

Livadi section), as documented by the nannofossil assemblages and the well developed planktonic microfauna. In particular the presence of discoasterids, *Rhabdosphaera* spp., *Sphenolithus* spp., *Scyphosphaera* spp., *Amaurolithus* spp., *R. pseudoumbilicus*, *Sphaeroidinellopsis* spp. and the calcareous dinoflagellate *Thoracosphaera heimi* is indicative of warm subtropical conditions. Relatively increased productivity is implied by the presence of *Helicosphaera* spp., which is known to preferentially high productivity waters in the middle photic zone. In this study, the genus *Helicosphaera* is represented mainly by *H. carteri*, a species with preference in warm waters and moderately elevated nutrient levels.

The Late Zanclean deposits of Katelios section are associated with a shallow depositional environment marked by the presence of abundant benthic foraminifera. The nannofossil assemblages indicate warm-temperate and high-productivity conditions due to the abundance of *R. pseudoumbilicus*. Additionally the dominating discoasterid species (abundance >5%) *D. pentaradiatus*, *D. asymmetricus*, *D. brouweri* favour warm and more productive intervals, in contrast to rare *D. variabilis* and *D. surculus* which are mostly associated with colder conditions.

Vrancea and Hindu Kush areas of mantle earthquakes: Comparative tectonic analysis

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The Late Cenozoic tectonics in the Eastern Carpathians and the Pamir-Hindu Kush region are compared to ascertain structural position and origin of strong mantle earthquakes in the Vrancea and Hindu Kush megasources. Intensive Oligocene–Quaternary deformation took place in the Pamir-Hindu Kush region. Under compressive regime, large upper crust blocks were detached and displaced up to several hundred kilometers. Relics of the oceanic crust of the Precambrian, Hercynian Paleo-Tethys and Early Meso-Tethys were overthrust by the upper crust blocks and subsided to the depth of 40–70 km, where they were metamorphosed into higher density metabasites of the granulite-eclogite type. In the Pliocene–Quaternary, the region was quickly elevated, mainly because of decrease of density of the upper mantle. As a result, the detached dense metabasite slab began to move down to the depths of 270–300 km. The same processes took place in the Vrancea area. The basic rocks of the Inner Carpathian zones were moved and underthrust the Moesian Platform with simultaneous overthrusting by the Outer Carpathian zone. Under the load of the Outer zone nappes and the Focsani basin sediments, the basic rocks were metamorphosed into the dense metabasite slab. After decrease of the upper mantle density because of asthenospheric convection beneath the Carpathians, the slab began to move downwards. Destruction of the moving slabs produced the mantle earthquakes.

Brittle tectonic events in the western boundary of the East Serbian Carpatho-Balkanides: preliminary results based on structural and paleostress analyses in the Gornjak area

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The Carpatho-Balkanides in the East Serbia are composed of multiple longitudinal tectonic zones characterised by various stratigraphic/lithofacial differences and very complex structural or tectonic compositions. In this paper we analyse and discuss a relatively small amount of collected data and present determination of paleostress tensors in the Gornjak area.