VSB – Technical University of Ostrava
Faculty of Mining and Geology
Institute of Geoinformatics

Czech Association for Geoinformation
Slovak Association for Geoinformatics
International Society for Photogrammetry and Remote Sensing

Symposium GIS Ostrava 2011

24. 1. - 26. 1. 2011

New Hall of VSB – TOU, 17. listopadu 15, Ostrava-Poruba, Czech Republic, EU

organize under auspices of
Prof. Ivo Vondrak, Rector of VSB – TU Ostrava
Prof. Vladimir Slivka, dr.h.c., Dean of FMG VSB – TU Ostrava
Jaroslav Palas, President of the Moravian-Silesian Region

2nd circular

List of Papers

The symposium “GIS Ostrava 2011” follows four main topics – Advances in Remote Sensing, Advances in Spatial Modelling, Geoinformation Technology Challenges and Harmonization and Integration Tools supporting INSPIRE implementation.

1. Advances in Remote Sensing

The aim of the workshop is to present new methods, new data, new sensors, and new applications in remote sensing. The new methods should be focused on synergy effect of different data types including GIS data to bring new tools for analysis of complex tasks in studying mutual relations among natural changes, global changes, anthropogenetical influence, etc. There are many data types covering different application fields of remote sensing and GIS applications, however, there are many applications where the data are not sufficient either due to their insufficient time resolution, spectral resolution etc. Most cases appear at data with low time resolution. New data types and new sensors can present advances in application of spectral imaging, polarimetry, interferometry and/or optical and microwave remote sensing for land use/land cover performed from, forestry, agriculture, geology, risk/hazard management, hydrology/wetlands, etc. There are many branches which are going to be new for users of remote sensing applying remote sensing methods for imagery focused not exactly the earth surface, but civil engineering object surfaces, different materials and their quality evaluation from their photographs, e.g. The remote sensing session will be interesting for many specialists and users especially due to the fact that there are many part of remote sensing, which are not used and the proposed themes belong to modern and quickly developing remote sensing directions.

2. Advances in Spatial Modelling – Theory and Applications

The workshop aims at delivering the recent knowledge about the advances in spatial analyses and modelling, emphasizing the benefits of Geographic Information Science. The workshop has also ambition to go beyond the GIS, and be open for other fields of modelling to initiate a cross-subject discussion. The workshop should provide a round table for experts to present and discuss their recent achievement; as well as for students and other practitioners to improve their understanding of spatial modelling issues. Three workshop`s sections are aimed at theoretical aspects of spatial modelling; applied environmental modelling; and socio-economy and technical systems modelling. The theory-focused section pays attention to the introduction of new methods or novel use of standard methods. The section is open to theoretical papers on spatial statistics, geostatistics, spatio-temporal modelling, relief analysis and other fields of spatial science. The Applied Environmental Modelling section focuses on case studies on climatology, hydrology and water management, forestry and agriculture, landscape ecology, etc. Social-economy and technical systems section primarily aims at urban geography; transportation, mining industry, oil and gas industry. The presentations will also address climate change; environment deterioration; forest fires, floods, windstorms and other hazards; human health; etc.

3. Geoinformation Technology Challenges

The aim of the workshop is to bring together experts of geoinformation technologies that are interested in design and development of geoinformation technologies and technical background necessary for making geoinformation technologies more efficient. During the workshop we would like to discuss challenges that bring new technologies in the area of geoinformation. The workshop is mainly focused on systems' interoperability that allows system integration inside an enterprise or across countries. The interoperability is based on open standards that are implemented in open source software or in closed source software. This workshop should identify tools (closed source software, open source software, open languages, open standards) that can be used for building geoinformation systems in open interoperable way and identify white areas that bring challenges for developers. For example, we have tested several tools for dynamic orchestration of geoweb services and the results from our research show that there is no tool available that can be directly used for this area. One of the workshop's targets is to show such areas that should be researched and filled with new software or new software components. Another problem, that is related with geoinformation technologies, is the efficiency. For example, even that we have better hardware, the systems, that are in use, are not fast enough to give results in a time requested by user. The workshop should discuss which technologies can be used to speed up current software (cache, better rendering algorithms, new data structures, new data models) and make software reliable (monitoring, logging, self learning systems). There are still areas, that are not well discovered, such as grid computing for spatial enabled applications, loosely coupled integration or knowledge based integration. We hope that this workshop can prepare good conditions for discussion of the mentioned areas and prepare some recommendations for developers.

4. Harmonization and Integration Tools supporting INSPIRE implementation

The heterogeneity of spatial data is one of the main problems of current world of geoinformation technologies (GIT). Spatial data heterogeneity restricts possibilities of searching, sharing, exchanging, combination, distribution and publishing of spatial data and it also influences the application of automated tools, for example web services.The workshop “Harmonization and Integration Tools supporting INSPIRE implementation” is focused on a detail introduction of selected tools intended for modification of spatial data and its model to be compliant with requirements of INSPIRE directive. Introduced tools were mostly developed within the scope of European project (e.g. Humboldt). The open-source license (or similar license) is the other common characteristic of the majority of introduced products, but the workshop is not focused only on non-commercial solutions. The section is open to concrete practical papers or simple tutorials on tools enabling spatial data integration, mapping of data models or similar topics. The final part of workshop will be aimed at discussion (round table) of the importance of open-source application in the supporting of INSPIRE implementation.The workshop includes practical exercises with selected tools in a computer classroom.

