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Uncertainty and Vagueness in Knowledge Based Systems - Rudolf Kruse 2012-12-06
The primary aim of this monograph is to provide a formal framework for the representation and management of uncertainty and vagueness in the field of artificial intelligence. It puts particular emphasis on a thorough analysis of these phenomena and on the development of sound mathematical modeling approaches. Beyond this theoretical basis the scope of the book includes also implementational aspects and a valuation of existing models and systems. The

fundamental ambition of this book is to show that vagueness and un certainty can be handled adequately by using measure-theoretic methods. The presentation of applicable knowledge representation formalisms and reasoning algorithms substantiates the claim that efficiency requirements do not necessar ily require renunciation of an uncompromising mathematical modeling. These results are used to evaluate systems based on probabilistic methods as well as on non-standard concepts such as certainty factors, fuzzy sets or belief functions. The book is intended to be self-contained and addresses researchers and practioneers in the field of knowledge based systems. It is in particular suit able as a textbook for graduate-level students in AI, operations research and applied probability. A solid mathematical background is necessary for reading this book. Essential parts of the material have been the subject of courses given by the first author for students of computer science and mathematics held since 1984 at the University in Braunschweig.

Geoecology of Landscape Dynamics - Seema Sahdev 2020-03-03

This book provides an overview of the ecological indicators of landscape dynamics in the context of geographical landscape integration. Landscape dynamics depicts every change that occurs in the physical, biological, and cognitive assets of a landscape. To understand and interpret the complex physical, biological, and cognitive phenomena of landscapes, it is necessary to operate conceptually and practically on a broad range of spatial and temporal scales. Rapid land use changes have become a concern to environmentalists and planners because of their impacts on the natural ecosystem, which further determines socioeconomic dynamics. In this regard, the book discusses case studies that share new insights into how landscape patterns and processes impact small creatures, and how small

creatures in turn influence landscape structure and composition. In turn, the relevant aspects of land use and land cover dynamics are covered, and the multi-faceted relationship between the substrata and ecological community is highlighted. The book is unique in its focus on the application of spatial informatics such as automatic building extraction from high-resolution imagery; a soil resource inventory for meeting the challenges of land degradation; hydrological modeling; the temporal variation analysis of glacier area and the identification and mapping of glacial lakes; morphometric analysis of river basins; and the monitoring and modeling of urban sprawl, among other features.

Handbook of Water Harvesting and Conservation - Saeid Eslamian 2021-03-01

Water harvesting is gaining more and more recognition as a sustainable and resilient water supply options. It is economically viable, socially compatible and environmentally friendly. Water harvesting has proven to be a robust solution to overcome or reduce water shortages all over the world. It is important to understand how to apply this practice in a sustainable and effective way to make full use of its potential in a world increasingly threatened by water scarcity. The Handbook of Water Harvesting and Conservation: Basic Concepts and Fundamentals is the most comprehensive, up-to-date and applied handbook on water harvesting and conservation yet published. The book's 30 chapters -- written by 84 outstanding international experts from approximately 20 selected countries faced by drought -- explore, critique and develop concepts and systems for water harvesting. The editors bring together many perspectives into a synthesis that is both academically based and practical in its potential applications. The Handbook of Water Harvesting and Conservation: Basic Concepts and Fundamentals is an important tool for education, research and technical works in the areas of soil, water and watershed management and is highly

useful for drought strategy planning, flood management and developing techniques to adapt to climate change in urban, agricultural, forest and rangeland areas.

Advances in Water Resources Engineering and Management - Rafid AlKhaddar 2019-06-26

This book comprises select papers presented at the International Conference on Trends and Recent Advances in Civil Engineering (TRACE 2018). The book covers inter-disciplinary research and applications in integrated water resource management, river ecology, irrigation system, water pollution and treatment, hydraulic structure and hydro-informatics. The topics on water resource management include technological intervention and solution for climate change impacts on water resources, water security, clean water to all, sustainable water reuse, flood risk assessment, interlinking of rivers and hydro policy. The contents of this book will be useful to researchers and professionals working in the field of water resource management and related policy making.

