УДК 551.58:613.1

BIOCLIMATIC CHARACTERISTICS OF RECREATIONAL ZONES - IMPORTANT COMPONENT OF THE PASSPORT OF THE HEALTH RESORT- TOURIST POTENTIAL OF GEORGIA

***Amiranashvili A.G., *Chikhladze V.A.**
****Saakashvili N.M., **Tabidze M.Sh., ** Tarkhan-Mouravi I.D.**

[*]Mikheil Nodia Institute of Geophysics of Ivane Javakhishvili Tbilisi State University
[**]Tbilisi Balneological Health Resort - Practical-Scientific Center of Physiotherapy, Rehabilitation and Medical Tourism of Georgia

For the complex characteristic of the health resort-tourist resources of localities in recent years is accepted conducting their certification [1-4]. In Georgia similar systematized works it was not carried out, although there are many works on the description of the fundamental characteristics of health resort-tourist resources [1, 5-11].

The passport of health resort-tourist resources, in the correspondence with the contemporary requirements, must include description and estimation in the marks of the following basic parameters.

Landscape of locality. Relief. Soils. Water resources. Plant cover. Territories of the regulated access. Hydro-mineral resources. Therapeutic contamination. Functional fitness for organizing climatotherapy. Esthetical characteristics. Health and hygiene evaluations. Anthropogenic stability. Radiation background of territory (gamma-radiation). Level of the electromagnetic radiation of territory. Air pollution. Data about the risks of natural catastrophes. Chemical composition and the bacteriological state of surface water. Services of safety, rescuing and medical aid. Sanatorium-health resort-tourist organizations. Sanatorium- sanitation and tourist services. Diagnostic and treating base. Organization of treatment. Medical personnel. Infrastructure (road, transport, communication, internet, electricity, gas, water pipe, etc.). Buildings and the adjacent to them territories. Hotel rooms fund. Interiors. Technical equipment. Equipment with furniture and with inventory. Inventory and the objects of the health and hygiene equipment of hotel rooms. Sanitary objects of general use. Public compartments. Compartments for the assignment of the services of nourishment. General services. Services of nourishment. Requirements for the personnel and its preparation. Etc. [1-4].

Bioclimatic resources occupy special position.

General information

- Insolation regime: the number of days of sunshine for the year, the number of days without the sun for the year, the number of days of sunshine for June, number of days without the sun for June, number of days without the sun for January, security with ultraviolet radiation.
- Atmosphere circulation: the intensity of cyclonic circulation (cyclone frequency in %); the changeability of the weather regime (repetition in % the contrasting changes of weather for the year, the repetition in % the mean interdiurnal variability of atmospheric pressure of more than 5 mb in the year); the degree of the wind load (repetition in % wind speed of less than 3m/sec in the year).
- Thermal regime: the duration of frost-free period (days, security with heat); the changeability of the temperature of air (repetition in % the mean interdiurnal variability of the temperature of air of more than 6°C in the year); favorable period for the summer recess; the severity of the weather of winter period (repetition in % the severity of weather of more than 2 number, favorable period for the winter recess).
- Regime of humidity and precipitations: (repetition in % the relative humidity of less than 30% in the year); the degree of the formation of heat (repetition in % stuffy weathers during the warm period); the duration of the bedding of snow cover in the days; the regime of precipitations.

- Complex bioclimatic indices: the repetition of comfortable Equivalent- Effective Temperatures 17-22°; the repetition of meteorological complexes for conducting aerotherapy in the warm period in % (in the open sections, in calm belts, the duration of bathing season, the number of days with the temperature of water more than 17°C); the Tourism Climate Index (complex index, determined by the joint action of air temperature and humidity, wind speed, precipitation, and sunshine duration); the heat-sensation of people, determined by the joint action of air temperature and humidity, wind speed and solar radiation.
- Conditions for aeroionization: the content of radon, the concentration of light ions
- Parameters of the terrestrial magnetic field, radiation background.

Current information, forecast, warning

- Weather conditions: general hydrometeorological information (temperature and humidity of air, atmospheric pressure, wind, precipitations, temperature of soil, temperature of water, etc.); bioclimatic information (thermal comfort and discomfort, the regime of ultraviolet radiation, the oxygen content in air, the changeability of weather, heat, magnetic storms, air pollution, etc.)
- Dangerous hydrometeorological phenomena and processes (hurricanes, prolonged fog, significant precipitations, floods, thunderstorms, hail, avalanches, mudflows, landslides, etc.).

Some examples of the use of bioclimatic information are given lower (table 1-3, fig. 1-2).

