Materials of Conferences

ECOLOGIC-GEOGRAPHICAL ESTIMATION OF CLIMATIC COMFORTNESS OF ROSTOV-ON-DON

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Climatic comfortness of a territory plays a prior part in establishing preservation of health, conditions of people's life and activity, therefore, it should necessarily be considered while estimating natural-resource potential of a region.

Our environment is exposed to simultaneous impact of a number of factors, and their influence cannot be estimated by simple addition. Optimal conditions of life environment for any person are individual and they are limited by stress areas and limits of survival, set by each single factor of the environment and their cumulative influence.

Climatic comfortness of a territory is defined as an integral characteristic of the degree of opportuneness of its climatic and bioclimatic conditions that is expressed via a suggested [2, 7] integral rate of bioclimatic comfortness (IR_{BC}).

Special features of geoecological estimation of natural environment that also include climatic comfortness, are studied from different points of view: thus, E. Odum [4] considered that the main goal of ecological estimation of natural environment is to answer the question: how many organisms inhabit a given area, where they can be noticed, and why.

According to N.F. Raymers [5], ecological estimation of natural environment is a process of defining condition of life environment and the degree of its exposure to the impact of various factors (considering an impact dynamics).

Works of V.V. Dmitriyev [6] contain the following concept of the procedure of ecological estimation of natural environment:

1. Defining aptitude of natural complexes and their components for organisms' life.

2. Parametric definition of conditions of natural environment that provide for existence of living organisms' communities.

3. Receiving an «ecosystem portrait» according to multi-criterion basis, and comparing it to a «perfect portrait» of the same ecosystem.

4. Subject-objective criterion estimation of the condition of natural object from the position of stable function of biocenosis.

Besides, each of the provided definitions contains its special feature that is significant for different specialists (a geographer, biologist, ecologist, mathematician, etc.) that create «portraits of natural ecolsystems».

The concept of climatic comfortness, suggested by S.S. Andreyev [1, 2, 3, 7], includes the following definitions:

1. «Comfort» (an optimal psychophysiological condition of a person the provides for his normal vital activity in places of permanent or temporal living).

2. «Subcomfort» (slightly disturbing conditions of natural environment, in which mechanisms of mechanisms of human adaptation establish near-optimal psychophysiological health of a person, thus creating conditions for his normal vital activity).

3. «Discomfort» (acute disturbing condition of natural environment, physiological mechanisms of human adaptation do not provide for its optimal psychophysiological health and additional protective measures that establish normal vital activity, are required).

Methodic of estimating climatic comfortness of a territory, suggested by the authors, implies realization of six stages:

a) analysis of physical-geographic conditions of a territory and creation of climatic database;

b) ranging and selecting the most informative indexes;

c) creation of bioclimatic database according to calculation of the selected indexes;

d) calculation of integral index of climatic comfortness;

e) zoning the studies territory according to indexes of the most informative indexes.

Calculation of indexes for estimation of climatic comfortness of Rostov-on-Dos and Sochi has been put into the Table.

Station	BAT			Q_S			REET			ET			kW/m²			IR_{BC}			I		
	year	cold	heat	year	cold	heat	year	cold	heat	year	cold	heat	year	cold	heat	year	cold	heat	year	cold	heat
Rostov-on-Don	12,1	5,0	20,6	-1,1	-1,6	-0,6	8,8	-0,4	19,8	-3,9	-15	9,3	1,1	1,3	0,9	1,3	1	3,2	18,1	25,9	12,4
Sochi	18,9	15,2	23,5	-0,7	-0,9	-0,4	17,5	12,7	23,5	6,7	0,9	13,9	1,1	0,8	1,5	2,9	3,2	3,4	6,7	9,1	5

