

Magnetic Susceptibility of Jurassic Mafic Rocks in Beni Mellal High Atlas

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The mafic intrusions in the High-Atlas of Beni Mellal occur as dykes, sills and flows which are interbedded with, or intruded into, middle Jurassic sedimentary rocks. In Idemran, they have gabbroic nature and are installed as a sill within Dogger limestone. Mafic dykes that crosscut Guettoua continental red series are mainly represented in Tagleft. Basaltic flows are largely widespread and overcome the gresio-argillaceous formations in Naour, Sgat and Tabarouch. The sills with average thickness of 60m are intercalated into Bin-El- Ouidane blue limestones. With a coarse grained texture and a green light colored rock, the sill of Idemran contains plagioclase, k-feldspar, amphibole, clinopyroxène and biotite with scarcely small olivine crystals. The Tagleft and Ichichi dolerites contain plagioclase, clinopyroxene and orthopyroxene. In addition to the latest minerals, euhedral olivine occurs predominately in gabbro-norite small intrusion of Ait-Ouchen. Naour and Sgat basalts show a fluidal microlitic texture and contain plagioclase, olivine and clinopyroxene. All rocks contain magnetite, ilmenite, hematite and sulfide, but their abundances vary widely.

The Tagleft and Ichichi dolerite dyke show the highest values of magnetic susceptibility (1780 and 1550 \pm 10-5SI respectively). The Boulmane intrusion (1010 \pm 10-5SI), and the Idemran sill (794 \pm 10-5SI) and the Ait-Ouchen dyke (810 \pm 10- 5SI) show medium magnetic susceptibility values. Basalt shows the lowest values with 130 to 327 \pm 10-5SI at Naour and 37 \pm 10-5SI in Sgat and Tabarouch. In basaltic flow, magnetic susceptibility is much lower when the rock shows vesicular texture. The magnetic susceptibility values in the outcrop of various mafic rocks show significantly differences because all rocks haven't the same abundance in strongly magnetic minerals such as magnetite and others ferri-magnetic. These differences are in agreement with mineralogical content and texture of our mafic rocks.

Key words: mafic rocks, High Atlas, magnetic susceptibility, Jurassic.