Bioclimatic Conditions of Russian Altai Kray Landscapes as a Factor of Sustainable Tourism Development

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Abstract: In this article authors covered the recreational-climatic conditions and prerequisites for sustainable tourism development in Russian Altai. Authors conducted spatial differentiation of landscapes according to their bioclimatic parameters for tourism and recreation activities. Authors submitted recreational-climatic zoning.

Key words: Tourism • Recreation • Bioclimate • Mountain landscapes • Categories of comfort • Typing • Zoning • Altai

INTRODUCTION

Sustainable tourism is one of the priorities of the comprehensive development of the Russian Altai. Climatic and recreational (bioclimatic) potential areas, reflecting the degree of favorability landscape and climatic conditions and the possibility of their use in the tourist resort and recreational practice is certainly an important factor in identifying the suitability of areas for tourist and recreational development.

MATERIALS AND METHODS

Climate estimation for recreational purposes was carried out on the basis of landscape-indicator approach. Along with conventional climatic parameters characterizing the separate elements of climate, authors used special integrated meteorological parameters reflecting the effects of weather on human, regardless of individual characteristics. [1] Author index of favorability bioclimatic conditions (PBBKU) was introduced [2]. The criteria for degree of landscapes bioclimatic comfort taken: lack of heat in the human body in July, conditional temperature in January, the value of atmospheric pressure, PBBKU in January and July.

RESULTS

Analysis of weather classes of moment calculated by the method of V.I. Rusanov [2, 3], bioclimatic and climatic data showed that according to the conditions of life activity of human body all the Altai landscapes can be combined into groups each of which is characterized by certain properties of bioclimate. Landscapes’ bioclimates are represented by categories: extreme or extremely uncomfortable bioclimate, acutely uncomfortable, uncomfortable, moderately uncomfortable, moderately comfortable or pre-comfort and comfortable.

Extreme conditions are characteristic for landscapes of high mountains, with a long period, negative average daily air temperature, strong winds, extremely low warmth that greatly complicate the process of thermoregulation. Low air pressure causes altitude sickness.

Acute uncomfortable bioclimatic conditions are presented by the mountain forest and mountain-taiga midlands landscapes. Acute discomfort is determined by height deficiency heat and low atmospheric pressure that increase with altitude. Uncomfortable conditions are most typical for semi-desert landscapes of intermountain basins. Moderately uncomfortable bioclimate is typical for landscapes of moor intermountain basins in the warm
season where the winter is dominated by uncomfortable bioclimatic conditions, causing severe functional stress of human thermoregulation systems. Moderately uncomfortable weather, in which a person is reduced skin temperature, metabolism slows down is characterized by high repeatability during summer. However the frequency of clear and comfortable weather favorable to the human body is quite high.

Pre-comfort conditions prevail in the moor, moor and forest landscapes characteristic of the bottoms of valleys and lowland lake basins and a part of middle altitude. Comfortable at moor and moor-forest to a small extent forest landscapes of shallow ridges and valley bottoms of low-hill terrains.

Generally 33 - 35% of Russian Altai territory is represented by landscapes of extreme and about 50% of uncomfortable conditions for human life that however are admissible in tourist activity. Landscapes with pre-comfort and comfortable conditions make approximately 3.5% of mountainous territory.

Physico-geographical zoning is taken as the basis for recreational-climatic zoning [4] because the climate in the mountains is connected with to the unity of the terrain type and genetic uniformity of landscape zones structure. Five provinces are distinguished in Altai depending on the effect of orographic systems at transformation of general circulation processes: North, Northeast, East, Southeast, Central. Good level of ultraviolet radiation, large daily temperature amplitudes and large variability of the weather are general properties for bioclimate of all the above mentioned provinces.

Provinces include recreational and climatic zones, which are generally represented by genetically homogeneous landscape complex divided into vertical zones. Territories of landscapes and areas of Katun Teletskoye Lake are characterized by comfortable bioclimatic conditions. During the year these areas show more than 220 days-period of weather favorable for human life in which the functional stress of human thermoregulatory system is minimum, average or poor.

Pre-comfort bioclimatic conditions are typical for the landscape areas of: Bijskoye, Ishinskoye, Upper Charyshsky, Anuyhsko-Seminsky, Chulyshman, Middle Katun. The number of days with weather favorable to the human body during the year ranges from 200 to 215. The average stress of human thermoregulation systems is dominating.

Winter conditions Ursul, the Cansk, Abai and Uimon-Katandinskaya areas are evaluated as moderately uncomfortable. During the year, the number of days with favorable bioclimatic conditions in these areas ranges from 170 to 200. The winter is characterized by severe weather an average degree of functional stress to human thermoregulatory system.

Landscapes of Ulagan region are characterized by uncomfortable bioclimatic conditions. The average annual number of days with favorable weather for the human body is 100 - 110. High frequency of days with very severe weather which is associated with strong functional stress of human thermoregulation systems.

The most severe weather is in Chui and Kurai bioclimatic zones where winter is characterized by acutely uncomfortable and summer - uncomfortable bioclimatic conditions of human life. Winter is very severe and dry. Often there is an extremely severe weather.

CONCLUSION

Thus the Altai has a rich bioclimatic potential not only for tourism development but also for therapeutic recreation including to creation of climate and balneological resorts of multiple types. Bioclimatic conditions most favorable for human life are in the low area of Altai less comfortable are represented in the midlands and acute and extreme uncomfortable - in the highlands.

Maiminsk, Choya, Turochaki, Chemals administrative regions are characterized by the highest recreational potential. The territory of these areas is promising for resort, recreation and tourist development. Ongudai, Ust-Kan, Ust-Koksinsky, Ulagnasky and Kosh-Agach administrative regions are characterized by large seasonal differences in recreational-climatic potential where severe winter weather conditions the bottoms of valleys and hollows limit the resort.

The research allow us to make a conclusion that Russian Altai has many natural possibilities to become an international center for sustainable tourism

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REFERENCES