Table 1. Connection Between Air Equivalent - Effective Temperature (EET) in 15 Hours and Mortality from the Cardiovascular Diseases in Tbilisi (1980-1992)

Temperature Range	EET	Average Daily Mortality to 1 Million Inhabitants
<1 °	Sharply coldly	12.1
1-8 °	Coldly	11.6
9-16 °	Moderately coldly	10.8
17-22 °	Comfortably	9.6
23-27 °	Warmly	9.1
>27 °	Hotly	11.1

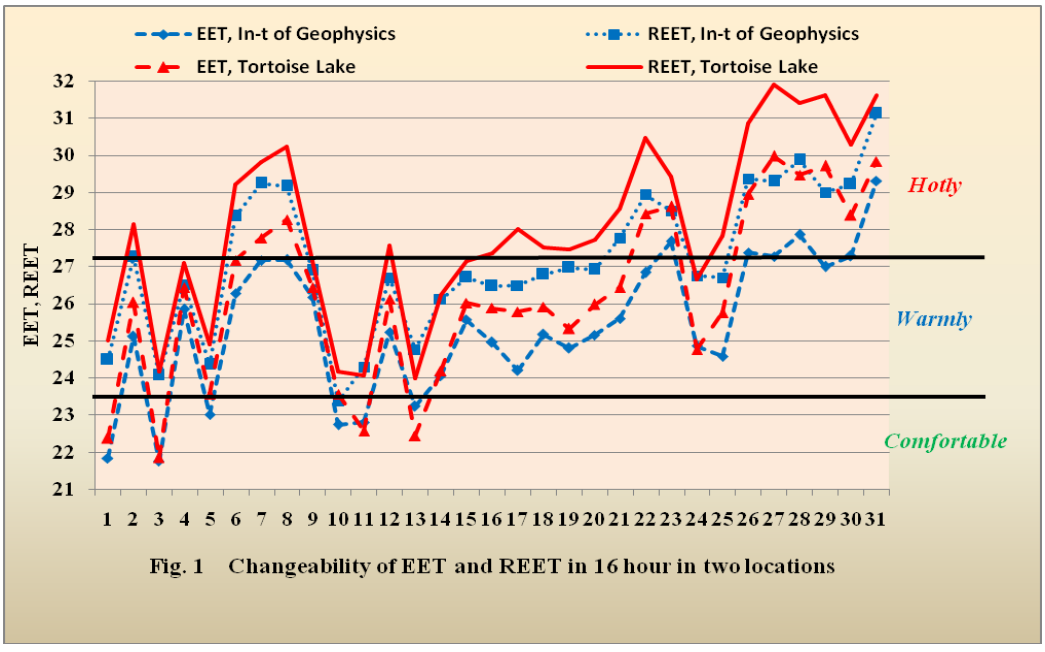

Fig. 1 Changeability of EET and REET in 16 hour in two locations

Example of the influence of air Equivalent-Effective Temperature on the health of people in table 1 is given (general information) [9]. Example to the current information and warning about the thermal comfort (Air Equivalent-Effective Temperature and Air Radiationally Equivalent-Effective Temperature, EET and REET) for the people fig. 1 depicts.

As follows from fig. 1 depending on meteorological conditions their complex action on the people in different parts of the Tbilisi city it can be different (in one parts of the city - comfortable conditions, in another - uncomfortable, etc.). Let us note that the values of air temperature and humidity, and intensity of solar radiation on the territory of the Institute of Geophysics and Tortoise Lake differ little from each other. Then wind speed in the Lake is considerably higher than on the territory of Institute. Therefore in a number of cases of value EET and REET in these two territories essentially are distinguished. Thus, besides the current general meteorological information is necessary information, also, about the bioclimatic situation (EET, REET, etc.).

