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

Caraivan G.[1], Fulga C.[1] and Chera C.[2]

[1]*National Institute of Marine Geology and Geo-ecology (GeoEcoMar), Constanta, Romania: bd. Mamaia no. 304, cod 900581, Constanta, Romania, gcaraivan@geoecomar.ro; cfulga@geoecomar.ro*
[2]*Museum for National History and Archeology Constanta, Place Ovidiu 12, 900745, Constanta, Romania, anroed@hotmail.com*

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

Casapu I.[1], Dordea D.[1], Sprinceana V.[1] and Dobrescu A.[2]

[1]*S.C. Prospecţiuni S.A., 1 Caransebes str., sect. 1, Bucharest, Romania,* dorin.dordea@prospectiuni.ro
[2]*Geological Institute of Romania, 1 Caransebes str., sect. 1, Bucharest, Romania,* ancadobrescu2003@yahoo.com

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^2, 1-2 underground water samples/km^2, 1 surface water sample/km^2, 2 samples of the same species of plant/km^2) 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-

chloride; *vegetation:* As, Cd, Cr, Cu, Pb, Ni, Zn, Hg; *water*: pH, conductivity, soluble oxygen, NH^{4+}, NO_2, NO_3, PO_4, Cl, SO_4, Ca, Mg, Na, As, Ba, Cd, Cr, Cu, Co, Pb, Mn, Ni, Fe, Se, Zn, Hg, Te, Tl, Sn, U, V, phenols, BTEX, PAH, policlorurate biphenyl, organic-chloride insecticides. The mono-compound maps for each analyzed category were performed. Looking to the toxic and undesirable categories for each factor, lots of polluted areas have been identified as well as the pollutant sources.

In order to evaluate less expensive solutions and the most relevant/representative mapping, the sampled/analyzed data were gradually reduced. The successive maps were analyzed in order to establish the proper sampling density for each chemical category. The quality of the environmental factors on the studied territory was affected by the lack of protection–prevention measures during the communist economy expansion and the massive post communist abandon of the industrial and agro-industrial units and by various polluting activities. This territory is undergoing an intensive developmental dynamic, the most intense of the entire national territory. Besides, the lack of a preliminary evaluation of the qualitative stage and the geographical extent of the polluting phenomena influences the environmental factors and will affect directly and essentially the quality of human life and socio-economic development. The elaboration of the cartographic image on the environmental pollution/preservation (the main purpose of this paper) supports both the necessary protection/prevention measures and the future socio-urban and cultural development plans for the target area (*Bucharest-Ilfov*). Meanwhile, it validates the geochemical systematic investigation as the main efficient and accurate methodology in assessment of environmental status of an area.

The Eocene-Oligocene geodynamic setting of the Thrace Basin (Turkey, Greece, and Bulgaria)

Cavazza W. [1], Okay A.I.[2] and Zattin M.[3]

[1]*Dept. of Earth and Geoenvironmental Sciences, University of Bologna, Italy*
[2]*Eurasia Institute of Earth Sciences and Dept. of Geology, Istanbul Technical University, Turkey*
[3]*Dept. of Geosciences, University of Padua, Italy*

The Thrace Basin is an important hydrocarbon province covering an area in excess of 15,000 sq. km in Turkey, Greece, and Bulgaria. The complex historical vicissitudes of the region have made collaboration among the researchers of the three countries difficult. Consequently, a unified and widely accepted geological interpretation of the Thrace Basin is still missing. Nevertheless, a great wealth of outcrop and subsurface data is already available from both academic and industrial sources. Integration of preexisting data (seismic and oil-well stratigraphy, geological-structural field maps) with new field mapping as well as new stratigraphic, sedimentologic, thermochronologic, petrologic, and radiometric data has provided significant constraints on the evolution of the basin.

The Thrace Basin developed during the complex transition between the collisional tectonic regime following the closure of Vardar-İzmir-Ankara oceanic realm and the extensional regime characterizing the Neogene evolution of the Aegean and periAegean regions. It was long interpreted as a forearc basin which developed in a context of northward subduction. This interpretation was challenged by more recent data emphasizing the lack of a coeval magmatic arc. The interpretation of the Thrace Basin as a forearc basin was also based on the occurrence, along its southern margin, of a belt of chaotic deposits interpreted as a tectonic mélange formed in an accretionary prism. However, this tectonic mélange may represent olistoliths in an Eocene sequence. All these elements along with the correspondence between subsidence pulses in the basin and lithospheric stretching in the metamorphic core complexes of southern Bulgaria and the northern Aegean region may indicate instead that the Thrace Basin was the result of either (i) post-orogenic collapse after the continental collision related to the closure of the Vardar ocean, or (ii) upper-plate extension related to slab retreat in front of the Pindos remnant ocean. Preliminary data indicate that initial subsidence (Ypresian-early Rupelian) was localized in small depocenters delimited by a system of strike-slip faults, probably during the late stages of collision. Further subsidence over a wider area