

Rekayasa Hidrologi Ii

Eventually, you will extremely discover a new experience and expertise by spending more cash. nevertheless when? complete you allow that you require to get those every needs behind having significantly cash? Why dont you try to get something basic in the beginning? Thats something that will lead you to understand even more approximately the globe, experience, some places, when history, amusement, and a lot more?

It is your completely own become old to behave reviewing habit. in the middle of guides you could enjoy now is **Rekayasa Hidrologi Ii** below.

Pelton Turbines - Zhengji Zhang 2016-06-13

This book concerns the theoretical foundations of hydro mechanics of Pelton turbines from a viewpoint of engineering. For reference purposes all relevant flow processes and hydraulic aspects in a Pelton turbine have been analyzed completely and systematically. The analyses especially include the quantification of all possible losses existing in the Pelton turbine and the indication of most available potential for

further enhancing the system efficiency. As a guideline the book therefore supports further developments of Pelton turbines with regard to their hydraulic designs and optimizations. It is thus suitable for the development and design engineers as well as those working in the field of turbo machinery. Many laws described in the book can also be directly used to simplify aspects of computational fluid dynamics (CFD) or to develop new computational methods. The well-executed examples

help better understanding the related flow mechanics.

Hilbert-Huang Transform Analysis of Hydrological and Environmental Time Series -

A.R. Rao 2008-01-08

The Hilbert-Huang Transform (HHT) is a recently developed technique used to analyze nonstationary data. This book uses methods based on the Hilbert-Huang Transform to analyze hydrological and environmental time series.

These results are compared to the results from the traditional methods such as those based on Fourier transform and other classical statistical tests.

Fluid Mechanics of Environmental Interfaces -

Carlo Gualtieri 2008-02-07

An environmental interface is defined as a surface between two abiotic or biotic systems, in relative motion and exchanging mass, heat and momentum through biophysical and/or chemical processes. These processes fluctuate temporally and spatially. The book first treats exchange processes occurring at the interfaces between atmosphere and the

surface

Dam and Levee Safety and Community Resilience -

National Research Council
2012-10-11

Although advances in engineering can reduce the risk of dam and levee failure, some failures will still occur. Such events cause impacts on social and physical infrastructure that extend far beyond the flood zone. Broadening dam and levee safety programs to consider community- and regional-level priorities in decision making can help reduce the risk of, and increase community resilience to, potential dam and levee failures. Collaboration between dam and levee safety professionals at all levels, persons and property owners at direct risk, members of the wider economy, and the social and environmental networks in a community would allow all stakeholders to understand risks, shared needs, and opportunities, and make more informed decisions related to dam and levee infrastructure and community resilience. Dam

and Levee Safety and Community Resilience: A Vision for Future Practice explains that fundamental shifts in safety culture will be necessary to integrate the concepts of resilience into dam and levee safety programs.

**Introduction to
Phytoremediation of
Contaminated Groundwater**

- James E. Landmeyer
2011-09-18

This book provides the reader with the comprehensive view necessary to understand and critically evaluate the design, implementation, and monitoring of phytoremediation at sites characterized by contaminated groundwater. Part I presents the historical foundation of the interaction between plants and groundwater, introduces fundamental groundwater concepts for plant physiologists, and introduces basic plant physiology for hydrogeologists. Part II presents information on how to assess, design, implement, and monitor phytoremediation projects for hydrologic control.

Part III presents how plants take up and detoxify a wide range of organic xenobiotics in contaminated groundwater systems, and provides various approaches on how this can be assessed and monitored. Throughout, concepts are emphasized with numerous case studies, illustrations and pertinent literature citations. Engineering Hydrology for Natural Resources Engineers - Ernest W. Tollner 2016-08-17 This fully revised edition provides a modern overview of the intersection of hydrology, water quality, and water management at the rural-urban interface. The book explores the ecosystem services available in wetlands, natural channels and ponds/lakes. As in the first edition, Part I examines the hydrologic cycle by providing strategies for quantifying each component: rainfall (with NOAA 14), infiltration, evapotranspiration and runoff. Part II examines field and farm scale water quality with an introduction to erosion prediction and water quality. Part III provides a

concise examination of water management on the field and farm scale, emphasizing channel design, field control structures, measurement structures, groundwater processes and irrigation principles. Part IV then concludes the text with a treatment of basin-scale processes. A comprehensive suite of software tools is available for download, consisting of Excel spreadsheets, with some public domain models such as HY-8 culvert design, and software with public domain readers such as Mathematica, Maple and TK solver.