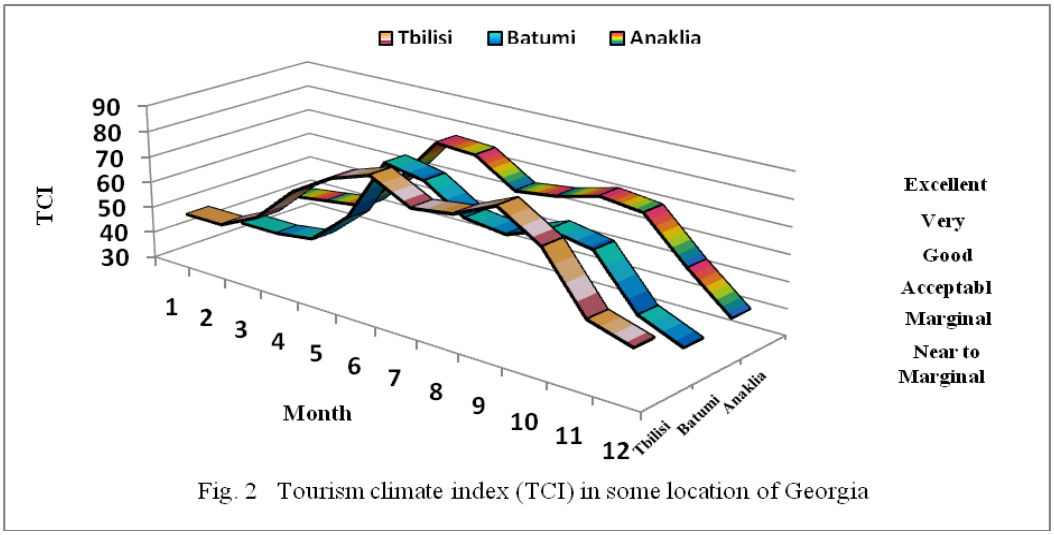

Fig. 2 Tourism climate index (TCI) in some location of Georgia

Table 2. TCI Category

TCI	Category	კატეგორია	Категория
90 ÷ 100	Ideal	იდეალური	Идеальный
80 ÷ 89	Excellent	შესანიშნავი	Отличный
70 ÷ 79	Very good	ძალიან კარგი	Очень хороший
60 ÷ 69	Good	კარგი	Хороший
50 ÷ 59	Acceptable	სასიამოვნო	Приятный
40 ÷ 49	Marginal	მისაღები	Приемлемый
30 ÷ 39	Unfavourable	არახელსაყრელი	Неблагоприятный
20 ÷ 29	Very Unfavourable	ძალიან არახელსაყრელი	Очень неблагоприятный
10 ÷ 19	Extremely Unfavourable	უკიდურესად არახელსაყრელი	Крайне неблагоприятный
- 30 ÷ 9	Impossible	მიუღებელი	Неприемлемый

Example of the general information about Tourism Climate Index in Tbilisi, Batumi and Anaklia in fig. 2 is given [10,11]. In table 2 the Tourism Climate Index category is given. As follows from fig. 2 the condition for the tourism for the 3 indicated cities are practically entire year.

It is necessarily to develop the long-term State Program on the certification of the health resort and tourist resources of Georgia, as it is widely known earlier, so also it is small known and promising. Within the framework of this program it is expedient to create the State Commission with the attraction of the wide circle of specialists for developing the methodology of the certification of the health resort and tourist resources of Georgia taking into account of foreign experiment and local specific character.

REFERENCES

1. Saakashvili N.M., Tabidze M.Sh., Tarkhan-Mouravi I.D.,Amiranashvili A.G., Melikadze G.I., Chikhladze V.A. – To a Question About the Certification of the Health Resort and Tourist Resources of Georgia, Modern Problems of Using of Health Resort Resources, Collection of Scientific Works of International Conference, Sairme, Georgia, June 10-13, 2010, ISBN 978-9941-0-2529-7, Tbilisi, 2010, pp. 175-180, (in Russian).
2. Романов А.И. – Биоклиматический паспорт – перспектива развития центра реабилитации, М., 2001.
3. СТО 70444833.01-2006
4. http://www.referats.5-ka.ru/85/19161/1.html
5. Svanidze G.G., Papinashvili L.K. (editors) – Climate of Tbilisi, St.-Petersburg, Gidrometeoizdat, 1992, 231 p., (in Russian).
6. Вадачкория М.К., Ушверидзе Г.А., Джалиашвили В.Г., Курорты Грузии, Тбилиси, изд. "Сабчота Сакартвело", 1987, 382 с.
7. Amiranashvili A, Kartvelishvili L. – Long – Term Variations of Air Effective Temperature in Tbilisi, Papers of the Int. Conference International Year of the Planet Earth "Climate, Natural Resources, Disasters in tne South Caucasus", Trans. of the Institute of Hydrometeorology, vol. No 115, ISSN 1512-0902, Tbilisi, 18 – 19 November, 2008, pp. 214 – 219 (in Russian).
8. Amiranashvili A.G., Kartvelishvili L.G., Saakashvili N.M. , Chikhladze V.A. – Long-Term Variations of Air Effective Temperature in Kutaisi, Modern Problems of Using of Health Resort Resources,Collection of Scientific Works of International Conference, Sairme, Georgia, June 10-13, 2010, ISBN 978-9941-0-2529-7, Tbilisi, 2010, pp. 152-157, (in Russian).
9. Amiranashvili A., Danelia R., Mirianashvli K., Nodia Kh., Khazaradze K.,Khurodze T., Chikhladze V. – On the Applicability of the Scale of Air Equivalent- Effective Temperature in the Conditions of Tbilisi City, Transactions of Mikheil Nodia Institute of Geophysics, vol. LXII, ISSN 1512-1135, Tbilisi, 2010, pp. 216-220, (in Russian).
10. Amiranashvili A., Matzarakis A., Kartvelishvili L. - Tourism Climate Index in Tbilisi, Papers of the Int. Conference International Year of the Planet Earth "Climate, Natural Resources, Disasters in tne South Caucasus", Trans. of the Institute of Hydrometeorology, vol. No 115, ISSN 1512-0902, Tbilisi, 18 – 19 November, 2008, pp. 27 - 30.
11. Amiranashvili A., Matzarakis A., Kartvelishvili L. – Tourism Climate Index in Batumi, Modern Problems of Using of Health Resort Resources, Collection of Scientific Works of International Conference, Sairme, Georgia, June 10-13, 2010, ISBN 978-9941-0-2529-7, Tbilisi, 2010, pp. 116-121.

