

Table of Contents

Preface..... xxi

Volume I

Section 1 Fundamental Concepts and Theories

Chapter 1

Current Approaches, Challenges, and Perspectives on Spatial OLAP for Agri-Environmental Analysis..... 1

Sandro Bimonte, National Research Institute of Science and Technology for Environment and Agriculture (IRSTEA), France

Chapter 2

Modern Cartography and GIS: What the Spatial Science Practitioner Should Know..... 22

Mulalu I. Mulalu, University of Botswana, Botswana

Chapter 3

Social Media Geographic Information: The Community Perspective in Planning Knowledge 39

Michele Campagna, Università di Cagliari, Italy

Roberta Floris, Università di Cagliari, Italy

Pierangelo Massa, Università di Cagliari, Italy

Sara Mura, Università di Cagliari, Italy

Chapter 4

General Trends and New Perspectives on Landslide Mapping and Assessment Methods 64

Murat Ercanoglu, Hacettepe University, Turkey

Harun Sonmez, Hacettepe University, Turkey

Chapter 5

Nature of Geographic Knowledge Bases 94

Robert Laurini, INSA – Lyon, France

Chapter 6

Geospatial Digital Rights Management: Challenge to Global Spatial Data Infrastructure 126

Titus M. Ng'ang'a, University of Nairobi, Kenya

Peter M. Wachira, University of Nairobi, Kenya

Tim J. L. Wango, Jomo Kenyatta University of Agriculture and Technology (JKWAT), Kenya

Joseph M. Ndung'u, University of Nairobi, Kenya

Margaret N. Ndungo, Technical University of Kenya, Kenya

Chapter 7

Wildlife Habitat Evaluation 143

Peeyush Gupta, Intergraph SG & I India Pvt. Ltd., India

Swati Goyal, Guru Jambheshwar University of Science & Technology, India

Chapter 8

Geography's Second Twilight: The James R. Anderson Distinguished Lecture in Applied
Geography 149

*Jerome E. "Jerry" Dobson, University of Kansas, USA & American Geographical Society,
USA*

Section 2

Development and Design Methodologies

Chapter 9

Urban Development Modelling: A Survey 170

Asma Gharbi, LIASD, University of Paris 8, France

Cyril De Runz, CReSTIC, University of Reims Champagne-Ardenne, France

Herman Akdag, LIASD, University of Paris 8, France

Chapter 10

Role of Remote Sensing in Potential Fishing Zone Forecast 199

Abhisek Santra, Haldia Institute of Technology, India

Debashis Mitra, Indian Institute of Remote Sensing, India

Chapter 11

Swarm Intelligence Based on Remote Sensing Image Fusion: Comparison Between the Particle
Swarm Optimization and the Flower Pollination Algorithm 211

Reham Gharbia, Nuclear Materials Authority, Egypt

*Aboul Ella Hassanien, Cairo University, Egypt & Scientific Research Group in Egypt
(SRGE), Egypt*

Chapter 12

New Computational Models for Image Remote Sensing and Big Data 232

Dhanasekaran K. Pillai, Jain College of Engineering, India

Chapter 13

Remote Sensing-Based Evapotranspiration Modelling for Agricultural Water Management in the Limpopo Basin..... 249

Berhanu F. Alemaw, University of Botswana, Botswana

Thebeyame Ronald Chaoka, University of Botswana, Botswana

Brigton Munyai, University of Botswana, Botswana

Chapter 14

Enhancing the Binary Watermark-Based Data Hiding Scheme Using an Interpolation-Based Approach for Optical Remote Sensing Images 287

Mohammad Reza Khosravi, Shiraz University of Technology, Iran

Habib Rostami, Persian Gulf University, Iran

Sadegh Samadi, Shiraz University of Technology, Iran

Chapter 15

Supporting Aeronautical Information Management (AIM) Through Geographic Information Technologies and Spatial Data Infrastructures (SDI) 306

Willington Siabato, Universidad NACIONAL de Colombia, Colombia

Javier Moya-Honduvilla, Technical University of Madrid, Spain

Miguel Ángel Bernabé-Poveda, Instituto Geográfico Militar (IGM), Ecuador & Secretaría Nacional de Educación Superior, Ciencia, Tecnología e Innovación (SENESCYT), Ecuador

Chapter 16

A Feature Selection-Based Method for an Ontological Enrichment Process in Geographic Knowledge Modelling..... 349

Mohamed Farah, ISAMM, Tunisia

Hafedh Nefzi, ISAMM, Tunisia

Imed Riadh Farah, ISAMM, Tunisia

Chapter 17

Application of Conventional Data Mining Techniques and Web Mining to Aid Disaster Management..... 369

Akshay Kumar, Birla Institute of Technology, India

Alok Bhushan Mukherjee, Birla Institute of Technology, India

Akhouri Pramod Krishna, Birla Institute of Technology, India

Chapter 18

Generative Trees: Architectural Modelling of an Olive to Estimate Morphology and Radiation Relationship 399

Primo Proietti, Università degli Studi di Perugia, Italy

Marco Filippucci, Università degli Studi di Perugia, Italy

Luigi Nasini, Università degli Studi di Perugia, Italy

Luca Regni, Università degli Studi di Perugia, Italy

Antonio Brunori, Università degli Studi di Perugia, Italy

Chapter 19

Enhanced F-Perceptory Approach for Dealing With Geographic Data Imprecision From the Conceptual Modeling to the Fuzzy Geographical Database Building..... 426

Besma Khalfi, LIASD, University of Paris 8, France

Cyril De Runz, CReSTIC, University of Reims Champagne-Ardenne, France

Herman Akdag, LIASD, University of Paris 8, France

Chapter 20

Decision Making Under Deep Uncertainty With Fuzzy Algorithm in Framework of Multi-Model Approach: Water Pollution Risk Assessment Using Satellite Data 456

Yuriy V. Kostyuchenko, Scientific Centre for Aerospace Research of the Earth, National Academy of Sciences of Ukraine, Ukraine

Yulia Stoyka, Institute of Hydrobiology, National Academy of Sciences of Ukraine, Ukraine

Iurii Negoda, Institute of Geological Sciences, National Academy of Science of Ukraine, Ukraine

Ivan Kopachevsky, Scientific Centre for Aerospace Research of the Earth, National Academy of Sciences of Ukraine, Ukraine

Chapter 21

Innovation on User-Generated Content for Environmental Noise Monitoring and Analysis in the Context of Smart Cities..... 490

Juan Humberto Juárez Hipólito, Instituto Politécnico Nacional, Mexico

Marco Antonio Moreno Ibarra, Instituto Politécnico Nacional, Mexico

Miguel Torres-Ruiz, Instituto Politécnico Nacional, Mexico

Giovanni Guzmán, Instituto Politécnico Nacional, Mexico

Rolando Quintero, Instituto Politécnico Nacional, Mexico

Chapter 22

Designing an Information Infrastructure for Policy Integration of Spatial Planning and Flood Risk Management..... 520

Jing Ran, Cardiff University, UK & University College Dublin, Ireland

Zorica Nedovic-Budic, University of Illinois at Chicago, USA & University College Dublin, Ireland

Chapter 23

Species Distribution Models (SDM) – A Strategic Tool for Predicting Suitable Habitats for Conserving the Target Species: GIS and Special Distribution Modelling (SDM) 555

Balaguru Balakrishnan, Jamal Mohamed College, India

Nagamurugan Nandakumar, Government Arts College Melur, India

Soosairaj Sebastin, St. Joseph's College, Tiruchirappalli, India

Khaleel Ahamed Abdul Kareem, Jamal Mohamed College, India