Zircon (ZrSiO4) from granitic gneissee and ortho gneissee in the Pütürge metamorphites were mineralogically characterized by inductively coupled plasma mass spectrometry (ICP-MS), X-ray powder diffraction and Cathodoluminescence (CL) analyses show that the zircon grains have developed isostructural solid solutions with coffinite (USiO4), throite (ThSiO4). These zircons have different thermodynamic and processing. This processes are chemical reequilibration of crystalline zircon solid solutions. Zircons have textural and chemical variety which presents characteristic of metamict and partly metamict. Metamict zircons are high REE, U, Th content. Whereas partly zircons are more low REE, U, Th. The chemical characteristic of zircons can produce both aqueous fluids and melts. In the zircons are observed by porous structure and inclusion rich spaces. The inclusion rich and porous zircon grains are featured by lower concentrations of trace elements. This were interpretationed dissolution-reprecipitation process infrastructure of zircons. This show that its reacts with an aqueous fluid, dissolution-reprecipitation process will produce more less trace elements than the other zircons.

In order to constrain the timing of metamorphism, 39Ar/40Ar dating were performed on four biotite. The four samples is 83.21±0.069 Ma. Accordingly, greenschist and amphibolite facies metamorphism occured at Santonien. U-Pb crystallization age from zircon probably correspond to the timing of fluid influx or anatexis rather than to the age of peak metamorphic conditions. Keywords: Solid solution inclusions, zircon, high metamorphism, CL analyses, 39Ar/40Ar biotite dating, U-Pb isotope