

# Transformation of geophysical fields in the antropogenic geosphere

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The anthropogenic (technogenic) landscape is becoming one of the important components of the environment and has actually turned into one of the geospheres. As well as other geospheres, this geosphere tends to distort the geophysical fields existing in it.

It is known that the equipment recording the state and dynamics of the systems of the human body, and the equipment recording the variations of geophysical quantities, as a rule, are not only spaced apart, but also function in different geophysical conditions (different geospheres). These circumstances can be and are sources of false conclusions, due to changes in the level and composition of variations of geophysical fields under the influence of man-made and biological factors.

For the first time, using the example of estimating the concentration of light ions and the electrical state of the atmosphere indoors, large-scale studies of the influence of the anthropogenic geosphere on variations in geophysical fields were carried out by A.L. Chizhevsky. However, it remains unclear to this day how far the geophysical fields in the technogenic environment themselves are distorted under the influence of both technogenic and biological factors.

The report presents a description of the methodology and discusses the results of parallel monitoring inside and outside the room to assess the impact of the building and the presence (absence) of a person in it to change the level and composition of variations in the following geophysical quantities and fields:

- electric field strength and polar conductivity;
- main meteorological variables (temperature, humidity, pressure, wind speed components);
- turbulence parameters;
- water vapor and carbon dioxide concentrations;
- $\alpha$ -,  $\beta$ - and  $\gamma$ - components of ionizing radiation.

Based on the analysis of the temporal and spectral characteristics of the variable components of geophysical quantities recorded inside and outside the premises in different seasons of the year, it was concluded that the measured geophysical values can be divided into three main groups.

The 1st group - inside the building the spectral-temporal picture of variations (CQSS) does not change, this group should include variations of the magnetic field and atmospheric pressure.

The second group - the presence of a building partially changes the CQS, this group includes a constant magnetic field (in reinforced concrete buildings its intensity and direction changes), variations of the  $\gamma$ -background.

The 3rd group - inside the room and (or) in the presence of a person in it, the ICSS is radically transformed, this group includes variations: temperature, air humidity, turbulent and wind characteristics, H<sub>2</sub>O and CO<sub>2</sub> concentrations, electric field strength, amount of light ions, electrical conductivity, levels of  $\alpha$ - and  $\beta$ - background.