River Flow 2016 - George Constantinescu 2016-06-22
Understanding and being able to predict fluvial processes is one of the biggest challenges for hydraulics and environmental engineers, hydrologists and other scientists interested in preserving and restoring the diverse functions of rivers. The interactions among flow, turbulence, vegetation, macroinvertebrates and other

organisms, as well as the transport and retention of particulate matter, have important consequences on the ecological health of rivers. Managing rivers in an ecologically friendly way is a major component of sustainable engineering design, maintenance and restoration of ecological habitats. To address these challenges, a major focus of River Flow 2016 was to highlight the latest advances in experimental, computational and theoretical approaches that can be used to deepen our understanding and capacity to predict flow and the associated fluid-driven ecological processes, anthropogenic influences, sediment transport and morphodynamic processes. River Flow 2016 was organized under the auspices of the Committee for Fluvial Hydraulics of the International Association for Hydro-Environment Engineering and Research (IAHR). Since its first edition in 2002, the River Flow conference series has become the main international event focusing on river

hydrodynamics, sediment transport, river engineering and restoration. Some of the highlights of the 8th International Conference on Fluvial Hydraulics were to focus on inter-disciplinary research involving, among others, ecological and biological aspects relevant to river flows and processes and to emphasize broader themes dealing with river sustainability. River Flow 2016 (extended abstract book 854 pages + full paper CD-ROM 2436 pages) contains the contributions presented during the regular sessions covering the main conference themes and the special sessions focusing on specific hot topics of river flow research, and will be of interest to academics interested in hydraulics, hydrology and environmental engineering. *Geological Line Selection for the Qinghai-Tibet Railway Engineering* - Jincheng Li 2017-10-30

This book describes the second phase of the Qinghai-Tibetan railway construction project and is the first technological book

discussing the geological routing of the Qinghai-Tibetan railway project on the “roof of the world.” Based on practical experience of railway construction work, it provides a substantial number of examples with detailed descriptions and conclusions. The complex geological environment of the Qinghai-Tibetan railway as well as the selection and optimization of the route are illustrated vividly and clearly with quotes, figures, photos, and tables. Connecting Golmud and Lhasa, it has a total length of 1142 km and at the Tanggula Pass has an altitude of 5072m—higher than any other in the world. A 960 km section is on a plateau at altitudes above 4000 m, and 550 km are in the permafrost region, making it the world’s longest and highest railway in the permafrost plateau region. The book is a model for the integration of theory and practice, making it a valuable reference source for civil engineering professionals working in geological routing in permafrost plateau regions,

active fault zones, meizoseismal areas, nature reserves, and regions with geohazards such as steep slopes, sand and snow drifts and geothermal hazards.

Recent Progress in Desalination, Environmental and Marine Outfall Systems - Mahad Baawain 2015-08-31

This book collects current scientific information on advanced technologies and management practices associated with the desalination industry in the Middle East and elsewhere around the world.

The book opens with introductory chapter which briefly recounts the history of desalination, and describes the current state of development in the field. Part I: Desalination Systems includes ten chapters which describe a variety of techniques and designs intended not only to minimize the impact of desalination, but also to save energy and use natural resources to maximize the output of integrated desalination systems. Among the highlights are a chapter on the use of ceramic membrane

technology for sustainable oil water production; a case study on the use of solar heating systems in desalination technology in Oman; discussion of fouling and its effect on design and performance of desalination systems; a review of shore approaches and sea-lines with case studies from Australia and Germany; and a discussion of the integration of desalination technology with renewable energy for climate change abatement in the Middle East and North Africa region. Part II: Environmental Systems includes among others a chapter on regulating the use of water resources and desalination technology on a regional scale reducing the carbon footprint of desalination, with examples from Australia; a description of desalination for irrigation in the Souss Massa region in the south of Morocco; a study of the impact of the coastal intake environment on operating conditions of thermal desalination plants in the United Arab Emirates; a discussion of hydrodynamic and thermal dispersion modeling of

the effluent in a coastal channel, with a case study from Oman; and a mathematical model study of effluent disposal from a desalination plant in the marine environment at Tuticorin in India. The book aims to inspire developments in desalination technologies which are specifically aimed at reducing energy consumption and cost, and minimizing environmental impact.

Water Law - William Goldfarb
2020-08-26

This revised second edition is essential to everyone involved with water and water resources-complying with the myriad federal, state, and local laws and regulations that govern the use and management of water in our attempts to maintain, clean, usable water. It includes the law of water diversion and distribution; water resources development and protection; water treatment and land use; ocean dumping; oil and hazardous substances cleanup; riparian and non-riparian systems; Eastern permit systems; beneficial use; water

codes; prior appropriation; surface and ground water; channel modifications; municipal water supply; irrigation; California Water Management Districts; Bureau of Reclamation; Corps of Engineers; Water Resources Development Act of 1986; SCS, TVA, BPA, NEA, CERCLA, CWA, SDWA, RCRA, and their substantial changes in the last four years; water resources planning and research; public use; ownership of beds and banks; wild and scenic rivers; river corridor and instream flow protection; flood insurance, Section 404 and Section 208; the Supreme Court and water conservation; heat dischargers; quality-based effluent limitations; state ground water programs; pretreatment; funding; enforcement; citizen suits; and many more vital topics.

