to the formation of bottom boundary layer near the seabed [16].

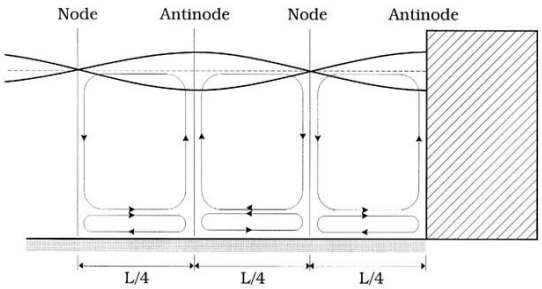

Fig. 1) Steady streaming in front of vertical breakwater, Sumer and Fredsoe [16]