9th International Conference on Geophysical Information Systems Theory, Applications and Management (GISTAM 2023)

Prague, Czech Republic 25-27 April 2023

Editors:

Cedric Grueau Armanda Rodrigues Lemonia Ragia

ISBN: 978-1-7138-7638-0

Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2023) by SCITEPRESS – Science and Technology Publications, Lda. All rights reserved.

Printed with permission by Curran Associates, Inc. (2023)

For permission requests, please contact SCITEPRESS – Science and Technology Publications, Lda. at the address below.

SCITEPRESS – Science and Technology Publications, Lda. Avenida de S. Francisco Xavier, Lote 7 Cv. C, 2900-616 Setúbal, Portugal

Phone: +351 265 520 185 Fax: +351 265520 186

info@scitepress.org

Additional copies of this publication are available from:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 USA Phone: 845-758-0400 Fax: 845-758-2633 Email: curran@proceedings.com Web: www.proceedings.com

CONTENTS

INVITED SPEAKERS

KEYNOTE SPEAKERS

Planetary Restoration: Informing Pathways Through Earth Observations Richard Lucas	5
Using VGI for Social Good: Potentials and Pitfalls for Using OSM for Humanitarian Aid and Climate Mitigation Alexander Zipf	7
Mobile Sensing and Mapping: Where We Stand Costas Armenakis	9

PAPERS

FULL PAPERS

Spatio-Temporal Modelling of Relationship Between Organic Carbon Content and Land Use Using Deep Learning Approach and Several Co-Variables: Application to the Soils of the Beni Mellal in Morocco Sébastien Gadal, Mounir Oukhattar, Catherine Keller and Ismaguil Hanadé Houmma	15
Sentinel 2 High-Resolution Land Cover Mapping in Sub-Saharan Africa with Google Earth Engine <i>Elena Belcore and Marco Piras</i>	27
The Evolution of the South-Eastern Baltic Sea Coastline Between 1988 and 2018 by Remote Sensing <i>Sébastien Gadal and Thomas Gloaguen</i>	37
3D Geospatial Data Management Architecture for Common Operational Picture Functionalities in Emergency Response Iñaki Cejudo, Eider Irigoyen, Harbil Arregui and Estíbaliz Loyo	48
A Novel Method for InSAR Phase Unwrapping with Single Baseline Chenxi Tian and Guoman Huang	60
Borehole Inner Surface Visualization System with Vibration Cancellation and Trajectory Smoothing Based on Optical Monocular Video Camera Nan Zong, Waleed Al-Nuaimy, Heba Lakany and Paul Worthington	69
Spatial Patterns in Neurodegenerative Disease's Hospitalizations in Portugal (2000-2016) Mariana Oliveira, Alberto Freitas, Ana Cláudia Teodoro and Hernâni Gonçalves	79
Exploring Spectral Data, Change Detection Information and Trajectories for Land Cover Monitoring over a Fire-Prone Area of Portugal André Alves, Daniel Moraes, Bruno Barbosa, Hugo Costa, Francisco D. Moreira, Pedro Benevides, Mário Caetano and Manuel Campagnolo	87
Identification of Emergent and Floating Aquatic Vegetation Using an Unsupervised Thresholding Approach: A Case Study of the Dniester Delta in Ukraine Ioannis Manakos, Eleftherios Katsikis, Sergiy Medinets, Yevgen Gazyetov, Leonidas Alagialoglou and Volodymyr Medinets	98

Data-Driven Modelling of Freshwater Ecosystems: A Multiscale Framework Based on Global Geospatial Data Bruna Almeida and Pedro Cabral	104
SHORT PAPERS	
Revisiting Food Deserts in North Carolina, USA, Using a Cloud-Based Real-Time Quality Assurance/Quality Control (QA/QC) Tool <i>Timothy Mulrooney and Isabel Gutierrez</i>	115
Bushfire Susceptibility Mapping Using Gene Expression Programming and Machine Learning Methods: A Case Study of Kangaroo Island, South Australia Maryamsadat Hosseini and Samsung Lim	123
LiDAR and SfM-MVS Integrated Approach to Build a Highly Detailed 3D Virtual Model of Urban Areas Nives Grasso, Claudio Spadavecchia, Vincenzo Di Pietra and Elena Belcore	128
Modelling Spatial Connectivity of Forest Harvest Areas: Exact and Heuristic Approaches <i>Pete Bettinger</i>	136
GNSS Monitoring of Geodynamics in the Region Around Sofia and South-Western Bulgaria Nikolay Dimitrov and Anton Ivanov	144
When Should We Report the Traffic Jams of Today? A Case Study on a Swiss Highway Using Graph Neural Networks and Expert Knowledge Jhonny Pincay, Ana Oña and Damian Nomura	150
Evaluating the Fulfilment Rate of Charging Demand for Electric Vehicles Using Open-Source Data Hana Elattar, Ferdinand von Tüllenburg, Sebastian Wöllmann and Javier Valdes	159
Standards-Based Geospatial Services Integration for Smart Cities Platforms Bruno Rienzi, Raquel Sosa, Gastón Abellá, Ana Machado, Daniel Susviela and Laura González	167
On-the-Fly Acquisition and Rendering with Low Cost LiDAR and RGB Cameras for Marine Navigation <i>Somnath Dutta, Fabio Ganovelli and Paolo Cignoni</i>	176
Accuracy Assessment of Direct Georeferencing Using UAV Matrice 210 RTK V2 on Gully Santiš, Island of Pag (Croatia) Katarina Glavačević, Ivan Marić and Ante Šiljeg	184
New Challenges in the Implementation and Exploitation of a Low-Cost Web Map of the Active Deformation Areas Across Europe <i>José A. Navarro, Danielly García and Michele Crosetto</i>	192
Evaluation of Urban Perception Using Only Image Segmentation Features Xinyi Li, Benjamin Beaucamp, Vincent Tourre, Thomas Leduc and Myriam Servières	200
Biodiversity, Urban Quality Life and Air Quality Indices for Hotspot Detection of Transformation Opportunities in Cities: A Case Study in Barcelona Danielly García, Mariona Ferrandiz-Rovira, Oriol Serra and M. Eulàlia Parés	208
Using Deep Learning and Radar Backscatter for Mapping River Water Surface Diana Orlandi, Federico A. Galatolo, Mario C. G. A. Cimino, Carolina Pagli, Nicola Perilli, Joao A. Pompeu and Itxaso Ruiz	216

Imperviousness Density Mapping Based on GIS-MCDA and High-Resolution Worldview-2 Imagery Lovre Panda	222
Modeling & Simulating the Evacuation of a Building Based on Building Floor Plan and Evacuation Strategies <i>Shreya and K. S. Rajan</i>	230
GIS Multicriteria Decision Analysis in Selecting the Optimal Location for Urban Green Space: A Case Study of Zadar City <i>Rina Milošević, Silvija Šiljeg and Fran Domazetović</i>	237
Deep-Learning Based Super-Resolution of Aeolianite Images on the Purpose of Edge Detection and Pattern Extraction Antigoni Panagiotopoulou, Lemonia Ragia and Niki Evelpidou	244
Vector Tile Geospatial Data Protection Using Quantization-Based Watermarking Danila Glazkov, Nikolay Chupshev and Victor Fedoseev	251
AUTHOR INDEX	259