Małgorzata Buśko, Anna Przewięźlikowska • **The Analysis of the Updating Time of Subject and Object Data due to the Information Flow between the Systems of the Real Estate Cadastre and the Land and Mortgage Register** • Geomatics and Environmental Engineering 2013, Vol. 7, No. 2

This article presents the connections between the real estate cadastre (REC) and land and mortgage register (LMR) in terms of the time of passing geographic and legal information between these systems. The studies were carried out in the units responsible for the Inventory of Land and Buildings (ILB) and courts keeping the land and mortgage register in 2002 and in 2012.

The results of the studies on the information flow from LMR do REC in 2002 revealed significant inaccuracies. Many cases of outdated information were found in ILB. After introducing legal changes in LMR and sending the message about this fact to the register, the time of introducing the information into the system, in some cases, exceeded even 1200 days. Based on the same studies, it was also observed that some courts responsible for land and mortgage register did not update the content of the register, despite the fact that ILB informed them on the changes.

The studies carried out in 2012 were to define the present situation with the time of the exchange of object and subject data between the mentioned systems. A subsequent analysis of the time of updating information to verify to which extent legal as well as technological and informatics changes of the recent decade improved the co-operation between REC and LMR systems. Based on these studies one can also state that in the offices in Poland the information flow is still irregular. There are still problems with the updating the data revealed in the real estate cadastre and the land and mortgage register.

While the recent progress in technology and informatics facilitated the access to information both in the real estate cadastre and in the land and mortgage register, nowadays also in an electronic form, it did not provide automatic integration of data between the systems nor prevented the data redundancy. Only the creation of the Integrated Real Estate Information System

(IREIS) would provide the on-line updating of the data change in both systems. The basic goal of IREIS would be providing the access to reliable and up-to-date information on the real estate, collected in public registers.

Keywords: real estate cadastre (REC), land and mortgage register (LMR), Integrated Real Estate Information System (IREIS)

Karol Firek • **Evaluating the Contribution of the Most Common Types of Damage on the Degree of Technical Wear of Masonry Buildings Located in Mining Areas** • Geomatics and Environmental Engineering 2013, Vol. 7, No. 2

This paper presents a proposal to evaluate the contribution of the most common types of damage to the technical wear of buildings in mining areas.

The database which includes 122 single-family residential buildings of traditional masonry construction, not older than 26 years, located in the Upper Silesian Coal Basin, was the base of the research.

In the first stage, based on the analysis of the study group of the buildings, 11 most common categories of damage as well as irregularity of structural elements and finishes were identified. To evaluate the extent and frequency of damage, a 4-point qualitative scale was applied. Then, using methods of mathematical statistics, a contribution of particular types of damage to the extent of technical wear of the analyzed buildings was examined. As a result, it was concluded that initially accepted and statistically significant types of damage jointly explain about 50% of the variation of technical wear of the studied buildings. The largest, around 20% on average, contribution to the degree of the wear was obtained in the case of the damage to the bearing walls together with the finishing layers.

Keywords: technical wear of building, damage of building, mining impacts

Mykola Gordii • **Use of Cloud Computing in Oil and Gas Industry** • Geomatics and Environmental Engineering 2013, Vol. 7, No. 2

The short review of cloud technology is done. The analysis of technology possibilities in oil and gas industry context is given.

Keywords: geographic information systems, cloud computing, PaaS, SaaS, IaaS, NaaS.