RESEARCH SESSION

1. Advances in Remote Sensing

Authors	*Title*
Borik, M.	2-pass Differential Interferometry in Areas with Abandoned Open Brown Coal Mines or Undermined Areas
Lazecky, M.; Kacmarik, M.	Measurement of landslides in Doubrava using radar interferometry
Mirijovsky, J. et al.	Small-format aerial photography by Drone PIXY concept
Novotny, J. et al.	Tree crowns segmentation from optical remote sensing data
Oladi Ghadikolaei, D. et al.	Evaluating the capability of SPOT5 data TO Monitor pollarding forest areas of Northern Zagros
Oladi Ghadikolaei, D. et al.	Studying bio-environmental potentials of Kusalan Area, based on IUCN criterions, using RS and GIS technologies

2. Advances in Spatial Modelling – Theory and Applications

Authors	*Title*
Adamec, M. et al.	2D or 3D Parameter Estimation for Rainfall-Runoff Models
Barka, I.	Segmentation of georelief and its application in predictive mapping of soil and forest properties
Cirbus, J.	Cellular automata for earth surface flow simulation
Dermekova, S.; Bartonek, D.	GIS in Medieval Archeology
Gandomkar, A.	Isfahan Climate Classification Using GIS Application in Combining Maps
Gandomkar, A.	Using GIS to determine the tourism climate index in Isfahan province
Ivan, I.; Horak, J.	Global and local measures of segregation in the case of Ostrava city (development between 1980 and 2001)
Janecka, K.; Hulova, H.	Using spatial data mining to discover the hidden rules in the crime data
Kadlec, M.; Pacina, J.	Precise evaluation of partial derivatives as an advanced tool for terrain analysis
Karagiozi, E.	Web based GIS tool for natural hazards assessment. The case of Laconia prefecture (Greece) flood hazard assessment.
Krunic, N.	Dasymetric modeling of spatial distribution and daily fluctuation of population
Lubinszka, Z.	An assessment of urban area flood susceptibility
Majlingova, A.	Modeling of forest fuel distribution in Slovak conditions
Mala, B.; Pacina, J.	Geoinformatic modeling in the process of model network creation and its applications
Mandrla, V.	A solid model of a coal seam
Marek, L. et al.	Identification of hidden bindings in town using multidimensional methods
Müller, A.	Analysing radar-measured rainfall vs. rain gauges in GIS
Pacina, J.; Weiss, L.	Georelief reconstruction and analysis based on historical maps and aerial photographs
Paszto, V. et al.	Perspectives of fractal geometry in GIS analyses

3. Geoinformation Technology Challenges

4. Harmonization and Integration Tools supporting INSPIRE implementation

Keynote lessons

Authors	*Title*
Dr. Karsten Jacobsen	Recent Developments of Digital Cameras and Space Imagery
Prof. Gottfried Konecny	Developments of the Cadastre in the World Context
Prof. Uwe Soergel	State of the Art of 3D-Model Extraction Using SAR

Symposium Schedule

24.1.	13:00 - 13:15	• Symposium opening
	13:15 – 14:15	• Keynote lessons
	14:15 – 18:30	• Advances in Remote Sensing
	19:00 - 23:00	• Banquet
25.1.	9:00 - 12:00	• Advances in Spatial Modelling • Geoinformation Technologies Challenges
	13:00 - 14:00	• Poster session
	14:00 – 17:30	• Advances in Spatial Modelling • Geoinformation Technologies Challenges • Excursions
	19:00 - 21:00	• Poster Award Ceremony with Refreshments
26.1.	9:00 - 12:00	• Harmonization and Integration Tools supporting INSPIRE implementation • Excursions
	12:15 - 12:30	• Conclusion

Excursions

Free excursions offer unique opportunities to visit interesting places of geoinformation technologies applications. Currently following excursions are under preparation. Bus transportation to the place will be provided. Registration is required! For registration visit *http://gis.vsb.cz/gisostrava.*

1. Czech Hydrometeorological Institute, branch office Ostrava

Preliminary programme: Meteorology and Climatology (measurement, activities), Hydrology (measurement, modelling, activities), Regional Forecasting Office, Air Quality Monitoring
Date: Tuesday January 25, 2011, afternoon

2. National Traffic Information Centre (NDIC) in Ostrava

Programme: lecture by a representative from NDIC and visit of NDIC operation, which control traffic on motorways in the Czech Republic through telematic applications
Date: Tuesday January 25, 2011, afternoon

3. Leos Janacek Ostrava Airport

Programme: aircraft and helicopter flight simulators, aircraft repair centre
Preliminary date: Wednesday January 26, 2011, morning

Evening party

The evening party with banquet will be held on January 24th, 2011 from 7 p.m. in New Hall of VSB – TOU.

Language

Research session will be held in English.

Important Dates

December 3, 2010	comments from reviewers
December 31, 2010	deadline for final versions of papers
January 15, 2011	deadline for early registration (discounted fees)

Registration Fees

Early registration (not later than January 15, 2011)	**140 EUR**
Registration (later than January 15, 2011)	**160 EUR**
Author's registration (not later than December 15, 2010)	**100 EUR**
Full-time students without conference service	**Free**
Full-time students with service	**50 EUR**
Printed conference proceedings (a book including shipping)	**25 EUR**

The Symposium registration fee covers participation in all conference sessions, electronic conference proceedings (printed version optional), coffee breaks, light lunch (sandwiches, baguettes) and a banquet.

For Authors

It is possible to register a poster to the Poster session to December 31, 2010. Please, type "poster" to a note on the registration form. For registration visit *http://gis.vsb.cz/gisostrava*.

Address

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Institute of Geoinformatics
VSB– Technical University of Ostrava
17. listopadu 15
708 33 Ostrava-Poruba
Czech Republic

http://gis.vsb.cz/gisostrava
gisostrava@vsb.cz

Symposium Secretariat

Katerina Peskova
Email: gisostrava@vsb.cz
Tel.: +420 602 727 450
Fax: +420 596 918 589

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