microorganisms in soil samples collected at Sousaki. These results further confirm recent studies on other geothermal systems that revealed the existence of thermophilic and acidophilic bacteria exerting methanotrophic activity also in hot and acid soils thereby reducing methane emissions to the atmosphere.

A multi-source provenance for Eocene-Oligocene turbidites in the southern Thrace Basin

D'Atri A.[1], Zuffa G.G.[1], Cavazza W.[1], Okay A.I.[2] and Di Vincenzo G.[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]*Institute of Geosciences and Georesources di Geoscienze e Georisorse - CNR, Pisa, Italy.*

The Thrace Basin (Turkey and Greece) is located between the Rhodope-Strandja Massif to the northwest, the Marmara Sea and Biga Peninsula to the south and the Black Sea to the east. It consists of a complex system of depocenters and uplifts with very articulate paleotopography indicated by abrupt lateral facies variations. Most of the basin fill ranges from the Eocene to the Late Oligocene and consists mainly of turbiditic deposits with a significant volcaniclastic component, evolving upwards to shelf and continental deposits.

Sediment source areas and paleodispersal pattern of the southern Thrace Basin were determined by studying framework and heavy-mineral compositions of arenite samples (78 samples for framework composition and 40 samples for heavy minerals). Samples were collected at six localities, which are from west to east: Gökçeada, Gallipoli and South-Ganos (south of Ganos Fault), Alexandroupolis, Korudağ and North-Ganos (north of Ganos Fault). The Thrace Basin fill is made mainly of lithic arkoses and arkosic litharenites with variable amount of low-grade metamorphic lithics (also ophiolitic), neovolcanic lithics, and carbonate grains (mainly extrabasinal). Picotite is the most widespread heavy mineral in all petrofacies.

The average values and distribution of several petrographic parameters discriminate six petrofacies. These parameters are: Q+F/NCE+CE (occurrence of granitic rocks in source area), OF/L (total of ophiolitic rock fragments), F+S/L (amount of metamorphic lithics), CE/L (quantity of carbonate extrabasinal grains), NEOV/NCE (presence of neovolcanic component, both single grains and lithics), CI/L (total carbonate intrabasinal grains), and the amount of the four principal heavy minerals (picotite, sphene, glaucophane and epidote groups).

Integration of the petrographic dataset (gross and heavy mineral composition) with stratigraphic analyses and paleocurrent measurements points to a complex sediment dispersal pattern in the southern Thrace Basin during Eocene-Oligocene times. The main sediment source area was located to the south, including the region of the İzmir-Ankara suture and another poorly dated suture located in the Biga Peninsula. Detrital input from this source area is characterized by the abundance of picotite and ophiolites with low-grade metamorphic rock fragments and extrabasinal carbonate grains. A possible secondary source area is represented by the Rhodope Massif to the west. Detritus possibly derived from this area is characterized by picotite with plutonic and metamorphic rocks. Such Rhodopian provenance, although quantitatively subordinate in the study area, seems to have played a significant role in providing detritus to the central and northern sectors of the basin. An important penecontemporaneous volcanic component is widespread in late Eocene-Oligocene times, indicating widespread post-collisional (collapse?) volcanism following the closure of the Vardar-Izmir-Ankara ocean.

In summary, the most important source area for the sediment of Thrace Basin in the study area was represented by the exhumed subduction-accretion complex along the southern margin of the basin (Biga Peninsula and western-central Marmara Sea region). Most measured paleocurrent indicators show an eastward paleoflow but this is most likely the result of gravity flow deflection. This is possible considering the strong control of the east-west-trending synsedimentary transcurrent faults which cut the Thrace Basin, generating a series of depocenters and uplifts, which deeply influenced sediment dispersal and the areal distribution of paleoenvironments.