Sustainable Development Practices Using Geoinformatics - Varun Narayan Mishra 2020-10-22

This exciting new volume will provide a comprehensive overview of the applications of geoinformatics technology for engineers, scientists, and students to become more productive, more aware, and more responsive to global climate change issues and how to manage sustainable development of Earth's resources. Over the last few years, the stress on natural resources has increased enormously due to anthropogenic activities especially through urbanization and industrialization processes. Sustainable development while protecting the Earth's environment involves the best possible management of natural resources, subject to the availability of reliable, accurate and timely information on regional and global scales. There

is an increasing demand for an interdisciplinary approach and sound knowledge on each specific resource, as well as on the ecological and socio-economic perspectives related to their use. Geoinformatics, including Remote Sensing (RS), Geographical Information System (GIS), and Global Positioning System (GPS), is a groundbreaking and advanced technology for acquiring information required for natural resource management and addressing the concerns related to sustainable development. It offers a powerful and proficient tool for mapping, monitoring, modeling, and management of natural resources. There is, however, a lack of studies in understanding the core science and research elements of geoinformatics, as well as larger issues of scaling to use geoinformatics in sustainable development and management practices of natural resources. There is also a fundamental gap between the theoretical concepts and the operational use of these advance techniques. Sustainable Development Practices Using Geoinformatics, written by well-known academicians, experts and researchers provides answers to these problems, offering the engineer, scientist, or student the most thorough, comprehensive, and practical coverage of this subject available today, a must-have for any library.

Drainage Basin Dynamics - Pravat Kumar Shit 2022-01-02

This volume provides a versatile introduction to the study of drainage basin evolution, morphology, drainage basin hydrology and sedimentology, human interference, natural and anthropogenic hazards and various management techniques. This book offers the responsible factors of sediment yield and their absolute and specific growth and rate of delivery through tributaries to the main streams. Rivers are important geomorphic agents which reflect an amazing variety of form and behaviour, showing the wide range of natural environment in which

they are originated. The drainage system evolution and spatial network development within the dynamic nature are being discussed and how they are adjusted in the geomorphic time scale over the millions of years. This book shows how drainage systems function and react to change and why this thoughtful is required for flourishing integrated basin management. In tropical and sub-tropical countries population pressures as well as different developmental projects are being executed on the drainage basin without proper planning. Today scientists consider drainage basin as an administrative unit during implementation of regional projects. In this context this book will carry a bench mark for scholars and young scientists.

Proceedings of the 5th International Conference on Water Resources (ICWR) – Volume 1 - Sobri Harun 2022-10-12

This book comprises selected proceedings of the 5th International Conference on Water Resources 2021 (ICWR2021) focusing on innovations and preparations to face the water-related challenges. Focus is given in the area of quantitative and qualitative water resource analyses comprising of forecasting, modelling and water governance. The contents will be useful to researchers, educators, practitioners and policy-makers alike.

Applied Morphometry and Watershed Management Using RS, GIS and Multivariate Statistics(Case Studies) - Yahya Farhan 2017-11-24

“Applied Morphometry and Watershed Management” book is designed to introduce the recent developments related to applied morphometric studies of drainage basins. Applications of drainage basin morphometric analysis cover several topics of research such as: 1) Prioritization of sub-watersheds for soil and water conservation; 2) Surface water harvesting; 3) Assessment of groundwater potential and predicting of groundwater movement; 4) Geo-hazard assessment (i.e., soil erosion and

sediment yield modeling, landslide susceptibility mapping; flashflood hazard and flood management; 5) The impact of Quaternary tectonics on structure and drainage network distortions.