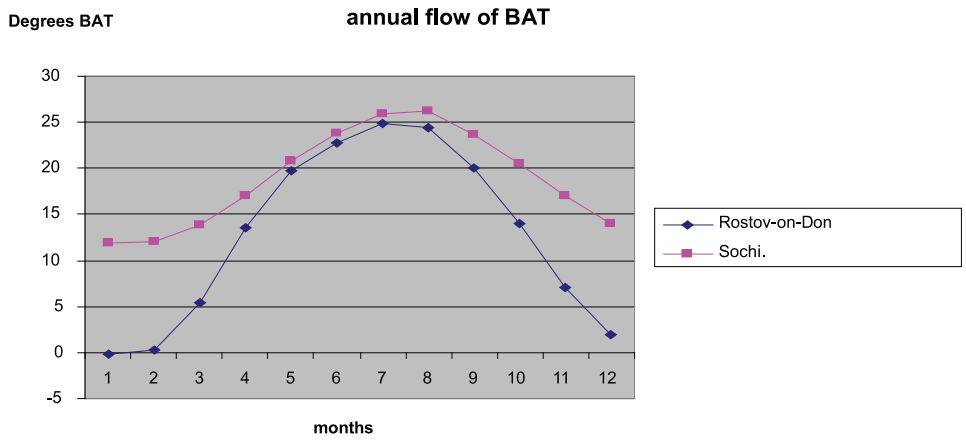

Fig. 1. BAT is biologically active temperature («comfort» equals 10-20 BAT, «subcomfort» equals 21–23,9 – 6 0 BAT, discomfort refers to over 23 and under 60 BAT)

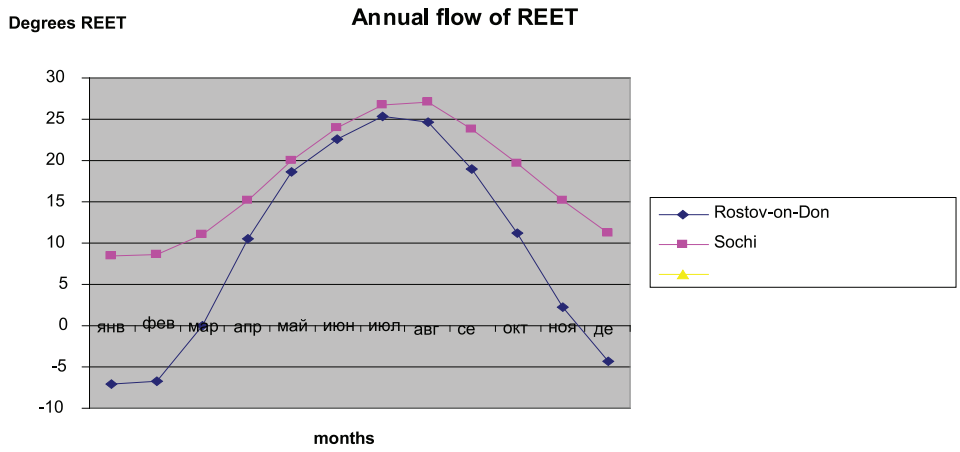

Fig. 2. REET is Radioactive equal-effective temperature («comfort» equals 21–27 °REET, «subcomfort» equals 27,1–32 °REET, 17–20,9 °REET, «discomfort» refers to over 32,1 and under 16,9 °REET)

