The effects of sorption properties of Beloyarsk NPP location soils on fallout-radionuclides migration process

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Monitoring 30-km zone of Beloyarsk NPP was selected for the investigation of the behavior of radionuclides (^{90}Sr and ^{137}Cs) in case of a given accidental fallout. 10 soil samples were collected at typical landscapes of the zone. Values for cesium and strontium K_d are investigated in laboratory experiments as a function of aqueous and solid phase chemistry.

A range of aqueous contaminant solutions are added to the soil in the beaker. The beaker is sealed and mixed until sorption is estimated to be complete. Then air-dried samples are added distilled water in 0,1–50 water to sample mass ratio. After the reaction, the soil and washing solution are separated with a centrifugation. The pH, Eh, and the concentrations of Sr and Cs of the washing solution are determined.

Results of ongoing laboratory experiments will be used as input data in models for predicting the migration of radionuclides from catchment basins to fresh water bodies.