

## Triassic ‘ophiolites’ and related rocks in Eastern Carpathians (Romania)

Hoeck V.<sup>1,2</sup>, Ionescu C.<sup>2</sup> and Balintoni I.<sup>2</sup>

<sup>1</sup>University of Salzburg, 34 Hellbrunner Str., A-5020 Salzburg, Austria, volker.hoeck@sbg.ac.at

<sup>2</sup>Babeş-Bolyai University, 1 Kogălniceanu Str., RO-400084 Cluj-Napoca, Romania

In the Eastern Carpathians (EC), ultramafics (Iherzolites and harzburgites) to FeTi gabbros, dolerites and volcanics occur in three areas, from north to south: Rarău, Hăghimaş and Perşani Mts. They are embedded in the Lower Cretaceous Wildflysch formation, as both centimetre-sized clasts in breccias, and meter- to kilometre-sized blocks. The volcanics comprise highly-depleted (HDBA), depleted (DMORB) and normal (NMORB) basalts/andesites, to enriched type mid-ocean ridge basalts (EMORB). Additionally, ocean island basalts (OIB), calc-alkaline basalts/andesites (CABA) and trachytes occur. Many volcanics have a distinct supra-subduction zone signature. No direct geological field relation could be established among the isolated occurrences. Thus, it is difficult to assign ultramafics, Fe-Ti gabbros and basalts to a coherent ophiolite assemblage. Nevertheless, we will use the term ‘ophiolites’ for a part of the rocks, because several basalt groups indicate an oceanic origin and ultramafics with basaltic dykes occur.

Based on primary interfaces between volcanics and sediments such as radiolarites and limestones, a Middle to ?Late Triassic age of the Eastern Carpathians “ophiolites” and a separation from the Southern Apuseni Mts. ophiolites and island arc volcanics are envisaged. In all cases where we observed interfaces with basalts, the sediments proved to be Triassic.

In the Rarău area (northernmost part of the EC), Ladinian and Lower Carnian red cherts are in direct contact with basaltic rocks of NMOR- and EMOR-type, respectively. One olistolith shows a succession of CABA, Werfenian sandstones and shales, and Upper Anisian–Lower Ladinian limestones. In the Perşani Mts. (southernmost part of the EC), a direct contact of basaltic rocks and limestones displaying a Late Triassic facies is exposed.

When combining the basalts ages with the geochemical grouping, it is clear that at least one or more samples from the following groups are Triassic: OIB, CABA, and EMORB. For the NMORB and HDBA this is also probable since Mid-Triassic radiolarites were previously found in close vicinity. No stratigraphic assignment can be made for the moment for the UMs, Fe-Ti gabbros and the DMORBs, but none of these shows any close connection to Jurassic or Lower Cretaceous sediments. Taken all the arguments together, it is highly probable that a vast majority of the magmatic rocks, maybe even all, are of Triassic age.

For long time, the Eastern Carpathians “ophiolites” were believed to have been formed in the Eastern Vardar Ocean (Main Tethyan Suture Zone), being thus partly time-equivalent to the Middle to Late Jurassic ophiolites and island arc volcanics found in the Southern Apuseni Mts. and in the basement of the Transylvanian Depression. Most of the ‘ophiolites’ were believed to be thrust on top of the Eastern Carpathian Bucovinian nappes during the Mid-Cretaceous orogeny forming the so-called “Transylvanian nappes”.

Based on the new data, a model is developed, which accounts for the existence of a Triassic ocean connected with the Meliata-Hallstatt Ocean. This ocean closed most likely in the Late Triassic to Early Jurassic. During the closure ultramafics and basic magmatic rocks together with sediments were obducted, subsequently eroded and transported as blocks of different sizes into the Lower Cretaceous Wildflysch basin.

## Lake Ohrid Basin (FYROM/Albania): a seismogenic landscape

Hoffmann N. and Reicherter K.

*Institute of Neotectonics and Natural Hazards, RWTH Aachen University, Lochnerstraße 4-20, 52056 Aachen, Germany, n.hoffmannf@nug.rwth-aachen.de*

The Former Yugoslavian Republic of Macedonia and Albania share the Lake Ohrid Basin (40°54' – 41°10' N, 20°38' – 20°48' E) stretching over a length of c. 30 km and a width of c. 15 km. Clearly the strike of the basins (N-S) does not correspond to the strike of