DEVELOPMENT OF AGRICULTURAL CARDS USING ARCGIS AND PANORAMA TECHNOLOGIES

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Annotation. The article focuses on the use of modern methods in the monitoring of agricultural lands and the application of foreign experience, the creation and improvement of maps of agricultural lands on the basis of GIS technologies.

Keywords. GIS, agriculture, GPS, land area, applications, data, methods, manipulation, management, visualization.

Introduction

At present, the total land area of the republic is 44410.3 thousand hectares, including 22614.0 thousand hectares of agricultural land, 230.6 thousand hectares of residential land, industrial transport, communications, defense and other purposes. Allocated lands 1934.2 thousand hectares, lands of nature protection, rehabilitation, recreational and historical and cultural significance 0.2 thousand hectares, forest lands 8050.4 thousand hectares, water lands 810.2 thousand hectares, reserves lands are 7582.5 thousand hectares. These lands are located in different natural areas and are characterized by different natural and ecological conditions. All this requires the state to manage land resources and distribute them wisely among the sectors of the economy.

In recent years, the growth of production and population growth have increased the demand for land. As a result, the transfer of land to other categories, especially the reduction of fertile land for agricultural purposes from year to year, requires the efficient and rational use of existing land.

It should be noted that the work on the use of geo-information systems in land management in the country is insufficient. In recent years, little attention has been paid to the use of advanced technologies in land management. Identifying the reasons for this and improving the use of geographic information systems in the management of land resources in the context of the economy is a topical issue today. Therefore, it is necessary to improve the use of modern methods in land management and to find opportunities for this purpose and to develop a framework for geographic information systems for land management.

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If we look at the dynamics of the distribution of the fund of agricultural lands, the area of agricultural lands in the Republic is 22,614.0 thousand. Of course, it is necessary to create digital maps of these areas and use them for their intended purpose. Based on the above information, it is necessary to organize the work properly. [1,2,3]

Methods

During the research, field work, topogeodetic search, cartographic, remote sensing of the earth, statistical, geoinformation system and technologies GlobalMapper, Surfer, ArcGIS programs and Java programming platforms, geovisualization research methods were used.

Result and Discussion

1. Hardware is all the tools you need in the process of implementing GIS: computer, plotter, digitizer, printer, GPS and other tools.

2. Software is a computer program used to analyze spatial data and create maps in GIS. Ways to enter spatial data, analyze them, visualize them in an understandable way, manage and store the database, quickly request the necessary information, and so on demonstrate what computer programs are like.

3. Information. It is no exaggeration to say that data is one of the most important features of GIS. Spatial data can be collected by the GIS executor in tabular or photographic form. Alternatively, the collected spatial data can be analyzed in combination with other collected spatial data.

4. Implementers. It is difficult to imagine any GIS without human intervention, in which people control all the processes that take place. The quality of GIS results depends on a person's level of knowledge and participation.

5. Methods. In many cases, the speed or quality of spatial data analysis and GIS results depend on the methods used. [4,5,6]

GIS performs the following 5 functions:

Picture-1.

1. Data entry - In order to use the data in GIS, this spatial data must be converted to a digital format. For example, entering maps drawn on paper into a computer is called "map numbering." To further speed up this process, we have the ability to use scanners in GIS. Another tool from the scanner is called a digitizer.

2. Manipulation - To implement a specific project

the existing spatial data needs to be further modified.

3. Management - An increase in the number of users of spatial data, types and amounts of spatial data in the course of work affects the effective management of data. In this case, all the spatial data in the GIS is in the form of relational tables, and all the spatial data in the form of a table are closely related to each other, and this is called a Database System in the GIS.

4. Data Request and Analysis - In GIS, we can request the information we need from an existing spatial database. The questions range from simple to complex questions.

5. Visualization - The end result of most spatial data operations is the visualization of data in the form of a map or graph.

