

Open Channel Hydraulics Solutions

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Computational Hydraulics C. A. Brebbia 2013-10-22 Computational Hydraulics provides an introduction to computational techniques for hydraulic and fluid flow engineers. It combines classical hydraulics with new methods such as finite elements and boundary elements, which are both presented in a matrix formulation. The most interesting feature of the book is the integrated treatment given to the theoretical and computing aspects of numerical methods. The format presents a series of complete computer programs, for linear and non-linear pipe network analysis, depth flow computations, and finite and boundary elements for Laplace equations. The programs, which are written in standard FORTRAN, are self-contained and easy to implement in any computer. The book is the product of several years' experience in teaching and research at undergraduate and post-graduate level and can be used to offer a self-contained course on Computational Hydraulics for final year or M.Sc. Engineering students. The authors hope that this book will make practicing hydraulic engineers more aware of modern computer techniques and be useful in teaching them to the next generation.

Fluid Mechanics for Civil and

Environmental Engineers Ahlam I. Shalaby 2018-02-21 An ideal textbook for civil and environmental, mechanical, and chemical engineers taking the required Introduction to Fluid Mechanics course, Fluid Mechanics for Civil and Environmental Engineers offers clear guidance and builds a firm real-world foundation using practical examples and problem sets. Each chapter begins with a statement of objectives, and includes practical examples to relate the theory to real-world engineering design challenges. The author places special emphasis on topics that are included in the Fundamentals of Engineering exam, and make the book more accessible by highlighting keywords and important concepts, including Mathcad algorithms, and providing chapter summaries of important concepts and equations. *Design Charts for Open-channel Flow* United States. Bureau of Public Roads 1961

Open Channel Flow MADAN MOHAN DAS 2008-07-11 Primarily intended as a textbook for the undergraduate and postgraduate students of civil engineering, this book provides a comprehensive knowledge in open channel flow. The book starts with the concept of open channel flow, types of forces acting on the flow, types of channel flow, velocity

distribution and coefficients, and basic continuity in 1D and 3D. Then it moves on to steady gradually varied flow, its differential equation, hydraulics of alluvial channel, design of channel and hydraulic jump. Finally, the text concludes with Saint-Venant equations and its solutions by few numerical methods in flood routing and dam-break situations. KEY FEATURES : Includes computer programs for steady gradually varied flow Provides various numerical methods of solving the equations Explains dam-break problem in detail Contains numerous solved examples

Fundamentals of Open Channel Flow

Glenn E. Moglen 2015-04-17 Exposes You to Current Industry-Standard Tools Open channel flow is covered in essentially all civil and environmental engineering programs, usually by final-year undergraduate or graduate students studying water resources. Fundamentals of Open Channel Flow outlines current theory along with clear and fully solved examples that illustrate the concepts and are geared to a first course in open channel flow. It highlights the practical computational tools students can use to solve problems, such as spreadsheet applications and the HEC-RAS program. It assumes a foundation in fluid mechanics, then adopts a deliberately logical sequence through energy, momentum, friction, gradually varied flow (first qualitative, then quantitative), and the basics of sediment transport. Taps into Your Innate Ability to Understand Complex Concepts Visually Open channel flow can be understood through just a few simple equations, graphs, and computational tools. For students, the book comes with downloadable animations that illustrate basic concepts visually with synchronous graphical presentation of fundamental

relationships. For instructors, PowerPoint slides and solutions to end-of-chapter problems are provided. Delivers simple but powerful software animations Conveys material in three ways (analytical, graphical, computational/empirical) to aid multiple types of learners and improve overall accessibility Includes new fundamental equation for alternate depths Discusses flow transients supported by animations and calculations Emphasizes applications of common and useful computational tools Developed by an author who has been teaching open channel flow to university students for the past fifteen years, Fundamentals of Open Channel Flow provides you with a detailed explanation of the basics of open channel flow using examples and animation, and offers expert guidance on the practical application of graphical and computational tools. **Open Channel Hydraulics** Terry W. Sturm 2001 The book is intended for advanced undergraduates and first-year graduate students in the general fields of water resources and environmental engineering. It offers a selective presentation of some of the most common problems encountered by practicing engineers with the inclusion of recent research advances and personal computer applications. *Shallow Water Hydraulics* Oscar Castro-Orgaz 2019-11-08 This book presents the theory and computation of open channel flows, using detailed analytical, numerical and experimental results. The fundamental equations of open channel flows are derived by means of a rigorous vertical integration of the RANS equations for turbulent flow. In turn, the hydrostatic pressure hypothesis, which forms the core of many shallow water hydraulic models, is scrutinized by analyzing its underlying assumptions. The book's

main focus is on one-dimensional models, including detailed treatments of unsteady and steady flows. The use of modern shock capturing finite difference and finite volume methods is described in detail, and the quality of solutions is carefully assessed on the basis of analytical and experimental results. The book's unique features include:

