TIMING OF ECLOGITE METAMORPHISM IN THE POHORJE MOUNTAINS, SLOVENIA, EASTERN ALPS.

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High-pressure metamorphism in the Pohorje Mountains of Slovenia (Austroalpine unit, Eastern Alps) affected N-MORB type metabasic and metapelitic lithologies. Thermodynamic calculations and equilibrium phase diagrams of kyanite-phengite-bearing eclogites reveal PT conditions of about 2.2 - 2.5 GPa at T= 660 - 720 °C, within the stability field of quartz. The eclogites contain a single population of spherical zircon with a low average Th/U ratio of 0.05. A coherent cluster of single zircon analyses yields a $^{206}Pb/^{238}U$ age of 90.7 ± 1.0 Ma that is in good agreement with Sm-Nd garnet–whole rock regressions of 90.7 ± 3.9 and 90.1 ± 2.0 Ma for two eclogite samples. The agreement between U-Pb and Sm-Nd age data strongly suggests an age of approximately 90 Ma for the pressure peak of the eclogites in the Pohorje Mountains. Inclusions of garnet, omphacite, rutile, magnesio-hornblende and quartz (identified by Raman micro-spectrometry) in unfractured zircon indicate high-pressure rather than ultrahigh pressure conditions. The analysed metapelite sample yields a Sm-Nd garnet-whole rock scatterchron age of 97 ± 15 Ma, supporting a single P-T loop for mafic and pelitic lithologies of the Pohorje area and a late Cretaceous high-pressure event that affected the entire easternmost Austroalpine basement including the Koralpe and Saualpe eclogite type locality in the course of the complex collision of the Apulian microplate and Europe.