



## ARTIFICIAL RADIOACTIVITY AND ELEMENTAL CONTENT OF SAMPLES FROM BLACK SEA

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This paper presents results on the concentration of <sup>137</sup>Cs, <sup>90</sup>Sr, <sup>3</sup>H in water samples from 5 locations in NW Black Sea collected in 1999. In sediment samples, <sup>137</sup>Cs, Pu radionuclides and <sup>241</sup>Am were determined as well as some major and minor elements by X-ray fluorescence. After chemical separation by applying a combined sequential procedure, <sup>239+240</sup>Pu, <sup>238</sup>Pu and <sup>241</sup>Am were measured by high-resolution alpha-spectroscopy. Liquid Scintillation Counting was applied for measuring of <sup>241</sup>Pu. For the surface water samples, <sup>137</sup>Cs concentration varied between  $(26.3 \pm 3.4)$  mBq/l and  $(41.2 \pm 5.6)$  mBq/l. The concentration of <sup>90</sup>Sr was of about 11 mBq/l. The concentration of tritium was low between 24 and 7 T.U. Higher radioactive concentrations in sediment were found in the samples collected from the stations located close to Danube river. For <sup>137</sup>Cs values up to  $(128 \pm 6)$  Bq/kg were found, in agreement to results for NW Black Sea in previous years. The measured concentrations of <sup>239+240</sup>Pu, <sup>238</sup>Pu radioisotopes are within the range of the values reported in earlier research for the Western Black Sea and Bulgarian Black Sea Coast.

Key words: Black Sea, water, sediment, radioactivity