რეზიომე

რეკრეაციული ზონების ბიოკლიმატური მახასიათებლები – საქართველოს საკურორტო-ტურისტული პოტენციალის მნიშვნელოვანი შემადგენელი

ამირანაშვილი ა., ჩიხლაძე გ.,
სააკაშვილი ნ., ტაბიძე მ., თარხან-მოურავი ი.

მოყვანილია საკურორტო-ტურისტული პოტენციალის პასპორტის ძირითადი მაჩვენებლების აღწერილობა. განსაკუთრებული ყურადღება ეთმობა ბიოკლიმატურ პარამეტრებს. მოყვანილია პრაქტიკული მაგალითები აღნიშნული პარამეტრების გამოყენებისა საქართველოს ზოგიერთი საკურორტო-ტურისტული რაიონების ბიოკლიმატური პირობების შესაფასებლად (ჰაერის ექვივალენტური ეფექტური და რადიაციული ექვივალენტური ეფექტური ტემპერატურა თბილისისათვის; ტურიზმის კლიმატური ინდექსი თბილისში, ბათუმში და ანაკლიაში). შეთავაზებულია

შემუშავდეს საქართველოს საკურორტო-ტურისტული რესურსების (როგორც ადრე კარგათ ცნობილი, აგრეთვე ნაკლებად ცნობილი და პერსპექტიული) პასპორტიზაციის გრძელვადიანი სახელმწიფო პროგრამა. ამ პროგრამის ფარგლებში მიზანშეწონილია შეიქმნას სახელმწიფო კომისია სპეციალისტების ფართო წრის მოზიდვით საქართველოს საკურორტო-ტურისტული რესურსების პასპორტიზაციის მეთოდოლოგიის შესაქმნელად უცხოური გამოცდილების და ადგილობრივი სპეციფიკის გათვალისწინებით.

Abstract

BIOCLIMATIC CHARACTERISTICS OF RECREATIONAL ZONES - IMPORTANT COMPONENT OF THE PASSPORT OF THE HEALTH RESORT- TOURIST POTENTIAL OFGEORGIA

Amiranashvili A.G., Chikhladze V.A.
Saakashvili N.M., Tabidze M.Sh., Tarkhan-Mouravi I.D.

The description of the basic indices of the passport of health resort-tourist potential is given. Special attention is paid to the bioclimatic parameters. Examples of the practical application of these parameters for evaluating the bioclimatic conditions of some health resort-tourist regions of Georgia are given (Equivalent- Effective Temperature and Radiationally Equivalent-Effective Temperature of air in Tbilisi; Tourism Climate Index in Tbilisi, Batumi and Anaklia). It is proposed to develop the long-term State Program on the certification of the health resort and tourist resources of Georgia, as it is widely known earlier, so also it is small known and promising. Within the framework of this program it is expedient to create the State Commission with the attraction of the wide circle of specialists for developing the methodology of the certification of the health resort and tourist resources of Georgia taking into account of foreign experiment and local specific character.

Резюме

БИОКЛИМАТИЧЕСКИЕ ХАРАКТЕРИСТИКИ РЕКРЕАЦИОННЫХ ЗОН – ВАЖНАЯ СОСТАВЛЯЮЩАЯ ПАСПОРТА КУРОРТНО-ТУРИСТИЧЕСКОГО ПОТЕНЦИАЛА ГРУЗИИ

Амиранашвили А.Г., Чихладзе В.А.
Саакашвили Н.М., Табидзе М.Ш., Тархан-Моурави И.Д.

Приводится описание основных показателей паспорта курортно-туристического потенциала. Особое внимание уделяется биоклиматическим параметрам. Приводятся примеры практического применения этих параметров для оценки биоклиматических условий некоторых курортно-туристических районов Грузии (Эквивалентно-Эффективная Температура и Радиационно Эквивалентно-Эффективная Температура воздуха в Тбилиси; климатический индекс туризма в Тбилиси, Батуми и Анаклия). Предлагается разработать долгосрочную Государственную Программу по паспортизации курортных и туристических ресурсов Грузии, как широко известных ранее, так и мало известных и перспективных. В рамках этой Программы целесообразно создать Государственную Комиссию с привлечением широкого круга специалистов для разработки методологии паспортизации курортных и туристических ресурсов Грузии с учетом зарубежного опыта и местной специфики.