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

GIS...
Ostrava 2012

Surface models for geosciences

New Hall of VSB – TUO, 17. listopadu 15, Ostrava-Poruba, Czech Republic, EU
January 23 - 25, 2012

Keynote lessons

Monika Sester (University of Hannover)
Xiaoye Liu (University of Southern Queensland)
Helena Mitášová (NC State University)

List of papers

Surface models are frequently used for many applications in geosciences. The associated research field is central in many applications including GIS, follow-up environmental modelling, land and urban management, flight simulations, virtual reality etc.

Models with different scales, variety of data sources, alternative construction approaches and data representations are examples of research issues related to this field. One shared aim is to achieve quality models that satisfy the required needs while remaining efficient. Moreover, controlling data integrity and coherence is essential for many applications that involve decision making. Extensive field studies and research have been conducted to address these issues. The aim of the conference is to present and discuss new methods, issues and challenges encountered in all parts of the complex process of gradual development and application of digital surface models. The process covers data capture, data generation, storage, model creation, validation, manipulation, utilization and visualization. Each stage requires adequate methods and contains issues which may substantially decrease the value of the model. Furthermore, the conference provides a platform to discuss about requirements, features and research approaches for virtual reality, 3D modelling, continuous field modelling and other geosciences applications.

Under auspices of

Association of Geographic Information Laboratories for Europe
International Society for Photogrammetry and Remote Sensing
Czech Association for Geoinformation
Slovak Association for Geoinformatics
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Prof. Vladimir Slivka, dr.h.c., Dean of FMG VSB – TU Ostrava

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Prof. J. P. Wilson (University of Southern California, USA)
Prof. Qiming Zhou (Hong Kong Baptist University, HK)

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List of papers
The papers are listed without authors due to review process

LIDAR for elevation data

Quality Assessment and Improvement of ALS Data Acquired within the Project of generation of new hypsometry of the Czech Republic

Optimal interpolation of airborne laser scanning data for fine-scale DEM validation purposes

Optimization of laser scanning data storage into ESRI Geodatabase

Analysis of forest height dynamics using LiDAR-derived terrain and canopy surface models

Radar interferometry and GPS for elevation data

2-pass Differential Interferometry in the Area of the Ervenice Corridor

The PS and SBAS techniques for motion detection surface soil

Anlysis of elevation data with time aspect for athletes

Surface model creation

Fuzzy Surface Models Based On Kriging Outputs

Processing of a point cloud for a geomorphologically high quality DEM

Interactive sand-covered terrain surface model with haptic feedback

The impact of implicit representation in GIS applications

Hardness data synthesis for height-field based landscape models

An optimal control method for high accuracy surface modeling and its application to DEM construction

Hybrid of shape grammar and morphing for procedural modeling of 3D caves

Uncertainty of surface models and digital terrain analysis

Towards a better techniques for visualisation uncertainty in the digital elevation models

Evaluating height differences in between SRTM90, SRTM25, ASTER GDEM and ICESat data at GLAS footprint geolocations in southern Germany.

Exploring DEM error with geographically weighted regression

Analysis of the relationships among error values and values of morphometric parameters derived from the DEM

Terrain and surface model storage

Advanced Data Structures for Surface Storage

Impact of GDAL JPEG 2000 Lossy Compression to a Digital Elevation Model

Surface model visual enhancement and rendering

Potential of Automatic Building Reconstruction on Enhancement of Digital Surface Models

Hill-shading based on anisotropic diffuse illumination

Clustering Approaches for Hydrographic Generalization

Feature extraction

Extraction of channel network from DEMs without problematic parallels using DRAW algorithm

Detection of selected ZABAGED feature classes from airborne laser scanning DTM

A New Method for Segmentation of LiDAR data for Extracting Buildings Using Fuzzy logic Concepts

Building Extraction for the Purpose of Population Estimation Using Remote Sensing Imagery

Analysis of surface models

Slope Analysis of Fuzzy Surface

Analysis of the geometric properties of derived multiresolution TIN terrain models with a view to morphometric analysis

Vector algebra for Steep Surface Models analysis

Suitable DEMs for Differential Satellite SAR Interferometry Processing

Quality Analysis of "Structure from Motion" in Airborne ApplicationsRock-Hazard: Model for estimating the range of rock fall

Rock-Hazard: Model for estimating the range of rock fall

Surface models for hydrology and for air pollution

Modelling Flow Routing Patterns in Permafrost Landscapes with Topographical Wetness Index

Drainage Area Estimation in Practice - how to tackle artifacts in real world data

