Table of Contents

User Needs and Requirements

Plenary Contributions

Orchestra: Developing a Unified Open Architecture for Risk Management Applications 1
Alessandro Annoni, Lars Bernard, John Douglas, Joseph Greenwood, Irene Laiz, Michael Lloyd, Zoheir Sabeur, Anne-Marie Sassen, Jean-Jacques Serrano and Thomas Usländer

Laser Scanning Applications on Disaster Management 19
Andrea Biasion, Leandro Bornaz and Fulvio Rinaudo

Big Brother or Eye in the Sky? Legal Aspects of Space-Based Geo-Information for Disaster Management 35
Frans G. von der Dunk

ICT for Environmental Risk Management in the EU Research Context 51
Karen Fabbri and Guy Weets

Airborne Passive Microwave Radiometry for Emergency Response 57
Roland B. Haarbrink and Anatoly M. Shutko

Flood Vulnerability Analysis and Mapping in Vietnam 67
Hoang Minh Hien, Tran Nhu Trung, Wim Looijen and Kees Hulsbergen

Oral Contributions

Geo Information Breaks through Sector Think 85
Stefan Diehl and Jene van der Heide

Accurate On-Time Geo-Information for Disaster Management 109
and Disaster Prevention by Precise Airborne Lidar Scanning
Steffen Firchau and Alexander Wiechert

Methodology for Making Geographic Information 121
Relevant to Crisis Management
Anders Grönlund

The Value of Gi4DM for Transport & Water Management 129
Michel J.M. Grothe, Harry C. Landa and John G.M. Steenbruggen

A Case Study in Multiagency GIS for Managing 155
a Large-Scale Natural Disaster
Russ Johnson

User-Oriented Provision of Geoinformation 171
in Disaster Management:
Potentials of Spatial Data Infrastructures considering
Brandenburg/Germany as an Example
Petra Köhler

Pegasus: A Future Tool for Providing Near Real Time 181
High Resolution Data for Disaster Management
Nicolas Lewyckyj and Jurgen Everaerts

Disaster Management: 191
The Challenges for a National Geographic Information Provider
Chris Parker and Mark Stileman

CNES Research and Development and Available Software in the 215
Framework of Space Images Based Risk and Disaster Management
Hélène Vadon and Jordi Inglada

A Decision Support System for Preventive Evacuation of People 229
Kasper van Zuilekom, Martin van Maarseveen and Marcel van der Doef

Poster contributions

Considering Elevation Uncertainty for 255
Managing Probable Disasters
Georgios A. Achilleos

Emergency Preparedness System for 269
the Lower Mekong River Basin:
A Conceptual Approach Using Earth Observation and Geomatics
Ferdinand Bonn, Guy Aubé, Claire Müller-Poitevien and Goze Bénié

Framing Spatial Decision-Making and Disaster Management 281
in Time
Bernard Cornélis

Disaster Monitoring Based on Portable Terminal 295
for Real-Time RADARSAT-1 Data Acquisition
Olga Gershenzon

User Requirements for a Mobile Disaster Documentation System ... 305
Sven H. Leitinger, Christian Scheidl, Stefan Kollarits and Johannes Hübl

Data Collection and Data Management

Plenary Contributions

Use of Photogrammetry, Remote Sensing and 311
Spatial Information Technologies in the Disaster Management,
especially Earthquakes
Orhan Altan

The 26 December 2004 Sumatra Earthquake and Tsunami 323
Seen by Satellite Altimeters and GPS
Boudewijn Ambrosius, Remko Scharroo, Christophe Vigny, Ernst Schrama and Wim Simons

Near-Real Time Post-Disaster Damage Assessment 337
with Airborne Oblique Video Data
Norman Kerle, Rob Stekelenburg, Frank van den Heuvel and Ben Gorte

Abilities of Airborne and Spaceborne Sensors for
Managing Natural Disasters 355
Mathias J.P.M. Lemmens

The Use of GIS Technologies within the NOAA 365
Climate Prediction Center's FEWS-NET Program
Timothy B. Love

