

USING OF SOFTWARE PACKAGE SURFER FOR CADASTRAL ASSESSMENT OF LAND LOCATED IN THE ZONE OF INFLUENCE OF MINING AND METALLURGICAL ENTERPRISES

A.Yu. Palamar

Kryvyi Rih National University

Keywords: software package Surfer, cadastral assessment of land, information technology, state land cadastre, environmental condition of the territory, the zones for comfort living.

Statement of the problem. Cadastral assessment of land is one of the most pressing problems in the implementation of land and economic reforms in Ukraine. It serves an integral feature of quantitative, qualitative, economic, legal, and other indicators of regional land relations and serves as the basis of a single mechanism of taxation of land and other charges during the civil circulation of land [1, 5]. During the drafting of the pecuniary valuation of land it is used their quantitative and qualitative characteristics, soil appraisal maps, cadastral zoning, master plans and projects planning and building of settlements of historical, cultural, functional, sanitary, environmental, geotechnical zoning, etc.

Connection with important scientific and practical tasks. Automation of the state land cadastre today is stepping with the development of new technologies. Today's living is not simply possible without the existence of information technology. The space is filled with computer technology and software.

The material of the study. Taking into account the status of the land in monetary assessment in the mining complexes is a prerequisite for accurate determination of their value, lowering the tax burden on contaminated lands. Existing theoretical and methodological approaches to monetary valuation of such land does not fully take into account indicators of environmental quality and based on outdated data. In the normative literature in general there are no corresponding adjustment coefficients for the land value. Kryvyi Rih is a large industrial city that stands out for its personality in terms of environmental pollution. According to the air pollution in cities of Ukraine for 2012 city is indexed by high levels of contamination [2-4].

Based on the specific types of environmental situation and degree of disturbance of the earth's surface the factor value (Klk) will depend on the type of environmental situation and the degree of land in the relevant area for comfort living, as shown in Fig. 1.

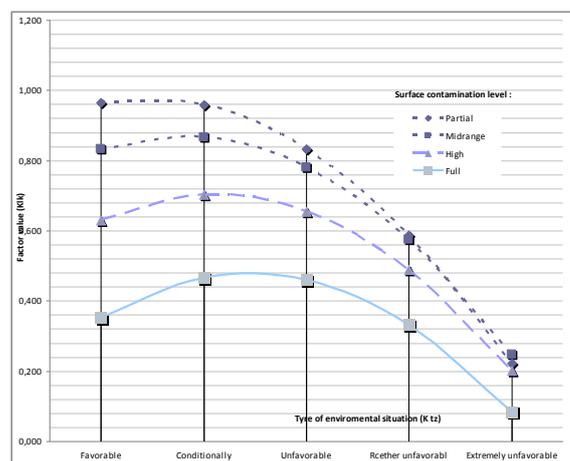


Fig. 1 Graphic representation of dependence coefficient (K_{zp}) and the type of environmental situation (K_{tz}).

The use of modern technology and modern information technology in everyday human activities is associated with processing of large amounts of data. This process usually takes place without human activities, and its ultimate goal is the practical realization of the desired feature set of appropriate technical equipment.

The most popular visualisation software of two-and three-dimensional data is a software package Surfer, developed by U.S. firm Golden Software. For example, the program Surfer lets you display a surface of 10,000 x 10,000 units.

Such a program is designed for charting and surfaces by prepared data or dependencies. Its advantage is the wide range of methods for interpolation of discrete functions and the ability to configure the required parameters in the proposed method. Its main disadvantage is the ability to display data for only one surface and the lack of playback functions of spatial dependence derived variables over time [5].

Besides the basic functions of visualization of spatial data software package Surfer enables:

- to calculate the volume between two surfaces;
- to replace a regular grid to another;
- to transform surfaces using mathematical operations with matrices;
- to make a dissection of the surface (calculation of the profile);
- to determine the surface area;
- to smoothing surfaces using matrix or spline - methods;

