THE ROLE OF THE SOUTHERN SLOPE RELIEF OF THE GREAT CAUCASUS AS A FACTOR FOR CLIMATE PROCESSING IN TOURISM (IN THE RANGE BETWEEN SHINCHAY-GIRDIMANCHAY)

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Abstract. Historically, climate, as one of the main factors causing seasonal movements of people for economic, medical, recreational, etc. purposes, plays an important role in the use of resort resources, often as a primary, and in other cases as an auxiliary factor. The high absolute altitude of the studied area leads to the differentiation of climate types and components here, which at the same time leads to a change in the tourism potential of the area by altitude. Despite the rich climatic resources of the area, this inexhaustible natural resource is poorly used in terms of medical and health tourism. In this regard, the article examines the impact of various climate types and climate components distributed along the vertical zonation of the studied area, especially solar radiation, on human health, the potential of various types of resort tourism of the area, especially heliotherapy, aerotherapy, and the possibilities of using it at different altitudes for different months are shown.
Keywords: relief, climate types, meteorological elements, heliotherapy, aerotherapy, aerosols

Introduction

Relief affects the distribution of temperature, humidity, and atmospheric pressure, the differentiation of their quantitative and qualitative indicators, and leads to the formation of the ecological environment in space [5]. It has been proven by science that mountain systems formed as a result of tectonic movements act as one of the leading factors among global climate-forming factors. Mountain barriers formed on the path of air masses block humid air masses, create precipitation as a result of rising movement, differentiate temperature and air humidity. According to Maksyutov (1981), mountain barriers redistribute radiation quantities, lead to an increase or decrease in atmospheric precipitation and runoff, temperature and wind activity, erosion processes, the degree of afforestation and desertification, which ultimately leads to the formation of specific landscapes [9].

Health tourism is the use of medical and health-based activities that contribute to the physical, mental and spiritual well-being of an individual. Mineral, thermal waters, healing muds, climate, sea are considered natural resources of health tourism. There are numerous destinations in the world that specialize in one or more forms of health tourism. For example, Israel and Jordan carry out climatotherapy and medical treatments at the Dead Sea. Hungary specializes in dental procedures, as well as balneotherapy. Japan, South Korea, and Taiwan are famous for their hot springs. India and Costa Rica have invested in creating unique destinations. Scenic beach destinations around the world are home to luxury resort spas. Climatotherapy is the use of climate effects on humans to treat any disease, using the climate that will be beneficial for that disease. Climatotherapy has varieties such as forest, mountain, mine, cave, and coastal (thalassotherapy).

The study area

The southern slope of the Greater Caucasus is distinguished by its rich resort and recreational opportunities. Favorable conditions for treatment and recreation exist here all year round, except for the rainy autumn period. The wide range of absolute altitudes in the

area, geographical position, and complex relief conditions have created conditions for the formation of various types of climate here. It is precisely the mountainous relief of the area that ensures the purity of the air here. It has been established that at an altitude of 100 m above sea level, the number of dust particles in 1 cm^3 of air reaches 45 thousand, at an altitude of 1000 m it reaches 6 thousand, and at an altitude of 2000 m it reaches only 700 [2]. An increase in altitude also leads to an increase in ultraviolet rays, which have bactericidal significance, which determines the quality of mountain air. Studies by M. M. Afandizadeh, A. M. Mammadov and N. F. Kocharavan show that the intensity of ultraviolet rays in the high mountain resorts of the Caucasus is 2-3 times higher than in the foothill zone [2]. According to E. M. Ilicheva (1963), Azerbaijan is included in the zone where there is no ultraviolet deficiency and strong biological activity prevails (7-7.5 months).

The mountainous terrain also prevents the passage of atmospheric fronts, which reduces the likelihood of sharp weather changes. As a result, the daily temperature amplitude variability, which has a negative impact on human health, decreases.

Methodology

Therapeutic methods using climate indicators have been investigated in various countries around the world. The applicability of the investigated therapy methods in the studied area was determined.

Data collection

Data taken from various foreign and local books and articles and data from a map compiled using ArcGIS 10.5 software were used.

Analysis of data

Using data collection the climate-forming function of the relief and the distribution of climate elements by altitude in the studied area were investigated. Suitable altitude areas and time intervals were proposed for the application of treatment methods in the studied area using climate indicators in world practice.

