



# Evaluation and Spatial Distribution Maps of Heavy Metals in Soil using Geomatic Techniques

**Ayad Abdullah Khalaf and Mohand Esaa Khuder<sup>1</sup>**

*Natural Resources Research Centre*

*Department of Soil Sciences and Water Resources, College of Agricultural*

*<sup>1</sup>Department of Geology, College of Pure Sciences, Tikrit University, Tikrit*

*E-mail: Aiad2017@tu.edu.iq*

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**Abstract:** The study was aimed to evaluate and prepare spatial distribution maps of heavy metals in the soil using the geomatic technique. A representative area was chosen which suffers from environment pollution near the oil fields (Ajil and Alas oil fields, Iraq). Nineteen soil samples were taken from the surface layer (0-15)cm and analyzed for the physical and chemical properties and estimation of the heavy metals (Cd, Co, Mo, Cu, Zn, Ni, Fe, Cr, Mn, Ti, As and Pb) using an XRF device. Various Pollution criteria were applied (Contamination Factor-CF, Contamination degree-Cd, Modified contamination degree-mCd, Pollution Load Index-PI, Enrichment Factor -EF, Geo-accumulation index- I-geo, Potential Ecological Risk-PERI and Requested potential ecological risk index-RI The spatial Kriging interpolation tool was used to prepare of maps and prediction of heavy metal content. The results shown that content of heavy metals in soil were higher than the permissible limit. According to pollution criteria, the highest risk was for cadmium element in the soil. The results of PERI and RI indicate that the pollution degree range between high-risk pollution to very high-risk pollution.

**Keywords:** Heavy metals, Soil Contamination, Pollution Index, Kriging technique

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