

GEOPATHOGENIC LOCALITIES, SITES, LINEAMENTS AND PROVINCES CONNECTED WITH GASEOUS FORMS OF CHEMICAL ELEMENTS IN THE ENVIRONMENT

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Geopathogenic natural biogeochemical provinces with the deficiency of necessary and excess of toxic chemical elements in soils became known long ago. The theory about them was elaborated by the academician A. P. Vinogradov. Geopathogenic biogeochemical localities and provinces caused by "mercury breathing" of the Earth were revealed by us in the last fifteen years. The forming of such mercury geopathogenic structures is caused by its very intensive accumulation by the non-barrier tissues of plants and animals. This intensity for plants may be 10^6 - 10^7 times more than from solid phase and 10^2 - 10^3 times more than from liquid phase of the environment. The second factor is the upward migration of mercury vapour along deep faults and volcanic craters from a depth of 40-80 km, i.e. from the mantle. High concentrations of mercury in the non-barrier bioobjects of plants with low content in soils and rocks first were revealed by us in Buryatia on the Ozernoe and Nazarovskoe polymetallic deposits. In their environments in the Eravna depression high content of mercury and cadmium, exceeding the limit of permissible concentration, was revealed in the liver and kidneys of sheep – in their nonbarrier bioobjects. Other mercury-biogeochemical provinces are known in Uzbekistan, Europe and Canada. Hydromercury-biogeochemical localities and provinces connected with water reservoirs are better investigated. It has been established that terra- and hydromercury structures may be coincided and may continue one another. Similar structures are possible for other gaseous migrants: S, Se, As, F, Cl, Br, I. Only specific nonbarrier bioobjects of plants, animals and humans must be used for the mapping of geopathogenic structures.