Nuclear Geophysics - V.I. Ferronsky
2015-01-13

The fundamentals of methods in nuclear geophysics and their practical applications in engineering geology, hydrology, hydrogeology,

agriculture and environmental science are discussed in this book. The methods and apparatus based on absorption and scattering of gamma and neutron radiation for determination of density and soil moisture in natural conditions are presented in Chapters 2, 3, and 4. The theoretical fundamentals and installations of the penetration logging techniques where gamma, gamma-gamma and neutron logging in combination with static penetration form common complexes for engineering geology and hydrogeology exploration without boring holes are described. The developed constructions and practical use penetration logging installations for applications on land and marine shelves are described in Chapters 5, 6, 7, and 8. The physical fundamentals for the use of the natural stable and radioactive isotopes for study of the global hydrological cycle are provided. The experimental data, origin and distribution of cosmogenic and radiogenic isotopes in the

oceans, atmospheric moisture, surface and underground waters are presented in Chapters 9, 10, and 11. The sources and conditions of the radioactive contamination of the natural waters are discussed in Chapters 12 and 13. This book will be of interest to scientists and researchers who use nuclear geophysics methods in engineering geology, hydrology, hydrogeology and hydrogeoecology. Lecturers, students, and postgraduates in these subjects will also find it useful.

Threats to Food and Water Chain Infrastructure -

Virginia Koukouliou 2009-12-02
vi of a large number of people due to the enormous quantities of radioactive material that would be required to reach high levels of contamination in mass-produced or distributed supplies. Although, based on data presented at the Workshop concerning the more than 30,000 missing radioactive sources all over the world, the radioactive contamination of food or water is also a scenario

that must be taken seriously into consideration. During the last two decades there have been several emerging hazards linked to animal diseases or originating in animal products for example: Avian Influenza (AI), Bovine Spongiform Encephalopathy (BSE), West Nile Fever, Severe Acute Respiratory Syndrome (SARS), and Ebola virus. All these diseases or events directly or indirectly affect food security and/or food safety.

Approximately 75% of all emerging diseases are zoonotic by either an association with animal populations or an evolution of the disease in animals making it possible to move from animal species to humans. Participants were presented the primary results of the ongoing NATO-SPS Pilot Study on "Food Chain Security". These results focused mainly on (i) an overview of the food system; (ii) prevention, surveillance and detection systems and (iii) response system. The importance of issues such as: vulnerability assessments, risk

communication in risk analysis, risk perception, traceability, preparedness – awareness, communication, have to be considered when working on food chain security.

Fluid Mechanics of

Environmental Interfaces -

Sajjan G. Shiva 2012-11-21

Environmental Fluid Mechanics (EFM) studies the motion of air and water at several different scales, the fate and transport of species carried along by these fluids, and the interactions among those flows and geological, biological, and engineered systems. EFM emerged some decades ago as a response to the need for tools to study problems of flow and

Capillary Flows in Heterogeneous and Random Porous Media - Rachid

Ababou 2019-02-06

Capillary phenomena occur in both natural and human-made systems, from equilibria in the presence of solids (grains, walls, metal wires) to multiphase flows in heterogeneous and fractured porous media. This book, composed of two volumes,

develops fluid mechanics approaches for two immiscible fluids (water/air or water/oil) in the presence of solids (tubes, joints, grains, porous media). Their hydrodynamics are typically dominated by capillarity and viscous dissipation. This first volume presents the basic concepts and investigates two-phase equilibria, before analyzing two-phase hydrodynamics in discrete and/or statistical systems (tubular pores, planar joints). It then studies flows in heterogeneous and stratified porous media, such as soils and rocks, based on Darcy's law. This analysis includes unsaturated flow (Richards equation) and two-phase flow (Muskat equations). Overall, the two volumes contain basic physical concepts, theoretical analyses, field investigations and statistical and numerical approaches to capillary-driven equilibria and flows in heterogeneous systems

Wastewater Hydraulics - Willi H. Hager 2010-11-25

The second, enlarged edition of this established reference

integrates many new insights into wastewater hydraulics. This work serves as a reference for researchers but also is a basis for practicing engineers. It can be used as a text book for graduate students, although it has the characteristics of a reference book. It addresses mainly the sewer hydraulician but also general hydraulic engineers who have to tackle many a problem in daily life, and who will not always find an appropriate solution. Each chapter is introduced with a summary to outline the contents. To illustrate application of the theory, examples are presented to explain the computational procedures. Further, to relate present knowledge to the history of hydraulics, some key dates on noteworthy hydraulicians are quoted. A historical note on the development of wastewater hydraulics is also added. References are given at the end of each chapter, and they are often helpful starting points for further reading. Each notation is defined when introduced, and

listed alphabetically at the end of each chapter. This new edition includes in particular sideweirs with throttling pipes, drop shafts with an account on the two-phase flow features, as well as conduit choking due to direct or undular hydraulic jumps.

