

New structural and petrographic data of magmatic dykes and sills of the Tadaout-Tizi n'Rsas anticline, Eastern Anti-Atlas, Morocco

Mustapha Ait Daoud^{*}, Abdelhafid Essalhi, Mourad Essalhi, Abdesselam Toummite
Equipe de Recherche, Géophysique, Géoressources et Patrimoine (ER-GGP), Faculté des Sciences et Techniques, Université Moulay Ismail, Errachidia, Morocco

^{*}E-mail : aitdaoud.mus@gmail.com

In the eastern extremity of the Anti-Atlas, the ESE-WNW anticline of Tadaout-Tizi n'Rsas consists of Ordovician to Devonian formations intersected by some magmatic intrusions. These Palaeozoic rocks carry several Pb-Zn-Cu-(Ba) mineralized structures in the northern part of the Tadaout-Tizi n'Rsas anticline; these structures constitute the so-called Tadaout-Tizi n'Rsas mineralized field. The magmatic bodies of the Tadaout-Tizi n'Rsas anticline are subdivided into two distinct types: (i) The first, in the form of dykes crossing the Palaeozoic (Ordovician to Devonian) formations trending N20° to N60°. (ii) The second type corresponds to magmatic sills injected into the Silurian and Devonian layers. They have a WNW-ESE direction. Both magmatic intrusions types (dykes and sills) are doleritic intersecting the eastern part of the anticline.

The Variscan tectonic events have affected the Tafilalet region in general and more particularly the anticline of Tadaout-Tizi n'Rsas. The effect of Variscan shortening on doleritic bodies is materialized by some offsetting due to the ENE to E-W strike-slips, and by the sills showing folding structures. As a result, the age of these magmatic events may be prior to Variscan compression events. Recent work concerning the magmatic bodies of Tafilalet (Pouclet et al., 2017) attributed alkaline nature with Famennian-Tournaisian age to the Tadaout-Tizi n'Rsas ones (dykes and sills).

Macroscopically, the dolerites of Tadaout-Tizi n'Rsas show a greenish colour and a porphyry texture with well visible phenocrysts of elongated feldspars. These bodies also show orthose, biotite and schist enclaves of the surrounding rocks. The microscopic study shows a primary paragenesis dominated by plagioclase and alkaline feldspars, amphiboles and biotite, and a secondary paragenesis constituted by quartz, calcite, chlorite and iron hydroxides.

Reference

Pouclet, A., El Hadi, H., Bardibtzef, J-M., Benharref, M., Fekkak, A., 2017. Devonian to Early Carboniferous magmatic alkaline activity in the Tafilalet Province, Eastern Morocco: An Eovariscan episode in the Gondwana margin, north of the West African Craton. *Journal of African Earth Sciences*, 129, 814-841.