



## Working With Geospatial and Descriptive Data in A Geoinformation System

**Jo'rayev Vohid Tojimamatovich**

Associate Professor of Fergana State University

**Axmadjonova Mohidil Hotamjon qizi**

Graduate student of Fergana State University

### ABSTRACT

In this article, the users who are studying geoinformatics have an opinion about the scientific application of the geoinformation system, its use in geodesy, cartography, land resources management and other fields in the field of geoinformatics. In addition, the article focuses on increasing the skills of data input, processing, storage and representation in the form of spatial data, which are considered the main tasks of the field of geoinformatics.

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Currently, as a result of the rapid growth of this section of the information system, it is used not only in technical fields, but also in various social areas of our life. GAT has a wide range of applications, including in health care, in the process of geographically and conveniently locating new clinics and hospitals, in the creation and determination of road routes and schedules for trucking companies, and in the design of new routes and roads for highway construction companies. It is very useful when choosing the most optimal option, as well as in correctly and rationally calculating the land in the state fund, developing new land for farmers, determining the condition of the land and obtaining sufficient information about it.

The first country that felt the need for such a system was Canada, and the concept of a geoinformation system was introduced by the Canadian Ministry of Environmental Development at that time, and later, the development of the geoinformation system is being continued in close connection with the improvement of computer technology. In order to simplify work, reduce the participation of specialists, save time and, of course, save money, we need an automated system with the help of modern computer programs and technologies - **Geographical Information System**.

Since ancient times, people have represented geographic information in various ways, and over time, the methods of displaying geographic information have improved. One of the first ways to describe geographic information was to describe information about this place on a map. Later, they started to enter conventional signs and coordinates on the cards. If the first cards were drawn and entered by hand, and conventional symbols were intended to be used on the scale of the society in which they lived, then later, not by hand, but on printing equipment, and conventional symbols also began to be used on a global scale by mutual agreement. At this point, we need to touch on the concepts of information and information, because these two concepts are close to each other and are often used together, which can lead to confusion.

**Information is an unprocessed, unstructured collection of raw facts.** Information can be qualitative and quantitative and is generated based on measurement results. Information can be presented in a table in the programs of the geoinformation system. After the information is processed and analyzed, it becomes

information. When we read information, we see only numbers, information is presented in an orderly form, and when we do not see this information, we can see the result processed based on them. In order to make it understandable, we can cite students' exam results as a simpler example. If the exam result of each student is considered information, then the average grade of students in the auditorium or the institution as a whole, the mastery rate is called information. Below are the differences between information and information:

- we use it to enter information into the computer system, after processing that information we get information from it as a result;
- information is unprocessed facts, numbers, and information is processed information;
- information does not depend on information, but information depends on it;
- information is not unique, and information is unique;
- information does not make any sense, and information should make logical sense;
- Information is a finished product, while information is considered raw material.