Advances in Water Resources Management for Sustainable Use - Pankaj Kumar Roy 2021-04-25

This book presents the innovative ideas and technical expertise for the sustainable solution in the field of water resources. It covers various topics on sustainable water resources management under climate change where researchers and professionals have shared their experience, innovative ideas, issues, recent trends and future directions in field of water resources engineering, science and technology. This book culminates the importance of achieving the ways towards water security and espouse targets and measures that will allow the end-user to meet this challenge in conjunction. It is a compendium of research articles pertaining to the mitigation of water crisis, surface and groundwater management, watershed management and modelling, case studies related to wetland vulnerability, water pollution, water quality, extreme climate hazards and others issues and its sustainable diminution through ingenious ideas and technologies that will incur valuable information to the stakeholders in the society. Given its scope, this book will be useful for the researchers and professionals.

PHYSICAL AND SOCIAL ANALYSIS OF RAVI RIVER BASIN IN HIMACHAL PRADESH - Nikesh SHARMA 2020-04-30

Subject Headings -Geo-Physical Background of Ravi Basin In Himachal Pradesh -Morphometrıc Analysıs Of Ravı Rıver Basın In Hımachal Pradesh -Socıal Analysıs Of Ravı Rıver Basın In Hımachal Pradesh

HYDROLOGY AND WATERSHED MANAGEMENT - K. Ramamohan Reddy 2014-10-20

The Proceeding contains the following sections: i) Groundwater Exploration and Exploitation; (ii)

RS&GIS Applications in Water Resources; (iii) Watershed Management: Hydrological, Socio-Economic and Cultural Models; (iv) Water and Wastewater Treatment Technologies; (v) Rainwater Harvesting and Rural and Urban Water Supplies; (vi) Floods, Reservoir Sedimentation and Seawater Intrusion; (vii) Water Quality, Pollution and Environment; (viii) Irrigation Management; (ix) Water Logging and Water Productivity in Agriculture; (x) Groundwater Quality; (xi) Hydrologic Parameter Estimation and Modelling; (xii) Climate Change, Water, Food and Environmental Security; (xiii) Groundwater Recharge and Modelling; (xiv) Computational Methods in Hydrology; (xv) Soil and Water Conservation Technologies.

Applied Geomorphology - Herman Theodoor Verstappen 1983

Drainage Basin Dynamics - Pravat Kumar Shit 2022-01-01

This volume provides a versatile introduction to the study of drainage basin evolution, morphology, drainage basin hydrology and sedimentology, human interference, natural and anthropogenic hazards and various management techniques. This book offers the responsible factors of sediment yield and their absolute and specific growth and rate of delivery through tributaries to the main streams. Rivers are important geomorphic agents which reflect an amazing variety of form and behaviour, showing the wide range of natural environment in which they are originated. The drainage system evolution and spatial network development within the dynamic nature are being discussed and how they are adjusted in the geomorphic time scale over the millions of years. This book shows how drainage systems function and react to change and why this thoughtful is required for flourishing integrated basin management. In tropical and sub-tropical countries population pressures as well as different developmental projects are being executed on the drainage

basin without proper planning. Today scientists consider drainage basin as an administrative unit during implementation of regional projects. In this context this book will carry a bench mark for scholars and young scientists.

Morphometry of Drainage Basins - I. Zavoianu 2011-08-19

The book describes the drainage basin as a system unit resulting from the interaction between runoff and topography - a lengthy process of evolution that occurs according to well-defined laws. It aims not to quantify the agents which created the present forms, but to analyse the forms themselves in order to establish the laws according to which they develop, and to define a series of inter-relationships between morphometrical parameters and river discharge.

