

Wiesław Babik: **Sustainable Development of Information Society: Towards an Ecology of Information** • Geomatics and Environmental Engineering 2008, vol. 2, No. 1

The paper provides an overview of issues associated with sustainability of information society. Of particular interest in this connection is ecology of information. The continuous increase of often outdated, incomplete and unreliable information causes that it is necessary to implement a reasonable information evaluation and selection process. These issues are especially important at this time since we are in major expansion in information and knowledge management capabilities. It is the thesis of the paper that information and information resources must be evaluated, selected and protected from "pollution". Information "garbage" can threaten the man. Information ecology is one of essential and important factors that should form natural ecosystem for peoples. Sustainable development of information society needs ecology of information in feed back system of out of man ecological principles for contribution to optimization of decision-making process.

**Keywords:** information ecology, information society, anthropoinfosphere, information revolution, sustainable development, knowledge-based society

Stanisław Gruszczyński: **The Analysis of the Patterns of Land Classification in terms of the Application in the Valuation of Soilless Areas** • Geomatics and Environmental Engineering 2008, vol. 2, No. 1

The goal of the initiated studies is to define the rules of the transformation of the existing table of land classes into the set of rules or calculation algorithm, allowing the estimation of the validation of lands without basic classification attributes. The main problem is defining the relationships between determinable soil characteristics and soil position in the validation order. The difficulty results from the diversity of the origin of mineral substance in reclaimed objects: from raw lands to technogenic materials. In looking for a proper model of drawing conclusions several algorithms of classification and regression were studied.

**Keywords:** land reclamation, soil quality, technosols

Krzysztof Koreleski: **Studies of Natural Environmental Conditions for the Needs of Local Spatial Management Plans in Poland** • Geomatics and Environmental Engineering 2008, vol. 2, No. 1

The article presents a review of studies of natural environmental conditions for the needs of local planning, developed in Poland after the Second World War. Physiographic studies (developed until 1984) and, since 2000, ecophysiographic studies are based on urban physiography defined as a field which engages in a comprehensive evaluation of the natural environment for the needs of spatial management. Physiographic studies used to be divided into the following types: preliminary, general, and detailed studies and they concerned existing natural conditions and change tendencies under the influence of spatial management. Apart from these, physiographic comments were also prepared, characterised by smaller accuracy and narrower thematic scope, as well as problem-based analyses, which discussed the results of physiographic studies in a deeper way within a particular thematic scope. Ecophysiographic studies created now serve as a basis for municipal studies of conditions and directions of spatial management. and local spatial development plans They also operate as sources of information about the environment treated as a system and help to create sustainable development of space. There are two types of ecophysiographic studies: basic studies and problem-based studies – in the case when a more detailed feature analysis of selected natural elements is necessary. Ecophysiographic studies require constant improvement of research methods and cooperation between various experts in physiography and ecology.

**Keywords:** physiographic studies, local planning, Poland

Grzegorz Lenda: **The Application of Least-Squares Method for Approximating the Surfaces of Engineering Structures** • Geomatics and Environmental Engineering 2008, vol. 2, No. 1

The report is focused on the presentation of current methods allowing for the approximation of point sets by means of ideal mathematical surfaces, as well as on the analysis of their suitability depending on the type of the object approximated and the complexity of the methods. The advantages and disadvantages of these methods have been compared with the capabilities offered by splines. Also, the application of the various variants of LSM have been discussed with reference to the minimization of the algebraic distance, the distance directed along a specific axis of the coordinate system and the geometrical distance. Finally, cases where the application of particular methods is justified with respect to accuracy and cost-effectiveness have been analyzed.

**Keywords:** least-squares method, surface fitting

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Krystian Pyka: **Valorization of the Noise Content in Photogrammetric Images Using Wavelets** • Geomatics and Environmental Engineering 2008, vol. 2, No. 1

In the paper the use of wavelet transformation for valorization of noise content in photogrammetric images is proposed. At first noise in the digital images and applied methods of noise removing is described synthetically. Then the most important features of wavelet transformation are presented through the comparison with Fourier transformation, widely used in the similar problems. Valorization of the noise content was based on the observation given in literature, stating that the noise changes the shape of the transform detail components histograms. The fragments of aerial photographs and high-resolution satellite images were used as a research material. The researches confirmed the possibility to define the noise content indicators based on the analysis of the wavelet detail coefficients distribution shape. It was found that investigation of the wavelet components histograms shape can be employed for the comparison of the radiometric changes occurred during radiometric and geometric processing of the images.

**Keywords:** wavelets transform, image noise, normal distribution

Mikołaj Skulich: **The Concept of Applying the Shaft Inclino-meter in Verticality and Rectilinearity Measurements of Shaft Guides** • Geomatics and Environmental Engineering 2008, vol. 2, No. 1

The paper presents the structure, principle of making measurements and preliminary measurement results of a prototype instrument called shaft inclinometer, applied in the measurements of rectilinearity and verticality of shaft guides. Because of its safety and short time of measurement, the presented measurement technology i.e. the application of the shaft inclinometer, can make an alternative for the applied at present classical methods of the inventory of guides in mining shafts.

**Keywords:** surveying, shaft, guide, inventory, inclinometer

Andrzej Uznański: **Quality Control of Geodetic Networks at Leica Geo Office** • Geomatics and Environmental Engineering 2008, vol. 2, No. 1

The paper presents results of square shaped test network analysis by using Delft method. Reactions of mathematical and stochastic models were analyzed by introducing displaced observation points within tested network. An essential purpose of the work is to present practical

results of geodetic network reliability testing based on example of a network measured with GPS receivers. Since there are no clear rules guiding assumptions of a significance level for statistical tests, the paper presents the effect of the mentioned parameter on calculation results. The analyzed example relates also to the effect of purposely introduced observation point displacements on a final calculation product, or adjusted coordinates.

**Keywords:** internal reliability, external reliability, geodetic networks

Ryszard Żróbek, Sabina Żróbek: **Expropriation as an Exceptional Tool of Acquisition of Land for Public Purposes** • Geomatics and Environmental Engineering 2008, vol. 2, No. 1

Real estates owned by units of territorial self – government of their unions or by individuals can be expropriated for realization of public purposes. The authority conducting expropriation (eminent domain, compulsory purchase or compulsory acquisition) proceedings is obliged to specify precisely the purpose of expropriation on the ground of a concrete legal provision. Public purposes are defined by the legislator. The compensation for the expropriation (market or cost value of the property) have to be just. Authors of this paper have presented the legal procedures of expropriation and principles of calculating of compensation for real estate expropriation in Poland. They presented their view on this problem and some remarks published by FAO as a result of examining this subject through the many countries.

**Keywords:** expropriation, public purpose, compensation