

# Turkish Journal of Earth Sciences

Turkish Journal  
of  
Earth Sciences


Geochemical and Sr-Nd Isotopic Characteristics of Post-Collisional Calc-Alkaline Volcanics in the Eastern Pontides (NE Turkey)

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 [Keywords](#)  
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**Abstract:** Major, trace element, K-Ar age and Sr-Nd isotopic data are presented for the Eocene Torul volcanics in the eastern Pontide orogenic belt (NE Turkey). The studied rocks are composed of basaltic andesitic, andesitic, trachyandesitic, and minor trachydacitic lavas associated with their pyroclastics. These rocks contain plagioclase (An<sub>2-44</sub>), hornblende (Mg# = 0.78-0.98), clinopyroxene (Wo<sub>43-46</sub> En<sub>41-43</sub> Fs<sub>10-15</sub>), biotite, quartz, and minor sanidine phenocrysts. K-Ar ages on hornblendes range from 43.99 (±2.59) to 33.45 (±2.32) Ma, within the Middle to Late Eocene. The volcanic rocks show calc-alkaline affinities and have medium to high K contents. They are enriched in large ion lithophile (LILE) and light rare earth elements (LREE), with pronounced depletion of high field strength elements (HFSE). The chondrite-normalized REE patterns (La<sub>cn</sub>/Lu<sub>cn</sub> = 4.0-9.8) show low to medium enrichment, indicating similar sources for the rock suite. Initial <sup>87</sup>Sr/<sup>86</sup>Sr values vary between 0.70457 and 0.70511 and initial <sup>143</sup>Nd/<sup>144</sup>Nd values between 0.51264 and 0.51278. The main solidification processes involved in the evolution of the volcanics consist of fractional crystallization with minor amounts of crustal contamination ± magma mixing. All evidence supports the conclusion that the parental magma(s) of the rocks probably derived from an enriched upper mantle, previously modified by subduction-induced metasomatism in a post-collisional geodynamic setting.

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Turkish J. Earth Sci., **20**, (2011), 137-159.

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