



## **Possible Paleozoic magmatism in the western Sakarya Zone, Biga Peninsula, NW Turkey**

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In this study, we report slightly metamorphosed and deformed granodioritic rocks with minor metapelitic rocks, situated SE of the town of Biga in northwest Turkey. These rocks form part of the Sakarya Zone, a continental fragment extending throughout the northern Turkey. The Sakarya Zone has vestiges of the Variscan and Cimmeride orogenies and was partly deformed during the Alpidic orogeny. It consists of Paleozoic granitoids ranging from Devonian to Permian in age. Furthermore, Carboniferous high-grade metamorphic rocks of continental origin are found in the Kazdağ, Pulur and Gümüşhane regions. During the Late Triassic a subduction-accretion complex, representing consumption of the Paleo-Tethyan ocean, was accreted to this Variscan basement. An Early Jurassic transgressive sedimentary sequence covers the basement rocks with a regional unconformity.

The metagranodiorite SE of Biga is strongly altered with few fresh outcrops with a foliation dipping W to NW. In many places, it is cut by non-metamorphic fresh granitic dikes. Foliation in the metagranodiorite is defined by biotite flakes which now have preferred orientation. Feldspars preserve their magmatic textures. Quartz grains exhibit undulose extinction and sub-grain formation. To the east, the metagranodiorite is in tectonic contact with a mélangé. The mélangé has a strongly deformed gray slaty matrix with recrystallized limestone, metabasite and sandstone blocks corresponding to the Karakaya Complex. Both units are covered by Miocene acidic volcanic rocks. Later, the contact between volcanic rocks and the basement are reworked by the North Anatolian Fault.

The age of the metagranodiorite is not determined yet. However its tectonics and geographic position, lithological and structural properties indicate a Variscan age. Another possibility is that it can be of Devonian age as the Çamlık metagranodiorite (ca. 400 Ma), exposing southeast of the Kazdağ Massif.