Record of Variscan Low-P/High-T metamorphism in Alpine medium-P rocks of the Pelagonian zone in western Macedonia, Greece

Mposkos, Evripidis[1] Perdikatsis, Vasilios[2]
[1]National Technical University of Athens, School of Mining and Metallurgical Engineering, Division of Geological Sciences [2]Technical University of Crete, Department of Mineral Resources Engineering

In western Macedonia, Greece, the Pelagonian zone crops out in the Vernon, Voras, Askion, Vermion and Pierian Mountains. It comprises pre-Alpine metamorphic and igneous rocks, Permo-Triassic clastic and volcanic rocks, Triassic-Jurassic platform carbonates, ophiolites obducted in the Late Jurassic-Early Cretaceous, transgressive Cretaceous limestones and Paleocene flysch.

In the Early Cretaceous, subduction of the eastern Pelagonian continental margin simultaneously with obduction of the ophiolites from the Vardar ocean caused medium-P metamorphism (Mposkos et al., 2001, Mposkos and Perraki, 2001, Mposkos and Krohe, 2004). Representative mineral assemblages are Grt-($Alm_{63-80}Grs_{5-20}Prp_{5-16}Sps_{1-14}$)-Cld-Chl-Ky-Phe-Pa-Rt in Permo-Triassic pelitic metasediments and Hbl-Grt-Czo-Ab-Qtz-Rt in metabasites from Voras and Vermion mountains. Pervasive deformation associated with this metamorphic event completely converted pre-Alpine pelitic migmatites and carboniferous granitoids into mylonites with the syn-mylonitic mineral assemblage Qtz-Ab-Kfs-Phe (Si up to 3.5 atoms p.f.u)-Grt ($Alm_{48-59}Grs_{37-46}Prp_{3-5}Sps_{1}$)-Czo-Bt in granitoid mylonites.

Garnet and sillimanite-bearing pelitic migmatites from Voras and Vernon mountains are converted to schists with the mineral assemblages Grt-Chl-Bt-Ms-Qtz, Grt-Cld-Ky-Chl-Ms-Qtz, and Grt-Ky-St-Chl-Ms-Qtz. Relic sillimanite and prealpine garnet (Alm_{66}-$Grs_3Prp_{10}Sps_{21}$) are preserved as inclusions in Alpine garnet ($Alm_{75}Grs_{10}Prp_{13}Sps_2$). Less deformed domains of pelitic migmatites locally preserve the pre-Alpine mineral assemblage Sil-Bt-Grt-Ms-Kfs-Pl-Qtz formed at P4.5 kbar and T640°C. In western Vernon and Voras the mineral assemblages And-Crd-Sil-Bt-Ms-Pl-Qtz, and And-Sil-Crd-Kfs-Pl-Ms-Qtz evidence even lower pressures of 2.5 kbar and T600-620°C. This metamorphism reflects heat transfer by intrusion of large volumes of granitoid magmas in a Variscan magmatic arc setting.

Mposkos E, Kostopoulos D, Krohe A (2001) Low-P/high-T pre-Alpine metamorphism and medium-P Alpine overprint of the Pelagonian zone documented in high-alumina metapelites from Vernon Massif, Western Macedonia, Northern Greece. Bull. Geol. Soc. Greece XXXIV/3: 949-958.

Mposkos E, Perraki M (2001) High pressure Alpine metamorphism of the Pelagonian allocthon in the Kastania area (Souther Vermion), Greece. Bull.Geol.Soc.Greece XXXIV/3: 939-948.

Mposkos E, Krohe A (2004) New evidences of the Low-P/High-T pre-Alpine metamorphism and medium-P Alpine overprint of the Pelagonian Zone, documented in metapelites and orthogneisses from the Voras Massif, Macedonia, Northern Greece. Bull.Geol.Soc.Greece XXXVI/1: 558-567.

→

Abs. No. **7**
Meeting: **DMG 2008**
submitted by: **Mposkos, Evripidis**
email: **mposkos@metal.ntua.gr**
date: **0000-00-00**
Req. presentation: **Poster**
Req. session: **S07**