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Geochemical and Pb isotopic characterization of soil, groundwater, human hair, and corn samples from the Domizio Flegreo and Agro Aversano area (Campania region, Italy)

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**Geochemical and Pb isotopic characterization of soil,  
groundwater, human hair, and corn samples from the  
Domizio Flegreo and Agro Aversano area (Campania region,  
Italy)**

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## **Abstract**

A geochemical survey was carried out to investigate metal contamination in the Domizio Littoral and Agro Aversano area (Southern Italy) by means of soil, groundwater, human hair and corn samples. Pb isotope ratios were also determined to identify the sources of metals. Specifically, the investigation focused on topsoils (n = 1064), groundwater (n = 26), 25 human hair (n = 24) and corn samples (n = 13). Topsoils have been sampled and analysed in a previous study for 53 elements (including potentially harmful ones), and determined by ICP-MS after dissolving with aqua regia. Groundwater was analysed for 72 elements by ICP-MS and by ICP-ES. Samples of human hair were prepared and analysed for 16 elements by ICP-MS. Dried corn collected at several farms were also analysed for 53 elements by ICP-MS. The isotopic ratios of  $^{206}\text{Pb}/^{207}\text{Pb}$  and  $^{208}\text{Pb}/^{207}\text{Pb}$  in selected topsoil (n=24), groundwater (n=9), human hair (n=9) and corn (n=4) samples were analyzed from both eluates and residues to investigate possible anthropogenic

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