Data-Driven Modeling: Using MATLAB® in Water Resources and Environmental Engineering

- Shahab Araghinejad

2013-11-26

“Data-Driven Modeling: Using MATLAB® in Water Resources and Environmental Engineering” provides a systematic account of major concepts and methodologies for data-driven models and presents a unified framework that makes the subject more accessible to and applicable for researchers and practitioners. It integrates important theories and applications of data-driven models and uses them to deal with a wide range of problems in the field of water resources and environmental engineering such as hydrological forecasting, flood analysis, water quality monitoring,

regionalizing climatic data, and general function approximation. The book presents the statistical-based models including basic statistical analysis, nonparametric and logistic regression methods, time series analysis and modeling, and support vector machines. It also deals with the analysis and modeling based on artificial intelligence techniques including static and dynamic neural networks, statistical neural networks, fuzzy inference systems, and fuzzy regression. The book also discusses hybrid models as well as multi-model data fusion to wrap up the covered models and techniques. The source files of relatively simple and advanced programs demonstrating how to use the models are presented together with practical advice on how to best apply them. The programs, which have been developed using the MATLAB® unified platform, can be found on extras.springer.com. The main audience of this book includes graduate students in water resources engineering,

environmental engineering, agricultural engineering, and natural resources engineering. This book may be adapted for use as a senior undergraduate and graduate textbook by focusing on selected topics. Alternatively, it may also be used as a valuable resource book for practicing engineers, consulting engineers, scientists and others involved in water resources and environmental engineering.

Statistical Methods for Groundwater Monitoring - Robert D. Gibbons 2009-10-08

A new edition of the most comprehensive overview of statistical methods for environmental monitoring applications Thoroughly updated to provide current research findings, Statistical Methods for Groundwater Monitoring, Second Edition continues to provide a comprehensive overview and accessible treatment of the statistical methods that are useful in the analysis of environmental data. This new edition expands focus on statistical comparison to

regulatory standards that are a vital part of assessment, compliance, and corrective action monitoring in the environmental sciences. The book explores quantitative concepts useful for surface water monitoring as well as soil and air monitoring applications while also maintaining a focus on the analysis of groundwater monitoring data in order to detect environmental impacts from a variety of sources, such as industrial activity and waste disposal. The authors introduce the statistical properties of alternative approaches, such as false positive and false negative rates, that are associated with each test and the factors related to these error rates. The Second Edition also features: An introduction to Intra-laboratory Calibration Curves and random-effects regression models for non-constant measurement variability Coverage of statistical prediction limits for a gamma-distributed random variable, with a focus on estimation and testing of parameters in environmental

monitoring applications A unified treatment of censored data with the computation of statistical prediction, tolerance, and control limits Expanded coverage of statistical issues related to laboratory practice, such as detection and quantitation limits An updated chapter on regulatory issues that outlines common mistakes to avoid in groundwater monitoring applications as well as an introduction to the newest regulations for both hazardous and municipal solid waste facilities Each chapter provides a general overview of a problem, followed by statistical derivation of the solution and a relevant example complete with computational details that allow readers to perform routine application of the statistical results. Relevant issues are highlighted throughout, and recommendations are also provided for specific problems based on characteristics such as number of monitoring wells, number of constituents, distributional form of measurements, and detection

frequency. Statistical Methods for Groundwater Monitoring, Second Edition is an excellent supplement to courses on environmental statistics at the upper-undergraduate and graduate levels. It is also a valuable resource for researchers and practitioners in the fields of biostatistics, engineering, and the environmental sciences who work with statistical methods in their everyday work.

Bio- and Nanosorbents from Natural Resources - Shivani

Bhardwaj Mishra 2017-10-20

This book reviews the work in the field of nanoadsorbents derived from natural polymers, with a special emphasis on materials finding application in water remediation. It includes natural materials both with an organic or an inorganic skeleton, from which the nanomaterials can be made. Those nanomaterials can therefore be used to reinforce other matrices and in their pristine form have an extraordinary adsorption efficiency. Being of natural or biological origin, the materials

described in this book distinguish themselves as eco-friendly and non-toxic. The book describes how these benefits of the described materials can be combined and exploited. It will thus appeal to chemists, nanotechnologists, environmental engineers and generally all scientist working in the field of water pollution and remediation as an inspiration for the innovation toward new technologies.

Chinese Water Systems -

Yonghui Song 2018-05-16

This book describes the huge efforts by the Chinese Government concerning the restoration and future sustainable management of Chinese water systems. It presents the results of a Sino-European joint project concerning the Songhuajiang-Liaohe River Basin (SLRB) in Northeast China conducted by the Chinese Research Academy of Environmental Sciences (CRAES), the Helmholtz Centre for Environmental Research - UFZ, Germany, and the Natural Environment Research Council as represented by the Centre

for Ecology and Hydrology (CEH), UK. The book explains in great detail the development of risk assessment and corresponding management methods for (i) controlling water pollution, (ii) assessing river health and ecological restoration options, (iii) characterizing persistent organic pollutants (POPs), and (iv) protecting fragile groundwater resources. It also describes the implemented demonstration sites of SLRB during the project course as well as lessons learnt on efficient project management and the dissemination of knowledge and technologies.