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Spatial Modelling of Flood Risk and Flood Hazards - Biswajeet Pradhan 2022

Floods and flash floods with hydro-meteorological and tropical cyclones are the some of the most devastating natural disasters causing massive damages to natural and man-made features. Flood hazards are a major threat to human life, properties (agricultural area, yield production, building and homes) and infrastructures (bridges, roads, railways, urban infrastructures, etc). Flood hazards susceptibility mapping (risk assessment) and modelling is an essential step for early warning systems, emergency services, prevention and mitigation of future environmental and social hazards and implementation of risk management strategies. Due to the lack of proper information, technology-based policies and strategies, mapping and modelling can often not be implemented to the best possible level. Geo-spatial techniques have enjoyed rising interest in recent decades among the earth environmental and social sciences research communities for their powerful ability to solve and understand

various complex problems and develop novel approaches toward sustainable earth and human society. By linking geo-spatial computational intelligence techniques with societal and environmental-oriented problems, this book demonstrates geospatial technology approaches to data mining techniques, data analysis, modelling, risk assessment and visualization and management strategies in different aspects of flood hazards. We believe that a diverse group of academics, scientists, geographers, hydrologist, remote sensing and GIS expertise, environmentalists, meteorologists and computing experts with a common interest in geospatial sciences within the earth environmental sciences and humanistic and social sciences will find this book to be of great value.

Fluvial Processes in Geomorphology - Luna B. Leopold 2020-09-16

A pioneering study that encompasses both field and laboratory research, this text explores the landscapes of mountains, rivers, and seacoasts. Topics include weathering, climate, and erosion. New Foreword. 1964 edition.

Geographic Information Science for Land Resource Management - Suraj Kumar Singh 2021-07-27

Geographic Information Science for Land Resource Management is a comprehensive book focusing on managing land resources using innovative techniques of spatial information sciences and satellite remote sensing. The enormous stress on the land resources over the years due to anthropogenic activities for commercialization and livelihood needs has increased manifold. The only solution to this problem lies in stakeholder awareness, which can only be attained through scientific means. The awareness is the basis of the sustainable development concept, which involves optimal management of natural resources, subject to the availability of reliable, accurate, and timely information from the global to local scales.

GIScience consists of satellite remote sensing (RS), Geographical Information System (GIS), and Global Positioning System (GPS) technology that is nowadays a backbone of environmental protection, natural resource management, and sustainable development and planning. Being a powerful and proficient tool for mapping, monitoring, modeling, and managing natural resources can help understand the earth surface and its dynamics at different observational scales. Through the spatial understanding of land resources, policymakers can make prudent decisions to restore and conserve critically endangered resources, such as water bodies, lakes, rivers, air, forests, wildlife, biodiversity, etc. This innovative new volume contains chapters from eminent researchers and experts. The primary focus of this book is to replenish the gap in the available literature on the subject by bringing the concepts, theories, and experiences of the specialists and professionals in this field jointly. The editors have worked hard to get the best literature in this field in a book form to help the students, researchers, and policymakers develop a complete understanding of the land system vulnerabilities and solutions.

Water Management and Water Governance - Ashish Pandey 2020-11-11

This book focusses on hydrological modeling, water management, and water governance. It covers the applications of remote sensing and GIS tools and techniques for land use and land cover classifications, estimation of precipitation, evaluation of morphological changes, and monitoring of soil moisture variability. Moreover, remote sensing and GIS techniques have been applied for crop mapping to assess cropping patterns, computation of reference crop evapotranspiration, and crop coefficient. Hydrological modeling studies have been carried out to address various issues in the water sector. MODFLOW model was successfully applied for groundwater modeling and groundwater recharge estimation. Runoff modeling has been

carried out to simulate the snowmelt runoff together with the rainfall and sub-surface flow contributions for snow-fed basins. A study has been included, which predicts the impact of the land use and land cover on stream flow. Various problems in the water sector have been addressed employing hydrological models such as SWAT, ArcSWAT, and VIC. An experimental study has been presented wherein the laboratory performance of rainfall simulator has been evaluated. Hydrological modeling studies involving modifications in the curve number methodology for simulation of floods and sediment load have also been presented. This book is useful for academicians, water practitioners, scientists, water managers, environmentalists, and administrators, NGOs, researchers, and students who are involved in water management with the focus on hydrological modeling, water management, and water governance.

