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Groundwater 2000

2020-08-18

these proceedings with cd rom present a comprehensive overview of advances in groundwater research the five main topics covered are aquifers and contaminant distribution groundwater quality natural attenuation remediation technologies and groundwater protection groundwater 2000 is a useful resource to both scientists and to those working in the field

Hydraulics of Groundwater

2012-03-15

this text explores the laws governing the flow and storage of groundwater in aquifers and provides all the necessary tools to forecast the behavior of a regional aquifer system 1979 edition

Stochastic Hydraulics 2000

2020-12-17

the applications of stochastic methods in design by reliability include the better utilisation of hydrological information with statistical methods one can evaluate the safety component of hydraulic systems based on these extra safety features can be added to ensure the reliable performance of an hydraulic system one such example is the design of a dam which features a number of random variables each with a very distinct and quite different probability function this book reports on developments in stochastic hydraulics across a wide range of applications including river hydraulics sediment transportation waves and coastal processes hydrology hydraulic works and structure and environmental hydraulics

Groundwater Hydraulics and Pollutant Transport

2006-09-08

this rigorous and comprehensive text provides fundamental information geared to students in either engineering or natural sciences courses dealing with groundwater the first four chapters consider subsurface fluid flow while the remaining twelve chapters cover subsurface contamination and pollutant transport charbeneau views the application of groundwater hydraulics and pollutant transport as a quantitative field although quantitative methods are exact the fields of study are usually homogeneous laboratory and field methods provide estimates for ideal not real fields what impact does the use of ideal fields have on model predictions the unknown answer places the study of subsurface flow of

water and chemical mass transport in a prime position for continued researchand this readily accessible text opens the door to that research outstanding features include comprehensive rigorous and highly accessible coverageincludes information on groundwater flow well hydraulics field methods for parameter estimation hydrologic relationships between surface water and groundwater hydrology mass transport of contaminants by advection diffusion and dispersion and special problems posed by nonaqueous phase liquids oils strong focus on applicationsempowers readers with knowledge and methodologies that they can use in real day to day practices includes 66 worked examples and 178 problems integrated throughout examination of standard software being used in the industry todayexposes readers to the usgs modflow model the most widely used numerical simulation model for groundwater flow and the usgs moc3d these models together with a user interface mfi can be downloaded from the internet

Ground-water Hydraulics

1972

the groundwater science and engineering has been closely connected with various fields 1 groundwater hydrology 2 groundwater hydraulics or geohydraulics 3 fluid dynamics in porous media 4 groundwater quality engineering 5 soil physics and 6 hydrogeology or geohydrology the purpose of the book is to present an update textbook of groundwater hydraulics which includes all of basic items in above mentioned fields to students of graduate school researchers and practitioners the students and beginners who intend to specialize in groundwater hydraulics through one semester will master contents of the book

Transient Ground Water Hydraulics

1978

front cover groundwater hydraulics copyright page contents preface list of symbols introduction chapter 1 fundamentals of the theory of water flow in soils and fractured rocks chapter 2 one dimensional steady flow of groundwater chapter 3 two dimensional steady flow of groundwater chapter 4 approximate methods of solving two dimensional problems of groundwater hydraulics chapter 5 plane steady flow of groundwater chapter 6 some partial problems of three dimensional flow chapter 7 unsteady flow of groundwater references bibliography index

Groundwater Hydraulics of Extensive Aquifers

1972

in situ treatments involving the arrangement of contact between prospective reactants in complex porous media require a refined

understanding of solute migration however the tools and methods used to predict and control fluid movement in the subsurface need significant improvement practitioners and regulators must develop novel methods to

Water-resources Investigations Report

2002

increasing demand for water higher standards of living depletion of resources of acceptable quality and excessive water pollution due to urban agricultural and industrial expansions have caused intense environmental social economic and political predicaments more frequent and severe floods and droughts have changed the resiliency and ability of water infrastructure systems to operate and provide services to the public these concerns and issues have also changed the way we plan and manage our surface and groundwater resources groundwater hydrology engineering planning and management second edition presents a compilation of the state of the art subjects and techniques in the education and practice of groundwater and describes them in a systematic and integrated fashion useful for undergraduate and graduate students and practitioners this new edition features updated materials computer codes and case studies throughout features discusses groundwater hydrology hydraulics and basic laws of groundwater movement describes environmental water quality issues related to groundwater aquifer restoration and remediation techniques as well as the impacts of climate change examines the details of groundwater modeling and simulation of conceptual models applies systems analysis techniques in groundwater planning and management delineates the modeling and downscaling of climate change impacts on groundwater under the latest ipcc climate scenarios written for students as well as practicing water resource engineers the book develops a system view of groundwater fundamentals and model making techniques through the application of science engineering planning and management principles it discusses the classical issues in groundwater hydrology and hydraulics followed by coverage of water quality issues it also introduces basic tools and decision making techniques for future groundwater development activities taking into account regional sustainability issues the combined coverage of engineering and planning tools and techniques as well as specific challenges for restoration and remediation of polluted aquifers sets this book apart