Geo-Information for Urban Risk Assessment 379
in Developing Countries: The SLARIM Project
Cees J. van Westen, Birendra Kumar Piya and Jeewan Guragain

Oral Contributions

Mass Movement Monitoring Using Terrestrial Laser Scanner 393
for Rock Fall Management
Arnold Bauer, Gerhard Paar and Alexander Kaltenböck

Findings of the European Platform of New Technologies 407
for Civil Protection:
Current Practice and Challenges
Jérôme Béquignon and Pier Luigi Soddu

Geo-Information at the Belgian Federal Crisis Centre 415
Monique Bernaerts and Philippe Hellemans

Real Time 3D Environment Simulation Applied to 425
the Disaster Management Field: Our Experience
Pedro Branco, Carlos Escalada and Richard Santos

Geo-Information for Disaster Management: Lessons from 9/11 443
Michael J. Kevany

Soft Real-Time GIS for Disaster Monitoring 465
Robert Laurini, Sylvie Servigne and Guillaume Noel

Step-Wise Improvement of Precursor Services to an 481
Integrated Crisis Information Center for Mountainous Areas
Ulli Leibnitz

Alsat-1: First Member of the DMC 497
Azzeddine Rachedi, Benmohamed Mohamed, Takarli Bachir and Martin N. Sweeting

Experience and Perspective of Providing Satellite Based 519
Crisis Information, Emergency Mapping & Disaster Monitoring
Information to Decision Makers and Relief Workers
Stefan Voigt, Torsten Riedlinger, Peter Reinartz, Claudia Künzer, Ralph Kiefl, Thomas Kemper and Harald Mehl

Poster contributions

Survey Methodologies for the Preservation of 533
Cultural Heritage Sites
Eros Agosto, Paolo Ardissone and Fulvio Rinaudo

A New Geo-Information Architecture for Risk Management 543
Christian Alegre, Hugues Sassier, Stephane Pierotti and Pascal Lazaridis

Software to Support a Specialized Bank of Electronic Maps 551
Rafael Arutyunyan , Alexandr Glushko, Vladimir Egorkin, Vladimir Kiselev, Daniil Tokarchuk and Nikolay Semin

Project OCTAGON: Special UAVs - 559
Autonomous Airborne Platforms
Simion Dascalu

Disaster Prevention for Alpine Routes..... 569
Markus M. Eisl, Klaus Granica, Thomas Nagler, Florian Böhm, Helmut Rott, Herwig Proske and Mathias Schardt

Step by Step Constitution of an Emergency Management..... 585
Based Object Model and Database System on Linux
for the I.T.U. Campus D.I.S.
Himmet Karaman and Muhammed Şahin

Development of a Web-Based GIS Using SDI..... 599
for Disaster Management
Ali Mansourian, Abbas Rajabifard and Mohammad Javad Valadan Zoej

Visual System for Metric 3D Data Gathering and Processing..... 609
in Real Time
Petr Rapant, Jan Stankovic, Eduard Sojka and Emil Gavlovsky

Data Integration and Knowledge Discovery

Plenary Contributions

Risk Assessment Using Spatial Prediction Model for Natural Disaster Preparedness 619
Chang-Jo F. Chung, Andrea G. Fabbri, Dong-Ho Jang and Henk J. Scholten

Automatically Extracting Manmade Objects from Pan-Sharpened High-Resolution Satellite Imagery Using a Fuzzy Segmentation Method 641
Yu Li, Jonathan Li and Michael A. Chapman

Oral Contributions

Extension of NASA's Science and Technology Results, Earth Observations for Decision Support 655
Stephen D. Ambrose

A Concept of an Intelligent Decision Support for Crisis Management in the OASIS Project 669
Natalia Andrienko and Gennady Andrienko

Mapping World Events 683
Clive Best, Erik van der Goot, Ken Blackler, Teofilo Garcia, David Horby, Ralf Steinberger and Bruno Pouliquen

Allocation of Functional Behavior to Geo-Information for Improved Disaster Planning and Management 697
Timothy J. Eveleigh, Thomas A. Mazzuchi and Shahram Sarkani