Flood Risk Management in Europe - Selina Begum
2007-06-17

This valuable edition brings together 25 peer reviewed articles on technical, socio-economic, environmental and policy aspects of flood risk management. Some emerging technologies are presented and several future challenges are identified. Thus the book forms an excellent reference for the engineers, scientists, planners,

policy-makers, researchers, insurance industry and all the practitioners involved in flood risk management.

Hands On Water and Wastewater Equipment Maintenance, Volume II -

Barbara Renner 2017-12-06
Hands-On Water/Wastewater Equipment Maintenance, Volumes 1 and 2 deals with equipment maintenance as individual components, not as complete machines, allowing more information about the design, application and maintenance requirements of machinery to be presented. This work-related inventory of wastewater covers plant components where breakdowns most frequently occur. The text explains the design, operation and maintenance of equipment critical to plant functioning; motors, pumps, blowers, mixers and more. The author demonstrates how careful attention to specific equipment parts and operation, especially through systematic maintenance, will lead to fewer breakdowns and more rapid repairs. These texts cover basic

operating characteristics of machinery components, making them a valuable reference source as well as a training and maintenance manual. Written in easy-to-understand language, without complex formulas or technical theories, Hands-On Water/Wastewater Equipment Maintenance Volumes 1 and 2 provides you with basic information to help you acquire a general understanding of how components function and how to keep equipment operating properly. These two volumes belong in every water and wastewater treatment plant as a reference and manual for equipment maintenance. The hands-on approach provides maintenance operators, crew leaders and supervisors with practical information about how the machinery they work with every day functions, and how to keep it running smoothly.

Chinese Water Systems -

Agnes Sachse 2018-11-03
This volume addresses the latest results of the Major Water Program of the Chinese Government which aims at the restoration of polluted water

environments and sustainable management of water resources in China. It specifically summarizes the results of the BMBF-CLIENT project "Management of Water Resources in Urban Catchments" and the related MoST project "Key Technologies and Management Modes for the Water Environmental Rehabilitation of a Lake City from the Catchment Viewpoint" in Chaohu. The project is conducted by the Helmholtz-Centre for Environmental Research UFZ, Technische Universität Dresden, German and Chinese companies (WISUTEC, AMC, bbe Moldaenke, itwh, OpenGeoSys e.V., HC System and EWaters) in close cooperation with Tongji University, Nanjing Institute of Geography and Limnology of Academy of Sciences, Institute for Hydrobiology of the Chinese Academy of Sciences and the Chaohu Lake Management Authority. The book explains the development of concepts and solutions for sustained water quality improvement in Chaohu, combining urban water

resource management, decentralized sanitation solutions, methods in water quality assurance, environmental information systems and groundwater modeling.

Renewable Energy Technologies for Water Desalination - Hacene Mahmoudi 2017-07-14

The book presents a thorough overview of the latest trends and challenges in renewable energy technologies applications for water desalination, with an emphasis on environmental concerns and sustainable development. Emphasis is on the various uses of renewable energy, as well as economics & scale-up, government subsidies & regulations, and environmental concerns. It provides an indication on how renewable energy technologies are rapidly emerging with the promise of economic and environmental viability for desalination. Further it gives a clear indication on how exactly to accelerate the expansion and commercialization of novel

water production systems powered by renewable energies and in what manner environmental concerns may be minimized. This book is all-inclusive and wide-ranging and directed at decision makers in government, industry and the academic world as well as students.

Bioremediation and Biotechnology, Vol 2 - Rouf Ahmad Bhat 2020-05-05

This book addresses the grave concerns stemming out due to conventional treatment techniques. The main focus of this book revolves round the central kernel of novel technology (bioremediation and biotechnology) which has emerged as an independent warrior to clean up and restore the disturbed environs. Furthermore, this book is a coherent assortment of diverse chapters relevant to the role of biotechnology and bioremediation for restoration of the ecosystems degraded by pesticide and heavy metal pollution. The inaugural chapters deal with the quantification of problem and

its magnitude due to pesticides and heavy metals, followed by innovative modern biotechnological and bioremediation treatment technologies and sustainable techniques to remediate the persistent pollutants. It is a detailed comprehensive account for the treatment technologies from unsustainable to sustainable. Academicians, researchers and students shall find it as a complete wrap up regarding biotechnological intervention for sustainable treatment of pollution and shall suffice for the diverse needs of teaching and research.

Practices of Irrigation & On-farm Water Management: Volume 2 - Hossain Ali 2011-01-11

The comprehensive and compact presentation in this book is the perfect format for a resource/textbook for undergraduate students in the areas of Agricultural Engineering, Biological Systems Engineering, Bio-Science Engineering, Water Resource Engineering, and Civil &

Environmental Engineering. This book will also serve as a reference manual for researchers and extension workers in such diverse fields as agricultural engineering, agronomy, ecology, hydrology, and meteorology.