Five Thousand Years of Sustainability? - Tadesse Kippie Kanshie 2002

GIScience for the Sustainable Management of Water Resources - Gowhar Meraj 2022-12-22 Water is one of the most critical resources of nature that is necessary for sustaining life for all living things. This volume discusses in detail a selection of geospatial approaches, tools, and techniques for understanding the root causes behind the degradation of our water resources. Satellite remote sensing provides essential data for mapping water resources, hydrology flux measurement, monitoring drought, and flood inundation. With an abundance of informative case studies, this volume discusses the use of the satellite remote sensing and GIS-based systems for managing urban storm water; for flood and soil erosion management; for mapping groundwater zones; for crop production, including measuring soil moisture and aridity; for gauging the impact of climate change; for evaluating glacier change dynamics; for

assessing the impact of urban growth on water resources; for measuring the degradation of rivers; and more.

Geoinformatics and Modelling of Landslide Susceptibility and Risk - Sujit Mandal 2019-05-28

This book discusses various statistical models and their implications for developing landslide susceptibility and risk zonation maps. It also presents a range of statistical techniques, i.e. bivariate and multivariate statistical models and machine learning models, as well as multi-criteria evaluation, pseudo-quantitative and probabilistic approaches. As such, it provides methods and techniques for RS & GIS-based models in spatial distribution for all those engaged in the preparation and development of projects, research, training courses and postgraduate studies. Further, the book offers a valuable resource for students using RS & GIS techniques in their studies.

Advances in Hydrology and Climate Change - Surendra Kumar Chandniha 2022-11-24

Highlighting recent trends that employ innovative management and conservation approaches, this volume provides an informative overview of the issues and challenges in water resources affected by climate change, such as drought, flooding, glacier changes, and overbuilt-up urban areas. Focusing on surface and groundwater related issues, the book presents solutions that include such methods as morphometric assessment, parameter estimation, long-term trend analysis, sustainability indexes, storm water management models, entropy-based measurement of long-term precipitation, and more. The volume focuses on providing a better understanding of climatic uncertainty through hydrometeorological data sets and their application in hydrological modeling. These analyses help to serve as the basis for the design of flood-control and water-usage management policies.

Advances in Water Resources Management for Sustainable Use - Pankaj Kumar Roy 2021-04-24
This book presents the innovative ideas and technical expertise for the sustainable solution in the field of water resources. It covers various topics on sustainable water resources management under climate change where researchers and professionals have shared their experience, innovative ideas, issues, recent trends and future directions in field of water resources engineering, science and technology. This book culminates the importance of achieving the ways towards water security and espouse targets and measures that will allow the end-user to meet this challenge in conjunction. It is a compendium of research articles pertaining to the mitigation of water crisis, surface and groundwater management, watershed management and modelling, case studies related to wetland vulnerability, water pollution, water quality, extreme climate hazards and others issues and its sustainable diminution through ingenious ideas and technologies that will incur valuable information to the stakeholders in the society. Given its scope, this book will be useful for the researchers and professionals.

SCS National Engineering Handbook - 1983

Modeling Methods and Practices in Soil and Water Engineering - Balram Panigrahi 2017-03-16
This book discusses the development of useful models and their applications in soil and water engineering. It covers various modeling methods, including groundwater recharge estimation, rainfall-runoff modeling using artificial neural networks, development and application of a water balance model and a HYDRUS-2D model for cropped fields, a multi-model approach for stream flow simulation, multi-criteria analysis for construction of groundwater structures in hard rock terrains, hydrologic modeling of watersheds using remote sensing, and GIS and AGNPS.