Towards an Integrated Concept for Geographical Information Systems in Disaster Management 715
Richard Göbel, Alexander Almer, Thomas Blaschke, Guido Lemoine and Andreas Wimmer

A Distributed Spatial Data Library for Emergency Management 733
Tony Hunter

On Quality-Aware Composition of Geographic Information Services for Disaster Management 751
Richard Onchaga

Web Based Assessment and Decision Support Technology 767
Nicole Ostländer and Lars Bernard

Evaluating the Relevance of Spatial Data in Time Critical Situations 779
Hardy Pundt

Dealing with Uncertainty in the Real-Time Knowledge Discovery Process 789
Monica Wachowicz and Gary J. Hunter

Poster Contributions

Experience in Applying Information Technologies to Ensure Safe Operations of Russian Nuclear Industry Facilities 799
Alexandr Agapov, Boris Antonov, Igor Gorelov, Rafael Arutyunyan, Igor Linge, Vladimir Kiselev, Igor Osipiants and Daniil Tokarchuk

Building Disaster Anticipation Information into the Ghana Development and Poverty Mapping and Monitoring System 809
Emmanuel Amamoo-Otchere and Benjamin Akuetteh

Vulnerability Assessment for Food Crisis Management in the Sahel Region 819
Maurizio Bacci, Tiziana De Filippis, Andrea Di Vecchia, Bakary Djaby, Francesca Incerti, Moussa Labo , Leandro Rocchi, Fabio Straccali and Patrizio Vignaroli

Using Remote Sensing Data for Earthquake Damage Assessment in Afghanistan: The Role of the International Charter 829
Joseph Maada Korsu Kandeh, Abdul Wali Ahadi and Lalit Kumar

3D Buffering: A Visualization Tool for Disaster Management 841
Chen Tet Khuan and Alias Abdul Rahman

End-User Environments

Plenary Contributions

A GIS-Based Spatial Decision Support System for Emergency 867
Services: London's King's Cross St. Pancras Underground Station
Christian J.E. Castle and Paul A. Longley

CityGML – Interoperable Access to 3D City Models..... 883
Thomas H. Kolbe, Gerhard Gröger and Lutz Plümer

Population Density Estimations for Disaster Management: 901
Case Study Rural Zimbabwe
Stefan Schneiderbauer and Daniele Ehrlich

The Fourth Column in Action: Dutch Municipalities Organizing.... 923
Geo-Information for Disaster Management
Margo de Groot

Oral Contributions

GRIFINOR: Integrated Object-Oriented Solutions for..... 937
Navigating Real-Time 3D Virtual Environments
Lars Bodum, Erik Kjems, Jan Kolar, Peer M. Ilsøe and Jens Overby

An Intelligent Hybrid Agent For Medical Emergency Vehicles..... 951
Navigation in Urban Spaces
Dino Borri and Michele Cera

GIS Solutions in Public Safety: A Case Study of the..... 965
Broward County Sheriff
Scott Burton, Patricia Behn and David C. Prosperi

Information Management Boosts Command & Control 979
Eric van Capelleveen

Task-Centred Adaptation of Geographic Information to Support Disaster Management 997
Nosakhare Erharuyi and David Fairbairn

The Adoption of Geo-information and Geographic Information Systems for Natural Disaster Risk Management by Local Authorities 1009
Gabrielle Iglesias

Web Based 3D Visual User Interface to a Flood Forecasting System 1021
Mikael Jern

A Web Application for Landslide Inventory Using Data-Driven SVG 1041
Maurizio Latini and Barend Köbben

High-Resolution Satellite Image Sources for Disaster Management in Urban Areas 1055
Jonathan Li, Yu Li and Michael A. Chapman

Geo-Information as an Integral Component of the National Disaster Hazard and Vulnerability "ATLAS" 1071
Dusan Sakulski

Poster Contributions

Seismic Emergency Management: Technologies at Work 1091
Pierluigi Soddu and Maria Giovanna Martini

