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 *Thoracospharea heimi* is indicative of warm subtropical conditions. Relatively increased productivity is implied by the presence of *Helicospaehera* 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 Hundu 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 overthrusted 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 underthrusted 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.

These are preliminary results that are going to be further documented and reinterpreted by data collected in three more cross-sections in the areas of Ravanica, Kučevo and Despotovac.

The Gornjak area represents Serbian part of the larger Saska-Gornjak unit that is considered a part of the Getic nappe. It is mostly composed of Triassic and Jurassic limestone which provide abundant evidence of Alpine ductile and brittle deformation stages. Kilometer-scale folds have uniform geometry trending from north to south, which provide general trends of tectonics shortening during the oldest deformation stage. Ductile tectonic event in the Gornjak unit predominantly produced gentle to mostly open cylindrical and planar folds. Upright linear folds have almost gently plunged axis towards the N and NW.

Well developed fault planes, often with multiple striations were observed and later statistically analysed by direct inversion method, and to a lesser extent by NDA method (where applicable). The paleostress analysis is based on high quality data of 175 faults and striation datasets and they were processed in specialized software - Tectronics FP. Relative ages of these events were mainly indicated by superimposing fault surface kinematics indicators.

According to preliminary analysis, four main brittle deformation phases, composed of six unique kinematics events were determined. The oldest kinematic event (D_1) indicates predominant NW-SE compression. The shape of stress ellipsoid, orientation of σ_1, σ_2, σ_3 axes (sub-vertical σ_3 axes) and stress ratio R=0.9 suggest a stress regime close to radial compression. This stress regime resulted with formation of ductile structures with axes dipping gently to N-NE. The continuation of this tectonic phase in brittle deformation conditions caused mostly reverse movements along NE-SW to ENE-WSW fault systems. During the same tectonic phase, this compressional kinematics was followed by strike-slip kinematic events. The stress ellipsoid ratio indicates increasing intensity difference acting along maximal and medium stress directions. This change caused a transition from almost radial compression to strike-slip tension. During this tectonic phase NNW-SSE to NNE-SSW sinistral faults were activated. During D_2 phase an E-W compression was exerted. A stress ratio of R=0,3 implies a pure strike-slip regime. It probably resulted in activation of dextral movements along ENE-WSW to ESE-WNW striking fault systems. The D_3 tectonic phase started with pure strike-slip events having a NE-SW oriented maximal compression axis. This kinematic act gave rise to a NE-SW striking fault system. Initially sinistral-normal oblique-slip movements were slightly changed resulting in pure sinistral strike-slip movements along the same fault system. Changes of magnitude in minimal (σ_3) and medium (σ_2) main stress directions while retaining the maximal (σ_1) compression direction caused a change in stress regime to pure compression. The D_4 tectonic phase comprises of single kinematic event with maximal compression in N-S direction. Stress ratio and main stress axes orientations indicate a pure strike-slip regime resulting with activation of predominantly dextral movement along NNW-SSE to ENE-WSW striking fault systems.

Probabilities of earthquake occurrence in the Corinth Gulf and its vicinity inferred from combined information

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Earthquakes hazard probabilities were performed for the broader area of the gulf of Corinth. Related parameters, characteristic of the seismic history of the examined area, were obtained. The probabilities of strong and catastrophic earthquakes with magnitudes $M_w \geq 5.5$ and $M_w \geq 6.0$, within 20- and 50- year period were also determined. For this purpose the whole area is divided in cells $0.2^o X 0.1^o$. The obtained results show that there is a very dangerous zone (high probabilities), which starts from the city of Patras and ends to the gulf of Itea, where the estimated probabilities are either very high or high. The highest values observed in cell 39, where for 20-years period and for $M_w \geq 5.5$ the probability is 77%, while for the same