River Dynamics and Flood Hazards - Manish Pandey 2022-12-30

This edited book covers all aspects of River related disasters, challenges, and opportunities. Step-by-step descriptions are provided of river dynamics and associated hazards, and their applications in hazard assessments, accompanied by several experimental, filed and numerical studies. In addition, a systematic table of content is given to aid in identifying River hazards challenges and opportunities. Essential information is provided on River dynamics, hydrological processes and climate change issues, and an individual chapter is devoted to ecological restoration and river hazard management. Further topics include the stability of hydraulic structures, sediment transport, and debris flow in the hilly streams. This book will provide students, researchers, scientists, water resources managers with a comprehensive overview of the River dynamics and flood hazards in various sectors of water-related disasters and will enable them to explore the scope of application of the computational techniques and will enable them to explore the scope of River related disasters, allied branches and their field-specific problems. Professionals and policymakers may also explore the implementation of these approaches in their workplace to tackle complex river dynamics and hydrological phenomena occurring in their study area.

International Journal of Advanced Remote Sensing and GIS - Cloud Publications 2012-01-01

International Journal of Advanced Remote Sensing and GIS (IJARSG, ISSN 2320 – 0243) is an open-access peer-reviewed scholarly journal publishes original research papers, reviews, case study, case reports, and methodology articles in all aspects of Remote Sensing and GIS including associated fields. This Journal commits to working for quality and transparency in its publishing by following standard Publication

Ethics and Policies.

Integrated Watershed Management in Rainfed Agriculture - Suhas P. Wani 2011-09-16

This book provides a comprehensive presentation of the realization of improved rainfed agriculture yield in semi-arid and dry land areas. The incentive of watershed programs is to increase the return on investment with over 20% for 65% of the projects that are currently underperforming. Besides techniques to improve the livelihood of the many small

Geo-Resources - K.L. Shrivastava 2014-05-01

The book will be an everlasting and invaluable reference for, academia, industry and planners specialized in georesouce and for those who need updated information and current research in the field. The book will also be equally useful for advance level students and research scholars throughout the world.

Agricultural Water Management - Prashant K. Srivastava 2020-12-02

Agricultural Water Management: Theories and Practices advances the scientific understanding, development and application of agricultural water management through an integrated approach. This book presents a collection of recent developments and applications of agricultural water management from advanced sources, such as satellite, mesoscale and climate models that are integrated with conceptual modeling systems. Users will find sections on drought, irrigation scheduling, weather forecasting, climate change, precipitation forecasting, and more. By linking these systems, this book provides the first resource to promote the synergistic and multidisciplinary activities of scientists in hydro-meteorological and agricultural sciences. As agricultural water management has gained considerable momentum in recent decades among the earth and environmental science communities as they seek solutions and an understanding of the concepts integral to agricultural water

management, this book is an ideal resource for study and reference. Presents translational insights into drought, irrigation scheduling, weather forecasting, climate change and precipitation forecasting Advances the scientific understanding, development and application of agricultural water management Integrates geo-spatial techniques, agriculture, remote sensing, sustainable water resource development, applications and other diverse areas within earth and environmental, meteorological and hydrological sciences

Spatial Modeling in GIS and R for Earth and Environmental Sciences - Hamid Reza Pourghasemi 2019-01-18

Spatial Modeling in GIS and R for Earth and Environmental Sciences offers an integrated approach to spatial modelling using both GIS and R. Given the importance of Geographical Information Systems and geostatistics across a variety of applications in Earth and Environmental Science, a clear link between GIS and open source software is essential for the study of spatial objects or phenomena that occur in the real world and facilitate problem-solving. Organized into clear sections on applications and using case studies, the book helps researchers to more quickly understand GIS data and formulate more complex conclusions. The book is the first reference to provide methods and applications for combining the use of R and GIS in modeling spatial processes. It is an essential tool for students and researchers in earth and environmental science, especially those looking to better utilize GIS and spatial modeling. Offers a clear, interdisciplinary guide to serve researchers in a variety of fields, including hazards, land surveying, remote sensing, cartography, geophysics, geology, natural resources, environment and geography Provides an overview, methods and case studies for each application Expresses concepts and methods at an appropriate level for both students and new users to learn by example

