

STUDY OF VARIATIONS OF METEOROLOGICAL FIELDS ON HUMAN HEALTH

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Last years study of relation and mutual influence of human and environment is mostly actual problem for whole the world. Health of the human depends on many factors before and after birth as well.

The goal of the work is of study of existing dependence between human health and nature on the example of Georgia. Influence of factors of environment on health is studied base of scientific and actual materials. It is known from scientific sources that human organism undergoes strong influence from polluting ingredients of atmosphere and climatic variations of the weather and extreme conditions caused by these variations [1,2]. Hereat, as from geophysical factors a temperature is considered as the main and constantly acting factor we studied values of effective temperature for main regions of territory of Georgia. We counted values of effective temperature by use of the following equation [3]:

$$ET = 37 - \frac{37 - T}{0.68 - 0.014RH + \frac{1}{1.76 + 1.4V^{0.73}}} - 0.29T \left(1 - \frac{RH}{100}\right)$$

Where T is average temperature, v - is velocity of wind, RH - is relative humidity. S it is known bonds for comfort are considered +18 and 6 [3].

Relevant diagrams for effective temperature for six regions of Georgia are given on fig.1 and fig.2.

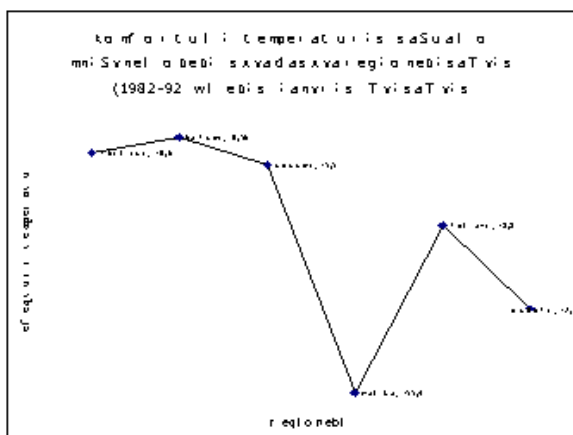


Fig. 1

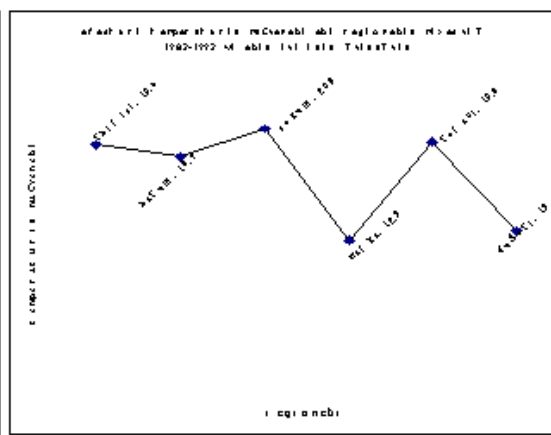


Fig. 2

In the work we coming from ten years data of temperature, velocity of wind and relative humidity revealed that effective temperatures on whole territory of Georgia, despite of various regions, is in boundaries of comfort.

To study of dependence of human health on fields of temperature we investigated statistics of certain diseases by years and accordingly changes of fields of temperature. Diagrams for 1988-2000 of variations of diseases of nerval systems and variations of fields of temperature are given on fig.3 and fig.4 correspondingly [3,4].

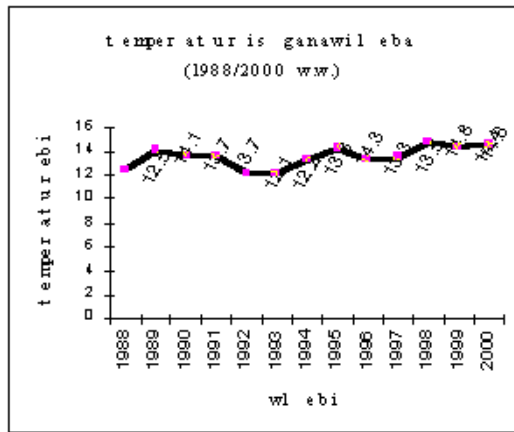


Fig. 3

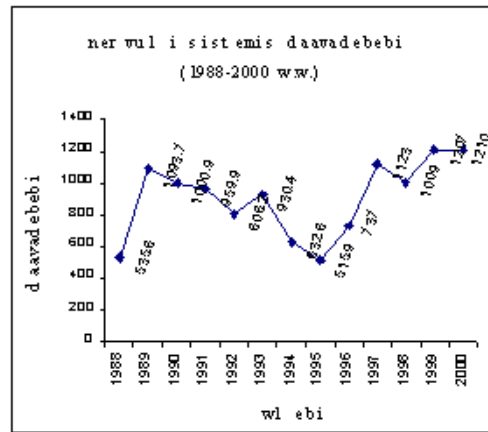


Fig. 4

As one can see from these figures pass of diagrams in 1988-1992 were analogous. In the following years feature of the pass was changed. Because coming from 1992 political-economical situation caused an abrupt change of social conditions, we consider that the main factor of disease incidence could be social factor. As we know, processes in Solar system cause variation of fields of temperature. Therefore for study of dependence of biological rhythms on solar activity we investigated multiyear statistics of daily addressing of patients in No 8 hospital of cardiology. Fig.5 and fig.6 show indexes of daily addressing of patients in department of cardiology for January and February 2002-2003. [5,6].

