

evolution and geochemical signatures of the Eocene-to-Oligocene sandstone suites of the western portions of the Thrace basin in Greece and Bulgaria is closely related to various geodynamic stages of the Rhodopian region, from collisional to post-collisional orogenic collapse and the superimposed volcanism related to extensional collapse. The type of sedimentary provenance of these Rhodopian Paleogene sandstones, provide an example of the changing nature of orogenic belts through time, and may contribute to the general understanding of similar geodynamic settings.

## **Underwater geoarchaeological survey in front of the Danubian Island “Pacuiul Lui Soare” (Romania) using Remote Sensing Techniques – Preliminary results**

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On the Danubian island "Pacuiul lui Soare", between 355 and 357 km, there are the ruins of a Byzantine fortress from the X-XIII centuries, most of which has already been eroded by the Danube river. A seismoacoustic survey which was carried out along the Danube in front of the island, showed the presence of the fortress ruins under the river waters. Further geo-archaeological survey is required in the studied area, aiming to a better understanding of the island evolution and of the fortress history as well.

## **Geochemical survey – an optimal solution in environmental assessment on local and regional scale**

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The quality of environment is extremely important for the human society development as well as for the entire biosphere equilibrium. In order to decipher the real status of an extended (regional) area and to rapport the print image of the local areas - subjects of development projects, a geochemical investigation have been performed in the Bucharest-Ilfov Region (Romania). The environmental factors (soil, underground and surface water and plants) evaluation on local or regional scale finds in geochemical survey (sampling, analyzing, mapping and reporting to national/international qualitative standards) an adequate solution. Taking into account the necessity of evaluating and monitoring the intensive populated areas, the exigency of such operation on height qualitative standards and at low costs increases. Admitting the European criteria to evaluate the water, soil and plants quality preservation as reasonable and averaging between national standards of EU community, the first observation regards the lowest possible price of sampling (proportional with sampling density, and increasing in case of difficult field access) and the highest accuracy/detection limits of final qualitative database acquisition. The necessary analytical diversity for a complex environmental investigation exceeds the classical routine of geological-geochemical one (usually limited to metalogenetic objectives) and includes various sophisticated categories (organic). For example the pesticides (a widespread category of biocides) investigation is an example of mostly refined and expensive analytical imperative. A systematic sampling must be performed at densities that ensure the representativeness on small surfaces (at least 4 soil samples/km<sup>2</sup>, 1-2 underground water samples/km<sup>2</sup>, 1 surface water sample/km<sup>2</sup>, 2 samples of the same species of plant/km<sup>2</sup>) followed by physical-chemical analyses for specific categories (*soil*: As, Cd, Cr, Cu, Pb, Ni, Zn, Hg, mononuclear aromatic hydrocarbons and poli-aromatic hydrocarbons BTEX, PAH, insecticide organic-