Landscape mapping of the eastern part of the Russian plain

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Abstract

The use of landscape approach for the management of nature-use of the territory is substantiated. Structure of creating a geographic information database to identify natural territorial taxa of the rank of landscape region is developed. The main results of medium-sized landscape mapping of the eastern territory of the Russian plain (The Republic of Tatarstan). The analysis of the parameters that are used for landscape zoning is given. In total, for the purposes of landscape zoning more than 40 different parameters have been taken. On the basis of the method of artificial neural network by Kohonen landscape zoning is held. Ability to generalize is a valuable quality of artificial neural networks. Approaches to landscapes typification and their structures have been identified. The area of research that makes up to 68 square kilometers is divided into two landscape zones and four subzones and 31 landscape region. Implementation of mapping was carried out by means of GIS technologies. Well-defined boundaries of landscapes are formed during sharp changes of the natural environment. This type of borders is mainly conditioned by changes in bedrock lithology and geomorphological conditions. Geo information analysis of the prepared in vector format landscape map of the studied territory provides insight into the morphological structure of landscapes of different zones. Among them slope landscapes dominate, followed by valley types of areas and watershed ones occupy the least area.

Keywords