

Anotacijos Abstracts

Česnulevičius A., Baurėnas A., Morkūnaitė R., Čeponis T. Intensity of erosion processes in urbanization territories of Vilnius. *Geography. Scientific Journal*. 2006. Vol. 42(1).

The geodynamic stability of the territory was assessed in two aspects: energy potential and the intensity of erosion processes. Methods based on the evaluation of horizontal and vertical sections of the relief were used for assessment of energy potential. The intensity of potential erosion processes was evaluated according to the possible thickness of the removed layer of deposits. Precipitation is one of the major factors predetermining relief erosion, which is evaluated in two aspects: amount and intensity. Climate conditions are responsible for the kind, intensity of precipitation, thickness, duration of snow cover, the depth and duration of frozen ground, and surface and groundwater regime. The slope stability is especially dependent on the intensity of rainfalls. The strongest rainfalls of 2005 were recorded on May 5 and 6 (51.1 mm), May 12 and 13 (38.0 mm), August 6–10 (180.9 mm), and September 16 (19.7 mm). The rainfall of August 9 (85.1 mm) especially strongly affected the surface.

Assessment of instantaneous changes of relief allowed determining the dependence between the amount of precipitation and the parameters of washouts at the roadsides. Washouts occur in the streets without solid pavement or sidewalks. The slope angle of only 1° and the catchment basin of atmospheric discharges of 0.2 ha are enough for their occurrence.

Key words: urban geomorphology, relief stability, erosion, precipitation, geodynamic types of relief

Kilkus K. Space distribution of low runoff and hydrophysical-hydrochemical properties of surface water in the Dovinė River basin. *Geography. Scientific Journal*. 2006. Vol. 42(1).

Field studies to estimate the space heterogeneity of low runoff and hydrophysical-hydrochemical properties of surface water in the Dovinė River basin have been carried on in the summer of 2004. The data exhibit a rather strong correlation between minimum daily discharge and catchment area. Water electric conductivity,

pH and temperature are inter-correlated parameters, and close relationships between them as well as a minimum discharge exist during the period of low flow in summer.

References 6. Figs. 8. Tables 3. English, summary in Lithuanian.

Key words: low runoff, water electric conductivity, pH, temperature

Saulius Stanaitis, Darius Česnavičius. Development and economic assessment of operating enterprises in the Vilnius city in 1995–2005. *Geography. Scientific Journal*. 2006. Vol.42(1).

The article presents the results of a complex study which aimed to evaluate the changes that have taken place in the sphere of economic activity after 1999, based on the developed system of social and economic investigations. The database of economic activity was updated and changes of the distribution pattern of enterprises in the Vilnius smallest administrative units in the last ten years were evaluated. This is the first attempt to compare the dynamics of economic activity and premises for the further economic development of Vilnius. The present work purposefully continues the investigation of 2002.

References 14. Fig. 1. Table 5. English, summary in Lithuanian

Key words: Vilnius municipality, distribution of economic activity, smallest administrative units of municipalities, annual revenues of the enterprises, employees in the enterprises

Beconytė G., Pubellier C. Geographic information infrastructure – towards interoperability of the public data. *Geography. Scientific Journal*. 2006. Vol. 42(1).

Compiling an efficient Lithuanian Geographic Information Infrastructure (LGII) is a fundamental pre-requisite for stimulating the private sector and for improving information services to the citizens in general. Implementation of the LGII requires coordination across a number of areas. The main goal of the project is to make harmonized and high quality geographic information readily available for implementing, monitoring and evaluating community policy and for the citizens to access regional

and national spatial information. The article is based on the study on the priority intervention needs, performed in 2004. It briefly describes what actions are necessary to achieve the goal and which of them must be given priority in order to make LGII socio-economically most effective. The paper reflects the author's approach to the national Geographic Information Infrastructure as a set of different types of measures and resources necessary to acquire, process, store, distribute, and improve utilization of geospatial data for the government, industry and community.

References 4. English, summary in Lithuanian.

Key words: geographic information, GIS, data, meta-data, spatial data infrastructure, e-government, public data

Kumetaiienė A. Digital terrain modeling by different geostatistical relief modeling methods. *Geography. Scientific Journal*. 2006. Vol. 42(1).

The accuracy of the digital terrain model (DTM) is analyzed. In compiling DTMs as well as in evaluating them, mathematical statistical measuring data processing and analysis methods are widely applied. Modeling the relief surface by the kriging, spline, invert distance weight (IDW) and polynomial methods is based on the statistical analysis of the random values. As the initial data for DTM, high points created by the stereophotogrammetry method are taken. The objective of the work was to investigate the accuracy dependence of digital terrain models on the methods of initial data preparation, methods of modeling. With a view to create a powerful model, the influence of modeling method accuracy was explored. The best results were secured when DTM was compiled by the kriging method using a circular semi-variogram and by interpolation taking 12 neighbouring high points.

References 10. Figs. 2. Tables 2. Lithuanian, summary in English.

Key words: digital terrain model (DTM), kriging method, spline method, invert distance weight (IDW) method, polynomial method

Leonowicz A. Two-variable choropleth maps as a useful tool for visualization of geographical relationship. *Geography. Scientific Journal*. 2006. Vol. 42(1).

Choropleth maps are one of the most widely used cartographic visualization tools, but one-variable maps are not a perfect means to visualize spatial relationships. Comparing visually such maps was found in many experiments to be a demanding task for most maps readers. Information about a geographic relationship is easier to notice when two distributions are combined on a one single map. The paper analyses the main aspects of their design: the choice of the statistical data, data classification, graphic representation and perceptual aspects. Mainly because of the perceptual problems two-variable maps are not often used in practice. In order to check if properly designed two-variable maps could be well understood by their readers, an experimental test was conducted. In this test participated geography students at both Warsaw and Vilnius University, who performed typical map-reading tasks on one-variable and two-variable choropleth maps. They also expressed their opinion and preferences about the maps. Students were more accurate in reading the spatial distribution on one-variable maps (especially the general pattern) and in reading the spatial relationship on two-variable maps. They found two-variable maps a little more difficult to interpret, but this form of presentation seemed more unusual and interesting. These results have shown that two-variable maps, which were quite properly understood, may be useful in the visual exploration of geographical data, when the relationship among the phenomena is of main interest.

Keywords: one-variable choropleth map, two-variable choropleth map, geographical relationship, map reading