Jurassic Ophiolites with MOR and SSZ magmatic sequences (JOa); 5 - the Jurassic Ophiolites with only SSZ magmatic sequences (JOb); 6 - the Supra-ophiolitic Mélange (UOM); 7 - the Jurassic Ophiolites with BABB magmatic sequences (JOc). The features of these ophiolites (stratigraphy, geochemistry, tectonic setting and age), the same all over the southern portion of the Dinarids from Albania to eastern Greece, strongly suggest the existence of a single ocean located east of the Adria/Pelagonian continental margin: the Vardar Ocean. This ocean basin developed during the Middle Triassic and was subsequently affected since Early Jurassic by an east-dipping intraoceanic subduction leading to the formation of SSZ magmatism. This subduction was thus responsible of the birth of fore- and back-arc oceanic basins separated by a volcanic arc during Middle to Late Jurassic. This event was followed by the obduction during which a section of oceanic lithosphere thrust westwards onto the Adria margin at the Jurassic-Cretaceous boundary, and the ocean was completely effaced. From this period to the Eocene the westward movement of the Ophiolites on the Adria continental margin, for more than 200 kilometres, till the Pindos took place

We also believe that the model of geodynamic evolution presented herein can be extended to the all Dinaric-Hellenic orogenic belt.

Two partial melting events as recorded by the U-Th-Pb chronometer in monazite: LA-ICPMS in situ dating in metapelites from the Bulgarian Central Rhodopes

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In the Bulgarian Central Rhodopes, the lower part of the metamorphic pile is dominated by migmatitic orthogneisses having recorded fluid-assisted partial melting at 650-700ºC / 6-8 kbar. Several zircon and monazite U-Pb ages around 36-38 Ma have been reported, interpreted as dating the crystallization of melts. In the area of Chepelare, this pile is exposed as a ~5 km-thick north-dipping monocline. Structures document top-to-SW shearing developed during and subsequent to anatexis. In the middle part of the section, the ~1 km-thick Chepelare Shear Zone (CSZ) reflects late Eocene syn-metamorphic thrusting and exposes a variegated rock assemblage of highly sheared migmatitic gneisses hosting discontinuous layers of marbles, garnet-kyanite gneisses, metabasites, and ultramafics.

In order to constrain the P-T-time evolution of this variegated rock assemblage, we present new petrological and geochronological data obtained from garnet-kyanite gneisses. The samples represent melt-depleted residual granulite composed of zoned garnet and kyanite porphyroblasts of centimeter size in a low-portion matrix of K-feldspar, quartz and biotite. The latter forms retrograde rims around garnet, and together with kyanite, defines a rough foliation. In some samples fibrolite partially replaces synfolial biotite. The accessory mineral assemblage comprises monazite (up to 400 µm), apatite, zircon, rutile, ilmenite, staurolite, and graphite, found in the matrix, and as single or polyphase solid inclusions in garnet and kyanite porphyroblasts. Polyphase inclusions mark core-rim boundary in zoned kyanite and consist of K-feldspar, quartz, monazite, apatite, rutile, graphite, ± zircon, ± biotite. Planar faces of mineral grains suggest crystallisation of trapped melt. Graphite nucleation indicates participation of carbon-saturated fluids.

U-Th-Pb analyses on monazite were performed by means of LA–ICPMS in thin sections. The results yield two age groups related to the textural position of the monazite grain (included in a garnet or kyanite porphyroblast vs. in the matrix). Mesozoic ages, between 137 and 142 Ma, are most common. They were obtained in all monazite included in garnet as well as in polyphase inclusions in kyanite. P-T estimates based on the metamorphic record preserved in garnet and kyanite suggest granulite facies anhydrous melting, or low a_{H2O} fluid participation, at > 800ºC / > 1.2 GPa, that produced peritectic garnet (and probably kyanite) together with a K-rich melt. In the same samples, Cenozoic ages between 38 and 42 Ma were obtained in the outer rim of monazite grains located in the matrix. These monazites also preserve Mesozoic ages in the grain core. The Cenozoic ages relate to the tectonometamorphic event that led to widespread fluid-assisted partial melting in adjacent orthogneisses. During this event, because they represent a melt-depleted residue with respect to a previous higher grade melting event, the garnet-kyanite gneisses remained unfertile and preserved good petrological and geochronological record of the older event. Nevertheless, they also recorded the Cenozoic event in at least two ways, namely the growth of fibrolite at the expense of biotite, and the partial recrystallization of monazite grains located outside large porphyroblasts.

Finally, an interesting result of this study is the first documentation, in the Bulgarian Central Rhodopes, of a Late Jurassic-Early Cretaceous high-grade metamorphic event that is also known from the Greek part of the Rhodopes Mountains (e.g., in the hanging wall of the Nestos Shear Zone).

Correlation of the Triassic rocks in the Moesian platform (Bulgaria-Romania)

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The Moesian platform occupies a large area in Bulgaria and Romania. A lithostratigraphic division of the cross-section of the Triassic system is performed for both countries. The applied methodology in defining the lithostratigraphic units is based on the "International stratigraphic Guide" by Hedberg. Although the present work aims to unify positions and technical usage of the lithostratigraphic units the latter are rather different in Bulgaria and Romania, which makes difficult the cross correlation.

The Bulgarian part of the Moesian platform is examined according "Regional lithostratigraphic scheme of the Triassic sediments on borehole sections in North Bulgaria".

The lithostratigraphic division for the Romanian part is based on publications.

The following lithostratigraphic units are determined in the Moesian platform:

In the Lower red colour complex: Bulgaria - Petrohan Group and Red colour sandstone unit, Stejerovo Fm., Alexandrovo Fm. and Dobrudja Fm.; Romania - Vedea-Jiu Group (Carboniferous-Permian-Scythian), Rosiori Fm. (Permian-Scythian) and horizons Bradesti and Viisoara;

In the Carbonate complex: Bulgaria – Iskar Group, Doirentsi Fm., Mitrovtsi Fm., Russinovdel Fm., Preslav Fm. and Tulenovo Fm.; Romania - Alexandria Fm. (Permian-Scythian-Anisian), Putinei evaporites.

In the Upper variegated colour complex: Bulgaria - Moesian Group, Kozlodui Fm., Komshtitsa Fm., Gorni Dabnik Fm., Tuchenitsa Fm., Dulovo Fm., Kaliakra Fm. and Shabla Fm.; Romania - Oltet Group (Triassic-Lias-Dogger), Segarcea Fm., horizons Curmatura, Beiu and Teascu, Motoci complex.

The present correlation determines three type of units: A) Analogous units (subjective synonyms); B) Units defined on Bulgarian territory and probably present also in Romania; C) Units located only in Bulgarian and respectively in Romanian part of the Moesian platform.

The detailed research and well investigations demonstrate the following results:

A) Analogous units (subjective synonyms):

In the Lower red colour complex there are Red colour sandstone unit (Bulgaria) – Bradesti horizon (Romania); Stejerovo Fm. (Bulgaria) – Viisoara hor. (Romania); Petrohan Group (Bulgaria) – Triassic part of the Rosiori Fm. (Romania, Permian-Triassic) and Vedea-Jiu Group (Romania, Carboniferous-Permian-Scythian).

In the Carbonate complex have been established Doirentsi Fm. (Bulgaria) – Anisian parts of the Alexandria Fm. (Romania, Permian-Scythian-Anisian).

In the Upper variegated colour complex there are Komshtitsa Fm. (Bulgaria) – Curmatura hor. (Romania); Gorni Dabnik Fm. (Bulgaria) – Beiu hor. (Romania); Dulovo Fm.