On the radioactivity of water and sediment collected in Danube river delta and Romanian Black Sea shore

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Abstract - Samples of Danube river delta water as well as Black sea water and sediments at Constantza and Portita sites, during 1975-1976, have been collected and for artificial radionuclides monitored. It has been identified a low activity due to the following radionuclides: ^{144}Ce, ^{125}Sb, ^{22}Na, ^{106}Ru, ^{137}Cs, ^{54}Mn, ^{110m}Ag, ^{89}Sr, ^{65}Zn and ^{60}Co.

Résumé - Des échantillons d'eau prélevés pendant 1975-1976 dans le delta du Danube et dans la mer Noire, ainsi que des sédiments sur la plate-forme continentale dans les régions de Constantza et Portita, ont été investigués pour la contamination radioactive artificielle. Les faibles activités sont due aux suivants radionuclides: ^{144}Ce, ^{125}Sb, ^{22}Na, ^{106}Ru, ^{137}Cs, ^{54}Mn, ^{110m}Ag, ^{89}Sr, ^{65}Zn et ^{60}Co.

Introduction

In previous works it was monitored for artificial radionuclides in seawater, sediments and biological matter on romanian shore of the Black Sea, as well as in the Danube river delta[1]. The aim of the present work is to clarify if the low radioactive pollution of the Black Sea is exclusively due to the Black Sea water, or if not, to establish the contribution of Danube river water to the radioactivity of the sea water.

Methods and conclusions

The samples under study were measured for the gamma-emitters making use of a high resolution Ge(Li) crystal of 2.7 keV at the ^{60}Co gamma-lines, coupled to a multichannels analyzer of DIDAC-800 SA-42 Intertechnique type. The following radionuclides were identified: ^{144}Ce, ^{125}Sb, ^{22}Na, ^{106}Ru, ^{137}Cs, ^{54}Mn, ^{110m}Ag, ^{89}Sr, ^{65}Zn and ^{60}Co. The activity of the Black Sea is mainly due to ^{40}K. The majority of the sediment and sand samples of Constantza and Portita sites

lack many of the upper radionuclides. In Danube river delta at Chatal site (bifurcation of Sulina and Sfîntul Gheorghe branches of Danube river) in all the samples, i.e. suspended matter, filtered water and bed-load sediments were identified all the radionuclides mentioned, but ^{60}Co, ^{89}Sr are scarce. It is concluded that Danube river is transporting fission and neutron induced nuclides, but of low activities. It must be stressed the permanent presence of ^{125}Sb in all samples.

References

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No question.