Motru Dyke Swarm (South Carpathians, Romania): Emplacement age and geotectonic setting

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The basement of the Danubian Units (Drăgșan and Lainici-Păiuș terranes) from South Carpathians (Romania) is considered to be made of medium-grade metamorphic rocks , which have been intruded by a series of granitic bodies of Neoproterozoic [1,2] and Variscan age [3]. An extended system of dykes (Motru Dyke Swarm-MDS) crosscut the basement of the Danubian Unit, over an area of about 2000 km^2. According to the geochemical compositions, MDS is marked by a complete differentiation series (from basaltic andesites to rhyolites). The isotopic data (Sm and Nd) support the concept of a main crustal component, and the initial $^{87}Sr/^{86}Sr$ ratios data reveal a mixing of sub-crustal and crustal derived melts. Additionaly, the values of initial eNd, calculated assuming an age of 300 My are mostly negative. The U-Pb zircon age of two MDS samples points to about 300 My, similar to most of the Variscan granites suggesting the Carboniferous interval as an emplacement age. Based on the intercross relationships with the Variscan plutonic bodies and on the geochemical, geochronological and isotopic data, a new tectonic-setting and emplacement age is advanced.

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