Consists of Maps are a way to convey this spatial information to a decision maker in a short but rich, understandable way, and it is one of the most effective ways to store spatial information. GIS has a variety of applications to make this visualization more understandable to the decision maker.[7,8,9]

In ArcMap, we can work with data, enter data into attribute tables, perform queries, and work with ArcToolbox commands.
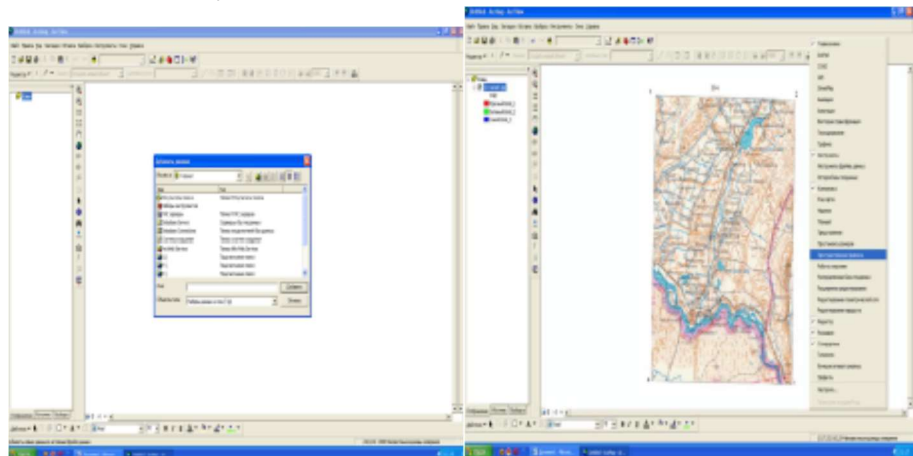

Picture-2

The ArcMap window consists of a main menu, standards, an instrument command window, and a layer window.
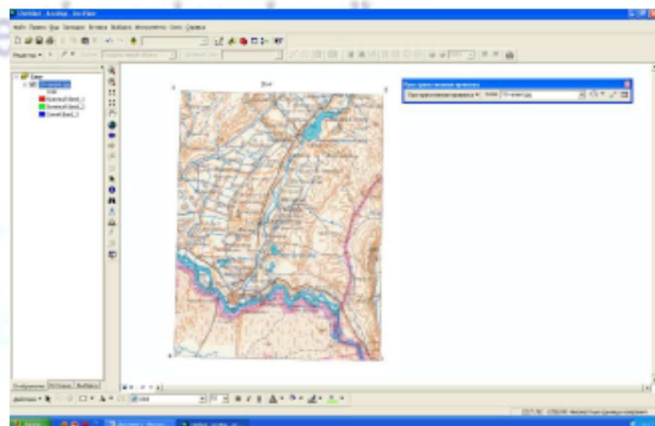

Picture-3

Geographical link (Prstranstvennaya privyazka).

The connection of various scanned topographic maps, aerial photographs, rasts to the coordinate system is called a geographical link. To make a geographic link:

- Necessary coordinates are obtained for the given scanned topographic maps or aerial photographs;

- the obtained coordinates are entered into the raster;

- the obtained coordinates should not be less than four;

Picture-4

To run Arc Catalog, our computer logs in from PUSK, selects all programs, Arc Catalog from the ArcGIS folder, and a window opens. ArcCatalog allows you to collect, manage, track, work with, create, and copy data [10,11].

❖ political and administrative maps;

❖ topographic and general geographical maps;

❖ cadastral maps and plans;

❖ photo maps of the place;
❖ landscape maps;
❖ land use cards, etc.

Of course, a separate geographical basis is chosen for each job. [12,13]

A database is a collection of data arranged in a numerical order, such as relief, settlements, geological, ecological, and so on. databases. Database formation, access to them, and database operations are performed through a database management system. This system quickly finds the information you need, allowing you to process it for further work. If a database is created in more than one location, it is called a distributed database. A set of databases and tools for managing them is called a database. The database and the bank are connected by computer networks, which are accessed through authorized management. Spatial objects. Real-world objects are called spatial objects in GIS. [14]

Conclusion

The theoretical, practical knowledge, skills, and effective practices gained during 4 years at the institute helped to write an article on creating an agricultural map in the ArcGIS program. In the process of completing the diploma project, I started by collecting, analyzing, compiling and, most importantly, justifying the relevance of the topic materials. In fact, one of the most pressing issues today is the use of modern geodetic instruments, advanced technologies, geodetic work, the gradual updating of maps. Because the accuracy of geodetic work performed with modern geodetic instruments is high, and the productivity is different from previous devices.

Today, various enterprises engaged in geodetic work are equipped with modern geodetic instruments. In this regard, the leadership of the Republic, on the initiative of the President, has signed long-term contracts with foreign companies producing modern geodetic instruments. In return, our specialists are now carrying out the most responsible economic work with the help of modern geodetic instruments.

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