

عنوان مقاله:

Sandbar Migration Due to Cross-Shore Sediment Transport; A Case Study of Noshahr Coasts, Iran

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خلاصه مقاله:

Cross-shore sediment transport is one of the effective factors in erosion and sedimentation, and affects dynamics of the beach profile in coastal areas. Furthermore, sandbar migration due to cross-shore sediment transport mostly effects beach nourishment, displacement of pollutions trapped in sediments, and organism and plants' lives. In this manuscript, sandbar migration due to cross-shore sediment transport is studied and results have been compared to field data. Field data used here have been measured at the southern Caspian Sea, Noshahr coasts, Iran. During the measurement period, two high-energy events with significant wave height of approximately ۱.۴ m have been measured. All simulations have been done based on a one dimensional cross-shore transect. Wave transformation during propagation toward the coast has been modeled using the third generation model SWAN, and long-shore wave-induced current has been simulated by solving alongshore momentum equilibrium equation. To include the morphological change, the cross-shore sediment transport rate has been estimated using Bagnold [۱۹۶۶], Bowen [۱۹۸۰], and Bailard's [۱۹۸۱] (BBB) energetic sediment transport model, and results has been compared to the model developed by Plant et al. [۲۰۰۱], which itself is an energetic model based on Bagnold [۱۹۶۶]. Finally, bathymetric changes has been forecasted by solving cross-shore mass conservation equation which indicated slight outperform of .BBB rather than Plant et al. model in this study area.

کلمات کلیدی:

Sediment transport, Sandbar, Wave, Current, Numerical modelling

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