

Wiesław Babik: **The Internet as the Present-Day Agora of Information and Knowledge** • Geomatics and Environmental Engineering 2016, Vol. 10, No. 3

The internet is treated as the present-day agora of information and knowledge. The purpose of this article is to characterise the internet as a global information and knowledge market. The paper presents components and specific features of the internet, the internaut's place on that market, and the existing threats to information and knowledge. Special attention is devoted to commercialisation, globalisation, diversification and internal contradictions occurring on that market, as well the evaluation of information and knowledge in market terms. On that background, the Polish experiences of building that agora are presented, as part of fulfilling the conception of an information and knowledge society, because the market power of information and knowledge sometimes raises controversy in Poland, which fact determines the uniqueness of the Polish contribution to the task of developing our global information and knowledge market.

Keywords: information and knowledge, information market, economics of knowledge, knowledge production, knowledge organization

Monika Balawejder, Przemysław Leń: **The Realization of Complex Work of Consolidation and Exchange of Land in the Villages Divided by a Highway** • Geomatics and Environmental Engineering 2016, Vol. 10, No. 3

This paper issue relates to the method of implementing complex work of consolidation and exchange of land in the villages divided by a highway.

The study consisted of two stages. In the first one, in order to determine the degree of destruction of land spatial structure in villages crossed by a highway an algorithm was developed. It specifies the order necessary to undertake consolidation and exchange land in the villages divided by the highway. In order to determine the hierarchy of undertaking consolidation and exchange work, it was necessary to determine the appropriate

diagnostic variables directly related to the route of the highway through the analyzed village. Then, using the method without a pattern, based on the zero unitarisation procedure without reducing the set of variables (without API reduction), you can examine what order you have to follow to complement this work in the analyzed village.

The second stage of the study was to develop a method of realizing complex work of consolidation and exchange of land in the villages divided by the highway including the division into stages, phases and tasks.

Keywords: highway, complex work of consolidation and exchange of land, diagnostic variables

Agnieszka Bieda: Possibilities of Using Fractal Geometry to Identify Areas at Risk of Their Shoreline Becoming Outdated

• Geomatics and Environmental Engineering 2016, Vol. 10, No. 3

Surface flowing water is one of the fastest-changing and most unpredictable elements of the human environment, which affects the data entered into the database of the National Geodetic and Cartographic Documentation Center (primarily to the register of land and buildings). The fact that the shoreline is regarded as one of the so-called natural fractals was used in order to identify areas at risk of becoming outdated due to the action of surface water. To verify whether, at the level of detail of the cadastral database, rivers retain their fractal properties and whether these properties could be used to identify areas at risk of the shoreline becoming outdated, the course of the shoreline was analyzed, as well as the changes in the configuration of the boundaries of cadastral parcels located in their neighborhood. The analyzed area covered a several-kilometer section of the Vistula River near Krakow.

Keywords: shoreline, fractal, box-counting dimension, cadastre

Krzysztof Butryn: An Analysis of Arrangements of the Local Spatial Management Plans in the Context of Determining Coverage of Transmission Easements – the Example of the City of Krakow

• Geomatics and Environmental Engineering 2016, Vol. 10, No. 3

One of the basic problems associated with the establishment and functioning of transmission easements is to determine the spatial extent, that is, the transmission easement zones. In the

absence of statutory regulation, in practice there are various approaches to determine range of easement zone, including the use of the arrangements of the local spatial management plans. This study analyzes the arrangements of the obligatory local spatial management plans in the city of Krakow, in the context of provisions relating to the impact zones of transmission equipment.

For each type of network utilities, there can be observed typical trends shaping the areas of influence of transmission equipment. The approach of defining the local spatial management plan protection zone depending on the technical parameters of the particular networks prevails for power grids, water supply and heating. The proposal to establish a protection zone dependent on other arrangements of plan e.g. based on the distance to objects of different types and the basic purpose of the land prevails in the case of sewage. For gas networks, clearly the most frequently chosen direction is to establish a protection zone in reference to the separate regulations.

An overview of planning documents from Krakow indicates that the areas the location of transmission facilities, which may affect the environment, local development plan usually sets range impact area of the object, which can be taken into account when legislating transmission easement. At the same time local plans cover less than half of the city area, among them an average of only about half relates to the subject matter, which means that in most parts of the city there is a lack of planning arrangements for the protection zones around transmission equipment.

Keywords: transmission easement, transmission easement zone, local spatial management plan

Katarzyna Gajewska, Elżbieta Jasińska: **Analysis of Market Rental Property Selected Fragment in Krakow Premises in Terms of Sector Student** • Geomatics and Environmental Engineering 2016, Vol. 10, No. 3

Krakow is considered to be one of the top academic centres in Poland. In the local universities nearly 200 thousand students acquire knowledge. Only a few of them are permanent inhabitants of Krakow. For this reason, also, annually the market of apartments rent in the capital city of Małopolska in the period of holiday observes fluctuations of prices. At the same time students (or their parents) prefer the proximity of the chosen academic centre or the communication accessibility over the standards of the premises. This allows to sustain the prices of rent of apartments in this neighbourhood and constitutes a stable source

of income for real estate owners that could not be attractive for the remaining social groups.

