

Preface

This volume contains the papers presented at the Fifth International Workshop on Information Fusion and Geographical Information Systems (IF&GIS'2011) held from May 10 to 11, 2011, in Brest, France, and having a specific focus on maritime geographical information systems and the digital ocean. This series of workshops are continuously organized by the OOGIS Research Laboratory of St. Petersburg Institute for Informatics and Automation of the Russian Academy of Sciences (SPIIRAS) and Ecole Navale. In May of 2011, IF&GIS'2011 was organized under the umbrella of the Third International Conference on Safer Seas (если есть добавить сокращенное наименование). The workshop successfully continued the biannual series, and as always attracted representatives of the academic and industrial community from a wide range of disciplines, including computer science, geography, statistics, mathematics, hydrograph, geomorphology, and environmental sciences.

The objective of this workshop was to consider the development of Geographic Information Systems' science with a specific relation to Maritime GIS applications, GIS data fusion, and computational developments. The scope of the Fifth IF&GIS workshop and, hence, its proceedings address several research issues of modeling, analysis, information processing, and visualization of geographical information with a specific application to the maritime environment. Maritime GISs are at the cutting edge of the novel applications oriented to navigation safety, and several contributions presented at the workshop consider this aspect in depth. The papers selected by the international program committee reflect problems of multidisciplinary approaches to shipping and navigation, monitoring, planning and surveillance of maritime areas, as well as the concept of maritime safety and security and maritime transportation. While traditional topics of GIS conferences are well represented and still advanced, several new domains with an emphasis on the problems of scientific and technological innovations and possibilities to make the seas safer and cleaner, and meeting new challenges with respect to economic and shipping trends are emerging. The issues of information assurance and protection for GIS have also been integrated into the workshop program, thus, including computer systems' protection, information technologies' complex security maintenance by scanning protection mechanism as applicable to GIS.

The submission process attracted 38 abstracts from 14 countries, and 26 papers were selected for reviewing. After thorough reviewing, the program committee accepted 15 papers from 9 countries for presentation and publication, as well two invited papers. On the basis of the accepted papers, the following four sessions are made up of contributions on: Ontology and Programming Technologies for GIS and GIS Applications; GIS Data Fusion; GIS Algorithms and Computational Issues; Novel and Emerging Marine GIS Research Areas. The IF&GIS'2011 program was enriched by contributions from two invited speakers: Distinguished Professor Jean-Claude Thill, University of North Carolina at Charlotte, USA, and Professor Bin Jiang, University of Gävle, Sweden, whose invited papers are also included in the volume.

The success of the workshop is conspicuously due to the joint efforts of sponsors, organizers, reviewers, and participants. We would like to acknowledge the contribution of the organizers of the Third International Conference on Safer Seas, as well as the contribution of the program committee members, and specially praise the support and sincere effort of all the reviewers; our deep gratitude should also be expressed to all the participants and all the authors of the submitted papers. We are grateful to our sponsors, the Russian Academy of Sciences and the US Office of Naval Research Global (ONRGlobal), Brest Métropole Océane, Technopôle Brest Iroise, Pôle Mer Bretagne, Région Bretagne, Conseil Général de Bretagne for their generous support. Finally, we also wish to extend our gratitude to Springer's team, managed by Dr. Christian Witschel and Agata Oelschläger, for their help and collaboration.

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