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The Russian Altai landscapes: investigation and inventory for sustainable mountain development

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The Russian Altai is the territory of natural contrasts. It is practically the north of Inner Asia in "miniature". The author's research results obtained on the Russian Altai can be used for different purposes and at different levels. Worthy of mention are some major outcomes. For instance, the author proposed a positional analysis to determine a key factor or a number of factors that separate Altai as the regional geosystem and give its difference from the adjacent ones. The landscape map of the Russian Altai (1: 500000) covering 5315 patches was developed. A total of 266 species of landscape are distinguished in the Russian Altai. For the physical-geographical provinces of the Russian Altai, the quantitative assessment of complexity and landscape diversity was made using the landscape metrics. A large-scale landscape mapping was performed for functional zoning of some parts of the Russian Altai (administrative units, protected areas). The general goal of functional zoning is a combination of nature protection (including preservation of a biological and landscape variety, maintenance of ecological stability and safety) with recreation and other types of land use. The author developed the approach to defining subregional nature-management systems in the mountain area. Nature-management systems are interpreted as prerequisites and limitations in various types of usage. All in all, forty subregional nature-management systems were defined within the territory of the Russian Altai. Finally, it was found that dynamics of glaciation in the Late Holocene on the background of minor short-period fluctuations of meteorological parameters was largely determined by the position-geographical features, and self-development of glacialnival and the adjacent geosystems.