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A comparative study on two trondhjemitic rock-series of different origin from the Mureş ophiolitic suture, Romania

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Abstract

The Mureş Ocean, where the two trondhjemitic rock-series occurred, evolved from the Liassic (ca. 180 Ma) up to the Lower Cretaceous (ca. 120 Ma). During its opening stage, through a spreading process, an ocean floor trondhjemitic rock-series, consisting of granophyres, plagiogranites and plagiaplites, associated with tonalites and quartz-diorites, was formed. These rocks form parallel dykes in a sheeted dyke complex and occur as dykes cutting the gabbro bodies. The closing of the ocean was determined by a bilateral subduction process acting along an Andean-type and a Mariana-type subduction planes. Within the Mariana-type subduction trench, extending from Drocea to the Trascău Mountains, island arc bimodal volcanism manifested itself, engendering a second trondhjemitic rock-series, represented by quartz-keratophyres, rhyolites, dacites and trachytes. The common geochemical features of the two different sources of the trondhjemitic rock-series consist in their high contents of SiO_2 and Na_2O, and low contents of K_2O, CaO and MgO.

Keywords: Mureş Ocean, ocean floor trondhjemites, island arc trondhjemites, geochemistry.

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