zircon Hf isotope study of the Western Carpathians granitic and related rocks brings following average εHf$_{(t)}$ values: OG = -4.50 ±1.38 (*St.dev.*); M-s gabbro = +0.54 ±2.1; I-suite tonalites = -0.34 ±2.18; S-suite granites = -1.69 ±2.64; A-type granites = +0.55 ±1.65 indicating substantial crustal recycling and/or significant participation of mantle material as potential source for M-s, I-s, and A-s rocks types. Noteworthy, that mantle contribution to their genesis has rather character of melted mantle derived mafic lower crust than fresh input of mantle melt to the Devonian (Permian) subduction zone what suggest the Hf model ages of zircons from these rocks.

Magnetic properties of soils around local pollution sources (Crete, Greece)

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The main scope of the present study is to investigate the spatial and vertical distribution of the magnetic susceptibility in an area of possible industrial pollution and heavy traffic. For this purpose, a power plant with a dense traffic net around it, located in the SE section of Chania city was selected as the investigated area. In the context of the present work magnetic susceptibility measurements have been contacted in two phases. Surface soil samples have been collected in 2008 from the area under investigation and they were analyzed in order to estimate the spatial distribution of the magnetic susceptibility. Loci of high values of magnetic susceptibility within the study area gave rise to further proceed to coring up to a depth of 120cm at selected sites of the study area. GIS techniques were used for mapping the magnetic measurements on the various topographic and geological features of the area. Maps were created through interpolation algorithms indicating the spatial distribution of the above measurements. Spatial tools and statistical analysis proved the correlation between magnetic properties and the terrain attributes. Both investigations indicate high values of the magnetic susceptibility especially in the eastern part of the investigated area and along the main traffic branch.

Application of skeletonization on geophysical images

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Skeletonization has been a part of morphological image processing for a wide variety of applications. The skeleton is important for object representation in different topics, such as image retrieval and computer graphics, character/pattern recognition and analysis of biomedical images. The purpose of the present work is to apply a sequential skeletonization algorithm on geophysical images, resulting from shallow depth mapping of archaeological sites. The accurate identification of curvilinear structures in geophysical images plays an important role in geophysical interpretation and the detection of subsurface structures. Experimental results on real data show that skeletonization comprises an important tool in image interpretation.