RADIOACTIVITY OF NATURAL ENVIRONMENTS IN THE EUROPEAN NORTH OF RUSSIA

YUDAKHIN F. N., KISELJOV G. P. Institute of Ecological Problems In the North, Ural Division, Russian Academy of Sciences, Russia, Archangelsk, Russia.

The natural radioactivity of mountain rocks, soils, underground waters is formed during the development of the Earth crust. The last 50 years on geological environment heavily go the radioactive isotopes derivated in nuclear reactors, from explosions of nuclear charges and after the mining. At the end of the ninetieth years the authors investigated the natural and technogenic gamma - active isotopes in natural environments of the European North of Russia and the comparative evaluation of increasing a radioactivity in them is conducted at the expense of antropogeneous making. Both natural and antropogeneous components in natural environments is distributed nonuniformly. For floor sediments of White, Barents and Kara Seas is characteristic for accumulation of radioactive isotopes in high dispersive fraction in near-shore areas and on sites with low speeds of transmission of seawater. The direct correlation of a deposition both accumulation of technogenic and natural isotopes in bottom sediments and mountain rocks of edaphic horizons are observed. The activity 40K is higher the order than other natural isotopes (232Th, 226Ra etc.). However in many cases the activity of antropogeneous 137Cs is comparable to activity 40K. Especially it is characteristic for rocks in upper horizons of soils, in which structure enters humus. The thickness makes them 10-15 sm. With increase of depth up to 140 cms the activity of technogenic isotopes decreases exponentially from maximum values 300-400 Bk/kg, up to 1-2 Bk/kg. It indicates that the top of geologic medium by thickness up to 1 m is subject to a technogenic radioactivity in a greater extend, where on our calculations in European North the gamma - ray activity was increased more than on 10%.