Applied Ground-water Hydrology and Well Hydraulics

2001

increasing demand for water higher standards of living depletion of resources of acceptable quality and excessive water pollution due to urban agricultural and industrial expansions have caused intense environmental social economic and political predicaments more frequent

and severe floods and droughts have changed the ability and resiliency of water infrastructure systems to operate and provide services to the public these concerns and issues have also changed the way we plan and manage our surface and groundwater resources groundwater hydrology engineering planning and management presents a compilation of the state of the art subjects and techniques in the education and practice of groundwater and describes them in a systematic and integrated fashion useful for undergraduate and graduate students and practitioners the book develops a system view of groundwater fundamentals and model making techniques through the application of science engineering planning and management principles it discusses the classical issues in groundwater hydrology and hydraulics followed by coverage of water quality issues the authors delineate the process of analyzing data identification and parameter estimation tools and model building techniques and the conjunctive use of surface and groundwater techniques aquifer restoration remediation and monitoring techniques and analysis of risk they touch on groundwater risk and disaster management and then explore the impact of climate change on groundwater and discuss the tools needed for analyzing future data realization and downscaling large scale low resolution data to local watershed and aquifer scales for impact studies the combined coverage of engineering and planning tools and techniques as well as specific challenges for restoration and remediation of polluted aquifers sets this book apart it also introduces basic tools and techniques for making decisions about and planning for future groundwater development activities taking into account regional sustainability issues an examination of the interface between groundwater challenges the book demonstrates how to apply systems analysis techniques to groundwater engineering planning and management

GROUND-WATER HYDROLOGY AND HYDRAULICS

1977

due to the increasing demand for adequate water supply caused by the augmenting global population groundwater production has acquired a new importance in many areas surface waters are not available in sufficient quantity or quality thus an increasing demand for groundwater has resulted however the residence of time of groundwater can be of the order of thousands of years while surface waters is of the order of days therefore substantially more attention is warranted for transport processes and pollution remediation in groundwater than for surface waters similarly pollution remediation problems in groundwater are generally complex this excellent timely resource covers the field of groundwater from an engineering perspective comprehensively addressing the range of subjects related to subsurface hydrology it provides a practical treatment of the flow of groundwater the transport of substances the construction of wells and well fields the production of groundwater and site characterization and remediation of groundwater pollution no other reference specializes in groundwater engineering to such a broad range of subjects its use extends to the engineer designing

a well or well field the engineer designing or operating a landfill facility for municipal or hazardous wastes the hydrogeologist investigating a contaminant plume the engineer examining the remediation of a groundwater pollution problem the engineer or lawyer studying the laws and regulations related to groundwater quality the scientist analyzing the mechanics of solute transport the geohydrologist assessing the regional modeling of aquifers the geophysicist determining the characterization of an aquifer the cartographer mapping aquifer characteristics the practitioner planning a monitoring network

Ground-water Hydraulics

1972

this new edition adds several new chapters and is thoroughly updated to include data on new topics such as hydraulic fracturing co2 sequestration sustainable groundwater management and more providing a complete treatment of the theory and practice of groundwater engineering this new handbook also presents a current and detailed review of how to model the flow of water and the transport of contaminants both in the unsaturated and saturated zones covers the protection of groundwater and the remediation of contaminated groundwater

Groundwater Hydraulics

2011-06-28

accompanying cd rom contains spreadsheets used in many of the example calculations color versions of some of the illustrations and movies illustrating the napl migration page vi

Groundwater Hydraulics

1979

provides a balance between the mathematical and physical aspects and the engineering applicationswritten for engineering and science students mechanics of groundwater in porous media explains groundwater from both a mathematical and qualitative standpoint the book builds up the theory of groundwater flow starting from basic physics and geometric