- Rigorous derivation of the hydrostatic-based shallow water hydraulic models
- Detailed treatment of steady open channel flows, including the computation of transcritical flow profiles
- General analysis of gate maneuvers as the solution of a Riemann problem
- Presents modern shock capturing finite volume methods for the computation of unsteady free surface flows
- Introduces readers to movable bed and sediment transport in shallow water models
- Includes numerical solutions of shallow water hydraulic models for non-hydrostatic steady and unsteady free surface flows

This book is suitable for both undergraduate and graduate level students, given that the theory and numerical methods are progressively introduced starting with the basics. As supporting material, a collection of source codes written in Visual Basic and inserted as macros in Microsoft Excel® is available. The theory is implemented step-by-step in the codes, and the resulting programs are used throughout the book to produce the respective solutions.

Selected Water Resources Abstracts 1990

Open Channel Flow Roland Jeppson
2010-11-09 A comprehensive treatment of open channel flow, *Open Channel Flow: Numerical Methods and Computer Applications* starts with basic principles and gradually advances to complete problems involving systems of channels with branches, controls, and outflows/ inflows that require the simultaneous solutions of systems

of nonlinear algebraic equations coupled

Applied and Computational Fluid Mechanics Scott Post 2010-01-30
Designed for the fluid mechanics course for mechanical, civil, and aerospace engineering students, or as a reference for professional engineers, this up to date text uses computer algorithms and applications to solve modern problems related to fluid flow, aerodynamics, and thermodynamics. Algorithms and codes for numerical solutions of fluid problems, which can be implemented in programming environments such as MATLAB, are used throughout the book. The author also uses non-language specific algorithms to force the students to think through the logic of the solution technique as they translate the algorithm into the software they are using. The text also includes an introduction to Computational Fluid Dynamics, a well-established method in the design of fluid machinery and heat transfer applications. A DVD accompanies every new printed copy of the book and contains the source code, MATLAB files, third-party simulations, color figures, and more.

Current Hydraulic Laboratory Research in the United States 1970

Modeling and Control of Hydrosystems Xavier Litrico 2009-09-17
Open-channel hydraulics are described by hyperbolic equations, derived from laws of conservation of mass and momentum, called Saint-Venant equations. In conjunction with hydraulic structure equations these are used to represent the dynamic behavior of water flowing in rivers, irrigation canals, and sewers. Building on a detailed analysis of open-channel flow modeling, this monograph constructs control design methodologies based on a frequency domain approach. In practice, many open-channel systems are controlled

with classical input–output controllers that are usually poorly tuned. The approach of this book, fashioning pragmatic engineering solutions for the control of open channels is given rigorous mathematical justification. Once the control objectives are clarified, a generic control design method is proposed, first for a canal pool, and then for a whole canal. The methods developed in the book have been validated on several canals of various dimensions up to a large scale irrigation canal.

Gradually-varied Flow Profiles in Open Channels Chyan-Deng Jan

2014-01-08 Gradually-varied flow (GVF) is a steady non-uniform flow in an open channel with gradual changes in its water surface elevation. The evaluation of GVF profiles under a specific flow discharge is very important in hydraulic engineering. This book proposes a novel approach to analytically solve the GVF profiles by using the direct integration and Gaussian hypergeometric function. Both normal-depth- and critical-depth-based dimensionless GVF profiles are presented. The novel approach has laid the foundation to compute at one sweep the GVF profiles in a series of sustaining and adverse channels, which may have horizontal slopes sandwiched in between them.

Unsteady Flow in Open Channels Jurjen A. Battjes 2017-02-16 This book provides a unifying framework for understanding and computing unsteady flow and transport in shallow one-dimensional open-water systems.

