Geographical Information Processing and Visual Analytics for Environmental Security

NATO – ADVANCED RESEARCH WORKSHOP

13 – 17 October 2008, Trento - Italy

Organized by:

Fondazione Graphitech

University of Montenegro

CALL FOR PAPER

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For more information visit:

http://www.graphitech.it/nato-arw/

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Key Note Speakers

Prof. José Luis Encarnação, INI-GraphicsNet, Germany

Dr. Jim Thomas, National Visualization and Analytics Center - Pacific Northwest National Laboratory, USA

Mr. Patrick Hogan, NASA Ames Research Center, USA

Dr. Jeffrey G. Morrison, IARPA , USA

Dr. Budhendra Bhaduri, Geographic Information Science & Technology Group - Oak Ridge National Laboratory, USA

Dr. Jörn Kohlhammer, Fraunhofer IGD, Germany

Prof. Mauro Salvemini, EUROGI, Italy

Dr. Pier Giorgio Marchetti, European Space Agency - ESRIN, Italy

Dr. William B. Gail, Virtual Earth Business Unit – Microsoft Corporation, USA

Prof. Vladimir Krivilev, Academy of Geopolitical Problems, Russian Federation

Dr. James Kornell, U.S.Department of Energy (DOE) - National Nuclear Security Administration, USA

Dr. Antonio Saitto, Telespazio SPA, Italy

Dr. Knut Manske, SAP Research, SAP AG, Germany

Dr. Pavel Vanis, VÚGTK - Research Institute of Geodesy, Topography and Cartography, Czech Republic

Prof. Hafedh Hamza, Université de Tunis El Manar, Département de Géologie, Laboratoire des Ressources Minérales et Environnement, Tunisia

Dr. Nico Pals, TNO Information and Communication Technology, Netherlands

Prof. Igor Djurovic, University of Montenegro, Montenegro

Mr. Sasa Ivanovic, Government of Montenegro, Montenegro

Prof. Paul Dan Cristea, University Politehnica of Bucharest, Romania

Prof. Aleksandar, Nospal, University "Ss. Cyril and Methodius" - Mašinski fakultet, Republic of Macedonia

Prof. Jan Ochodnicky, Armed forces academy of Gen M.R. Stefanik, Slovak Rep.

Prof. Vladimir Lukin, National Aerospace University, Ukrain

Dr. Dragana Đorđević, IChTM Centre of Chemistry, University of Belgrade, Serbia

Dr. Anastasios Koumoutsakos, TerraMentor e.e.i.g. Greece

Prof. Marc Bonazountas, Epsilon International, Greece

Prof. Pere Brunet, Universitat Politècnica de Catalunya, Spain

Prof. Christine Giger, ETH-Hoenggerberg, Switzerland

Dr. Ido Iurgel, CCG Centro de Computacao Grafica, Portugal

Dr. Uwe Jasnoch, Intergraph GmbH, Germany

Dr. Jorge Posada, VICOMTech, Spain

Dr. Giacomo Martirano, EPSILON Italia srl, Italy

Mr. Guillermo Villa, IGN (National Geographic Institute), Spain

Dr. Marco Panebianco, Lombardia Informatica S.p.A. Italy

Prof. Arno Scharl, MODUL University Vienna - Department of New Media Technology, Austria

Dr. Andrea Deiana, GeoInfoLab, Italy

Mr. Doron Elhanani, EMESCO, Israel

Prof. Nebojsa Vucinic, University of Montenegro

Ms. Christina Hakopian, International Scientific-Research Centre on Water, Climate and Recreational Resources, Armenia

Mr. Wolfgang Kienreich, Know-Center, Austria

Prof. Yerach Doytsher, Technion, Israel

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Rationale and Aim of the Event

Access, distribution and processing of **Geographic Information** (GI) are basic preconditions to support the strategic **environmental decision-making** process. The heterogeneity of information on the environment today available is driving a wide number of initiatives, on both sides of the Atlantic, which advocate the strategic role of proper **management and processing** of environment-related data as well as the importance of **harmonized IT infrastructures** designed to better monitor and manage the environment.

