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Project Report

Plutonium Isotopes Concentration in Seawater along the Algerian Coast

M. Benkrid and A. Noureddine

Laboratoire des Etudes d'Impact Radiologique, Centre de Recherche Atomique, 02 Bd. F. Fanon, BP 399, Algiers-Gare, 16000 Algiers, Algérie

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Abstract

The International Atomic Energy Agency has organised in the collaboration with “Commissariat à l'Energie Atomique” (COMEA) and “Institut de l'Aménagement du Littoral” (ISMAL), during August 2001, a scientific cruise on the research vessel M.S. Benyahia of ISMAL. Three stations, at five seawater samples for each water column reaching a maximum depth of 200 m, were collected using a Nisk sampler of a volume of 250 litres. After recording the main parameters (temperature, salinity, conductivity), seawater samples were conditioned and preconcentrated in the form of MnO₂ in order to proceed to plutonium extraction by coprecipitation using neodymium fluoride (NdF₃) by vacuum filtration. Concentration results in units of µBq/l of plutonium isotopes were: 25.5 ± 3.70 for P²³⁹+P²⁴⁰ and 0.21 ± 0.04 to 0.77 ± 0.15 for P²³⁸. The concentration of P²³⁸ was studied and the concentration was estimated. The obtained results are compared with other authors in the same Mediterranean area.

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