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Sediment Transport Fields Around off-shore and on-shore Structures

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ABSTRACT

Sediment transport has become an important issue in the hydraulics community in the last decades. Understanding how the interaction of sand with water flows in some environments is critical to the environment and the business. In this regard, research work in the field of off-and on-shore transport of sediment has become increasingly important due to the growing use of water resources. On the other side, erosion and sedimentation processes and their effects on sediment transport help us to grow our knowledge of the importance of fluvial, lake, marine sediments over several environmental problems. Sediment, defined as fractionized materials of rocks formed by various physical and/or chemical processes. The transport is caused by the effects of gravity and friction with the air or liquid containing that sediments. Hydrodynamical modeling simulates flow velocity, which we can use in the sediment transport model to simulate sediment concentration. This thesis represents a development of a two-dimensional depth-averaged advection-diffusion equation with source term to simulate the depth-averaged suspended sediment concentration to predict suspended and bed load transport and change of bed elevation.