Remediation Hydraulics

2008-03-27

the book is an overview of the diversity of anthropogenic aquifer recharge aar techniques that use aquifers to store and treat water it focusses on the processes and the hydrogeological and geochemical factors that affect their performance this book is written from an applied

perspective with a focus of taking advantage of global historical experiences both positive and negative as a guide to future implementation most aar techniques are now mature technologies in that they have been employed for some time their scientific background is well understood and their initial operational challenges and associated solutions have been identified however opportunities exist for improved implementation and some recently employed and potential future innovations are presented aar which includes managed aquifer recharge mar is a very important area of water resources management and there is no recent books that specifically and comprehensively addresses the subject

Groundwater and Well Hydraulics

1972

a large part of the global population lives in arid lands which have low rainfall and often lack the water required for sustainable population and economic growth this book presents a comprehensive description of the hydrogeology and hydrologic processes at work in arid lands it describes the techniques that can be used to assess and manage the water resources of these areas with an emphasis on groundwater resources including recent advances in hydrologic evaluation and the differences between how aquifer systems behave in arid lands versus more humid areas water management techniques are described and summarized to show how a more comprehensive approach to water management is required in these areas including the need to be aware of cultural sensitivities and conditions unique to many arid regions the integration of existing resources with the addition of new water sources such as desalination of brackish water and seawater along with reusing treated wastewater will be required to meet future water supply needs also changing climatic conditions will force water management systems to be more robust so that future water supply demands can be met as droughts become more intense and rainfall events become more intense a range of water management techniques are described and discussed in order to illustrate the methods for integrating these measures within the context of arid lands conditions

Hydraulics of Ground Water

1969

groundwater science third edition covers physical and chemical aspects of groundwater science with emphasis on applications in the hydrologic cycle and in water supply including contamination mining and construction issues this interdisciplinary text weaves important methods and applications from the disciplines of physics chemistry mathematics geology biology and environmental science introducing the mathematical modeling of groundwater flow and contaminant transport this fully updated edition includes all new case studies expanded ancillary materials including software and expanded problems the book is a valuable resource for students and instructors in the geosciences environmental sciences

and civil engineering with a focus on hydrology and hydrogeology offers discussions of groundwater modeling calibration parameter estimation and uncertainty includes content on well construction and design surface water hydrology groundwater surface water interaction slug tests pumping tests and mounding analysis provides free software tools for slug test analysis pumping test analysis heat flow analysis groundwater flow modeling and solute transport modeling all fully updated and expanded in the new edition includes lists of key terms and chapter contents at the start of each chapter as well as end of chapter problems including conceptual questions and all new concepts for labs in the new edition includes additional government reports as case studies with exercises and labs built around them as well as more case studies highlighting examples of conjunctive water use issues

Groundwater Hydrology

2020-03-20

area studies regional sustainable development review canada and usa theme is a component of encyclopedia of area studies regional sustainable development review in the global encyclopedia of life support systems eolss which is an integrated compendium of twenty one encyclopedias this theme on area studies regional sustainable development review canada and usa reviews in two volumes initiatives and activities towards sustainable development in canada and usa such as international cooperation in sustainable development canada and usa demographic dynamics and sustainability promotion and protection of human health in the context of sustainable development integration of environment and development in decision making protection of the atmosphere with particular reference to north america deforestation in north america protection of fresh water resources canada and the united states of america hazardous waste management safe and environmentally sound management of radioactive wastes in canada and the usa global action for women towards sustainable and equitable development a canada us perspective children youth and sustainable development strengthening the role of indigenous people and their communities in the context of sustainable development strengthening the role of ngos local authorities initiatives in support of agenda 21 canada and usa strengthening the role of workers and their trade unions technology transfer and sustainable development collaboration for sustainable innovation information for decision making in sustainable development climate change and sustainable development canada although these presentations are with specific reference to canada and usa they provide potentially useful lessons for other regions as well these two volumes are aimed at the following five major target audiences university and college students educators professional practitioners research personnel and policy analysts managers and decision makers ngos and gos

Groundwater Hydrology

2011-03-15

this unique volume offers an up to date overview of all the main aspects of groundwater in the nile delta and its fringes as well as latest research findings the themes covered include nile delta aquifer formation and its characteristics the use of the groundwater in the nile delta and its implications sedimentology and hydrogeophysical characteristics groundwater investigations and aquifer characterization using current direct resistivity and induced polarization groundwater contamination and degradation saltwater intrusion and its control delineation of groundwater flow and seawater intrusion using various techniques including one dimensional subsurface temperature profiles geoelectrical resistivity and integrated subsurface thermal regime and hydrogeochemical data modeling of groundwater and of saltwater intrusion in the nile delta aquifer excessive pumping and groundwater quality assessment for irrigation and drinking purposes groundwater management for sustainability in the nile delta the volume appeals to postgraduate students researchers scientists professionals decision makers and planners