However the extremely wide range of often multidimensional environmental information made available at the **global scale** poses a great challenge to technologists and scientists to find extremely sophisticated yet effective ways to provide access to very **relevant data patterns** within such a vast and highly dynamic information flow. In the past years the domain of 3D scientific visualization has tried to provide a viable solution to operators willing to gain insight into the simulation results in a way that eases understanding of an evolving phenomenon. However 3D data visualization alone does not provide model and hypothesis-making and validation. In order to answer to this issue, in recent years research trends have brought to an effective combination of data mining and information visualization, often referred to as **Visual Analytics** (VA).

Within such an articulated and fast evolving scenario **the Advanced Research Workshop (ARW)** will identify the wide range of implications, spanning from the regulations, technological as well as scientific point of view, involved in the access and processing of geographically-related information to increase environmental security.

The event will gather top scientists with different expertise from NATO Countries as well as from eligible NATO Partner or Mediterranean Dialogue countries. The workshop will represent an important event where scientist from different disciplines discuss potential ways forward in the domain of reference.

Specifically the ARW will be articulated across **5 days**, focusing on a different specific horizontal issue of interest for the theme of environmental security.

The results of the workshop will be published as **NATO Science for Peace Security Series**, published by **Springer Science and Business Media**.

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Themes

The importance of harmonization of environmental data access and processing
- The importance of standardizations
- Best practices and examples
- Forthcoming standards
- Required standardization activities

The role of GI-based technologies for a sustainable development and protection of the environment
- Crisis and Disaster management
- SDI and protection of the environment
- Remote sensing
- Earth observation
- Environmental monitoring
- Environmental mapping

Advanced Interactive Visualization and Analysis for environmental security
- Visual Analytics (VA)
- Analytical reasoning
- Intelligence and environmental security
- Early warning systems
- Real-time technologies
- Data processing and environmental security
- Vulnerability identification
- Decision support systems for environmental protection

International, regional and national legal frameworks and constraints
- Global issues
- EU directives
- National legal requirements
- The role of INSPIRE and GMES
- The role of EU and of the international organizations
- Legal aspects in environmental control and monitoring

Political, economical and social factors in the protection of the environment
- Environmental protection and economical sustainability
- Global, national and regional policies
- Geopolitics and environmental security
- Best practices
- Innovation management for environmental security
- Social implications and environmental protection
- Social security
- Business and environmental protection
- Business and market opportunities
- Economical development and environment

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Submit a paper

Authors are encouraged to submit **original** and **unpublished paper** (10 pages max), together with a brief CV which illustrates their experience, their activities and main expertise. Instructions on how to submit a paper are available at:

http://www.graphitech.it/nato-arw/submit.html

Accepted papers will be published as part of the final proceedings. This will be edited as **NATO Science for Peace Security Series**, published by **Springer Science and Business Media**.

The resulting volume is expected to set a milestone in the field of data access and processing for environmental security. It will represent a unique repository on ongoing key research trends, highlighting technological needs, recommendations or proposals for standards.

Important Dates

31 July 2008 - deadline for submission of a paper
31 August 2008 - notification of acceptance
30 September 2008 - deadline for submission of camera ready
30 September 2008 - deadline for upload of presentation (keynote speakers)
13 - 17 October 2008 - ADVANCED RESEARCH WORKSHOP

Participants from the following countries can join the event:

NATO Countries: Belgium, Bulgaria, Canada, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Turkey, United Kingdom and United States.

NATO Partner countries: Albania, Armenia, Austria , Azerbaijan, Belarus, Bosnia and Herzegovina, Croatia, Finland , Georgia, Ireland , Kazakhstan, Kyrgyz Republic, Moldova, Montenegro, Russian Federation, Serbia, Tajikistan, the former Yugoslav Republic of Macedonia (*), Sweden , Switzerland , Turkmenistan, Ukraine and Uzbekistan.

NATO Mediterranean Dialogue countries: Algeria, Egypt, Israel, Jordan, Mauritania, Morocco and Tunisia.

(*) Turkey recognizes the Republic of Macedonia with its constitutional name

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The workshop is financed within the NATO Science for Peace and Security Programme
http://www.NATO.int/science