Environmental Management of River Basin Ecosystems - Mu. Ramkumar 2015-02-18

This book offers a unique collection of inter- and multidisciplinary studies on river systems. Rivers have been the prime source of sustenance since the advent of civilization and river systems often form the basis for agriculture, transport, water, and land for domestic, commercial, and industrial activities, fostering economic prosperity. A river basin is a basic geographical and climatological unit within which the vagaries of natural processes act and manifest themselves at different spatio-temporal scales. Even if compared side-by-side, no two river basins respond to natural processes in the same way and thus, it has long been recognized that each river basin is unique. Hence, any developmental activity or conservation effort has to be designed and implemented to match each unique river basin. With the burgeoning population and increasing dependency on natural resources, understanding and maintaining river systems has become increasingly important. This book provides a varied reference work on and unprecedented guidelines for conducting and implementing research on river basins, and for managing their ecological development.

Geographic Information Science for Land Resource Management - Suraj Kumar Singh 2021-06-15

Geographic Information Science for Land Resource Management is a comprehensive book focusing on managing land resources using innovative techniques of spatial information sciences and satellite remote sensing. The enormous stress on the land resources over the years due to anthropogenic activities for commercialization and livelihood needs has increased manifold. The only solution to this problem lies in the stakeholders' awareness, which can only be attained through scientific means. The awareness is the basis of the sustainable development concept, which involves optimal management of natural resources,

subject to the availability of reliable, accurate, and timely information from the global to local scales. GIScience consists of satellite remote sensing (RS), Geographical Information System (GIS), and Global Positioning System (GPS) technology that is nowadays a backbone of environmental protection, natural resource management, and sustainable development and planning. Being a powerful and proficient tool for mapping, monitoring, modeling, and managing natural resources can help understand the earth's surface and its dynamics at different observational scales. Through the spatial understanding of land resources, policymakers can make prudent decisions to restore and conserve critically endangered resources, such as water bodies, lakes, rivers, air, forests, wildlife, biodiversity, etc. This innovative new volume contains chapters from eminent researchers and experts. The primary focus of this book is to replenish the gap in the available literature on the subject by bringing the concepts, theories, and experiences of the specialists and professionals in this field jointly. The editors have worked hard to get the best literature in this field in a book form to help the students, researchers, and policymakers develop a complete understanding of the land system's vulnerabilities and solutions.

Prioritization, Morphometric and Hypsometric Ananlysis of Subwatesheds - Ashokkumar Naralasetty 2014-08-07

Morphometry deals with the management and mathematical analysis of the configuration of the earth's surface and of the slopes and dimensions of its landforms. It is used to determine the geometry of the watershed especially among its stream network. Morphometry gives a little idea of erodibility of soil. Watershed characteristics play a vital role on the hydrologic performance of watersheds. Hence, a number of parameters, which signify the watershed characteristics, are evaluated from the topographical maps. Various morphometric parameters are computed to

evaluate the geomorphic stage of the basin, which is the indication of intensity of erosion from the basin.In the case of shortage of hydrologic data, morphometric parameters play an important role in predicting the response of the catchment. Hypsometric analysis aims at developing a relationship between horizontal cross section area of the subwatershed and its elevation in a dimensionless form. For determination of hydrologic variables, such as precipitation, evaporation etc. with respect to the altitude is useful by the hypsometric curve.

Decision Analytics for Sustainable Development in Smart Society 5.0 - Vikram Bali 2022-06-23

This book covers sustainable development in smart society's 5.0 using data analytics. The data analytics is the approach of integrating diversified heterogeneous data for predictive analysis to accredit innovation, decision making, business analysis, and strategic decision making. The data science brings together the research in the field of data analytics, online information analytics, and big data analytics to synthesize issues, challenges, and opportunities across smart society 5.0. Accordingly, the book offers an interesting and insightful read for researchers in the areas of decision analytics, cognitive analytics, big data analytics, visual analytics, text analytics, spatial analytics, risk analytics, graph analytics, predictive analytics, and analytics-enabled applications.

