

**Middle Triassic eclogite in the Rila Mountains (Rhodope Upper Allochthon, Bulgaria): A vestige of Palaeotethys subduction?**Miladinova, I.<sup>1</sup>, Froitzheim, N.<sup>1</sup>, Sandmann, S.<sup>1</sup>, Nagel, T.J.<sup>1</sup>, Georgiev, N.<sup>2,3</sup> & Münker, C.<sup>4</sup><sup>1</sup> Steinmann-Institut, Universität Bonn, Poppelsdorfer Schloss, D-53115 Bonn, Germany  
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The Alpine nappe pile of the Rhodope Metamorphic Complex in Bulgaria and Greece was assembled during a protracted history of subduction and collision along the southern margin of Europe. It is subdivided into four thrust systems or tectonic superunits, the Lower, Middle, Upper and Uppermost Allochthon. Previous Lu-Hf dating (KIRCHENBAUR et al., 2012) yielded Eocene ages for eclogite at the base of the Middle Allochthon in the central Rhodopes, and Cretaceous ages for eclogite in the Upper Allochthon in the eastern Rhodopes. In addition, Jurassic HP and UHP metamorphism is suggested by zircon and monazite dating. The overall situation, with older eclogite in higher allochthons and younger eclogite in deeper ones, is analogous to the Caledonides and European Alps. Here we report new data from eclogite of the Upper Allochthon exposed in the Rila Mountains, in the northwestern part of the Rhodope Metamorphic Complex.

The eclogite crops out near Metoch Pchelino, about 3 km SW of the famous Rila Monastery. It is part of a lithologically heterogeneous and strongly sheared, N-S striking zone containing metabasic and –ultrabasic rocks as well as garnet-kyanite metapelites. Most of the eclogite is retrogressed but relics of omphacite are still present. Mn and Lu contents in garnet show typical bell-shaped profiles which are evidence of prograde garnet growth during P and T increase. Lu-Hf chronometry using the whole rock and three garnet separates yielded a well-defined isochrone with an age of ca. 238 Ma (Ladinian). As most of the Lu is in the garnet cores, this age is interpreted as the age of pressure increase during subduction.

Triassic eclogite has so far not been found in Europe but only from Turkey towards east. The distribution of Triassic eclogite and arc magmatites in Turkey (e.g. AKAL et al., 2011) suggests southward subduction of Palaeotethys during the Triassic, contemporaneous with opening of Neotethys to the South, and finally leading to collision of the resulting continental ribbon with Europe between Late Triassic and Middle Jurassic. The Rila eclogite fits in such a scenario, possibly representing the suture between the European margin to the north and a Gondwana-derived fragment to the south, the Ograzhden-Vertiskos terrane. When the Rhodope allochthons later formed, during subduction and closure of Neotethys and the Vardar ocean, the Rila eclogite and Vertiskos-Ograzhden terrane became part of the Upper Allochthon.

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KIRCHENBAUR, M., PLEUGER, J., JAHN-AWE, S., NAGEL, T.J., FROITZHEIM, N., FONSECA, R.O.C. & MÜNKER, C. (2012): Timing of high-pressure metamorphic events in the Bulgarian Rhodopes from Lu–Hf garnet geochronology - Contr. Mineral. Petrol., 163/5: 897-921.