hypothesis remains the deciphering of the Badenian-Pannonian continuous convergence which invalidates the back-arc extension hypothesis. Another element of the structural analyses on the Transylvanian Basin outlines the Moho and Conrad surfaces, both exhibiting important concave shape, overlapping the maximal subsidence zones (convex shape) of Puini and Tarnave depressions. The seismic and drilling investigation supplied the detailed geometry of the Mesozoic, Paleogene and Miocene sedimentary deposits, of the island-arc and presumed ophiolitic volcanics and of the contact surfaces with the crystalline basement respectively. A geophysical data modeling based on the tridimensional geometry of all stratigraphic compounds of the Transylvanian Basin, on the registered magnetic and gravimetric data and on the statistically processed petro-physical data, was also performed. The starting point concerns two types of structures, corresponding to two possible hypothetical models on the basement: 1. the development of a complex continental crust known as Tisia/Dacia with convex configuration at the Moho and Conrad surfaces level, beneath a concave basin filling (less explained); 2. the development of two trapped fragments of oceanic crust (Puini Basin and Tarnavelor Basin) designed after the collision of the Apuseni Mts. and the East Carpathians continental crusts, under which the mantle lies, rapidly cooled at their contact. The cooling mantle triggered the subsidence during Badenian. The modeling demonstrates that the second variant is the unique solution for the presence of several oceanic crust fragments trapped between collision continental crusts, rapidly cooled during post collision – a process that allowed the mantle compression and the basin subsidence.

Metamorphic sole in the northernmost part of the Vardar Zone Western Branch (Village Tejići, Mt. Povlen, Western Serbia)

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The geodynamic evolution of the Mesozoic ophiolites within Dinarides and Vardar zone is of special scientific interest. According to the available data these two ophiolites show both similarities and differences especially in their age, mineralogy and composition, including weakly- or well-developed metamorphic sole at their base. Ophiolites in the Tejići village consist a minor part of the Tethyan (Mediterranean) ophiolites situated in the northernmost part of the Vardar Zone Western Branch - a relic of the marginal basin but since Middle Jurassic a large oceanic realm which existed from the Upper Triassic to the Upper Cretaceous (Maastrichtian), i.e. the most important oceanic area of the Alpine-Mediterranean region after the closing of the main Vardar Ocean. It comprises ultramafic rocks (harzburgites and subordinated lherzolites) with typical tectonite fabric, gabbros, diabases, pillow lavas together with volcanic breccias and subordinated tuffaceous sediments that were tectonically emplaced to their present position during the late Upper Jurassic. The ophiolites itself are tectonically overlain by the Upper Cretaceous limestones. High-grade metamorphic rocks (amphibolite ± garnet and epidote-bearing amphibolite) occur at the base of the ophiolite sequence and are followed by medium- to low-grade metamorphic rocks represented either with blocks of augen gneisses or outcrops of garnet micaschist, chlorite micaschists and biotite (±chlorite)-epidote (±calcite) schists and subordinate calcshists and phyllites. Average P–T conditions of 630-680 °C and ca. 6±1.5 kbar were obtained for amphibolites and about 435-550 °C and 4.5 ±0.5 kbar for micaschist. In general, these rocks are characterized by greenschist to amphibolite facies mineral assemblages. Their protolith are basic igneous rocks, their volcanoclastic and rarely sedimentary (clastic) rocks. All mafic metamorphic rocks display moderate enrichment in light REE that could be ascribed to pre-metamorphic basalt-seawater interaction. The presence of metaclastic rocks probably indicates the site of emplacement close to a major landmass, which is in agreement with amygdales in pillow basalts and the absence of deep water sediments. Bulk-rock chemistry of the amphibolites and other primary basic rocks show two different geochemical affinities: tholeiitic (Nb/Y=0.07–0.18), and alkaline (Nb/Y=1.77–3.48). REE patterns and trace element discrimination

diagrams suggest that possible protoliths for the first were tholeiitic island arc basalts and for the second group within-plate alkali basalts. The metamorphic rocks were formed between 160-150 Ma ago when their protoliths were overthrusted by hot ultramafic slab reflecting the time of the beginning of compression i.e. closing stages of the ocean basin. The age of these metamorphic sole rocks is very close to the age obtained for the sole rocks in Zlatibor (Dinaride Ophiolite belt), the amphibolites at the Rogozna Mt. (Western Vardar ophiolite belt), as well as with the Ar/Ar ages obtained for the Albanian amphibolite soles (165-175 Ma) and slightly younger than the sole rocks in Brezovica (over 170 Ma).

Quaternary glacial features on the Tzumerka Massif (Pindos chain, Greece) Preliminary data

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Many glacial traces as cirques and moraine deposits have been found and studied on the Athamanion Massif, Pindos chain (Hellas). The Athamanion Massif, is situated at a latitude between 39°22'N - 39°35'N and a longitude of 21°05'E – 21°15'E, includes some of the highest peaks of Hellas like, from North to South, Kakarditsa (2,429m), Chila Exida (2,254m), Katafidi (2,098m), Strogoula (2,112m), Gerakovouni (2,364m), Sxismeno Lithari (2,306m), Megalolivado (2,199m) and Sklava (2,088m). All this mountains show to have been interested affected by also impressive glacial features. The studies curried out allow determining, probably, that great glacial tongues were located in particular, along the eastern slopes from Tsouma Plastari to Kakarditsa, as well as in the valleys inside the Massif, like that of the Melissourghitikos and of the Xistras rivers.

An impressive difference in moraines preservation has been observed between the eastern general slope of the Massif and the western one. It is due to the fragile and strongly eroded geological bodies outcropping along the last.

Glacial circus, laterals and frontals moraines deposits have been recognised and mapped in the study area. Here and there also well preserved, seems to be referable to the last great glacial expansion, so called Wurm of alpine glacial, and to three periods of stasis during and after the glacial retreat. In particular the last and more recent moraine seems to be referable to the late glacial, but more data must be searched.

The ELA of the maximum glacial expansion has been calculated by mean of the "average elevation" method, results lowered at about 1600m of elevation.

The quaternary lithostratigraphy aspects of the Wallachian Depression (Romania)

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The Pliocene and Quaternary continental lithostratigraphy from the Wallachian Depression (situated between the South Carpathians and the Balkans) in Romania, named the Bucharest Group can be subbdivided into (progressively subsiding west to east from north-eastward of the Romanian Plain): 1-Dacian Subgroup, characterized by the Dacian Area (Environment), predominantly alluvial plain, unconsolidated marshland, drained by the Dacian River Network (terrace free); 2-Wallachian Subgroup, characterized by the