Ewa Panek, Bogusława Rajpolt • **Preliminary Studies on the Protecting Possibilities of Selected Small Water Bodies in the Area of Krakow Agglomeration** • Geomatics and Environmental Engineering 2013, Vol. 7, No. 2

The studies were carried out in the western part of the Krakow agglomeration: the quarters of IV Prądnik Biały, VII Zwierzyniec and VIII Dębniki and the commune of Zabierzów. Seven sites were selected, according to the following criteria: the origin, size, characteristic of the adjacent area and vegetation as well as the degree of the preservation of the object. The studies included the ecological inventory of the sites, carried out by the established criteria and chemical analyses or waters. The following parameters were analysed: pH, specific conductivity, the content of macro-components: Na^+, K^+, Ca^{2+}, Mg^{2+}, HCO_3^-, Cl^-, SO_4^{2-} and general mineralization as well as the content of oxygen. Six objects are natural small water bodies, situated in urbanized areas, agricultural of forest areas. In six sites the lowering of the water mirror and/or expansion of emerged vegetation were observed, which can lead to their disappearance. Small objects are particularly sensitive to degradation and liquidation and require protective measures.

Keywords: small water body, Krakow agglomeration, anthropopression, conservation

Magda Pluta • **The Influence of Condition of the Ionosphere on the Accuracy of Real Time Kinematic GPS Measurements** • Geomatics and Environmental Engineering 2013, Vol. 7, No. 2

The aim of this paper is to examine the influence of the ionosphere on the RTK (Real Time Kinematic) GPS accuracy results. Precision of the measurement in the land surveying indicates the correctness of the execution of the task. The value is recognized as correct when the correlations between results of measurement and estimate parameters are compiled. Also assumptions of mean error and correlations between measuring parameters are important. The measurement with using satellite

systems, taking into the way which a signal must cross, meaning from the satellite to the receiver, is a technological complicated task. There are many factors affecting the quality of the received signal, which determine the measurement accuracy, and one of them is the ionosphere. The complex physicochemical processes that take place in the ionosphere, have a profound effect on the propagation of electromagnetic waves, and thus they cause an ionospheric delay. A ionospheric delay is a direct cause of the decrease of accuracy of the RTK GPS measurements. The main purpose of this paper was to find the correlation between the activity of the ionosphere, expressed by the index I95, and the season of the year and the time of a day, and therefore to indicate the most beneficial time to carry out the measurement with the use of RTK GPS technique.

Keywords: accuracy of measurement RTK GPS, condition of the ionosphere, Real Kinematic Measurement GPS

Korneliy Tretyak, Volodymyr Romaniuk • **Using GNSS Technologies for Research Features Vertical Movements of the Crust of Europe** • Geomatics and Environmental Engineering 2013, Vol. 7, No. 2

In order to study the dynamics of vertical crustal movements it was processed database with 196 stations according to the results of GNSS-observations on the permanent stations.

Based on the continuous series of observations we determined the changes of absolute and regional velocity of vertical crustal movements, their spatial distribution and relationship with the tectonic structure of the region. We made the maps of regional rates of vertical crustal movements in the period since 2000–2011.

It was also investigated seismic activity in Europe during this period.

The accumulated research results indicate the necessity for systematic studies of the impact of various geophysical factors on the stability and permanent displacement of plants and their relation to seismic activity.

Keywords: geodynamics; GNSS-observations, lithosphere, speeds of vertical crustal movements, tectonic structure

Jadwiga Konieczna, Agnieszka Trystuła • **Problems of the Real Estate Cadastre against the Background of Economic, Political, Legal and Technological Transformations** • Geomatics and Environmental Engineering 2013, Vol. 7, No. 2

The cadastre is an institution with several hundred years of tradition, originating from the need for the state to collect real estate taxes. It is conditioned by the history of a given country and its economic condition and provides information about the physical characteristics of real estate properties and their users. Because of its practical importance, it is continually being updated to more fully and efficiently supply a broad scope of information to state institutions and physical persons regarding land, the degree and forms of its development and its natural resources or utility infrastructure. This is reflected in cadastre development stages, from the land cadastre to the multi-purpose cadastre.

This study presents problems of the real estate cadastre against the background of economic, political, legal and technological transformations. It includes as a concept for the database architecture of a multi-dimensional cadastral system enabling (among others) the 3D visualization of structures, both below and above the ground surface.

Keywords: real estate cadastre, multi-dimensional cadastral system