The Handbook of Groundwater Engineering

2010-12-12

the book addresses the development of the basic knowledge of the subsurface solute transfer with a particular emphasis on field data collection and analysis coupled with modeling analytical and numerical tool application the relevant theoretical developments are concerned mainly with the formulation and solution of deterministic mass transport equations for a wide range of engineering issues in groundwater quality assessment and forecasting the book gives many computational examples and case studies drawn from the conducted field investigations the analyzed problems are as follows investigation and prediction of groundwater contamination by industrial contaminants and solutions radionuclides chloride and nitrate brine with special focus on the effect of a aquifer heterogeneity anisotropy and dual porosity b density contrast existing between industrial waste and groundwater or in density stratified artesian and coastal groundwater systems c physicochemical interactions that play a major role in retarding e g adsorption or enhancing e g interactions between dissolved species and mobile colloids contaminant transport prediction of the effects of pumping on groundwater quality at wellfields groundwater dating using stable and radioactive isotopes for prediction and assessment of contamination potential field and laboratory tests design and analysis and monitoring data interpretation partitioning of surface and subsurface flows using isotope techniques one of the most essential topics addressed in the book is the migration and fate of radionuclides model development is motivated by field data analysis from a number of radioactively contaminated sites in the russian federation

near surface radioactive waste disposal sites and deep well radioactive waste injection sites they play a unique role in the advancement of knowledge of the subsurface behavior and fate of many hazardous radionuclides and can be considered as field scale laboratories thus the book along with theoretical findings contains field information which will facilitate the understanding of subsurface solute transport and the development of a methodology for practical applications to groundwater hydrology

The Handbook of Groundwater Engineering

2016-11-25

volume 3 engineering modeling and sustainability this 3 volume reference presents the latest findings in impact assessment of recycled hazardous waste materials on surface and ground waters topics covered include chemodynamics toxicology modeling and information systems the book serves as a practical guide for the monitoring design management or conduct of environmental impact assessment each volume contains the table of contents of all volumes

Soil and Groundwater Contamination

2005-01-14

groundwater is essential to life and to maintaining earth s water cycle in the face of growing threats to this invaluable resource recent advances in research and analysis notably in numerical simulation and data processing with computers are bringing rapid changes in dynamic methodology for groundwater management and modeling this book contains the latest updates from the field of groundwater science and engineering organized around five major topics optimization of groundwater resources in basins groundwater pollution and remediation technologies underground development and groundwater technologies interaction between surface and subsurface water and reliability of numerical methods and scaling in geohydraulics this collection of more than 80 papers by leading specialists provides a valuable source of information for researchers engineers and students in the field of groundwater resources and management

Mechanics of Groundwater in Porous Media

2014-07-23

this book deals with the concept of moments and how they find application in subsurface hydrologic problems particularly those dealing with solute transport both temporal and spatial moments are dealt with in some detail for a wide variety of problems several examples using experimental data both from laboratory columns and field experiments are provided to give

the readers a clear idea about the scope of this method

Anthropogenic Aquifer Recharge

2019-05-07

a thorough up to date guide to groundwater science and technology our understanding of the occurrence and movement of water under the earth s surface is constantly advancing with new models improved drilling equipment new research and refined techniques for managing this vital resource responding to these tremendous changes david todd and new coauthor larry mays equip readers with a thorough and up to date grounding in the science and technology of groundwater hydrology groundwater hydrology third edition offers a unified presentation of the field treating fundamental principles methods and problems as a whole with this new edition you ll be able to stay current with recent developments in groundwater hydrology learn modern modeling methods and apply what you ve learned to realistic situations highlights of the third edition new example problems and case studies as well as problem sets at the end of each chapter a special focus on modern groundwater modeling methods including a new chapter on modeling chapter 9 which describes the u s geological survey modflow model over 300 new figures and photos both si and u s customary units in the example problems expanded coverage of groundwater contamination by chemicals new references at the end of each chapter which provide sources for research and graduate study student and instructor resources for this text are available on the book s website at wiley com college todd

Arid Lands Water Evaluation and Management

2012-06-09

as the world s population continues to expand maintaining and indeed increasing agricultural productivity is more important than ever though it is also more difficult than ever in the face of changing weather patterns that in some cases are leading to aridity and desertification the absence of scientific soil inventories especially in arid areas leads to mistaken decisions about soil use that in the end reduce a region s capacity to feed its population or to guarantee a clean water supply greater efficiency in soil use is possible when these resources are properly classified using international standards focusing on arid regions this volume details soil classification from many countries it is only once this information is properly assimilated by policymakers it becomes a foundation for informed decisions in land use planning for rational and sustainable uses