Open Channel Hydraulics A. Osman Akan 2021-05-21 *Open Channel Hydraulics, Second Edition* provides extensive coverage of open channel design, with comprehensive discussions on fundamental equations and their application to open channel hydraulics. The book includes

practical formulas to compute flow rates or discharge, depths and other relevant quantities in open channel hydraulics. In addition, it also explains how mutual interaction of interconnected channels can affect the channel design. With coverage of the theoretical background, practical guidance to the design of open channels and other hydraulic structures, advanced topics, the latest research in the field, and real-world applications, this new edition offers an unparalleled user-friendly study reference. Introduces and explains all the main topics on open channel flows using numerous worked examples to illustrate key points Features extensive coverage of bridge hydraulics and scour - important topics civil engineers need to know as aging bridges are a major concern Includes Malcherek's momentum approach where applicable

Open Channel Hydraulics, River Hydraulic Structures and Fluvial Geomorphology Artur Radecki-Pawlik

2017-09-07 This book presents practical hydraulic and river engineering research along with fluvial geomorphological concepts, and links the theoretical and practical knowledge of people working every day with rivers, streams, and hydraulic structures to fluvial geomorphology. Besides providing a guide for professionals, this book also provides material for students to acquire the knowledge and skills to rehabilitate rivers, streams, and waterways.

Open Channel Flow Roland Jeppson

2010-11-09 A comprehensive treatment of open channel flow, *Open Channel Flow: Numerical Methods and Computer Applications* starts with basic principles and gradually advances to complete problems involving systems of channels with branches, controls, and outflows/ inflows that require the simultaneous solutions of systems

of nonlinear algebraic equations coupled with differential equations. The book includes a CD that contains a program that solves all types of simple open channel flow problems, the source programs described in the text, the executable elements of these programs, the TK-Solver and MathCad programs, and the equivalent MATLAB® scripts and functions. The book provides applied numerical methods in an appendix and also incorporates them as an integral component of the methodology in setting up and solving the governing equations. Packed with examples, the book includes problems at the end of each chapter that give readers experience in applying the principles and often expand upon the methodologies use in the text. The author uses Fortran as the software to supply the computer instruction but covers math software packages such as MathCad, TK-Solver, MATLAB, and spreadsheets so that readers can use the instruments with which they are the most familiar. He emphasizes the basic principles of conservation of mass, energy, and momentum, helping readers achieve true mastery of this important subject, rather than just learn routine techniques. With the enhanced understanding of the fundamental principles of fluid mechanics provided by this book, readers can then apply these principles to the solution of complex real-world problems. The book supplies the knowledge tools necessary to analyze and design economical and properly performing conveyance systems. Thus not only is the book useful for graduate students, but it also provides professional engineers the expertise and knowledge to design well performing and economical channel systems.

The Hydraulics of Open Channel Flow
Hubert Chanson 1999-09-29 The

Hydraulics of Open Channel Flow is a major new textbook for senior undergraduates and postgraduate students. Dr Chanson first introduces the basic principles of open channel flow hydraulics, namely the continuity, Bernoulli and momentum principles. Applications include short transitions (e.g. intake), hydraulic jumps and flow resistance. The key topics of sediment transport, hydraulic modelling and the design of hydraulic structures are then developed in turn. This innovative textbook contains numerous examples, including practical applications, and is fully illustrated with line drawings and photographs in colour and black and white. Exercises - located at the end of each chapter and as revision sections at the end of each part - form an integral part of the text. The book concludes with major assignments, which assimilate all the knowledge into a fully coherent whole. Solutions to exercises, together with the shareware software Hydroculv, are available from the Web at: Key Features: Ideal for Use by Students and Lecturers in Civil and Environmental Engineering Numerous Exercises and Examples, Including a Supporting Website, to Aid the Reader's Understanding Comprehensive Coverage of the Basic Principles and the Key Application Areas of the Hydraulics of Open Channel Flow the Reader is Taken Step by Step from the Basic Principles to the More Advanced Design Calculations

Experimental and Computational Solutions of Hydraulic Problems Paweł Rowiński 2013-01-04 What is the progress in hydraulic research? What are the new methods used in modeling of transport of momentum, matter and heat in both open and conduit channels? What new experimental methods, instruments, measurement techniques, and data analysis

routines are used in top class laboratory and field hydro-environment studies? How to link novel findings in fundamental hydraulics with the investigations of environmental issues? The consecutive 32nd International School of Hydraulics that took place in Łochów, Poland brought together eminent modelers, theoreticians and experimentalists as well as beginners in the field of hydraulics to consider these and other questions about the recent advances in hydraulic research all over the world. This volume reports key findings of the scientists that took part in the meeting. Both state of the art papers as well as detailed reports from various recent investigations are included in the book