Analysis of LiDAR data integration on air pollution urban models

Surface models for agriculture and forestry

Countrywide digital surface models for forest applications using photogrammetric methods

Tree Inventory and 3D Modelling for Forestry Application

Derivation of tree height from airborne laser scanner data

Surface models application in forestry research: Skidding distances modeling

Surface models for visibility studies and signal spreading

Advanced viewshed analyses

Sensitivity Analysis of Analysis of Visiblity from Line

Sensor Allocation on Empirical Propagation Path Loss in Urban Management System using GIS

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Surface models for geology (structural, mining)

Contribution the ETM+ satellite images to the analysis the frecturation of the Tifrit mole, region of Saïda, Algerie

A conceptual hydrogeological model for the open pit mine "Polje E" (Kolubara's coal basin, Serbia)

Using DEM for Tasks of Quarternary Geology and Geomorphology of Siberia

Modelling of sequences of subsurface reliefs of multi-layered geological stuctures

Surface models for environmental science

Wide area high-resolution digital elevation model (DEM) generation in high alpine terrain using airborne remote sensing techniques

3D urban model for Photovoltaic Potential estimation at local scale

A comparison of Delineative of vulnerability of Aquifer using DRASTIC model and Fuzzy logic (Case study: Golgir Plain, Iran)

Georelief transfiguration in areas affected by open-cast mining

Surface models for human geografy and urban geography

The quality of the base DEM as a key factor in modeling of selected spatial conflicts

Urban Growth Modeling using Cellular Automata and Genetic Algorithms

New 3-D solar radiation tools for 3-D city models

The Technology the Urban Areas Modelling

Parameter surfaces in modeling of regional population growth

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Registration fees

Early registration (before 5. 1. 2012)	**140 EUR**
Registration (after 5. 1. 2012)	**160 EUR**
Authors before 15. 12. 2011	**90 EUR**
Full-time students	**40 EUR**
Workshop	**50 EUR**
Printed proceedings (including shipping)	**25 EUR**
Excursion	**0 EUR**
Participation at sessions of conference "Současné výzvy geoinformatiky" **	**0 EUR**

Discount for members of AGILE, CAGI, SAGI, ISPRS **- 10 EUR/person**

Fee covers all days of conference, electronic proceedings, coffee breaks, light lunch and banquet.

*** Valid only with registration to the conference Surface models for geosciences.*

Keynote lessons

Monika Sester (University of Hannover): Bulding extraction from Lidar Data

Xiaoye Liu (University of Southern Queensland): Accuracy of LiDAR-derived digital elevation model

Helena Mitášová (NC State University): Will be specified

Preliminary Symposium Schedule

24.1.	9:00 - 12:00	• Workshop Introduction to Oracle Locator
		• Workshop Water erosion modelling
	13:00 - 13:15	• Symposium opening
	13:15 - 14:45	• Keynote lessons
	15:00 - 18:30	• Sessions
	19:00 - 23:00	• Banquet
25.1.	9:00 - 12:00	• Sessions
	13:00 - 14:00	• Poster session
	14:00 - 18:30	• Sessions
	19:00 - 21:00	• Poster Award Ceremony with Refreshments
26.1.	9:00 - 12:00	• Workshop Surface models in City GML
	9:00 - 11:00	• Seminář ARCDATA PRAHA - ESRI distributor (Czech language)
	9:00 - 11:00	• Seminář CENIA - Archiv geoportál (Czech language)
	9:00 - 12:00	• Excursion

Workshops

1. Surface models in City GML	Ing. Jan Růžička, Ph.D.
2. Introduction into Oracle Locator	Ing. Karel Janečka, Ph.D.
3. Water erosion modelling	Ing. Mgr. Ivan Mudroň
4. Geography Markup Language (Czech language)	Ing. Jan Růžička, Ph.D.
5. Úvod do Oracle Locator (Czech language)	Ing. Karel Janečka, Ph.D.
6. Základy mobilního mapování na platformě ArcGIS Mobile 10 (Czech language)	Ing. David Vojtek, Ph.D.
7. Publikovanie dát s pomocou softvéru GeoServer (Slovak language)	Ing. Branislav Devečka

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Evening party

The evening party with banquet will be held on January 23rd, 2012 in New Hall of VSB – TUO.

Language

English.

Venue

New Hall of VSB – TUO, 17. listopadu 15, Ostrava-Poruba, Czech Republic, EU
Latitude: 49.830775° N   Longitude: 18.162951° E

Important days

December 15, 2011 deadline for final versions of papers
January 5, 2012 deadline for early registration (discounted fees)
January 23-25, 2012 symposium days

Address

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