

EARLY ALPINE METAMORPHIC EVOLUTION IN THE WESTERN CARPATHIANS: SUBDUCTION- AND COLLISION-RELATED METAMORPHIC ROCKS FROM THE MELIATA AND GEMERICUM UNITS

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The Meliata unit, situated along a southward dipping zone in the Western Carpathians, is an accretionary complex, which was formed by closure of Triassic-Jurassic Tethyan-, related oceanic basin. It consists of blueschists and very low-grade metamorphosed clastic and carbonatic sediments and serpentinites. The blueschists form mostly slices and blocks within very low-grade rocks or overthrust the early Paleozoic of the Gemicum unit. They are derived mostly from a continental crust material with transition to oceanic rocks. Some alkaline basalts with relic igneous richterite or titanium-rich pargasite might represent rifting magmatism. The prograde metamorphic history of the rocks is characterized by formation of blue amphibole, Na-pyroxene with maximum 70 % jadeite component, high-Si phengite, garnet and chloritoid. Maximum P-T conditions of 1.0-1.3 GPa/350-460°C and age of 155-172Ma were obtained for blueschist facies metamorphism. A very late overprint of the Meliata rocks, related to low-temperature deformation with maximum ages of ca. 80-90Ma, was resulted from Cretaceous collisional metamorphism and northvergent thrusting in the Western Carpathians. P-T conditions of ca 330°C and 0.6-0.8 GPa were estimated for the Cretaceous metamorphism for the Gemicum basement unit, based on metamorphic minerals in the Permian granites and metasediments. Metamorphic minerals in metagranite are phengite, garnet and in some Al-rich rocks also kyanite. Regional extent of this metamorphism is visible in the central basement units in the Western Carpathians and its continuation to the Eastern Alps, where 1.1 GPa and 600°C conditions were reached.