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Principles of sedimentation and erosion engineering in rivers, estuaries and coastal seas including mathematical modelling package (toolkit on CD-ROM)

van Rijn, L.C. (2005). Principles of sedimentation and erosion engineering in rivers, estuaries and coastal seas including mathematical modelling package (toolkit on CD-ROM). Aqua Publications: [s.l.]. ISBN 90-800356-6-1. 1 loose-leaf book + 1 CD-ROM pp.

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Keywords

Coastal zone; Erosion; Estuaries; Geomorphology; Rivers; Sediment transport; Sedimentation; Marine

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Abstract

This loose-leaf book (including modelling package) focusses on the solution of engineering problems related to sedimentation and erosion in rivers, estuaries and coastal seas. The problems considered are: sedimentation (sand and mud) in navigation channels; trenches, mining pits, harbours, river reservoirs, inlets and intakes and other structures; scour and erosion near seawalls, groynes, breakwaters and dams; resuspension from dump sites; dredging aspects; engineering approaches for coastal erosion (detached breakwaters, feeder berms, reef berms). The book (about 600 pages) and models will be regularly updated.

A detailed overview of mud and sand transport in rivers, estuaries and coastal seas is given. Many examples are presented and explained. The book is of interest to: coastal and harbour consultants, engineers, scientists and managers.

Various simple and detailed computer programmes are included to compute transport rates and sedimentation volumes.

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Keywords: River Sedimentation, Morphological Processes, Computational Modeling. 1 INTRODUCTION. River sedimentation and morphological processes are among the most complex and least understood phenomena in nature. To meet the needs in engineering practices, the capability of river sedimentation modeling have been further advanced remarkably in recent years. Many established models are capable of simulating non-cohesive and cohesive sediment transport, local scouring, channel widening and meandering, etc. lakes, estuaries and coastal waters, are generally cohesive. Because the magnitude of electrostatic forces acting among these particles is comparable to or larger than that of the. This article is a summary of first chapter of the Manual Sediment Transport Measurements in Rivers, Estuaries and Coastal Seas. This article gives an introduction of sediment transport, the contents of the manual, and sediment and erosion problems. In general the natural bathymetry (bottom configuration) of a hydraulic system is under the influence of a large number of factors varying from geological processes to the complex interaction of fluid and sediment particles. Most hydraulic systems can be