

PROGRAMME OF DIGITAL CARTOGRAPHY DEVELOPMENT IN UKRAINE

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Abstract

The main trends of development of the digital cartography and the programme of this work in Ukraine is discussed.

When Ukraine was proclaimed an independent state, numerous bodies covering all spheres of social life were created here. On November 1, 1991 The Main Administration State Board for Geodesy, Cartography and Cadastre was established [1].

Its purpose is to promote management and coordination of topo - geodetic and cartographic production in Ukraine.

One of the manifold functions of this Board is the development of digital cartography in this country.

Digital Cartography is based on the achievements of traditional cartography both in theoretical and practical spheres of activity. Ukraine possess a considerable experience scientific and technical potential in theoretical and practical cartography. We may mention the fact that the entire territory of our state is covered by topographic maps (scale from 1:10 000 to 1:1 000 000); a whole complex of thematic maps, atlases, reference books etc have been published [2].

The development of topographic maps is carried out with the help of photogrammetric methods (scale 1:10 000 and 1:25 000), the updating or correcting of contents of the existing maps is based on new aerial photos or by transferring the alterations from largescale maps to maps with a lower scale. It's quite obvious that traditional technological lines are much worse than those for producing digital maps and we hope that conventional maps soon will fall out of use. Some concrete steps in this direction have already been taken. Some enterprises here have already produced a digital map of Ukraine (scale 1:500 000) and of some areas (scale 1:200 000). Needless to say, it's but a beginning of an enormous amount of work.

With this in mind the authours have offered to develop a project of "State Programme of digital cartography" aimed at restructuring the entire state cartographic production. This programme is supposed to take up from 7 to 8 years. The success of this work depends on changes in organization, financial and personnel support.

Since the digital cartography is one of the basic components of geoinformation systems (GIS), the following trends of development of the programme have been determined:

- creation of a single state fund of all purpose cartographic information;
- development of digital and electronic map production;
- creation of production technological bodies to supply GIS with digital mapping material;
- supply of necessary digital cartographic information to all possible users.

Having analysed all cases of the application of digital cartographic products we have already found some state programmes that need digital maps and information supply among them are:

- The National Programme for the elimination of consequences of Chernobyl disaster;
- Ecological monitoring of Ukraine;
- national programme of geological exploration of natural resources of Azov-Black Sea region and other regions of the Worldocean;
- Aeronavigation programme (development and updating of radionavigation systems);
- State Programme of Sea Navigation;
- State Programme "Research and Utilization of Space"

The detailed analysis has shown that user requirements in maps are quite versatile, but they can be structurized according to territories, scale, source documents. To solve these problems at a state level we need digital maps (scale 1:500 000 and 1:200 000); at regional level (scale 1:200 000, 1:100 000), at local level (scale 1:25 000, 1:10 000) at facial level 1:5 000 and higher.

The effective solution of the problem requires structural and technological changes in such directions:

- creation of work groups for digital cartography at the existing geodetical and cartographic enterprises, centers and laboratories;
- development and implementation of new technological lines for digital cartography and updating of maps using the data of remote sensing of the Earth by aerocosmic methods;
- development and functioning of automatized cartographic data banks;
- development of legal and standard bases to promote the solution of digital cartography problems and geoinformation technologies [3];
- instruction of personnel and specialists, training of engineers of the speciality "geoinformation systems and technologies" [3].

Since cartography belongs to the problems of the state significance, the financial support is to come from the state budget.

The realization of the programme will be carried out in two stages and will start at the time of its adoption of Ukrainian Government.

The first stage will last two years and will involve reorganization of cartographic production and management. At this stage the updating and re-equipment of the production facilities and creation of new technological lines are to be introduced for both automatized and semiautomatized means of collection and processing of cartographic data.

At the same time state standards should be developed and approved for digital mapping technologies (from collection of data to the product standards). It is also necessary to update old maps and create new ones (scale 1:1 000 000 to 1: 200 000).

Much work is to be done in research and designing new technical means and technologies for digital mapping, development of normative basis for producing digital and electronic maps.

The second stage will last 5 or 6 years and it envisages the development of digital maps

(scale 1:100 000 to 1:10 000), digital plans (outlays) of cities (scale 1:50 000, 1:500), updating of existing digital maps, creation and management of national and regional digital map banks.

This project is a comprehensive document and in addition to the abovementioned chapters there are others such as "The Mechanism of the programme realization", "Legal and standart support of the Programme", "Personnel", "International Cooperation".

In spite of the economic difficulties at present in Ukraine that have negative influence on the budget and financing of some programmes, some parts of this programme are being realized, although the document itself has not been adopted yet.

References

- [1] Положення про Головне Управління геодезії, картографії та кадастру при Кабінеті Міністрів України. Вісник геодезії та картографії, N 1, 1994, Київ, с.6-10.
- [2] Л.Руденко, В.Шевченко. "Карти для незалежної України". Вісник геодезії та картографії, N 1, 1994, Київ, с.76-80.
- [3] О.Дорожинський. "Відкриття у вузах України нової спеціальності "Геоінформаційні системи і технології". Вісник геодезії та картографії, N 1, 1994, Київ, с.106-111.