Geophysical Research Abstracts
Vol. 15, EGU2013-3131, 2013
EGU General Assembly 2013
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Baseline of Trace Elements in Soils from the Tarragona and Barcelona Coastal Area and Central Uplands of Barcelona , Catalonia (Spain) .

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A study was conducted to determine the baseline of total contents (XRF) of Ba, Cu, Ga, Ni, Pb, Rb, Sn, Sr, V, and Zn in soils from the Tarragona and Barcelona coastal area and Central Uplands of Barcelona, Catalonia, NE Spain, and to establish relationships between heavy metals and some soil properties. A total of 94 samples (47 soil plots) were collected from topsoils and subsurface soils in the main soil types. The median concentrations (mg kg^{-1}) obtained were Ba 412 (range 113-954 mg kg^{-1}), Cu 19.4 (5-91 mg kg^{-1}), Ga 12.5 (5-21.7 mg kg^{-1}), Ni 24 (7-56.5 mg kg^{-1}), Pb 25 (9-100 mg kg^{-1}), Rb 79 (34-140 mg kg^{-1}), Sn 2 (1-8 mg kg^{-1}), Sr 102 (43-401 mg kg^{-1}), V 68.5 (22-170 mg kg^{-1}), and Zn 66 (20-137 mg kg^{-1}). The concentrations of trace elements in Catalonia were similar to those given by other authors from different countries of the Mediterranean regions. In terms of soil properties, the results of this study suggest that in these soils trace elements adsorption and retention are influenced by several properties such as clay minerals and pH. Almost all element concentrations were positively correlated with clay content and negatively correlated with carbonates. The very strong positive correlations between V, Ni, V, and Ga point to their natural origin.