NBS Special Publication 1971

Civil Engineering Problems and

Solutions Donald G. Newnan 2004-05

Written by 6 professors, each with a Ph.D. in Civil Engineering; A detailed description of the examination and suggestions on how to prepare for it; 195 exam, essay, and multiple-choice problems with a total of 510 individual questions; A complete 24-problem sample exam; A detailed step-by-step solution for every problem in the book; This book may be used as a separate, stand-alone volume or in conjunction with Civil Engineering License Review, 14th Edition (0-79318-546-7). Its chapter topics match those of the License Review book. All of the problems have been reproduced for each chapter, followed by detailed step-by-step solutions. Similarly, the 24-problem sample exam (12 essay and 12 multiple-choice problems) is given, followed by step-by-step solutions to the exam. Engineers looking for a CE/PE review with problems and solutions will buy both books. Those who want only an

elaborate set of exam problems, a sample exam, and detailed solutions to every problem will purchase this book. 100% problems and solutions. *Open Channel Hydraulics* A. Osman Akan 2011-02-24 *Open Channel Hydraulics* is written for undergraduate and graduate civil engineering students, and practicing engineers. Written in clear and simple language, it introduces and explains all the main topics required for courses on open channel flows, using numerous worked examples to illustrate the key points. With coverage of both introduction to flows, practical guidance to the design of open channels, and more advanced topics such as bridge hydraulics and the problem of scour, Professor Akan's book offers an unparalleled user-friendly study of this important subject. Clear and simple style suited for undergraduates and graduates alike. Many solved problems and worked examples. Practical and accessible guide to key aspects of open channel flow

Reaeration in Open-channel Flow J. P. Bennett 1972 An evaluation of procedures for measuring and predicting the reaeration coefficient of open channel flows.

Hydraulic Research in the United States and Canada United States.

National Bureau of Standards 1978

Open Channel Design Ernest W. Tollner 2021-09-20 OPEN CHANNEL DESIGN A fundamental knowledge of flow in open channels is essential for the planning and design of systems to manage water resources. Open channel design has applications within many fields, including civil engineering, agriculture, hydrology, geomorphology, sedimentology, environmental fluid and sediment dynamics and river engineering. *Open Channel Design: Fundamentals and Applications* covers permissible velocity, tractive force, and regime

theory design methodologies and applications. Hydraulic structures for flow control and measurement are covered. Flow profiles and their design implications are covered. Sediment transport mechanics and moveable boundaries in channels are introduced. Finally, a brief treatment of the St. Venant equations and Navier-Stokes equations are introduced as topics to be explored in more advanced courses. The central goal is to prepare students for work in engineering offices where they will be involved with aspects of land development and related consulting work. Students will also be prepared for advanced courses that will involve computational fluid dynamics approaches for solving 2-d and 3-d problems in advanced graduate level courses. Offering a fresh approach, *Open Channel Design: Fundamentals and Applications* prepares students for work in engineering offices where they will be involved with aspects of land development and related consulting work. It also introduces the reader to software packages including Mathematica, HecRas and HY8, all widely used in professional settings.

Proceedings of the Advanced Seminar on One-dimensional, Open-Channel Flow and Transport Modeling 1989

Environmental Hydraulics for Open Channel Flows Hubert Chanson
2004-10-14 Environmental Hydraulics is a new text for students and professionals studying advanced topics in river and estuarine systems. The book contains the full range of subjects on open channel flows, including mixing and dispersion, Saint-Venant equations method of characteristics and interactions between flowing water and its surroundings (air entrainment, sediment transport). Following the approach of Hubert Chanson's highly successful undergraduate textbook

Hydraulics of Open Channel Flow, the reader is guided step-by-step from the basic principles to more advanced practical applications. Each section of the book contains many revision exercises, problems and assignments to help the reader test their learning in practical situations.

