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"Gheorghe Asachi" Technical University of Iasi, Romania

MAPPING OF SELECTED TRACE METALS AND ASSOCIATED RISK IN COASTAL SEDIMENTS ALONG THE NORTHWEST ANATOLIA COASTS OF TURKEY

Buket Canbaz Öztürk

Ege University, Faculty of Science, Department of Physics, Izmir, Turkey, email: buket.canbaz.ozturk@ege.edu.tr

Abstract

This study investigates the distribution of selected trace metals (As, Cd, Cr, Cu, Ni, Pb, and Zn) and associated risk in coastal sediment samples taken from the Northwest Anatolia coastline of Turkey. The 451 km long coastal area contains many industrial areas and tourist sites. Trace metal concentrations in sediment samples collected from 100 stations were determined by inductively coupled plasma mass spectrometry (ICP-MS). The ecological risk was evaluated according to the Sediment Quality Guidelines (SQG) of the United States Environmental Protection Agency (EPA) and by calculating and examining pollution indices including the degree of contamination (*Cd*), modified degree of contamination (*mCd*), potential ecological risk index (*Ri*), and enrichment factors (*EF*). Trace metal concentrations were visualized and spatially described utilizing bubble maps. Based on the risk analysis, arsenic was found to be the most dominant pollutant in the study area and the other metals did not indicate a serious anthropogenic pollution.

Key words: coastal sediments, contamination factor, enrichment factor, sediment quality guidelines, trace metals

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