

Lecture Notes in Geoinformation and Cartography

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Information Fusion and Geographic Information Systems

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Preface

This volume contains the papers presented at the International Workshop “Information Fusion and Geographic Information Systems” (IF&GIS’09) held in St. Petersburg, Russia in May 2009. The workshop was organized by the St. Petersburg Institute for Informatics and Automation of the Russian Academy of Sciences (SPIIRAS). The workshop continues a series organised biannually, and attracts academics and industrials from a wide range of disciplines including computer science, geography, statistics, mathematics, hydrography, geomorphology, and environmental sciences.

The objective of this workshop is to provide a forum for innovative research oriented towards Geographic Information Science and technologies and Corporate Information Systems whose close association highlight novel theoretical and practical challenges. The papers selected by the International Program Committee cover a wide range of innovative areas including ontological and semantic approaches for the representation of geographical data, geographical data monitoring, situation management and forecast, to emerging applications oriented to the maritime environment, disaster management and security threats. While traditional topics of GIS conferences are well represented and still being advanced, several new domains appear and stress the need for the development of versatile monitoring systems and decision making systems. While GIS already have a de facto standard for geographical monitoring and analysis, the papers accepted in this volume also illustrate several novel directions of application whose objective is more closely oriented to process modeling and decision making, and where the nature of the objects represented is revisited using ontological and semantic approaches. One of the emerging application that is particularly represented is the one of security threats. Since the devastating 9/11 attacks in 2001, monitoring security threats has become one of the most important challenge to international governments. It is then vitally important to monitor terrorist threats using novel mathematical and GIS methods in order to find appropriate scientific approaches to prevent terrorist acts. Maritime GIS are also at the leading edge of the novel applications oriented to navigation safety and are also addressed by several contributions presented at the workshop. The issues of information assurance and protection for GIS have been also integrated in the workshop program,

including computer system protection, complex security maintenance of information technologies, these being applicable to GIS and whose impact should be surely larger.

The submission process attracted 41 abstracts from 14 countries, from which 35 papers were selected for submission. After a thorough reviewing process the International Program Committee accepted 25 papers from 8 countries for publication, including two invited papers. The accepted papers were allocated to the following six sessions: Corporate Information Systems and GIS; GIS as a Basis for Monitoring Systems; Ontology and Programming Technologies for GIS and GIS Applications; Monitoring of Terrorist Threat Based on GIS; Maritime GIS; Information Assurance and Protection in GIS. The IF&GIS'09 program was enriched by contributions from two distinguished invited speakers: Gennady Andrienko from the Fraunhofer Institute in Germany, and Victor Lobo from the Portuguese Naval Academy whose papers are also included in the volume.

The success of the workshop was assured by the team efforts of sponsors, organizers, reviewers and participants. We would like to acknowledge the contribution of the International Program Committee members and thank all reviewers for their support and hard work. Our sincere gratitude goes out to all participants and all the authors of submitted papers. We are grateful to our sponsors, the Russian Academy of Sciences and the US Office of Naval Research Global (ONRGlobal) for their generous support. Finally, we wish to express our gratitude to Springer's LNCS team, managed by Dr. Christian Witschel for their efficacious help and collaboration.

May 2009

Vasily Popovich
Manfred Schrenk
Christophe Claramunt
Kyrill Korolenko

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