

Influence of megapolis on the physical field variations

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The research of geophysical fields in the conditions of megapolis attracts particular interest not only in terms of their influence on the operation of precision equipment and technological processes associated with nanotechnology, but also it is perhaps the most important in terms of the formation of a special human and other biological objects' habitat. Indeed, the megapolis causes significant changes in regime of the physical fields both directly and indirectly. Negative factors of megapolis associated with elevated vibrations of soil as a result of traffic, acoustic load in the construction of infrastructure and transport communications, etc. are complemented by another negative factor, which until quite recently wasn't known much. It is a variation of physical fields (primarily electric and magnetic) induced by anthropogenic activities. As a result of the evolution a man has adapted to the natural regime of physical fields. Therefore, any, even the short-term changes of physical fields in the environment, their deviations from the natural rate can have a significant influence on human health including changes in the psycho-emotional state.

In the present work we have evaluated the influence of the megapolis (in our case, Moscow) on the nature and regime of microseismic, electric and acoustic field in the surface atmosphere. We have analyzed data obtained as a result of continuous simultaneous registration of physical fields and meteorological parameters at the Center for geophysical monitoring of Moscow of Institute of Geosphere Dynamics of Russian Academy of Sciences. For determination of the characteristics of physical fields in the megapolis obtained data were compared with the results of the registration carried out at the Geophysical Observatory "Mikhnevo" of IDG RAS (located 85 km south from Moscow).

The work is shown that the influence of the megapolis appears to increase the amplitude of physical fields, change of their spectral composition, disturbance of natural periodicities. The important factor characterized the megapolis is the presence of man-made component, which has a significant influence on the course of natural physical processes in the near-surface atmosphere.