



Vertical geochemical distribution of some contaminants in estuarine sediments from the Jaboatão River, Pernambuco, Northeastern Brazil.

Marta Lima (1), Virgílio Neumann (2), Maria Teresa Castro (3), Enjôlras Lima (4), Edmilson Lima (2), and Ricardo Silva (5)

(1) Recife, Brazil (martamfg@yahoo.com.br), (2) Federal University of Pernambuco, UFPE, CTG, Departament of Geology,(neumann@ufpe.br; delima@ufpe.br), (3) Universidad A Coruña, Spain,(teresat@udc.es), (4) Geological Survey of Brazil, CPRM,(enjolras.lima@cprm.gov.br), (5) Geosciences Postgraduate, Federal University of Pernambuco, UFPE (ricardo.fsilva2@ufpe.br)

Sediment core samples with length ranging from 50 cm was collected in the Jaboatão river estuary and analyzed to (As, Cr, Pb, Hg, Ni and Zn) level concentrations using instrumental neutron activation analysis (INAA). The studied area is located in the northeastern coast of Pernambuco State and is comprised of a densely urbanized region, the largest industrial complex of the state, with a predominance of fertilizer plants.

These elements have a consistent vertical evolution compatible with the increase of the pelitic-organic material. There is an increase from bottom to top of the core but this may not represent a real increase in the input, but rather a concentration associated to the fine particle fraction and organic matter that increases to the top of the core profile.

These conditions of clay predominance in estuarine sediments on the top indicate a decrease of the energy condition in the system and not necessarily an increase in the supply of contaminating metals.

The majority of the chemical species, the concentration did not reach toxicity levels, when considering the values (ERL and ERM) established by USEPA (1998). The only exception is Cr, which has already surpassed the ERM value, and suggests that this increase is related to industrial contribution. Chromium concentration reached preliminary alert levels according to international environmental agencies, whereas the other species analyzed do not show toxicity.

Key-words: environmental geochemistry, estuarine sediments