Positioning and Location-Based Communication

Plenary Contributions

Pedestrian Navigation in Difficult Environments: Results of the ESA Project SHADE 1113
Björn Ott. Elmar Wassle, Franz Weimann, Pedro Branco and Riccardo Nicole

Location Interoperability Services for Medical Emergency Operations during Disasters 1127
Remko van der Togt, Euro Beinat, Sisi Zlatanova and Henk J. Scholten

Oral Contributions

Evacuation Route Calculation of Inner Buildings 1143
Shi Pu and Sisi Zlatanova

Poster Contributions

Geo Embedded Navigation 1163
Peer M Ilsøe and Jan Kolar

LoBi-X: Location-Based, Bi-Directional, Information Exchange over Wireless Networks ... 1173
Antonis Miliarakis, Hamed Al Raweshidy and Manolis Stratakis

Information Systems for Specific DM Applications

Plenary Contributions

Integrated Distributed GIS Approach for Earthquake Disaster Modeling and Visualization 1183
Rifaat Abdalla and Vincent Tao

M3Flood: An Integrated System for Flood Forecasting and Emergency Management 1193
Rosanna Foraci, Massimo Bider, Jonathan Peter Cox, Francesca Lugli, Rita Nicolini, Giuseppe Simoni, Leonardo Tirelli, Stefania Mazzeo and Michele Marsigli

Oral Contributions

Mobile Hardware and Software Complex to Support Work..... 1211
of Radiation Safety Experts in Field Conditions
Rafael Arutyunyan, Ravil Bakin, Sergei Bogatov, Leonid Bolshov, Sergei Gavrilov, Alexandr Glushko, Vladimir Kiselev, Igor Linge, Igor Osipiants, Daniil Tokarchuk, Alexandr Agapov, Andrey Fedorov and Evgeny Galkin

The New Zoning Approach for Earthquake Risk Assessment 1225
Fatmagül Batuk, Betül Şengezer and Ozan Emem

Application of Remote Sensing and GIS Technology in..... 1239
Forest Fire Risk Modelling and Management of Forest Fires:
A Case Study in the Garhwal Himalayan Region
Sunil Chandra

A Web GIS for Managing Post-Earthquake Emergencies..... 1255
Matteo Crozi, Riccardo Galetto and Anna Spalla

Web Based Information System for Natural Hazard Analysis..... 1271
in an Alpine Valley
Constantin R. Gogu, Helen Freimark, Boris Stern and Lorenz Hurni

Using Explorative Spatial Analysis to Improve Fire and 1283
Rescue Services
Jukka M. Krisp, Kirsi Virrantaus and Ari Jolma

The Global Terrestrial Network for River Discharge (GTN-R): 1297
Near Real Time Data Acquisition and Dissemination Tool for
Online River Discharge and Water Level Information
Thomas Maurer

Contribution of Earth Observation Data supplied by the New..... 1315
Satellite Sensors to Flood Disaster Assessment and Hazard Reduction
Gheorghe Stancalie and Vasile Craciunescu

The Relationship between Settlement Density and Informal..... 1333
Settlement Fires: Case Study of Imizamo Yethu, Hout Bay
and Joe Slovo, Cape Town Metropolis
Helen M. Smith

Poster Contributions

AVHRR Data for Real-Time Operational Flood Forecasting in Malaysia 1357
Lawal Billa, Shattri Mansor, Ahmad Rodzi Mahmud and Abudl Halim Ghazali

Supporting Flood Disaster Response by Freeware Spatial Data in Hungary 1371
Zsofia Kugler and Arpad Barsi

The Use of GIS as Tool to Support Risk Assessment 1381
Giuseppe Orlando, Francesco Selicato and Carmelo M. Torre

Ignored Devastating Disasters: The Case of the Horn of Africa 1401
Ambrose S. Oroda

Tight Coupling of SFlood and ArcView GIS 3.2 for Flood Risk Analysis 1413
Shanker Kumar Sinnakaudan and Sahol Hamid Abu Bakar

Public Participation Geographic Information Sharing Systems for Community Based Urban Disaster Mitigation 1427
Suha Ülgen