



## Multiscale Physical Processes of Fine Sediment in an Estuary (Paperback)

By Yuanyang Wan

Taylor Francis Ltd, United Kingdom, 2015. Paperback. Book Condition: New. 240 x 170 mm. Language: English . Brand New Book. Estuaries are natural highly dynamic and rapidly changing systems, comprising a complex combination of physical processes on many different time- and space- scales. The research conducted a systematic study on the topic of fine sediment physical processes in a meso-tidal convergent alluvial estuary. By means of multi-approaches (field survey, laboratory experiment and numerical modeling) and from multi-angles (data-driven analysis and process-based modeling) we highlight that multiscale (including micro- and macro- scale) physical processes jointly characterize the current and sediment regime in a fine sediment estuarine system. The study presented in this book investigates micro- and macro- scale physical processes of a large-scale fine sediment estuarine system with a moderate tidal range as well as a highly seasonal-varying freshwater inflow. Based on a series of measured, experimented and modelled data, the research highlights that (i) along-channel fresh-salt gradient near an estuarine turbidity maximum zone is a key parameter controlling local density stratification and sedimentation in the channel; (ii) the salinity-induced baroclinic pressure gradient forces are a major factor impacting internal velocity and suspended sediment concentration (SSC) structures; (iii) vertical profiles of...



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