·Complete text on river and estuarine systems in a single volume
·Step-by-step guide to practical applications
·Many worked examples and exercises

Numerical Modeling in Open Channel Hydraulics Romuald Szymkiewicz
2010-03-10 Open channel hydraulics has always been a very interesting domain of scientific and engineering activity because of the great importance of water for human living. The free surface flow, which takes place in the oceans, seas and rivers, can be still regarded as one of the most complex physical processes in the environment. The first source of difficulties is the proper recognition of physical flow processes and their mathematical description. The second one is related to the solution of the derived equations. The equations arising in hydrodynamics are rather complicated and, except some much idealized cases, their solution requires application of the numerical methods. For this reason the great progress in open channel flow modeling that took place during last 40 years paralleled the progress in computer technique, informatics and numerical methods. It is well known that even typical hydraulic engineering problems need applications of computer codes. Thus, we witness a rapid development of ready-made packages, which are widely disseminated and offered for engineers. However, it seems necessary for their users to be familiar with some fundamentals of numerical methods and computational techniques applied for solving the problems of interest. This is helpful for many reasons. The

ready-made packages can be effectively and safely applied on condition that the users know their possibilities and limitations. For instance, such knowledge is indispensable to distinguish in the obtained solutions the effects coming from the considered physical processes and those caused by numerical artifacts.

Design and Modeling of Mechanical

Systems - V Lassaad Walha 2022-09-20

This book offers a collection of original peer-reviewed contributions presented at the 9th International Congress on Design and Modeling of Mechanical Systems (CMSM'2021), held on December 20-22, 2021, in Hammamet, Tunisia. It reports on research findings, advanced methods and industrial applications relating to mechanical systems, materials and structures, and machining. It covers vibration analysis, CFD modeling and simulation, intelligent monitoring and control, including applications related to industry 4.0 and additive manufacturing. Continuing on the tradition of the previous editions, and with a good balance of theory and practice, the book offers a timely snapshot, and a useful resource for both researchers and professionals in the field of design and modeling of mechanical systems.

Hydraulics of Open Channel Flow

Sergio Montes 1998 This book emphasizes the dynamics of the open channel flow by attempting to provide a complete framework of the basic equation of fluid motion which is used as a building block for the treatment of many practical problems. It provides up-to-date coverage of modern techniques while providing a more rigorous analytical foundation for those who require it. The structure follows a logical progression from a description and classification of open channel flows, through a development of the basic

equations of motion for steady and unsteady flow, to an analysis of varied cases of flow.

Non-Hydrostatic Free Surface Flows

Oscar Castro-Orgaz 2017-03-27 This book provides essential information on the higher mathematical level of approximation over the gradually varied flow theory, also referred to as the Boussinesq-type theory. In this context, it presents higher order flow equations, together with their applications in a broad range of pertinent engineering and environmental problems, including open channel, groundwater, and granular material flows.

Open-Channel Flow M Hanif Chaudhry

2007-12-04 Open Channel Flow, 2nd edition is written for senior-level undergraduate and graduate courses on steady and unsteady open-channel flow. The book is comprised of two parts: Part I covers steady flow and Part II describes unsteady flow. The second edition features considerable emphasis on the presentation of modern methods for computer analyses; full coverage of unsteady flow; inclusion of typical computer programs; new problem sets and a complete solution manual for instructors.

Hydraulics of Open Channel Flow

Hubert Chanson 2004-05-25 Since the publication of its first edition in 1999, 'The Hydraulics of Open Channel Flow' has been praised by professionals, academics, students and researchers alike as the most practical modern textbook on open channel flow available. This new edition includes substantial new material on hydraulic modelling, in particular addressing unsteady open channel flows. There are also many new exercises and projects, including a major new revision assignment. This innovative textbook contains numerous examples and practical applications, and is fully illustrated with

photographs. Dr Chanson introduces the basic principles of open channel flow and takes readers through the key topics of sediment transport, hydraulic modelling and the design of hydraulic structures. ·Comprehensive coverage of the basic principles of key application areas of the hydraulics of open channel flow ·New exercises and examples added to aid understanding ·Ideal for use by students and lecturers in civil and environmental engineering

Open Channel Hydraulics, Third Edition Terry W. Sturm 2021-07-28 A definitive guide to open channel hydraulics—fully updated for the latest tools and methods This thoroughly revised resource offers focused coverage of some of the most common problems encountered by practicing hydraulic engineers and includes the latest research and computing advances. Based on a course taught by the author for nearly 40 years, *Open Channel Hydraulics, Third Edition* features clear explanations of floodplain mapping, flood routing, bridge hydraulics, culvert design, stormwater system design, stream restoration, and much more. Throughout, special emphasis is placed on the application of basic fluid mechanics principles to the formulation of open channel flow problems. Coverage includes: Basic principles Specific energy Momentum Uniform flow Gradually varied flow Hydraulic structures Governing unsteady flow equations and numerical solutions Simplified methods of flow routing Flow in alluvial channels Three-dimensional CFD modeling for open channel flows

Numerical Modeling in Open Channel Hydraulics Romuald Szymkiewicz 2010-03-11 Open channel hydraulics has always been a very interesting domain of scientific and engineering activity because of the great importance of water for human living.