Groundwater Chemical Kinetics and Fractal Characteristics of Karst Tunnel - Cangsong Li
2019-11-15

The key to the solution of geological hazards such as Karst water inrush and mud burst in tunnel lies in the accurate prediction or detection of Karst and groundwater. By means of on-site monitoring, theoretical analysis and indoor simulation experiments, the authors conduct in-depth research on the characteristics of water-bearing media and their mechanism of action, and explored the relevance of "Karst morphology", "Karst groundwater" and "fractal characteristics". An evaluation model of Karst development degree based on hydrochemical kinetic parameters and fractal index of Karst morphology is established. Based on the

combination of Karst groundwater dynamics, hydrochemistry, water-rock interaction theory and fractal theory, the hydrochemical Kinetics and fractal index evaluation technique for Karst development is proposed. It provides a new theory and method for improving the accuracy of Karst and groundwater forecasting. The research results are of practical and guiding significance to the construction, Karst geological disasters prevention and management of various underground projects in Karst areas. Engineers and technicians, hydrogeological engineering geologists, and college students engaged in tunnel and underground engineering will find it valuable. [Hygrothermal Risk on Building Heritage](#) - João M.P.Q. Delgado
2015

This book presents a critical review of a criterion of risk, created to assess the flood risk to heritage buildings, and evaluates this criterion by applying it to the sample Portuguese heritage buildings.

In a first approach, the total number of potential parameters is effectively reduced and the selected criteria are divided into two different groups: the monument's location in relation to a waterway, and the behaviour of its construction material in contact with water. Above all, the book discusses the importance of architectural heritage and argues for the need to safeguard it from extreme climatic phenomena such as floods. As such, the book vividly reminds the scientific community that the intensification of the global warming and climate change will worsen throughout the 21st century, and that it is therefore necessary to adopt preventive measures to minimize, mitigate and control these adverse effects if we hope to avoid catastrophic consequences. At the same time, the book takes into account a broad range of scientific and engineering disciplines, such as civil engineering and architecture, offering a synthesis of the current state of knowledge to benefit and guide experts and

practitioners in related fields. *Water Treatment Technologies for the Removal of High-Toxicity Pollutants* - Miroslava Václavíková 2009-11-17
Water is essential for life, a strategic resource for every country and population. Its availability and sanitary safety is highly connected with the health and economy status of population. Burden of disease due to polluted water is a major public health problem throughout the world. Many pollutants in water streams have been identified as toxic and harmful to the environment and human health, and among them arsenic, mercury and cadmium are considered as high priority ones. Providing population with safe drinking water became the priority and at the same time a big challenge for the modern society. Many funding agencies in various countries have assigned a high priority to the environmental security and pollution prevention. UN, being one of them, launched the "International Decade for Action: Water for life

2005–2015. " Therefore, today's political and social climate presents an important opportunity to implement principles of sustainable development and to preserve resources essential for future life. This process requires interdisciplinary approach; it is critically important to stimulate interactions between medical doctors, chemists, physicist, materials scientists, engineers and policy makers, which are already experienced in their specific areas. It is also our ethical obligation to preserve existing water resources and existing eco systems enhancing their biodiversity. The NATO Advanced Research Workshop "Water Treatment Technologies for the Removal of High-Toxicity Pollutants" took place on September 13–17, 2008 in Košice, Slovak Republic.

Land Subsidence Analysis in Urban Areas - David G. Zeitoun
2013-01-05

Cities built on unconsolidated sediments consisting of clays, silt, peat, and sand, are particularly susceptible to subsidence. Such regions are

common in delta areas, where rivers empty into the oceans, along flood plains adjacent to rivers, and in coastal marsh lands. Building cities in such areas aggravates the problem for several reasons: 1. Construction of buildings and streets adds weight to the region causing additional soil deformations. 2. Often the regions have to be drained in order to be occupied. This results in lowering of the water table and leads to hydro-compaction. 3. Often the groundwater is used as a source of water for both human consumption and industrial use. 4. Levees and dams are often built to prevent or control flooding. Earth fissures caused by ground failure in areas of uneven or differential compaction have damaged buildings, roads and highways, railroads, flood-control structures and sewer lines. As emphasized by Barends , "in order to develop a legal framework to claims and litigation, it is essential that direct and indirect causes of land subsidence effects can be

quantified with sufficient accuracy from a technical and scientific point of view." Most existing methods and software applications treat the subsidence problem by analyzing one of the causes. This is due to the fact that the causes appear at different spatial scales. For example, over-pumping creates large scale subsidence, while building loading creates local subsidence/consolidation only. Then, maximum permissible land subsidence (or consolidation) is a constraint in different management problems such as: groundwater management, planning of town and/or laws on building construction. It is, therefore, necessary to quantify the contribution of each cause to soil subsidence of the ground surface in cities urban area. In this text book, we present an engineering approach based on the Biot system of equations to predict the soil settlement due to subsidence, resulting from different causes. Also we present a case study of The Bangkok Metropolitan Area

(BMA).