Groundwater Science

2022-12-21

development of advanced technologies is a critical component in overcoming the looming water crisis stressing emerging technologies and strategies that facilitate water sustainability for future generations the second volume in the two volume set sustainable water management and technologies provides current and forthcoming technologies research development and applications to help ensure availability of water for all the book emphasizes emerging nanotechnology biotechnology and information technology applications as well as sustainable processes and products to protect the environment and human health save water and energy and minimize material use it also discusses such topics as groundwater transport protection and remediation industrial and wastewater treatment reuse and disposal membrane technology for water purification and desalination treatment and disposal in unconventional oil and gas development biodegradation and bioremediation for soil and water stresses emerging technologies and strategies that facilitate water sustainability covers a wide array of topics including drinking water wastewater and groundwater treatment protection and remediation discusses oil and gas drilling impacts and pollution prevention membrane technology for water desalination and purification biodegradation and bioremediation for soil and water details emerging nanotechnology biotechnology and information technology applications as well as sustainable processes and products

Area Studies (Regional Sustainable Development Review): Canada and USA - Volume I

2009-11-24

this exciting new textbook introduces the concepts and tools essential for upper level undergraduate study in water resources and hydraulics tailored specifically to fit the length of a typical one semester course it will prove a valuable resource to students in civil engineering water resources engineering and environmental engineering it will also serve as a reference textbook for researchers practicing water engineers consultants and managers the book facilitates students understanding of both hydrologic analysis and hydraulic design example problems are carefully selected and solved clearly in a step by step manner allowing students to follow along and gain mastery of relevant principles and concepts these examples are comparable in terms of difficulty level and content with the end of chapter student exercises so students will become well equipped to handle relevant problems on their own physical phenomena are visualized in engaging photos annotated equations graphical illustrations flowcharts videos and tables

Groundwater in the Nile Delta

2018-12-28

gis and geostatistical techniques for groundwater science provides a detailed synthesis of the application of gis and geostatistics in

groundwater studies as the book illustrates gis can be a powerful tool for developing solutions for water resource problems assessing water quality and managing water resources beginning with an introduction to the history of gis and geostatistical techniques in groundwater studies the book then describes various spatial techniques including case studies for various applications from quality assessment to resource management this book assembles the most up to date techniques in gis and geostatistics as they relate to groundwater one of our most important natural resources provides details on the application of gis and statistics in groundwater studies includes practical coverage of the use of spatial analysis techniques in groundwater science bridges the gap between geostatistics and gis as it relates to groundwater science and management offers worldwide case studies to illustrate various techniques and applications in addressing groundwater issues

Subsurface Solute Transport Models and Case Histories

2012-01-14

this text is written by a number of authors from different countries and disciplines affording the reader an invaluable and unbiased perspective on the subject of intensive groundwater development based on information gathered from the experience of many countries over the last decades the text aims to present a clear discussion on the conventional hydrogeological aspects of intensive groundwater use along with the ecological legal institutional economic and social challenges divided into two main sections the first group of authors put forward the positive and negative aspects of intensive groundwater use whilst a second group provide an overview of the situation specific countries face as a consequence of this phenomenon fully revised and up to date groundwater intensive use makes a significant number of discoveries in a subject area that is topical in today s climate

Environmental Impact Assessment of Recycled Wastes on Surface and Ground Waters

2005-07-20

providing a synthesis of basic and applied research the everglades florida bay and coral reefs of the florida keys an ecosystem sourcebook takes an encyclopedic look at how to study and manage ecosystems connected by surface and subsurface water movements the book examines the south florida hydroscape a series of ecosystems linked by hydrolog

Chigaku zasshi

2003

MODFLOW-2000 Ground-water Model

2003

Groundwater Updates

2012-12-06

Moment Analysis for Subsurface Hydrologic Applications

2007-06-21

Groundwater Hydrology

2004-08-06

Developments in Soil Classification, Land Use Planning and Policy Implications

2013-02-15

Sustainable Water Technologies

2016-10-14

Water Resources and Hydraulics

2021-01-07

GIS and Geostatistical Techniques for Groundwater Science

2019-05-28

Intensive Use of Groundwater:

2002-01-01

The Everglades, Florida Bay, and Coral Reefs of the Florida Keys

2001-10-18

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