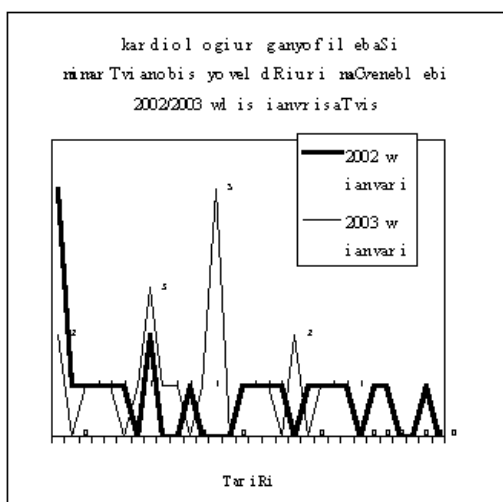


Fig. 5

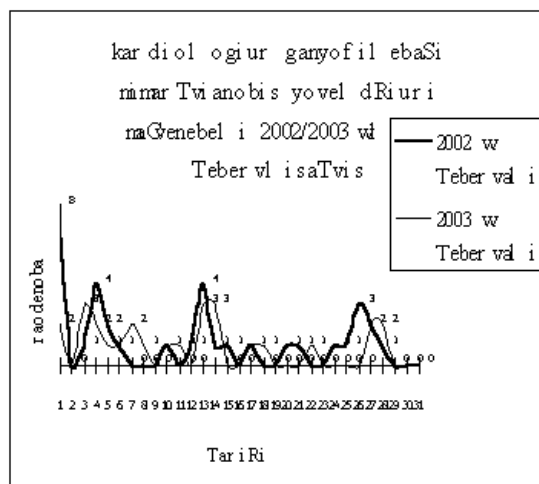


Fig. 6

As these indexes showed maximums of daily addressing of patients with diseases of circulation came on beginning of month.

We also studied rezone indexes of disease incidence and lethality for whole the territory of Georgia. Fig.7 shows variations of indexes of disease incidence and lethality by months for 11 regions.

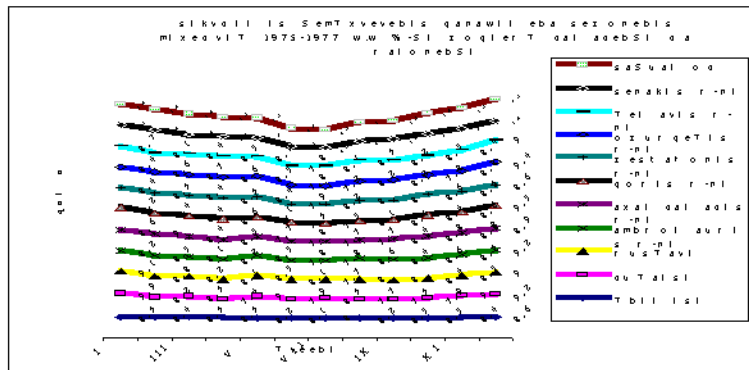


Fig. 7

According to these indexes raise of indexes of lethality was revealed in case of cold months and it was reduced in the middle of the year in the case of warm months. To make more accurate the statistics we took not index of disease incidence but one of lethality.

To study dependence of vital processes in human organism on solar radiation we additionally investigated statistics of daily lethality caused by destabilization of system of blood circulation for 1982-1992. Diagram corresponding to this statistics is presented on fig.8.

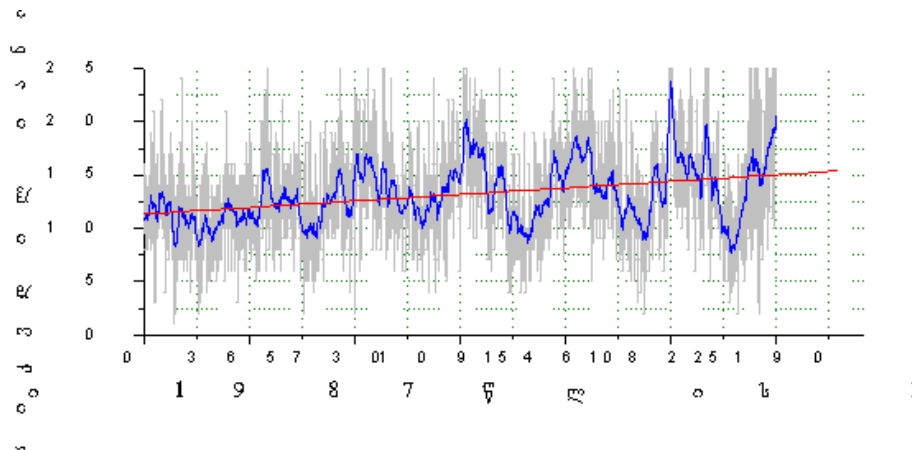


Fig. 8

Fig. 8 shows that lethality caused by destabilization of system of blood circulation is characterized by season variations. Besides during this period tendency of raise of lethality was detected by form of positive trend.

Analyzing obtained results we can conclude that processes going in human body greatly depend on processes going in nature and every change of environmental factors causes positive or negative results in organic systems.

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