

Proceedings

**The International Conference  
on Advanced Geographic  
Information Systems  
& Web Services  
GEOWS 2009**

1-7 February 2009  
Cancun, Mexico



Los Alamitos, California  
Washington • Tokyo



# TABLE OF CONTENTS

## **GEOWS 1: 2D &3D INFORMATION VISUALIZATION I**

<b>Informed Virtual Geographic Environments: An Accurate Topological Approach</b> .....	1
<i>Sébastien Paris, Mehdi Mekni, Bernard Moulin</i>	
<b>WebGIS-Based Flood Emergency Management Scenario</b> .....	7
<i>Rifaat Abdalla, Keith Niall</i>	
<b>Using Parallel MultiCore and HPC Systems for Dynamical Visualisation</b> .....	13
<i>Claus-Peter Rückemann</i>	
<b>Recording and Modeling Paleolithic Caves through Laser Scanning</b> .....	19
<i>D. Gonzalez-Aguilera, A. L. Muñoz, J. G. Lahoz, J. S. Herrero, M. S. Corchón, E. García</i>	

## **GEOWS 2: 2D &3D INFORMATION VISUALIZATION II**

<b>Visible Space by Landscape Recognition by Local Inhabitants and the Composition</b> .....	27
<i>Hiroto Ohuchi, Satoshi Yamada, Setsuko Ouchi</i>	
<b>In-situ Quantification of 3D Scene Complexity</b> .....	34
<i>Ioan Marius Bilasco, Rafael Lozano Espinosa, Herve Martin</i>	
<b>Extending Spatial Data Infrastructures 3D by Geoprocessing Functionality - 3D Simulations in Disaster Management and environmental Research</b> .....	40
<i>Georg Walenciak, Beate Stollberg, Steffen Neubauer, Alexander Zipf</i>	
<b>3D Dynamic Scene Surveillance and Management Using a 3D Kinetic Spatial Data Structure</b> .....	45
<i>Mir Abolfazl Mostafavi, Leila Hashemi Beni, Marina Gavriloa</i>	

## **GEOWS 3: WEB SERVICES & GEOSPATIAL SYSTEMS**

<b>Geo-information Services to Rural Extension Community for Rural Development Planning – A Framework</b> .....	54
<i>D. Sudharsan, J. Adinarayana, A. K. Tripathy</i>	
<b>Web Services in the U.S. Geological Survey StreamStats Web Application</b> .....	60
<i>John D. Guthrie, Christine Dartiguenave, Kernell G. Ries III</i>	
<b>Standardizing Access to Hydrologic Data Repositories through Web Services</b> .....	64
<i>Bora Beran, Jonathan Goodall, David Valentine, Ilya Zaslavsky, Michael Piasecki</i>	
<b>GI-Cat: A Mediation Solution for Building a Clearinghouse Catalog Service</b> .....	68
<i>Stefano Nativi, Lorenzo Bigagli, Paolo Mazzetti, Enrico Boldrini, Fabrizio Papeschi</i>	

## **GEOWS 4: INTEGRATED ARCHITECTURES FOR GEOSPATIAL INFORMATION**

<b>GIS-Enabled Desktop Software Development Pardigms</b> .....	75
<i>Ahmad O. Aburizaiza, Daniel P. Ames</i>	

<b>Stream-Network Navigation in the U.S. Geological Survey StreamStats Web Application</b> .....	80
<i>Kernell G. Ries III, Peter A. Steeves, John D. Guthrie, Alan H. Rea, David W. Stewart</i>	
<b>A Framework for Integrating 3D Geographical Simulation Systems and Related Geo-information Web Resources</b> .....	85
<i>Zhen-Sheng Guo, Masahiko Itoh, Yuzuru Tanaka</i>	
<b>Real-Time Geo-awareness – Sensor Data Integration for Environmental Monitoring in the City</b> .....	92
<i>Bernd Resch, Manfred Mittlboeck, Fabien Girardin, Rex Britter, Carlo Ratti</i>	

## **GEOWS 5: GEOINFORMATION PROCESSING**

<b>Integrating OGC Web Processing Services into Geospatial Mass-Market Applications</b> .....	98
<i>Theodor Foerster, Bastian Schaeffer, Johannes Brauner, Simon Jirka</i>	
<b>Providing Near Real-Time Traffic Information within Spatial Data Infrastructures</b> .....	104
<i>Christian Mayer, Beate Stollberg, Alexander Zipf</i>	
<b>UAV Path Planning Based on Event Density Detection</b> .....	112
<i>Roberto Henriques, Fernando Bacao, Victor Lobo</i>	
<b>Fusion of Digital Elevation Models from Various Data Sources</b> .....	117
<i>Haris Papasaika, Daniela Poli, Emmanuel Baltsavias</i>	

## **GEOWS 6: WEB-BASED GEOGRAPHIC INFORMATION SYSTEMS**

<b>Web-Client Based Distributed Generalization and Geoprocessing</b> .....	123
<i>Eric B. Wolf, Kevin Howe</i>	
<b>A Mechanism to Create Community Maps for Non-technical Users</b> .....	129
<i>Claire Ellul, Mordechai (Muki) Haklay, Louise Francis, Hanif Rahemtulla</i>	
<b>Development of Rural Amenity Resources Information System</b> .....	135
<i>Kim Sang Bum, Rhee Sang Young, Kim Young Wook</i>	

## **GEOWS 7: FUNDAMENTALS OF GEOINFORMATION**

<b>An Operation-Based Communication of Spatial Data Quality</b> .....	140
<i>Amin Zargar, Rodolphe Devillers</i>	
<b>Categories of Geospatial and Temporal Integrity Constraints</b> .....	146
<i>Stephan Mäs, Wolfgang Reinhardt</i>	

## **GEOWS 8: SPATIAL DATA INFRASTRUCTURE**

<b>Landscape Features, Standards, and Semantics in U.S. National Topographic Mapping Databases</b> .....	152
<i>Dalia Varanka</i>	
<b>Contextualized Space-Time Accessibility Modeling and Measurements with NeuroFuzzy Proximity Relations</b> .....	158
<i>Thi Hong Diep Dao, Jean-Claude Thill</i>	

<b>Measuring Transaction Costs in Spatial Data Infrastructures: Examples of Sweden and Germany</b> .....	165
<i>Alenka Krek</i>	

## **GEOWS 9: EXPLORATORY SPATIAL DATA ANALYSIS**

<b>GIS Tool for Rural Electrification with Renewable Energies in Latin America</b> .....	171
<i>Javier Domínguez, Irene Pinedo-Pascua</i>	

<b>Uncovering Interaction Patterns in Mobile Outdoor Gaming</b> .....	177
<i>Daniel Orellana, Monica Wachowicz, Natalia Andrienko, Gennady Andrienko</i>	

<b>Towards a Highly Interactive Web Exploration of Spatial and Historical Aggregations from Data Marts</b> .....	183
<i>Sonia Fernandes Silva</i>	

<b>Service Selection via Extreme Geotagging</b> .....	189
<i>Vlad Tanasescu, Dumitru Roman, John Bruno Domingue</i>	

### **Author Index**