Hydrologic Modeling - Vijay P Singh 2018-01-19

This book contains seven parts. The first part deals with some aspects of rainfall analysis, including rainfall probability distribution, local rainfall interception, and analysis for reservoir release. Part 2 is on evapotranspiration and discusses development of neural network models, errors, and sensitivity. Part 3 focuses on various aspects of urban runoff, including hydrologic impacts, storm water management, and drainage systems. Part 4 deals with soil erosion and sediment, covering mineralogical

composition, geostatistical analysis, land use impacts, and land use mapping. Part 5 treats remote sensing and geographic information system (GIS) applications to different hydrologic problems. Watershed runoff and floods are discussed in Part 6, encompassing hydraulic, experimental, and theoretical aspects. Water modeling constitutes the concluding Part 7. Soil and Water Assessment Tool (SWAT), Xinanjiang, and Soil Conservation Service-Curve Number (SCS-CN) models are discussed. The book is of interest to researchers and practitioners in the field of water resources, hydrology, environmental resources, agricultural engineering, watershed management, earth sciences, as well as those engaged in natural resources planning and management. Graduate students and those wishing to conduct further research in water and environment and their development and management find the book to be of value.

Wastewater Reuse and Watershed Management - Ajai Singh 2019-06-26

Water is a finite resource, and the demand for clean water is constantly growing. Clean freshwater is needed to meet irrigation demands for agriculture, for consumption, and for industrial uses. The world produces billions of tons of wastewater every year. This volume looks at a multitude of ways to capture, treat, and reuse wastewater and how to effectively manage watersheds. It presents a selection of new technologies and methods to recycle, reclaim, and reuse water for agricultural, industrial, and environmental purposes. The editor states that more than 75–80% of the wastewater we produce goes back to nature without being properly treated, leading to pollution and all sorts of negative health and productivity consequences. Topics cover a wide selection of research, including molluscs as a tool for river health assessment, flood risk modeling, biological removal of toxins from groundwater, saline water intrusion into coastal areas, urban

drainage simulations, rainwater harvesting, irrigation topics, and more. Key features: • explores the existing methodologies in the field of reuse of wastewater • looks at different approaches in integrated water resources management • examines the issues of groundwater management and development • discusses saline water intrusion in coastal areas • presents various watershed management approaches • includes case studies and analyses of various water management efforts

Intelligent Computing and Applications - B. Narendra Kumar Rao 2022-12-15

This book presents novel work of academicians, researchers, industry professionals, practitioners, and budding engineers to disseminate the most recent innovations, trends, and concerns along with the present-day challenges and the solving approaches for implementation in the domains of data science, intelligent computing, and computer networks and security. It is a collection of selected high-quality research papers from the International Conference on Data Science, Intelligent Computing and Cyber Security (ICDIC 2020) organized by Sree Vidyanikethan Engineering College, Tirupati, India, during 27–29 February 2020. It discusses the latest challenges and solutions in the field of data innovation, data management, data analysis, data security, and intelligent methods and applications.

Environmental Applications of Remote Sensing and GIS in Libya - Hamdi A. Zurqani 2022-07-31

This book addresses the environmental challenges that Libya and similar countries in the regions are currently facing. Each chapter of this book provides a methodology using remote sensing (RS) and geographical information systems (GIS) dealing with one of these environmental challenges such as monitoring and mapping soil salinity and prediction of soil properties, monitoring and mapping of land degradation, spatiotemporal land use/cover, agricultural drought monitoring, hydrological

applications such as spatial rainfall distribution, surface runoff, geo-morphometric analysis, flood hazard assessment and mapping, hydrologic and hydraulic modeling, pollution hazard assessment, and climate-related geophysical processes. This book also assesses the impacts of climate change on natural resources using both RS and GIS, as well as other applications, covering different parts of Libya. This book is beneficial for graduate students, researchers, policy planners, and stakeholders in Libya as well as other countries that share similar environmental issues. Also, the methodologies followed in the book's chapters can be applied to any other regions around the world with similar landscapes and climatic conditions.