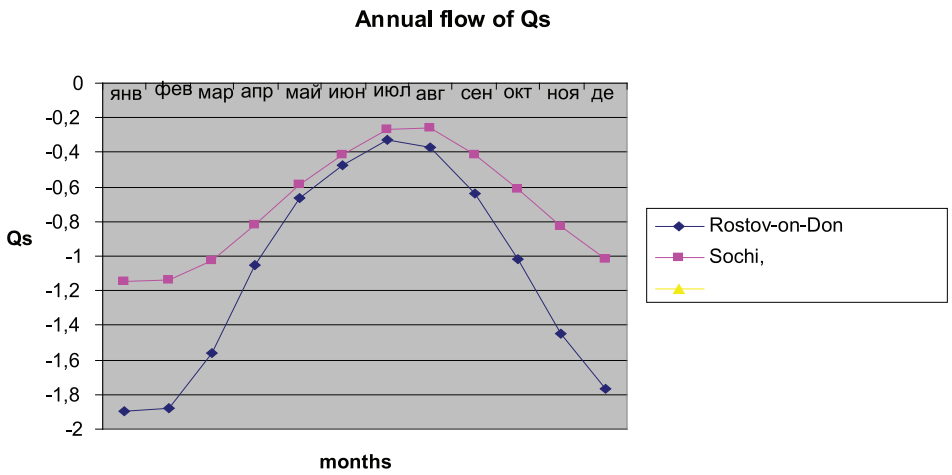

Fig. 3. Q_S is heat balance of a man («comfort» equals from –0,06 to –0,3 kW/m^2, «subcomfort» equals from –0,05 to 0,1 and from –0,31 to –0,65 kW/m^2· «discomfort refers to» over 0,1 kW/m^2 and under –0,66 kW/m^2)

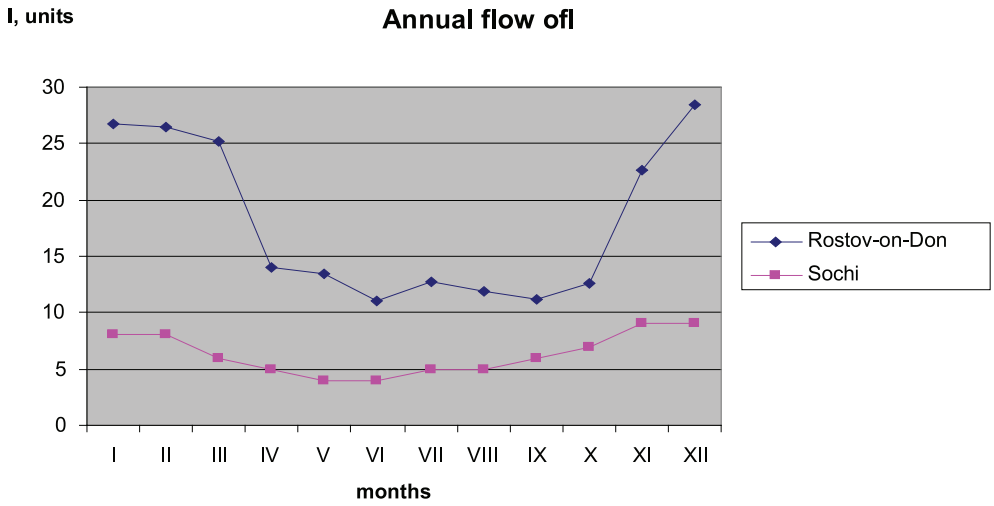

Fig. 4. I is pathogenicity index of meteorological situation («comfort» refers to 0 to 9.9 units, «subcomfort» equals 10–16 units, «discomfort» refers to over 16,1 units)

The analysis of the integral index of climatic comfortness has shown that subcomfortable conditions can be observed throughout the year in Sochi, while in Rostov-on-Don subcomfort conditions can be observed only during the warm season, and IR_{BC} indexes of cold season correspond to discomfortable conditions.

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MONITORING ENVIRONMENT CONDITION OF CHINESE INDUSTRIAL ENTERPRISES

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The main problem, linked to creation of corporate informational systems of management is development of models, methods, and algorithms that form the basis of program application and define an adequacy of the system to the set goals. Improving theory and practice of corporate program applications that allow one to monitor an internal environment of industrial enterprises has become urgent in China [1, 2, 3].

Analysis of modern methods and approaches towards systems of managing productive-technological activity of Chinese industrial enterprises

Solving the problem of industrial enterprises' efficiency is directly linked to automatization of financial-economic activity and all stages of productive cycle – from the developing design of a ware, its construction and production, to its after-sale service [1, 3].

Possibilities of modern means of automatizing enterprises' activity have exceeded limits of traditional functions and allow one to carry out analysis of productive activity in real time.

Corporate informational systems for industrial enterprises include an integrated set of program solutions that cover basic aspects of an enterprise's activity. An integrated solution represents a consequent process of automatizing separate productive, technological processes, and management activity. The pointed method covers all critical processes