SUMMARIES

Agnieszka Bieda, Paweł Hanus: **Determination of Real Estate Boundaries for the Purposes of Subdivision Process** • Geomatics and Environmental Engineering 2010, Vol. 4, No. 1

The problem of boundaries determination for real estate subdivision, in possible wide aspects, is the subject of the paper. Real estate boundaries is one of the most important problems in Poland, nowadays. The prices of real estate and values of supplements depend, among others, on area of real estate. Area of real estate, in turn, is calculated on the basis of real estate boundaries. The more accurate boundaries of real estate the better determined the value of real estate price and the quantity of supplement for agricultural production.

The problem of real estate boundaries is clear visible while subdivision process, where one real estate is to be divided on two or more smaller pieces. This process needs former determined outer boundaries of real estate and moreover produces new boundaries.

There are two kinds of real estate boundaries, describing real estate being a single parcel. The former is real estate boundary according to factual status of parcel boundary in the field, the latter is real estate boundary according to legal status of boundary. Real estate boundary in accordance with factual status was determined on the ground by surveyor many years ago, while establishing grounds register. Legal boundaries, in turn, are very useful and suitable for all purposes connected with real estate.

Problem of subdivision is complicated. The one of most important surveyor's work is acceptance of outer real estate boundaries, before procedure of subdivision is made. It is troublesome sometimes but crucial subdivision activity.

Keywords: real estate subdivision, legal boundary, acceptance of boundaries

Małgorzata Buśko, Anna Przewięźlikowska: **Analysis of the Quality of Academic Education of Geodesy and Cartography Graduates with Respect to Employment in Geodesy Administration** • Geomatics and Environmental Engineering 2010, Vol. 4, No. 1

The article presents an analysis of the quality of academic education of Geodesy and Cartography graduates in terms of their employment in geodesy administration. The subject of the article is an up-to--date issue, considering the opinions expressed in geodesy circles on poor preparation of university graduates to work in administration.

Accordingly, the article presents the teaching system of engineer and MSc courses and describes the syllabuses of respective specialties. Next, a student profile is presented vis-à-vis employer expectations and the requirements of geodesy offices. Moreover, we present the expected graduate qualifications in accordance with the recommendations of the Polish General Board of Higher Education. Finally, we compare several examples of jobs advertised by the Geodesy and Cadastre Departments.

Keywords: geodesy and cartography, geodesy administration, education

Jarosław Bydłosz, Piotr Cichociński, Izabela Basista: **The Possibilities of Geoinformation Resources Recorded in GML Accessing with Chosen GIS Software** • Geomatics and Environmental Engineering 2010, Vol. 4, No. 1

Nowadays, works concerning the implementation of directive establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) are conducted in the countries belonging to European Union. The WFS (Web Feature Service) may be used for transferring vector data. Data sent by WFS server are to be recorded in GML (Geography Markup Language) format, accepted by OGC (Open Geospatial Consortium) as the standard for geographical information coding, exchanging and storing.

Data recorded in GML, in accordance with specification published as technical guidelines by Surveyor General of Poland obtained from Topographical Database (TBD), have been used for analysis in this work. With application of "Data Interoperability" extension it was possible to successfully import this data into ArcGIS. This extension enables conversion between many data formats, defining input and output data formats and choosing files containing schemas. The free software that theoretically should comply with OGC specifications, practically does not deal properly with GML files. Quantum GIS tried to find the file structures by analyzing its contents and failed. OpenJUMP does not use original schema files and enables to build own schemas but such work requires not only the good knowledge of imported data, but the GML itself. After defining proper file called "template" this program easily imported all data.

This various experiences with Topographical Database file import have motivated authors to perform similar attempts with other files. The following GML files accessible on the Internet have been used – Ordnance Survey MasterMap (Great Britain), AAA-NAS (Germany) i TOP10NL (Netherlands). Despite the fact that these standards of topographical maps are quite popular, the results obtained with GML file import were very similar.

The researches that have been performed show that we are still neither legally nor technically ready to implement INSPIRE directive in Poland.