Coastal Engineering -

Dominic Reeve 2018-03-09

Effective coastal engineering is expensive, but it is not as costly as neglect or ineffective intervention. Good practice needs to be based on sound principles, but theoretical work and modelling also need to be well grounded in practice, which is continuously evolving. Conceptual and detailed design has been advanced by new industry publications since the publication of the second edition. This third edition provides a number of updates: the sections on wave overtopping have been updated to reflect changes brought in with the recently issued EurOtop II manual; a detailed worked example is given of the calculation of extreme wave conditions for design; additional examples have been included on the reliability of structures and probabilistic design; the method for tidal analysis and calculation of amplitudes and phases of harmonic constituents from water level time series has been introduced

in a new appendix together with a worked example of harmonic analysis; and a real-life example is included of a design adapting to climate change. This book is especially useful as an information source for undergraduates and engineering MSc students specializing in coastal engineering and management. Readers require a good grounding in basic fluid mechanics or engineering hydraulics, and some familiarity with elementary statistical concepts.

Advanced Numerical Modeling and Data Assimilation Techniques for Tropical Cyclone Predictions - U.C. Mohanty
2016-11-21

This book deals primarily with monitoring, prediction and understanding of Tropical Cyclones (TCs). It was envisioned to serve as a teaching and reference resource at universities and academic institutions for researchers and post-graduate students. It has been designed to provide a broad outlook on recent advances in

observations, assimilation and modeling of TCs with detailed and advanced information on genesis, intensification, movement and storm surge prediction. Specifically, it focuses on (i) state-of-the-art observations for advancing TC research, (ii) advances in numerical weather prediction for TCs, (iii) advanced assimilation and vortex initialization techniques, (iv) ocean coupling, (v) current capabilities to predict TCs, and (vi) advanced research in physical and dynamical processes in TCs. The chapters in the book are authored by leading international experts from academic, research and operational environments. The book is also expected to stimulate critical thinking for cyclone forecasters and researchers, managers, policy makers, and graduate and post-graduate students to carry out future research in the field of TCs.

REKAYASA HIDROLOGI - Prof. Dr. Ir. Lily Montarjih Limantara, M.Sc.

Buku Rekayasa Hidrologi Edisi

Revisi ini merupakan buku ajar (wajib) yang digunakan di Jurusan Teknik Pengairan Fakultas Teknik, Universitas Brawijaya. Buku ini merupakan buku wajib untuk mahasiswa S-1 semester 1 dan 2, mahasiswa S-2 Teknik Sumber Daya Air, dan mahasiswa S-3 Teknik Sumber Daya Air. Buku ini dibagi menjadi 2 pokok utama, sebagai berikut: • Hidrologi Teknik Dasar yang meliputi pokok bahasan: Iklim dan Meteorologi; Infiltrasi dan Perkolasi; Evapotranspirasi; Hujan Daerah; Analisis Frekuensi; Pengukuran Debit Sungai; dan Analisis Debit Andalan. Masing-masing pokok bahasan dilengkapi dengan contoh soal, latihan soal, dan referensi.

Groundwater Economics, Two-Volume Set - Charles A. Job
2022-05-30

Groundwater is a vitally important resource and as its use increases, the available supply is depleted, creating a ripple effect of impacts on both the environment and the economy that need to be disseminated to a larger

audience of students and practitioners. This second edition of *Groundwater Economics* accomplishes just that. This two-volume set is a comprehensive work focused on the economic values of groundwater resources and use, and it reinforces the need for a strong economic rationale in decision-making relating to that use. This new edition includes a new chapter on sustainability as well as updating all chapters with a focus on sustainability. It thoroughly explains the economic value of groundwater for sustainable use and needs, with practical examples, and includes thirteen new and updated case studies on the economics of groundwater data for decision-making. It also addresses both local and regional groundwater economic choices through a series of applications at an international level. This set, written by a sustainability professional with decades of experience in managing groundwater use and protection, is written for other professionals as well as

students, who need to understand and evaluate water resources and manage their use from a variety of sustainable approaches.

Fundamentals of Environmental Discharge Modeling - Lorin R. Davis 1998-11-23

This book examines engineering and mathematical models for documenting and approving mechanical and environmental discharges. The author emphasizes engineering design considerations as well as applications to waste water and atmospheric discharges.

Chapters discuss: the fundamentals of turbulent jet mixing, dilution concepts, and mixing zone concepts diffuser configurations and head loss calculations different modeling techniques and accepted models - discussed in detail with theoretical background, restrictions, input, output, and examples Lagrangian and the EPA UM 2-dimensional diffuser model the PLUMES interface Eulerian integral methods, EPA UDKHG 3-dimensional diffuser model, and PDSG surface discharge model empirical

techniques, RSB diffuser model, the CORMIX family of models for both diffusers and surface discharge numerical methods with a discussion of shelf commercial models Gaussian atmospheric plume models Fundamentals of Environmental Discharge Modeling includes numerous case studies and examples for each model and problem.