Results and discussion

E. D. Petrov (1949), V. A. Aleksandrov (1952), G. M. Danishevsky (1955, 1968), A. A. Grigoryev and M. I. Budyko (1959), L. A. Chubukov (1962) and other researchers believe that the human body is affected by the entire complex of meteorological elements. However, under certain conditions, one or several meteorological factors can play a major role in the pathological reaction or therapeutic effect.

Solar radiation is the most powerful of the climatic indicators and determines the profile of recreation and treatment in health resorts and resorts. Sunlight regulates vitamin metabolism in the human body, improves respiratory and circulatory processes, and has a positive effect on labor activity. In this regard, special areas of treatment are used in medical science - treatment with direct solar radiation - heliotherapy, treatment in conditions of scattered radiation, treatment in the open air - aerotherapy. Aeroheliotherapy is a powerful tool for increasing the effectiveness of resort treatment for various diseases. The hardening and training effects of natural glym factors during sun and air baths improve mobility, balance of the main cortical processes, as a result of which the normalizing effect of the nervous system on the functions of its subordinate organs and tissues increases [4].

Abu Ali Ibn Sina, in his work “The Rules of Medicine”, highly appreciated outdoor treatment, calling it the best medicine for human health. Various types of outdoor activities are called aerotherapy. Aerotherapy is a natural oxygen treatment method that forms the basis of climate treatment. The main goal here is to strengthen the body, increase the body's overall resistance to the negative effects of the external environment. According to doctors, under the influence of air baths, the patient's oxygen consumption increases, as a result of which the amount of oxygen in the blood increases and oxidative processes in the tissues are stimulated [4]. The thermal regime determines the relaxing and therapeutic effect of the area during

therapy. Therapy is carried out at a temperature of 9-27 ° C. The prevalence of warm and sunny weather in the studied area allows for the successful implementation of procedures. Here, the most suitable of the various types of aerotherapy are long-term outdoor stay (including sleep), special climatic pavilions, balconies, veranda treatment (all day), air baths (dose effect of fresh air on the human body). Since vertical zonation is observed in the area, different altitude zones are provided with sunlight in different ways.

Table 1

Dependence of air temperature (°C) on altitude in the Sheki-Zagatala economic region

Height , m	Air temperature			Active temperature total (Σt>10°)	Average absolute minimum temperature
	january	july	Year		
500	0,8	23,8	12,8	4000	-10,6
1000	-1	21,2	10,7	3080	-13,5
1500	-2,8	18	8	2160	-16,5
2000	-5	14,8	5,4	1280	-19,1
2500	-7,7	10,8	2,4	400	-22,1

Source: Regional geographical problems of the Republic of Azerbaijan. Sheki-Zagatala economic region. Baku, "Nafta-Press", 2003, 190 p.

Due to the mountainous terrain, the decrease in warm and sunny hours with increasing altitude limits the duration of the procedures. Since the average annual air temperature in areas above 1500 m is already below 8 °C, areas up to 1500 m are more suitable for therapy (Table 1) [7]. As can be seen from Figure 1, the average monthly temperature in Gabala, Sheki, and Oguz regions from April to October is above 10 °C (Fig. 1) [8]. From the analysis of Figure 1, it was determined that 59% of the studied area (2250 km²) has a temperature above 12 °C in June-August (Table 2) [6].

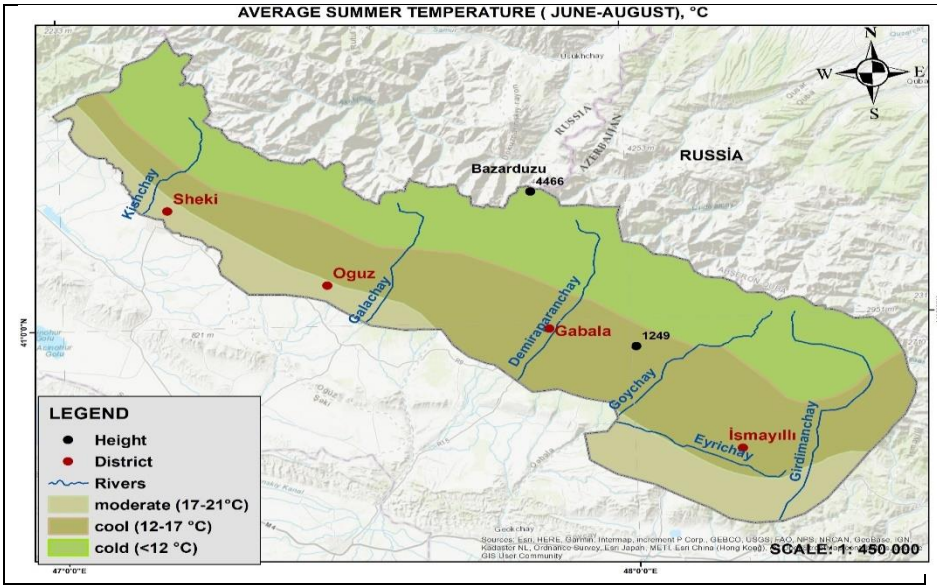

Fig. 1. Average summer temperature (June-August) on the southern slope of the Greater Caucasus, °C

