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კრებულში განხილულია ბუნებრივი სამკურნალო ფაქტორების დაავადებულ ორგანიზმზე მოქმედების მექანიზმები; მოცემულია სამხეთ კავკასიის ქვეყნების კურორტული რესურსების დახასიათება და წარმოდგენილია რეკომენდაციები, რომელთა დანერგვა შესაძლებლობას მოგვცემს გამოვიყენოთ ზემოხსენებული ფაქტორები პროფილაქტიკური, თერაპიული, სარეაბილიტაციო და ტურისტული მიზნებისათვის.

В сборнике рассматриваются вопросы, касающиеся механизмов действия природных лечебных факторов на больной организм; дана характеристика курортных ресурсов стран Южного Кавказа и представлены рекомендации, внедрения которых позволит повысить эффективность применения вышеуказанных факторов в профилактических, терапевтических, реабилитационных и туристических целях.

The Collection deals with the mechanisms of action of natural therapeutic factors on the sick organism. The characteristic of spa resources of the South Caucasus is given and recommendations are provided, implementation of which will increase efficiency of these factors in prophylaxis therapeutic rehabilitative and tourist purposes.

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TOURISM CLIMATE INDEX IN BATUMI

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Introduction

Georgia is located at the crossroads of Europe and Asia. The northern boundary runs along the Great Caucasian Range. Western Georgia is washed by the Black Sea. The first human habitant in Georgia can be traced back to the Achelian epochs and the beginning of the Bronze Age to the 2nd millennium BC. The relatively small territory of Georgia covers diverse climatic zones, ranging from humid subtropical zones to those of eternal snow and glaciers. Climate has a strong influence on the tourism and recreation sector and in some regions represents the natural resource on which the tourism industry is predicated.

Traditional Georgian hospitality, ancient historical sites, mineral and thermal springs, and the Black Sea coast are the major attractions for travelers to Georgia. It is a vacation spot undiscovered by the West that is in need of development both in terms of infrastructure, such as road, railroad, electricity, water supply and wastewater treatment, and in terms of tourism-related activities, such as hotels, restaurants, sport facilities. With the assistance of bilateral and multilateral agencies and international organizations, Georgia strives to establish its image as a tourist destination. The current policy is to develop the tourism infrastructure along the historic "Silk Road" and create a favorable business and investment environment for the development of the emerging tourism industry in Georgia.

With a territory of 64 700 km² Georgia includes 330 km of subtropical Black sea coast, extensive agricultural regions and alpine valleys with dramatic mountains such as Shkhara (5198 m) and Kazbek (5048 m). Near 39 % of the country is forest. It has 19 nature reserves, 860 lakes, numerous waterfalls and more than 25 000 rivers whose total length is 54 768 km. There are almost all kinds of mineral waters with more than 2000 springs already.

Georgia has 12 000 historical monuments and 150 museums: medieval towers pepper the sub alpine zones, and some of the cathedrals, churches, monasteries and some of the cathedrals, churches, monasteries and bridges date as far back into the past as the VI-V millennium B.C. Activities relating to tourism in Georgia include the following:

- Cultural tourism: archaeology, history, agriculture, ethnography;
- Adventurous tourism: trekking, mountaineering; skiing, horseback riding: mountain-biking etc.;
- Eco Tourism: Bird watching, Botany, Active Eco tours;
- Agro Tourism;
- Special interest tourism (wine and gourmand tours, photography, yacht tourism, medical tourism, thermal tourism etc.);

- Resorts and recreational tourism;
- Conventions and Conferences;
- Religion Tourism;
- VIP Tourism;

The diverse climatic conditions in Georgia give a tremendous potential for tourist resort development. However, the determination of the climatic potential of Georgia for the tourism in the correspondence with the standards accepted in the developed countries was not conducted. This somewhat hampers the comparison of the climatic potential of Georgia from the point of view of tourism with the same for other countries. As a result this can have an unfavorable effect on attractiveness level of the Georgia for the potential tourists. In this work the determination of the climatic potential of tourism to Batumi into the correspondence with that frequently utilized in other countries of the “tourism climate index” (TCI) [1, 3 - 7] is carried out. A similar work was carried out earlier for Tbilisi [2].

