

## U-Pb Zircon Ages and Sr-Nd-Pb Isotopic Compositions of Carboniferous Magmatism in the Eastern Pontides, NE Turkey

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The eastern Pontides contain numerous plutonic rocks of varying age and also compositions during Palaeozoic to Tertiary. Although Palaeozoic aged intrusive rocks are commonly observed in the Southern Zone of the eastern Pontides, so far the entity of these rocks have not determined in the Northern Zone because of the intensive Late Cretaceous and Tertiary volcanic and sedimentary units [1, 2]. These plutonic rocks were determined as Carboniferous in age by U-Pb zircon dating studies. From these plutonic rocks, magma emplacement ages of monzonites from the Özdil Pluton, granites from the Özdil Pluton, the Soğuksu Granite, the Seslikaya Granitoid, the Kızılkaya Granite and the Sahmetlik Granitoids are  $340.7 \pm 1.8$  Ma,  $323.1 \pm 1.5$  Ma,  $348.4 \pm 1.6$  Ma,  $335.4 \pm 1.4$  Ma,  $337.24 \pm 0.69$  Ma and  $334.5 \pm 1.4$  Ma, respectively.

Primitive  $\epsilon\text{Nd}$  values of these plutonic rocks range from -4.8 to -7.1 whereas  $^{87}\text{Sr}/^{86}\text{Sr}(\text{i})$  ratios large range from 0.7026 to 0.7101. Depleted mantle Nd model ages are between 1.15 to 2.47 Ga.  $^{206}\text{Pb}/^{204}\text{Pb}_{(\text{i})}$ ,  $^{207}\text{Pb}/^{204}\text{Pb}_{(\text{i})}$  and  $^{208}\text{Pb}/^{204}\text{Pb}_{(\text{i})}$  contents of samples change from 17.11 to 18.60, 15.58 to 15.64 and 36.95 to 38.62, respectively. Isotopic and petrological data suggest that the plutonic rocks were produced by the partial melting of Early Palaeozoic lower crustal rocks (amphibolitic, metagreywacke and metapelitic), with minor contribution from the mantle. These rocks represent a late stage of Hercynian magmatism in the eastern Pontides.

[1] Kaygusuz, A., Arslan, M., Wolfgang, S., Sipahi, F., İlbeyli, N., (2012) *Int. Geol. Rev.* **54**, 1776-1800. [2] Kaygusuz, A., Arslan, M., Sipahi, F., (2013). TUBITAK CAYDAG, Project No:112Y015, Final Report, 175 pp.