1. Record Nr. UNINA9910145043703321

Titolo	Computational fluid dynamics [[electronic resource]] : applications in environmental hydraulics / / editors, Paul D. Bates, Stuart N. Lane, Robert I. Ferguson
Pubbl/distr/stampa	Hoboken, NJ, : J. Wiley, c2005
ISBN	1-280-27625-8 9786610276257 0-470-01519-5 0-470-01518-7
Descrizione fisica	1 online resource (545 p.)
Altri autori (Persone)	BatesPaul D LaneStuart N FergusonRobert I
Disciplina	627.042 627/.042
Soggetti	Environmental hydraulics - Mathematical models Fluid dynamics - Mathematical models Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and indexes.
Nota di contenuto	Computational Fluid Dynamics; Contents; List of Contributors; 1 Computational Fluid Dynamics modelling for environmental hydraulics; PART ONE AN OVERVIEW OF COMPUTATIONAL FLUID DYNAMICS SCHEMES; 2 Fundamental equations for CFD in river flow simulations; 3 Modelling solute transport processes in free surface flow CFD schemes; 4 Basic equations for sediment transport in CFD for fluvial morphodynamics; 5 Introduction to statistical turbulence modelling for hydraulic engineering flows; 6 Modelling wetting and drying processes in hydraulic models; 7 Introduction to numerical methods for fluid flow 8 A framework for model verification and validation of CFD schemes in natural open channel flows9 Parameterisation, validation and uncertainty analysis of CFD models of fluvial and flood hydraulics in the natural environment; PART TWO APPLICATION POTENTIAL FOR FLUVIAL STUDIES; 10 Modelling reach-scale fluvial flows; 11 Numerical

	modelling of floodplain flow; 12 Modelling water quality processes in estuaries; 13 Roughness parameterization in CFD modelling of gravel-bed rivers; 14 Modelling of sand deposition in archaeologically significant reaches of the Colorado River in Grand Canyon, USA 15 Modelling of open channel flow through vegetation16 Ecohydraulics: A new interdisciplinary frontier for CFD; 17 Towards risk-based prediction in real-world applications of complex hydraulic models; 18 CFD for environmental design and management; Author index; Subject index
Sommario/riassunto	Uniquely outlines CFD theory in a manner relevant to environmental applications. This book addresses the basic topics in CFD modelling in a thematic manner to provided the necessary theoretical background, as well as providing global cases studies showing how CFD models can be used in practice demonstrating how good practice can be achieved , with reference to both established and new applications. First book to apply CFD to the environmental sciencesWritten at a level suitable for non-mathematicians