

**STRUCTURES AND PETROLOGY OF UHP-METAMORPHIC KIMI COMPLEX  
OF THE RHODOPE METAMORPHIC PROVINCE (RMP), NE-GREECE**

KRENN, K. <sup>1</sup>, TIRK, H. <sup>1</sup>, BAUER, C. <sup>1</sup>, PROYER, A. <sup>1</sup>, MPOSKOS, E. <sup>2</sup> & HOINKES, G. <sup>1</sup>

<sup>1</sup>Institute of Earth Sciences, Department of Mineralogy and Petrology, Karl Franzens University of Graz, Austria

<sup>2</sup>National Technical University of Athens, 9 Heroon Politechniou St., GR-15780, Zografou, Athens, Greece

e-mail: kurt.krenn@uni-graz.at

The Kimi Complex represents the tectonostratigraphic highest unit of the Rhodope Metamorphic Province and contains indicators for UHP-metamorphism. Two key areas near the city of Xanthi and Kimi village, where metamorphic microdiamond was found in garnets of metapelites, were mapped in detail. The lithological sequences, that underwent a conti-nental subduction process, are composed of marbles, paragneisses, orthogneisses, metabasites and ultrabasites and show striking similarities in their structural and metamorphic evolution. The rock units were exhumed during SW-directed shear and deformed into a NE-SW striking fold belt during amphibolite facies metamorphism. Within metapelites (grt-ky-micaschists), the formation of a fold axial plane cleavage developed in the kyanite stability field. P-T conditions in grt-ky-schists range from 15 - 18 kbar and 820 - 900 °C at Xanthi and 13 - 15 kbar and 720 - 800 °C at Kimi village. The P-T conditions during development of ductile cleavage in metapelites from Xanthi range between 780 - 860 °C and 13 - 15kbar. Metabasites occur mainly as boudin structures in metagranitoid gneisses and are surrounded by ductile shear zones. The asymmetry of these boudins and shear indicators within the surrounding host rocks suggest a lateral (sinistral) component during compressional formation of the ductile fold belt. The boudins are penetratively overprinted during folding under amphibolite facies metamorphism and contain remnants of granulitic mineral assemblages within their cores. Eclogitic parageneses with omphacite (Jd<sub>40</sub>) are very rarely preserved in the cores of the boudin structures. Metabasites at Xanthi give P-T conditions between 580 - 630 °C and 10 - 12 kbar. Two types of stretching lineation are distinguished. A steep oblique dipping stretching lineation is always associated with the boudin structures. A second subhorizontal NE-SW lineation, characterizes the penetrative tectonic overprinting during amphibolite facies metamorphism. The combination of contraction and lateral extrusion due to oblique convergence seems to be one of the main mechanisms for the exhumation of the different segments of the Kimi Complex. Late discordant aplitic to pegmatoid dyke swarms and the formation of brittle faults parallel and perpendicular to the strike direction of the lithologies deform the segments into phacoid bodies, which contain remnants of the ductile, deformed and folded lithologies. These remnants are surrounded by cataclasites and represent in combination with pegmatoids the typical appearance of the Kimi Complex.