Multivariate and statistical analyses of the spatial distribution and origin of heavy metals in the soils of Kamoo area, Iran

ALI GHASEMI[1], SEYED MOHSEN TABATABAEI MANESH[2], AHMAD REZA MOKHTARI[3], MEHRAN FARAHMANDIAN[1] AND MAHDI SHABANKAREH[1]

[1]Iranian Academic Center for Education, Culture and Research (ACECR), Isfahan, I.R. IRAN, A_ghasemi@acecr.ac.ir

[2]Department of Geology, Faculty of Sciences, University of Isfahan, Isfahan, Iran, Tabtablimp@gmail.com

[3]Department of Mining Engineering, Isfahan University of technology, Isfahan, Iran

Assessment of heavy metal pollutants: Ni, Cr, V, As, Cu, Pb, Cd, Zn and Mo was conducted soils of Kamoo area, north of Isfahan, Iran, using enrichment factor ratios (EF), contamination factor (CF), pollution load index (PLI) and geoaccumulation index (Igeo) methods. Ninthy soil samples were collected during the dry season from Kamoo areas to determine the spatial distribution and possible sources of heavy metals at Kamoo, Isfahan, Iran. A total of 45 surface soil samples were collected and the concentrations of heavy metals, such as Ni, Cr, V, As, Cu, Pb, Cd, Zn and Mo, were analyzed. The spatial distribution characteristics of these metals were demonstrated by environmental geochemical mapping. The mean concentrations of Ni, Cr, V and As are close to the background values. Enrichment factors show that the soil concentrations of Cu, Pb, Cd, Zn and Mo were higher than the background values, especially Cu. Multivariate geostatistical analysis suggests suggest origins of pollution sources are lithogenic occurrences.

[Source] Cevik, F. Goksu, M. Derici, O. Findik, O. (2009) An assessment of metals pollution in surface sediments of Seykan dam by using enrichment actor, Geoaccumulation index and statistical analysis. Environmental Monitoring Assessment, 152, 309-317.