For the purpose of supplying information concerning the apartments preferred by the students a study was conducted, in which questions were asked to individuals who now or in recent years rented an apartment in Krakow and they are or have been students of the AGH University of Science and Technology. The post was chosen because of the compact structure of educational institutions, proximity attractive zones, and thus expensive, and the ease of obtaining information from respondents as a result of the conducted studies it is possible to consider that among the surveyed most often rent contracts were concluded for apartments with two rooms nearby, or with a good connection to the universities. It was also noticed that the most important factor having impact on the average price for the rent is the location, in the particular urban units of the city of Krakow it differs from the average by a few hundred PLN. Another, relatively obvious criterion determining the height of the rate is the technical condition and furnishing standard of the apartment. The terms on which the rent of the apartment is profitable for its owner were verified. Finally, it was noticed that the benefits arising from the rent of the premises to students are disproportionate for different parties.

The information obtained by means of the conducted studies and completed analyses is helpful both for people willing, in the future, to take advantage of the benefits from leasing an apartment, as well as for thousands of students who each year are struggling against the fundamental choice of the place where they will spend the nearest months or years.

Keywords: real estate rent market, preferences of the tenants, student housing

Agnieszka Peška, Piotr Benduch: **Land and Buildings Register Data Change as a Result of Construction Process** • Geomatics and Environmental Engineering 2016, Vol. 10, No. 3

Land and buildings register is a public register containing information on land, buildings and premises. This register is maintained in an IT system and ensures collecting, updating and sharing of data covering both – descriptive and spatial datas. Construction processes, which result in changes regarding the building, have a direct and indirect impact on data contained in the register. Directly construction processes change data pertaining to buildings disclosed in the land register, indirectly affect the data of land and premises. Different types of construction processes, among which we can distinguish the construction,

reconstruction, extension or superstructure change the information contained in the land and buildings register to a different extent. This article aims to specify the types of construction processes, together with an indication of the differences between them and also providing data on land plots, buildings and premises that are altered during these processes.

Keywords: land and buildings register, update, reconstruction

Adriana Szulecka, Marian Mazur: **Application of the Statistical Error and Quantitative Performance Measures in the Evaluation Process of Short-Term Air Quality Forecasts for Krakow (Poland)** • Geomatics and Environmental Engineering 2016, Vol. 10, No. 3

Currently, mathematical modelling air quality forecasts is of great importance due to the need of informing the population about the upcoming concentrations of air pollutants and issuing accurate alerts. At each stage in the application of a modelling system a proper verification and performance diagnostics is required. This paper presents the results of a statistical evaluation of the short-term air quality forecasting system for the area of Krakow, Poland, over the period of April 2014 – March 2015. The analysed forecasts are prepared by Warsaw University of Technology on the basis of the modelling system created by the EkoForecast foundation. Calculations in this system are performed by the GEM-AQ model, which produces publicly available predictions of the daily average concentrations of PM₁₀, PM_{2.5}, NO₂, SO₂, CO and O₃. In this study these values were compared to the measured observations recorded at the urban background station in Krakow (Bujaka St.) with the use of error statistics and quantitative performance measures suggested by the US EPA. The results of the analysis indicate good reliability of PM₁₀ and PM_{2.5} forecasted concentrations during the examined period of time, which provides high correlation rates for these observations. Evaluated model tends to overestimate all the predictions in reference to Bujaka St. station measurements. The highest discrepancies are evident in the case of sulphur dioxide (SO₂) and ozone (O₃) predictions occurring mainly during the non-heating season. Insufficient forecast accuracy affects the reliability of the predicted Common Air Quality Index (CAQI), which depends on the concentration of particular air pollutants.

Keywords: air quality, pollutant concentrations, forecasting model, GEM-AQ, statistical evaluation

Radosław Wiśniewski, Justyna Brzezicka, Sabina Żróbek: **Conditions of the Professionalization of the Surveying Graduate Profile in Poland** • Geomatics and Environmental Engineering 2016, Vol. 10, No. 3

This paper concerns the issue of professional education in the faculties of the surveying educational profile in view of current economic requirements, using the example of few faculties of geodesy in Poland. It presents a strategy of faculty operation and the direction of changes in teaching curricula as a consequence of economic transformations, the growing possibilities of higher education institutions, changing expectations of students and emerging barriers in the labour market. The following research methods were applied in this paper: studies of writings, surveys and case study. The paper also uses the literature of the subject, strategic documents of the faculty, experience of the authors of the study in this field and results of a survey concerning the professional path of four faculties graduates.

The studies and analyses performed in the paper lead to the conclusion that the teaching of geodetic subjects is in the process of professionalization. Polish universities offering geodetic courses, of the following, have coped with political transformations; as a result of changes in educational offerings and integrating education goals with economic ones, educate geodesy and cartography graduates at the highest level in Europe; actively react to the changing expectations of students by adjusting educational measures to their declared needs; develop practical education far beyond classical geodesy and cartography; or, have intensively developed internal educational quality control systems.

Keywords: educating surveyors, professional path of graduates