practically inexhaustible reserves of natural ecological fertilizers found in the Bulgarian economic zone in the Black Sea.

The Black Sea is a powerful Natural Geobiotechnological Reactor, capable of producing various natural resources. The Black Sea is the biggest generator of H_2S in the world and is a global source for the production of hydrogen and sulphur.

The adoption of new, renewable sources of energy and the production of hydrogen and the accompanying products from the hydrogen sulphide extracted from the marine water and the sediments provides the hydrogen energy sector with a new perspective.

The unlimited reserves of H_2S in the Black Sea are an important challenge to the modern technologies for production of a new type of energy resources as H_2 and the accompanying products (S). The reserves of H_2S are evaluated to be between 2.88 and 4.18 billion tons or 169 – 245 million tons of H_2 and 2.7 – 3.9 billion tons of S.

Undoubtedly, the suggested energy corridors will contribute to the energy security of the Balkans. However, we should remember the immense potential of the unconventional resources of the Black Sea which studies and utilization will secure the future of the energy sector of Europe.

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Çamlıca High (South of Soma, Manisa): An important structure to understand the Neogene-Quaternary tectonics of the Central Western Anatolia

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E–W and N–S- trending cross grabens and horsts are the most important structures of Western Anatolia. Çamlıca High is a ~N–S-trending geomorphologic feature with a strong topographical manifestation. This feature, located at the northern tip of the Miocene Yuntdağı Volcanic Complex, is surrounded by Kırkağaç Graben to the east, Soma Graben to the north and Bakırçay Graben to the west. N–S- trending Kırkağaç Fault, E–W- trending Soma Fault and NE–SW-trending Kozanlı Fault set are the marginal faults of this structure. The lignite bearing deposits of N–S- trending Mio–Pliocene basin were elevated by these faults. These deposits and interior part of the High were also dissected by ~N–S and NW–SE- trending faults. To understand the tectonics of the region, field studies were carried out along the marginal structures and interior of the Çamlıca High. Based on the kinematic analyses, performed by using fault-slip data acquired from fault surfaces, the following results were obtained: i) NE–SW- trending faults have been formed under NW–SE extension and the principal stress distribution is σ_1= 278°/78°, σ_2= 63°/10° and σ_3= 155°/7° and the value Φ is 0.184; ii) NW–SE- trending faults have been formed under NE–SW extension regime and the principal stress distribution is σ_1= 154°/76°, σ_2= 305°/12° and σ_3= 37°/6° and the value Φ is 0.335; iii) for the formation of N–S- trending faults (Kırkağaç Fault), ENE–WSW extension is dominant. The principal stress distribution is σ_1= 334°/47°, σ_2= 187°/34°, σ_3= 91°/23° and the value Φ is 0.609, and σ_1= 166°/81°, σ_2= 335°/9°, σ_3= 65°/2° and the value Φ is 0.3 respectively. Under the light of these kinematic analyses, we can conclude that in the region two different tectonic regimes were revealed. The first one is NNE–SSW directed extensional regime resulted from WNW–ESE- trending compression. This tectonic regime was played an important role during the formation of N–S directed left lateral strike-slip faults with normal dip-slip component. The NW–SE- striking faults with normal dip-slip component and related

oblique faults were formed due to extension in this regime. The last tectonic regime affecting the region is NNE–SSW and WSW–ENE directed simultaneous extension which enabled the formation of approximately N–S-trending normal faults (Kırkağaç Fault) and E–W-trending normal faults (Soma Fault) controlling especially the boundary of Çamlıca High. This regime additionally reactivated older faults within the region.

Mesozoic radiolarians from the Dinarides (Serbia and Bosnia)

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The territories of Serbia and Bosnia are very interesting for studies of Mesozoic Radiolaria. Radiolarian ages determined in the Dinarides reveal the following age clusters: Middle to Late Triassic, Middle Jurassic, Late Middle to Late Jurassic, Late Jurassic to Early Cretaceous and Late Cretaceous. No Early Jurassic faunas were found.

In the internal Dinarides radiolarian cherts can generally be found in 3 different tectonic settings: (1) Radiolarian chert sequences which are a part of an ophiolitic mélange formed during the Late Jurassic, underlying obducted (Dinaric or West Vardar) ophiolites of Jurassic age. Within blocks, the radiolarites are often in original stratigraphic contact with basalts. Therefore, such blocks either represent gravitationally emplaced olistoliths, or alternatively, tectonically emplaced slivers. Interestingly, the mélanges often contain Triassic (Ladinian and Carnian to Norian) as well as Jurassic radiolarite sequences, both occasionally associating with basalts. This indicates that the mélange underlying the obducted Jurassic ophiolites also incorporated blocks that represent the remnants of Triassic in age ocean floor (Maliac-Meliata ocean). These occur side by side with blocks that are derived from the obducted Dinaric and West Vardar ophiolites. We interpret the Triassic and Jurassic ophiolites within the mélange to be a part of one and the same Triassic-Jurassic oceanic domain. (2) Jurassic in age radiolarian cherts are also found as an integral part of a still preserved in situ passive margin sedimentary sequence in the footwall of the ophiolitic mélange (East-Bosnian-Durmitor and Drina Ivanjica units). Deposition of radiolarites onto Triassic to Early Jurassic platform carbonates of the distal Adriatic margin indicates subduction of the platform below the CCD initiated during the Aalenian. The onset of subduction predates final obduction which occurred soon afterwards (i.e. at the end of the Jurassic). The radiolarian faunas from different localities in Serbia indicate ages that range from the Aalenian to the Tithonian. (3) Radiolaria may also occur within the so-called “Radiolarite Formation” and within the background sediments of the “Flysch Bosniaque” (or Vranduk Flysch) in Bosnia. The Radiolarite Formation represents a very thick sequence of radiolarites which were separated from their original substratum that belongs to the Adriatic margin. This formation yielded ages ranging from the Bajocian to the Berriasian and the earliest Valanginian. These radiolarites are tectonically overlain by the ophiolitic melange. In contrast to the melange no Triassic radiolarians were found. The radiolarite formation probably represents the detached cover of the East Bosnian Durmitor unit, since both directly underlie the ophiolitic mélange formation. The radiolaria found within the Vranduk flysch, located in the footwall of the Radiolarite Formation are of Oxfordian age and indicate that this flysch basin, which is characterized by ophiolitic detritus, came into existence in the Oxfordian.

Radiolarites contained in Scaglia Rossa type sediments were dated as Campanian. These form the matrix of MORB-type pillow basalts that are part of the Sava Zone. The Sava Zone forms the suture zone between the Dinarides and the Tisza and Dacia blocks. This latter age group provides evidence that the final collision between Adria and Tisza did not take place before Latest Cretaceous times.