Batumi is a southern most resort-town on the Georgia Black Sea coast, the capital of the Adjarian Autonomous Republic and a large sea port of the country. Batumi is the city which easily makes visitors fall in love with it. This small, white city containing mostly 2-3-storeyed buildings, possesses a certain unique charm. The part of the city called “Old Batumi” is nearly 150 years old. Here you can see a coffee-device workshop, where copper confidants produce unique coffee-making utensils, as well as coffee-mill, the aroma from which permeates through the district. This aroma possesses magic power-it automatically invigorates passers by. Coffee ritual generally takes an important place in Batumi lifestyle. There are a lot of open cafes here where city dwellers gather according to the ages and interest and have aromatic hot black coffee prepared on the heated sand. There is one place though, where nearly all the city dwellers drink coffee in the evenings in the Summer, Autumn and Spring. This is Batumi sea-front. Batumians are connected to the front with one more tradition. The harbour hosts fishermen of all ages all year round.

Batumi and its vicinities are one of the important tourism and resort zones on the Georgian Black Sea littoral. The climate is humid subtropical. The low annual amplitude of temperature, warm winter and hot summer are characteristic features of the city. The average annual temperature is 14,5 °C, the average temperature in January, the coldest month, is 7,1 °C and in August, the warmest month, 23,2 °C. The annual precipitation is 2560 mm. Showers are frequent. It rarely snows but when it does, the snow melts easily. The average annual temperature of the sea is 16,7 °C at the shore.

Methods and data

In the past, tourism climatology information was provided through climate indices such as those found in applied climatology and human biometeorology. There are more than 200 climate indices. In general, the tourism climate indices can be classified into three categories [7]. Elementary indices are synthetic values that do not have any thermo-physiological relevance and are generally unproven. The bioclimatic and combined tourism climate indices involve more than one climatological parameter and consider the combined effects of them.

An example of a combined index is the Tourism Climate Index (TCI). Developed by Mieczkowski (1985) the TCI uses a combination of seven parameters, three of which are independent and two in a bioclimatic combination:

$$TCI = 8 \cdot C_{ld} + 2 \cdot C_{la} + 4 \cdot R + 4 \cdot S + 2 \cdot W$$

Where C_{ld} is a daytime comfort index, consisting of the mean maximum air temperature $T_{a,max}$ (°C) and the mean minimum relative humidity RH (%), C_{la} is the daily comfort index, consisting of the mean air temperature (°C) and the mean relative humidity (%), R is the precipitation (mm), S is the daily sunshine duration (h), and W is the mean wind speed (m/s).

In contrast to other climate indices, every contributing parameter is assessed. Because of a weighting factor (a value for TCI of 100), every factor can reach 5 points. TCI values ≥ 80 are excellent, while values between 60 and 79 are regarded as good to very good. Lower values (40 – 59) are acceptable, but values < 40 indicate bad or difficult conditions for tourism [3].

Data of the hydrometeorological department of Georgia were used for the TCI calculations.

Results

The results of TCI calculations on the fig. 1 and fig. 2 are presented.

As follows from the fig. 1 from December to February value of TCI in Batumi corresponds to category "Unfavourable". During March and November – "Marginal". During April value of TCI corresponds to category "Acceptable", during May and June – "Very good", from July to October - "Good". Like New Orleans, Charleston, New York, St. Louis and Tbilisi, Batumi relate to the cities with bimodal-shoulder peak TCI distribution [2, 8]. As in New York, in Batumi the first peak of TCI falls on May and June, and the second - on September and October.