Temperature, °C	Area, km²
Moderate, 17-21	606
Cool, 12-17	1644
Cold >12	1509

Table 2. Area of areas determined based on average summer temperatures

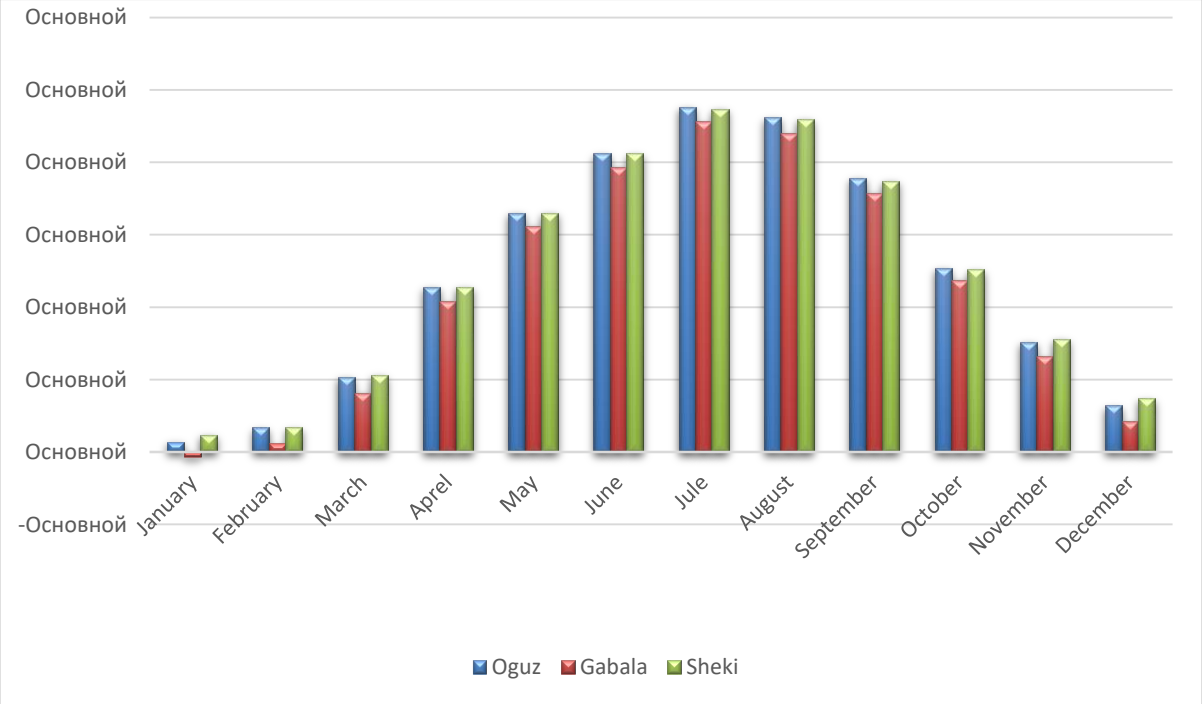

Fig. 2. Average monthly air temperature (°C) in Sheki, Oghuz and Gabala regions

Considering the rainy summer months in the area, especially the rainy nights, it is more expedient to organize daily and dosed aerotherapy in special pavilions, verandas and balconies.

In the studied area, in forest areas with flat relief and open to the south and southeast, aerosol therapy can be organized, which is a type of climate therapy. In this case, light blinds can be used to block the wind, while maintaining natural aeration.

The area has rich opportunities for heliotherapy based on direct sunlight. In the studied area, 50% of the days in the winter months in the city of Sheki are sunny. This creates conditions for outdoor recreation and heliotherapy in closed or semi-closed conditions. Since spring and autumn are rainy and foggy (especially April, October, November (15-18 days)), the area is considered unsuitable for heliotherapy during that period. The maximum biological effect is exerted by solar rays with a wavelength of less than 400 nm - UV radiation. These rays have a pigmentation effect, form erythema and produce vitamin D [1]. According to the classification of V. A. Belinsky and L. M. Andrienko (1976), UV rays in our republic fall into the excess zone for a long time. The amount of direct and scattered radiation with a wavelength of 400-280 nm, i.e. UV rays falling on a perpendicular surface during the day, is distributed as follows for the entire territory of Azerbaijan (Table 2.) [3].

