

Experimental Method of Assessing the Efficiency of Greenhouse Ozone on Human

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Description

It is known, that atmospheric ozone, which is involved in the greenhouse effect [1], has beneficial effects on human [2,3]. This conclusion is based on complex experiments [4], including using a satellite. The question naturally arises, is there at least any indirect, but more simple method of assessing the efficiency effect of "greenhouse ozone" on human. The answer to this question is the subject of this study.

To begin, we note that according to traditional terminology, this ozone can be called "greenhouse ozone" (GO), although the actual processes occurring in the atmosphere, it is not meet [1], and the terms are symbolic. For the experimental evaluation of the effectiveness of the impact GO on human we propose to measure the horizontal temperature gradient. It is also called thermal gradient and occurs due to the re-emission of greenhouse gases (including GO), if this process is modulated, for example, the natural gradient of the relative humidity near the river (the forest or the sea). So, we are talking about an indirect estimate of effectiveness using the greenhouse effect.

The standard method of determining the thermal gradient is in the simultaneous determination of the temperature at a distance of 100 km at two points. This distance should be perpendicular corresponding isotherms passing through these points. Not to mention the concept of "simultaneity" of these measurements, pay attention to the error in these temperatures. The fact that used meteorological thermometers have inertia, that is, the lag in the readings of the thermometer from changes in air temperature, which is especially evident for measurements *in vivo*. Therefore, even the most sensitive thermometers, for example, with divisions of 0.1°C in that case much inferior in this parameter the thermal resistance (TR) and therefore have a greater error.

The proposed method uses the value of the temperature difference, but in relation to a fixed longitude. Let's call this gradient "TG". Using two (Wheatstone bridges) with optimal values of the copper TR [5] located at a distance of 1-25 m, we can calculate TG, i.e. a temperature difference of almost one point using the dependence of TR on the temperature and simultaneously determining both temperatures. Accuracy of the method is 0.1°C. It is defined by the formula indirect

measurements [6] for the two bridges DC consisted of shops of resistance, for example, MSR-60 with accuracy class 0.02%. Measurements are made at 2 meteo boxes (MB) at a height of about 2 m from the ground. The place of the experiments was chosen Vuoksa river (about 1 km from it) in one of the most wide places: 61°sev.latitude, 29°east longitude. Here it is surrounded by large forests, where, as is well known [7], as near the river, increased content of ozone.

The experiments were carried out in August 2017 and began before sunrise and ended after sunset. Temperature range for the two samples amounted from 14°C to 22°C. Processed by three independent ways (A, B, C) the measurement results of thermal gradient due to GE (TGE) in degrees centigrade are shown in the table. Because of the dependence on the relative humidity, we are talking, of course, about the values of TGE, obtained in the experimental time range. For this reason, direct determination of this parameter (method C) at a distance of 1 m between the MB was held in the evening, including after sunset (at maximum sensitivity of the experimental setup). In cases A and B this distance was respectively 25 m and 10 m. Therefore, we had to take into account the thermal gradient of the river (GR), which had a different sign in the morning and evening. This corresponds to the daytime and evening breeze. Moreover, in the first case (in the morning) GR had the direction opposite to TGE and in the second-on the contrary. It is interesting to note that in the experimental time range in absolute value they match. This was taken into account when finding the TGE from two equations drawn up respectively for morning and evening measurements (method B). In the case A TGE was found from first equation, substituting in it the value of GR, which was found in the dependence of the total TG from the distance (for example, when changing from 10 m to 25 m) (Table 1).

Table 1 TGEa with its standard error $\Delta(TGE)$.

A	B	C	TGEa	$\Delta(TGE)$
0.6	0.4	0.7	0.6	0.1

From the Table it is seen that the average of the TGE (TGEa) with the standard error $\Delta(TGE)$ exceeds thermal gradient, associated with the collision of warm and cold fronts of the atmosphere (a few tenths of a degree Celsius).

Due to mobility of experimental setup, you can get TGE in almost all points. From further experiments, using these TGE values, perhaps, you can define a more human-friendly place (in terms of the impact of habitat).

References

1. Oktyabrskiy VP (2016) A new opinion of 'The Greenhouse Effect'. Phys-Mat Science 2: 82-86.
2. Oktyabrskiy VP (2017) The greenhouse ozone and human health. Proc. of 2-nd International Conference on Environmental Health and Global Climate Change France, Paris. p. 28.
3. Oktyabrskiy VP (2017) The effect of greenhouse ozone on human. Atmospheric and Climate Sciences 7: 554-557.
4. Borisov SF (2011) Study of the characteristics of greenhouse gases, based on solar IR Fure spectroscopy and the construction of physical models of heat and mass transfer processes in the atmosphere. Scientific Technical Report, Yekat.
5. Oktyabrskiy VP (2015) The criterion for the optimal sampling of a copper thermistor for atmospheric measurements under normal conditions. Phys Mat Science 4: 73-76.
6. Belov VN, Molodkin YL, Palmova NI, Khachataryants AV (1988) The treatment of measuring data. Leningrad Politechnical Institute.
7. <http://www.tiensmed.ru/>