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WebGIS for Disaster Management and Emergency Response

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ISSN 2522-8714 ISSN 2522-8722 (electronic)
Advances in Science, Technology & Innovation
IEREK Interdisciplinary Series for Sustainable Development
ISBN 978-3-030-03827-4 ISBN 978-3-030-03828-1 (eBook)
<https://doi.org/10.1007/978-3-030-03828-1>

Library of Congress Control Number: 2018961397

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The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Mother: Your care has always been an inspirational force for us.

Preface

The application of WebGIS for Disaster Management and Emergency Response provide mechanisms for planning, response and mitigation of the impact of disaster scenarios at the local, regional or national levels. WebGIS for Disaster Management and Emergency Response provides a dynamic link in connecting operational level emergency management practitioners, with planners and decision-makers. The needed timely solutions that support reach to the desired level of effectiveness in protecting life and property. The abundant capability of WebGIS in the way that it provides the ability of freely exchanging geospatial information related to catastrophic events as well as providing remediation solution is enormous. WebGIS links decision-makers and stakeholders with field operators to provide simultaneous information access and decision support to all involved in Disaster Management operations at different level, regardless of the jurisdictions and level of authority. In addition, it allows for a multi-tier decision-making process that incorporates all associated factors, whether it be socioeconomic, or demographic factors. The outstanding multidimensional visualization capability of WebGIS provide means for accessing multiple data sources in real-time.

This book provide strong technologically flavored presentation for the usability of WebGIS for Disaster Management and Emergency Response. It is written in a way that it can provide direct access to the information and knowledge needed with least technical expertise and for wide range of user communities, dealing with the expanded horizon of the interdisciplinary scope of Disaster Management and Emergency Response. The book is touching on the foundations of GIS, Web Mapping, Artificial Inelegance, Immersive Environments and Cloud Computing, in order to cover all the aspects of Information Technology wide spectrum.

In ten chapters, this book introduces Disaster and Emergency Management Science in the first chapter. The second chapter presents on the basic Concept of Disaster Management and Emergency Response, while the third chapter provides some technical foundations on of WebGIS and the various aspects associated with systems components. The forth chapter introduces the foundations of WebGIS systems and various settings and archeitures, associated with WebGIS systems. Techniques and applications of WebGIS to selected Disaster Management scenarios is introduced in the fifth chapter and the basics of Artificial Intelligence utilization in disaster and emergency management are introduced. The seventh chapter discusses Cloud Computing and WebGIS for Disaster and Emergency Management, and the eighth chapter introduces the scope of immersive environments and WebGIS for disaster and emergency management. The ninth chapter highlights the role of Public Participation WebGIS for Disaster and Emergency Management, with some discussion on mobile apps and social media and a means for fast communication that the public can use to share information with decision-makers. Including the concept of crowd sourcing data collection and sharing. The last chapter presents WebGIS decision support capabilities and how it is effective at different levels of decision-making and decision-support for disaster and emergency management.

The authors hope that this effort will bring some value to disaster management and emergency management community, by presenting the scope of utilization of WebGIS with a complete coverage that provides the necessary background for non-technical or less technical professionals and decision-makers that are using WebGIS in their day-to-day activities.

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