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**The classification of geoinformation objects**

**Abstract.** The paper discusses the characteristics of classification of GIS objects.

**Key words:** Classification; algorithms of automatic classification; Geoinformatics; criterion; mathematical model.

Classification of the studied phenomena and processes common to all Sciences including Geoinformatics, in which the classification often is not only a method, but also the purpose of scientific research.

In the literature interchangeably with the term "classification" in the family sense uses the terms "group", "recognition", "diagnosis", "discrimination", "sorting" etc. Terminology inconsistency relates to the traditions of scientific schools, which include authors of publications, and the internal division of the theory of classification [5].

In connection with the importance of classification, the possibility of automation of their production process is an important tool in Geoinformatics (and other Sciences).

A large number of classification methods it is possible to build the corresponding algorithms of automatic classification. Usually these algorithms are created without taking into account the specificity of those Sciences, in which they can be used. This versatility allows you to apply the geoinformatics algorithms has already been developed by mathematicians-applied scientists or experts in the field of natural Sciences ([4]).

If you use the generic algorithms can be difficulties related to underestimation of the specificity of geographic information priorities and approaches, and therefore requires the analysis of the current state of classifications in Geoinformatics, specific features and prospects of their development.

The wording of GIS tasks, descriptions of phenomena admit of some variations in the characteristics of the phenomena. That is, the multivariate classification algorithms have higher levels of rigor level of rigor and accuracy of the tasks themselves. This sometimes leads to results that do not meet the merits and the substantive meaning of GIS tasks. Therefore, there is and has been used in studies of the theory of fuzzy sets [5], as well as attempts to develop on its basis the classification methods.

In many classifications, the problem arises of the optimal choice of the system baseline. On the one hand, this system should fully describe the phenomenon being studied, inclusion in the consideration of all available data may lead to their redundancy.

It is difficult to find a criterion that will allow us to evaluate the need for the inclusion of a variable as an indicator of the characteristics of the GIS object.

We also have to consider the degree of importance of indicators used to characterize objects. This requires a "weighting" indicators, which leads to a change in the degree of their influence on the final result. However, the definition of "weights" - the independent, complex and largely unresolved challenge. It can be solved, for example, an expert survey of specialists on the topic of research.

Most classification tasks in Geoinformatics are indicators of different nature: quantitative and qualitative. This imposes certain restrictions on the use of different classification methods in Geoinformatics.

To create a mathematical model of a GIS project begins with a normalization baseline. This allows you to correctly set the orientation indices between the worst and the best condition for each of them, and thus properly weighed them together. GIS objects and their systems should be considered as spatio-temporal education.

Important concepts zoning is defined as the procedure of isolating a holistic territorial geoinformation systems, as well as the object binding to the surface.

The classification of GIS objects can be divided into the following classes:
• similarity of the signs;
• relations.

While classifications can be solved tasks such as splitting of the studied set of objects and phenomena into classes and the assignment of one or more objects (or phenomena) to the already existing classes. Classes can be described one way:

a. by enumerating the list of objects and phenomena, they are covered,

b. specifying the General properties of objects and phenomena that are included in them,

c. characteristics of individuals, considered as typical.

Classification methods can be divided into the following groups:

1. target: evaluation and typological classification;

2. by definition class: conventional and fuzzy [4];

3. on known in advance information about the statistical properties of classes: parametric and nonparametric.

Finally, in addition to the classification of GIS objects themselves, there is the problem of classification of their interactions. It is much harder due to the increase in the number of parameters to describe these interactions.

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