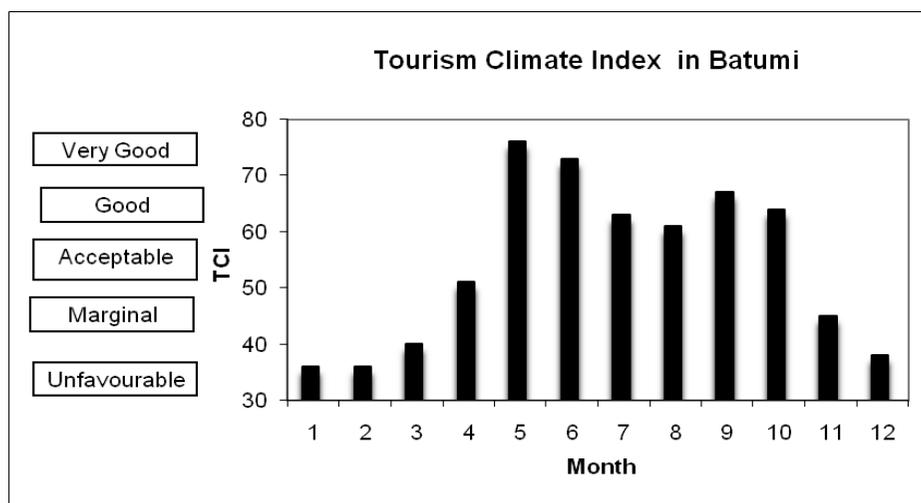


Fig. 1

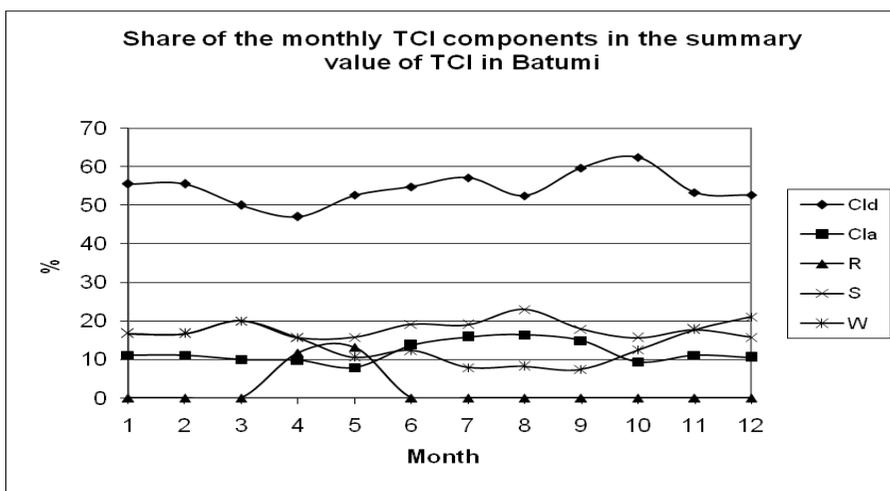


Fig. 2

Share of the monthly TCI components in the summary value of TCI in Batumi are presented on the fig. 2.

As it follows from the fig. 2 the values of daytime comfort index (Cld varied from 47,1 to 62,5 %) and the daily sunshine duration (S varied from 15,6 to 23,0 %) make the greatest share to the value TCI. The values of daily comfort index (Cla varied from 7,9 to 16,4 %) and the precipitation (R varied from 0 to 13,2 %) make the smallest share to the value TCI. The share of mean wind speed W varied from 7,5 to 20,0 %. It should be noted, that precipitation is the most unfavorable factor, which reduces value of TCI. So share of the precipitation components in the summary value of TCI are 11,8 and 13,2 % in April and May only. For all other months this share is equal to 0 %. Also it should be noted that the values TCI during December, January and February are equal to 38, 36 and 36 % respectively. Formally these months can be attributed to the category of "Unfavourable", although actually the values of TCI are very close to the category of "Marginal". Especially because this is caused only by excess precipitations, which in winter period is not very important for leisure. Thus the climate of Batumi for tourism is favorable practically entire year.

Let us note that the climate of Batumi for the tourism into the entire more favorable than in New Orleans, Charleston and St. Louis, and it differs a little to the climate of New York [8].

Conclusion

In this work the determination of the climatic potential of tourism to Batumi (the capital of Adjarian Autonomous Republic) into the correspondence with that

frequently utilized in other countries of the “tourism climate index” (TCI) is carried out.

Like New Orleans, Charleston, New York, St. Louis and Tbilisi, Batumi relate to the cities with bimodal-shoulder peak TCI distribution. The climate of Batumi for the tourism is more favorable than in New Orleans, Charleston and St. Louis, and it differs a little to the climate of New York. The climate of Batumi for tourism is favorable practically entire year.

In the future we plan a more detailed study of the climatic resources of Georgia for the tourism (mapping the territory of Georgia on TCI, study trends of TCI, determination of other climatic and bioclimatic indices for tourism - Physiologically Equivalent Temperature, Mean Radiant Temperature etc.).

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რეზიუმე

ტურიზმის კლიმატური ინდექსი ბათუმში

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ნაშრომში მოცემულია ბათუმისათვის ტურიზმის კლიმატური პოტენციალის შეფასება სხვადასხვა ქვეყანაში ხშირად ხმარებული “ტურიზმის კლიმატური ინდექსის” შესაბამისად.

Abstract

TOURISM CLIMATE INDEX IN BATUMI

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In this work the determination of the climatic potential of tourism to Batumi into the correspondence with that frequently utilized in other countries of the “tourism climate index” (TCI) is carried out.

Резюме

КЛИМАТИЧЕСКИЙ ИНДЕКС ТУРИЗМА В БАТУМИ

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В работе проведена оценка климатического потенциала туризма для г. Батуми в соответствие с часто используемым в различных странах “Климатического индекса туризма”.