Keywords: Geography Markup Language (GML), Infrastructure for Spatial Information in the European Community (INSPIRE), Web Feature Service (WFS)

Grzegorz Lenda: **An Algorithm for Uniform Scanning of Coating Buildings Modeled with Spline Functions** • Geomatics and Environmental Engineering 2010, Vol. 4, No. 1

The paper presents a method of the uniform scanning of surfaces for reflectorless automatic total stations. It is particularly important for the coating buildings described by using of spline functions, which require delivery of a relatively regularly spaced measurement points. Classical scanning methods operate on uniform planar lattices, which become deformed after they are projected onto three dimensional objects. The algorithm presented here uses preliminary measurements to determine the shape of the shell and then determines a set of uniformly spaced points on it. Based on these points, directions of total station sight are set out at whose the instrument measures the distances. This method also has a second application: it can be used to uniformly dedensify the cloud of points obtained from classical laser scanning. This is useful because the creation of spline surfaces from full clouds of points is a task which significantly exceeds the processing capacities of modern computers.

Keywords: uniform scanning, quadrics, splines

Adam Łyszkowicz: **Refined Astrogravimetric Geoid in Poland – Part I** • Geomatics and Environmental Engineering 2010, Vol. 4, No. 1

Deflections of the vertical were traditionally used for modelling geoid on local and regional scale. First astrogeodetic geoid model for Poland was developed in 1961 while the last was calculated in 2005 in the framework of the project on precise geoid modelling. That model was developed using the improved deflections of the vertical, both astronomic and gravimetric. There are several effects, that were not fully considered, and problems that were not completely solved. They concern quality of archival astrogravimetric data, problem of weighting, the effects of plumb line curvature and elimination of outlying observations. In addition, all those geoid models were determined with the use of simplified astronomical levelling approach.

The aim of this study was to improve the astrogravimetric geoid model in Poland by improving the procedure of astrogravimetric geoid modelling and by using improved data. In the part I of this paper theoretical background of astronomic levelling and least squares collocation methods are given. Then the accuracy of the components

of the deflections of the vertical was estimated and the weights of astrogeodetic and astrogravimetric deflections of the vertical were determined. After that in the part II ("Geomatics and Environmental Engineering", Vol. 4, No. 2, in print) the astrogeodetic and astrogravimetric geoid models were determined from improved deflections of the vertical with the use of astronomical levelling. Other astrogeodetic and astrogravimetric geoid models were determined by least squares collocation with additional use of gravity anomalies. All models were compared with the GPS/levelling geoid of the satellite POLREF network. The results obtained indicate that both astrogeodetic and astrogravimetric geoid models determined from the same input data using least squares collocation approach is by factor 5 to 7 more accurate than the ones obtained using classical astronomical levelling.

Keywords: geoid modelling, deflection of the vertical, gravity anomaly, astronomical levelling, least squares collocation

Bogusława Rajpolt: **Fluorine Pollution of Underground Waters in the Area of the Repository of the Former Aluminium Metallurgy Plant in Skawina** • Geomatics and Environmental Engineering 2010, Vol. 4, No. 1

One of the technologies producing harmful for the environment wastes containing fluorine compounds is aluminium metallurgy. The surroundings of the Aluminium Metallurgy Plant in Skawina were characterised by significant pollution of all the environmental components with fluorine compounds. The deposited wastes distinctly influenced the pollution of underground and surface waters. In underground waters the fluorine content exceeded the concentration in the unchanged areas even up to 200 times. The carried out reclamation work on the repository improved the aesthetic values of this area, but did not decrease threat for was. Harmful effects of waste deposition will still be visible for many years.

Keywords: fluoride, pollution of the environmental, groundwater contamination, wastes, aluminium metallurgy plants

Jan Ruchel: **Creating Applications for Geodetic Computations** • Geomatics and Environmental Engineering 2010, Vol. 4, No. 1

The paper features the method of creating a computer application (assuming intermediate programming skills) that shall perform geodetic computations. Computation of a levelling net is used as an example. The levelling nets are the most often analysed ones by small geodetic companies. A special program shall be used in order to perform computations. It is shown how the application shall be created so that individual requirements are fulfilled, in particular the control and presentation of the computation results.

Keywords: geodetic computations, levelling nets, Visual Basic, small geodetic company, computer programs