Hydraulics in Civil and Environmental Engineering.

Fourth Edition - Andrew Chadwick 2004-05-27

Find out more about Hydraulics in Civil and Environmental Engineering Fifth Edition on CRC Press at

<http://www.crcpress.com/product/isbn/9780415672450>

Water and Wastewater Calculations Manual, 2nd Ed.

- Shun Lin 2007-06-26

Quick Access to the Latest Calculations and Examples for Solving All Types of Water and Wastewater Problems! The Second Edition of Water and Wastewater Calculations Manual provides step-by-step calculations for solving a myriad of water and

wastewater problems. Designed for quick-and-easy access to information, this revised and updated Second Edition contains over 110 detailed illustrations and new material throughout. Written by the internationally renowned Shun Dar Lin, this expert resource offers techniques and examples in all sectors of water and wastewater treatment. Using both SI and US customary units, the Second Edition of *Water and Wastewater Calculations Manual* features: Coverage of stream sanitation, lake and impoundment management, and groundwater Conversion factors, water flow calculations, hydraulics in pipes, weirs, orifices, and open channels, distribution, outlets, and quality issues In-depth emphasis on drinking water treatment and water pollution control technologies Calculations specifically keyed to regulation requirements New to this edition: regulation updates, pellet softening, membrane filtration, disinfection by-products, health risks, wetlands, new and revised

examples using field data
Inside this Updated Environmental Reference Tool • Streams and Rivers • Lakes and Reservoirs • Groundwater • Fundamental and Treatment Plant Hydraulics • Public Water Supply • Wastewater Engineering • Appendices: Macro invertebrate Tolerance List • Well Function for Confined Aquifers • Solubility Product Constants for Solution at or near Room Temperature • Freundlich Adsorption Isotherm Constants for Toxic Organic Compounds • Conversion Factors

In Situ Remediation Engineering

- Suthan S. Suthersan
2004-12-28

In Situ Remediation Engineering provides a comprehensive guide to the design and implementation of reactive zone methods for treatment of all major classes of groundwater contamination. It teaches the fundamentals that underlie development of cost-effective reactive zone strategies, guides the selection of cost-effective remedial strategies and provides

environmental engineers and scientists with tools to achieve optimal deployment of source area, reactive barrier, and site-wide treatments. It offers extensive coverage of remedial system operation, discussing reagent injection strategies, interpretation of process monitoring results for biological and chemical reactive zone systems, and impacts of treatment processes on aquifer hydraulic characteristics.

Unsaturated Soils, Two

Volume Set - Eduardo E. Alonso 2010-09-02

In recent decades the development of unsaturated soil mechanics has been remarkable, resulting in momentous advances in fundamental knowledge, testing techniques, computational procedures, prediction methodologies and geotechnical practice. The advances have spanned the full spectrum of theory and practice. In addition, unsaturated materials exhibiting complex behaviour such as residual soils, swelling soils, compacted soils,

collapsing soils, tropical soils and solid wastes have been integrated in a common understanding of shared behaviour features. It is also noteworthy that unsaturated soil mechanics has proved surprisingly fruitful in expanding to other neighbouring areas such as swelling rocks, rockfill mechanics, and freezing soils. As a consequence, geotechnical engineering involving unsaturated soils can be now approached from a more rational and systematic perspective leading towards an improved and more effective practice. *Unsaturated Soils* contains the papers presented at the 5th International Conference on Unsaturated Soil (Barcelona, Spain, 6-8 September 2010). They report significant advances in the areas of unsaturated soil behaviour, testing techniques, constitutive and numerical modelling and applications. The areas of application include soil-atmosphere interaction, foundations, slopes, embankments, pavements,

geoenviromental problems and emerging topics. They are complemented by three keynote lectures and three general reports covering general issues of modelling, testing and applications. *Unsaturated Soils* is a comprehensive record of the state-of-the art in unsaturated soil mechanics and a sound basis for further progress in the future. The two volumes will serve as an essential reference for academics, researchers and practitioners interested in unsaturated soils.

Numerical Models in Groundwater Pollution -

Karel Kovarik 2000-04-14
Mathematical models are powerful tools used in the prediction of pollutant movement. This book discusses the Finite Element Method (FEM) and Boundary Element Method (BEM), and takes a look at the advantages of these methods in groundwater hydrology. The combination of

the BEM and the random-walk particle tracking method is also presented. The book includes computer programs, source code, and examples developed on the basis of the theoretical backgrounds of these methods. These Visual C++ programs are compatible with the Windows platform.

Environmental Geology - Klaus Knödel 2007-12-31

This illustrated handbook describes a broad spectrum of methods in the fields of remote sensing, geophysics, geology, hydrogeology, geochemistry, and microbiology designed to investigate landfill, mining and industrial sites. The descriptions provide information about the principle of the methods, applications and fundamentals. This handbook also deals with the stepwise procedure for investigating sites and common problems faced in efficient implementation of field operations.