a



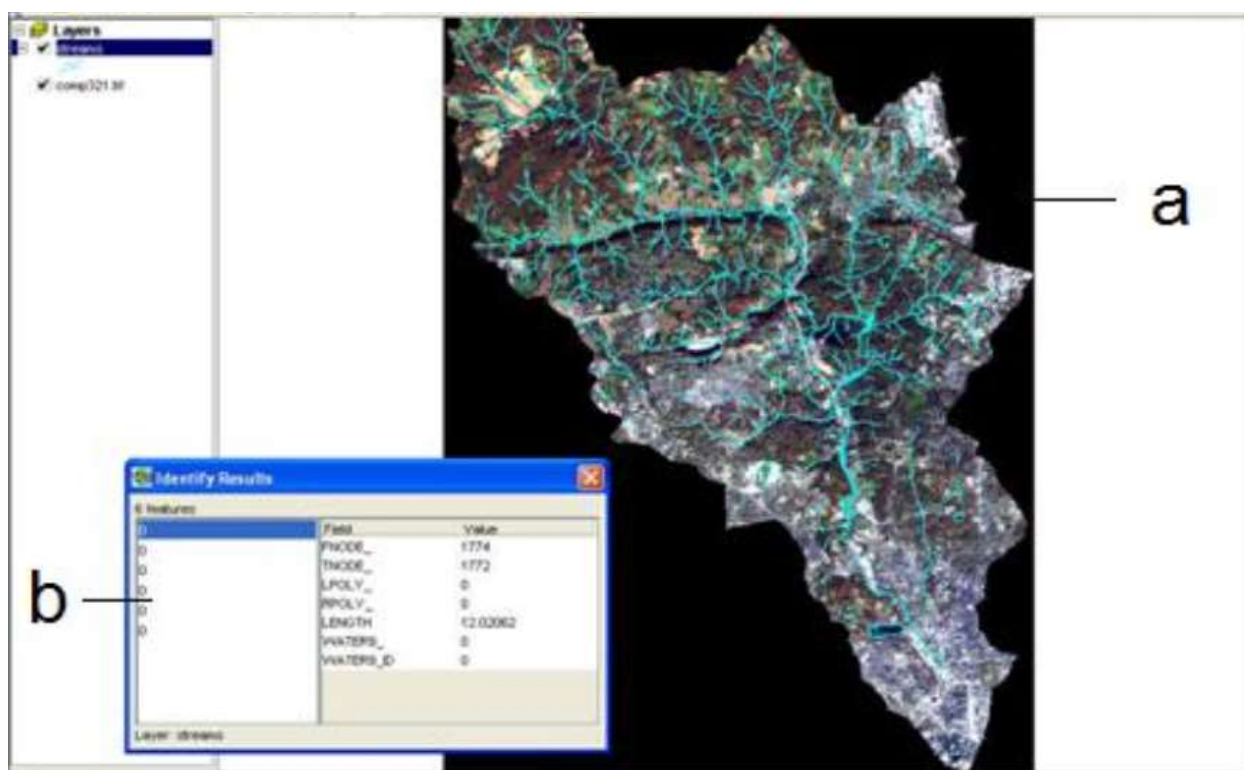
b

**Unprocessed data is a cosmic image (a) and processed data (b), that is, information**

In the geoinformation system, geographic information is abbreviated and called geodata or "geodata" in English. Geodata is geographic data of a place placed in a format used in a geoinformation system, that is, the data contains a coordinate, and the system can also read the coordinate (located address) while reading the data. To be more precise, we can understand geographic information as a collection of information about objects or bodies describing space. It is characterized by X, Y, Z coordinates or latitude and longitude. In the geoinformation system, geodata is the heart of any work, and without it, it is impossible to perform imaging and analytical work.

Today's traditional paper maps include information such as topography, location, and surface, as well as additional diagrams and tables. However, large amounts and sizes of tables, charts, and other information cannot be included on a paper card, as such large-scale information may cause misunderstandings.

After the emergence of the geoinformation system, along with geographic information, it became possible to enter tables, diagrams and other economic and legal information. In this case, the main attention is focused on which type of information is described in the database and which method. This type of information is called descriptive data.



**Geospatial (a) and descriptive (b) data**

Geospatial data contains a coordinate, and the system can also read the coordinate, that is, the location, while reading the information. Spatial data is called "spatial data" in English literature, and it is derived from the Latin word "spatium", which means space. Spatial refers to the dependence of an object on its position, size and shape in a certain place in space. We can include the possibility of spreading and measuring a certain phenomenon in three-dimensional space in the spatial concept. In GIS, the spatial concept is applied to a location on a map. Geospatial data is referred to as "geospatial data" and is a combination of the concepts of geographic and spatial data and is understood as the same as spatial data. According to the definition provided by the US Geological Survey, it is best to understand these two concepts in the same sense and they are used interchangeably. Geospatial data is usually stored in the form of coordinates, topologies, and maps are developed based on them. This concept is mainly used in the geographic information system and is intended for acquisition, management and analysis. Geospatial data distinguishes the geoinformation system from other information systems.

Geospatial data, in turn, are divided into two types in the system: vector and raster data.

An example is the way we understand geospatial data. To describe a road, we show its location (where) and description (length, name, speed, limit, direction). The location, shape or geometry of the road is called spatial information, while its description is called descriptive information or attribute information. So this road has its own spatial and attribute information like any other geospatial data..

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