The free surface flow, which takes place in the oceans, seas and rivers, can be still regarded as one of the most complex physical processes in the environment. The first source of difficulties is the proper recognition of physical flow processes and their mathematical description. The second one is related to the solution of the derived equations. The equations arising in hydrodynamics are rather complicated and, except some much idealized cases, their solution requires application of the numerical methods. For this reason the great progress in open channel flow modeling that took place during last 40 years paralleled the progress in computer technique, informatics and numerical methods. It is well known that even typical hydraulic engineering problems need applications of computer codes. Thus, we witness a rapid development of ready-made packages, which are widely disseminated and offered for engineers. However, it seems necessary for their users to be familiar with some fundamentals of numerical methods and computational techniques applied for solving the problems of interest. This is helpful for many reasons. The ready-made packages can be effectively and safely applied on condition that the users know their possibilities and limitations. For instance, such knowledge is indispensable to distinguish in the obtained solutions the effects coming from the considered physical processes and those caused by numerical artifacts.

Open-Channel Flow Subhash C. Jain 2000-10-24 A clear, up-to-date presentation of the principles of flow in open channels A fundamental knowledge of flow in open channels is essential for the planning and design of systems to manage water resources. *Open-Channel Flow* conveys this knowledge through the use of

practical problems that can be solved either analytically or by simple numerical methods that do not require the use of computer software. This completely up-to-date text includes several features not found in any other book on the subject. It derives one-dimensional equations of motion using both a simplified approach and a rigorous approach, and it explains the distinction between the momentum and mechanical energy equations. The author places great emphasis on identifying the types and locations of the control sections that are essential in analyzing flow profiles, and he includes a section on recently recognized nonunique flow profiles. Offering numerous worked examples that are helpful in understanding the basic principles and their practical applications, this book:

- * Presents the latest computational methods for profiling spatially varied and unsteady flow
- * Includes end-of-section exercises that measure and build understanding
- * Fully explains governing equations in algebraic and differential form
- * Brings sluiceway analysis completely up to date
- * Covers artificial channel controls such as weirs, spillways, and gates, and special topics such as transitions in supercritical flow and flow through culverts

Written in metric units throughout, this excellent learning tool for senior- and graduate-level students in civil and environmental engineering programs is also a useful reference for practicing civil and environmental engineers.

Concise Hydraulics

Hydraulic Research in the United States 1970 United States. National Bureau of Standards 1971

Six-minute Solutions for Civil PE Exam Problems R. W. Schneiter 2003
River Flow 2006, Two Volume Set Rui M.L. Ferreira 2006-09-14 Rivers are

complex entities. In addition to being valuable wildlife habitats, they support human activities by providing water for human usage, renewable energy and convenient transportation. Rivers may also pose threats to riverine communities, in the form of floods and other natural or man-induced hazards. Contemporary societies recognize their responsibility in ensuring the sustainable use of rivers and in preserving river's intrinsic ecological and landscape values. This obligation is often in conflict with riverine economical exploitation and with risk management concerns. As a discipline, Fluvial Hydraulics makes a significant contribution to the development of strategies for sustainable river use by providing new modelling tools and engineering techniques based on advances in phenomenological understanding and in computational modelling. River Flow 2006 comprises the Proceedings of the third edition of the International Conference on Fluvial Hydraulics, organized under the auspices of the Fluvial Hydraulics Section of the International Association of Hydraulic Engineering and Research (IAHR). The book covers issues such as river hydrodynamics, morphodynamics and sediment transport. Other contributions describe interdisciplinary approaches and experiences, particularly regarding interfacial activities involving environmental sciences and information technologies. River Flow 2006 contains the most recent theoretical accomplishments, numerical developments, experimental investigations and field studies in Fluvial Hydraulics. It is an excellent resource for researchers, civil and environmental engineers, and practitioners in river-related disciplines.