

HYDROCHEMICAL BACKGROUND OF ^{222}Rn OF THREE GEOLOGICAL UNITS OF LOWER SILESIA

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The aim of the research was to create the first Polish database on the concentration of ^{222}Rn activity in surface (river) waters for one of the 16 Polish voivodeships. For this purpose, the research area within the administrative borders of the Lower Silesian Voivodeship was chosen. Geologically, this area can be divided into three different parts: Sudetes, Fore-Sudetic Block, and Fore-Sudetic Monocline. The authors used the liquid scintillation method to measure the concentration of ^{222}Rn activity. The range of measured values in individual areas was 0.21–24.44 Bq/dm³, respectively for the Sudetes, the Fore-Sudetic Block 0.08–4.27 Bq/dm³, and the Fore-Sudetic Monocline 0.09–3.37 Bq/dm³. Based on the obtained result, the authors determined the hydrochemical background which amounted respectively: 0.26–1.33 Bq/dm³ for the Sudetes, 0.18–0.92 Bq/dm³ for the Fore-Sudetic Block, and 0.12–0.48 Bq/dm³ for the Fore-Sudetic Monocline. Both the background and ranges of measured values for surface waters are consistent with the decreasing share of crystalline rocks in the surface structure. In addition, it can be stated that river waters in the Lower Silesian Voivodeship meet the radiological requirements that should be met by water intended for human consumption in terms of ^{222}Rn activity concentration.