Table 2

Average monthly total UV radiation

Month	Radiation (watt-hours per m²)	
	direct	scattered
April	250	240
July	275	270

Source: Eyyubov A. J., Hajiyev G. A. Climatic resources of the Azerbaijan SSR. Baku, "Elm"-1984, 131 p.

Conclusion

The abundant solar radiation of the studied area, the advantage of the repetition of sunny days in the daily temperature range, favorable microclimate conditions in the foothills and lower border of the middle mountain belt allow for the wide application of climate-based treatment measures, especially aerotherapy, heliotherapy, etc., and the creation of health centers of various profiles. The most favorable period for the use of the mentioned resources is June-September. The creation of health centers in the area will create conditions for both local and other populations to benefit from the potential of this area, and will also lead to the provision of employment to the local population and the improvement of their financial situation.

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BÖYÜK QAFQAZIN CƏNUB YAMACI RELYEFİNİN İQLİM ƏMƏLƏGƏTİRİCİ AMİL KİMİ TURİZMDƏ ROLU (ŞİNÇAY-GİRDİMANÇAY ARASI TİMSALINDA)

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Tarixən insanların təsərrüfat, müalicə, istirahət və s. məqsədləri üçün mövsümi yerdəyişməsinə səbəb olan əsas amillərdən biri kimi iqlim kurort ehtiyatlarının istifadəsində mühüm yer tutaraq çox vaxt birinci dərəcəli, digər hallarda isə yardımçı amil kimi iştirak edir. Tədqiq olunan ərazinin mütləq yüksəkliyinin böyük olması burada iqlim tiplərinin və komponentlərinin differesiasiyasına səbəb olur ki, bu da eyni zamanda ərazinin hündürlük üzrə turizm potensialının dəyişməsinə səbəb olur. Ərazinin zəngin iqlim ehtiyatlarına malik olmasına baxmayaraq məhz bu tükənməyən təbii ehtiyatdan müalicə-sağlamlıq turizmi baxımından zəif istifadə olunur. Bu baxımdan məqalədə tədqiq olunan ərazinin şaquli qurşaqlıq üzrə paylanan müxtəlif iqlim tiplərinin və iqlim komponentlərinin, xüsusilə günəş radiasiyasının insan səhhətinə təsiri araşdırılmış, ərazinin kurort turizminin müxtəlif növlərinin, xüsusilə helioterapiya, aeroterapiya potensialı araşdırılmış, müxtəlif hündürlüklərdə ayrı-ayrı aylar üzrə istifadə imkanları göstərilmişdir.

Açar sözlər: relyef, iqlim tipləri, meteoroloji elementlər, helioterapiya, aeroterapiya, aerosolyari

РОЛЬ РЕЛЬЕФА ЮЖНОГО СКЛОНА БОЛЬШОГО КАВКАЗА КАК ФАКТОРА КЛИМАТИЧЕСКИХ ПРОЦЕССОВ В ТУРИЗМЕ (В РАЙОНЕ МЕЖДУ ШИНЧАЕМ И ГИРДИМАНЧАЕМ)

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Исторически климат, как один из главных факторов, вызывающих сезонные перемещения людей в экономических, медицинских, рекреационных и других целях, играет важную роль в использовании курортных ресурсов, часто в качестве основного, а в других случаях — в качестве вспомогательного фактора. Большая абсолютная высота изучаемой территории приводит к дифференциации климатических типов и компонентов, что одновременно обуславливает изменение туристического потенциала региона в зависимости от высоты. Несмотря на богатые климатические ресурсы региона, этот неисчерпаемый природный ресурс используется в лечебных целях и оздоровительном туризме крайне недостаточно. В связи с этим в статье рассматривается влияние различных типов климата и климатических компонентов, особенно солнечной радиации, на здоровье человека, распределенных по вертикальной зональности исследуемой территории, потенциал различных видов курортного туризма в регионе, в частности гелиотерапии и аэротерапии, а также показаны возможности их использования на разных высотах и в разные месяцы.
Ключевые слова: рельеф, типы климата, метеорологические элементы, гелиотерапия, аэротерапия, аэрозоли

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