



## **Retrogressed eclogites and eclogitic metagabbros in the Boneh Shurow Complex, Central Iran**

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This is the first report on a previously not recognised eclogite facies metamorphic episode in rocks of the Boneh Shurow Complex. This complex is located in east of Saghand area, Central Iran. Previous studies have described it as a complex consisting of pink and gray gneisses, amphibolites, schists and subordinate dolomitic marble interlayers. Late-stage mafic-intermediate magmatic intrusions, together with their host rocks, were presumed to show lower amphibolite facies metamorphism.

We have investigated the metabasic rocks of the Boneh Shurow Complex in Zaman Abad and Gelmandeh mountains. The paragenesis of these rocks includes hornblende + plagioclase  $\pm$  garnet  $\pm$  epidote  $\pm$  quartz  $\pm$  rutile  $\pm$  sphene. Our findings show relics of the former eclogite facies assemblages, retrogressed under amphibolite facies conditions. These include (i) sphene coronas around rutile and ilmenite with partial transformation of rutile into sphene; (ii) radial fracturing around quartz inclusions in garnet; (iii) relics of magmatic pyroxenes with Jd-content of 4.4-5.5 mol% in metagabbros. The P-T analysis of the coexisting amphiboles and plagioclases yielded a pressure maximum of 11-12 kbar at temperatures of  $\sim 750$  °C, representing a retrograde at which the amphibolite facies assemblages of metagabbro and garnet amphibolites formed. The maximum conditions of the eclogitic protolith have not yet been identified.

We suggest that the conversion of eclogites and eclogitic metagabbros to garnet amphibolites and amphibolite occurred under fluid influx along shear zones.

U-Pb dating of igneous zircons from metagabbro yield a protholite age of  $538.5 \pm 5.1$ . This age may suggest that the eclogite facies metamorphism and the subsequent retrogression are not related to Pan African orogeny as thought before about the amphibolite facies metamorphism age of Boneh Shurow complex. Our investigation is continuing.

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