

Mineralization distribution in the Late Ediacaran-Cambrian transition northeast of Saghro Massif (Eastern Anti Atlas, Morocco): Tectono-stratigraphic controls

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The distributions of the mineralization in the Ediacaran-Cambrian transition in the Moroccan Anti Atlas is still debated. The aim of this study is to characterize the main structural and stratigraphical causes of unequal repartition of the mineralization in the Ediacaran-Cambrian transition of the northeastern Saghro massif, part of the northern border of the West African Craton. It is widely controlled by the reworking of Late Ediacaran basement faults (Soulaimani et al., 2014), based on the geological mapping; remote sensing techniques, structural observation, geological database from previous works and statistical analysis of fault-mineralization report. The main results of this study show that: (i) the Ediacaran-Cambrian transition presents different morphology types of mineralization in the Precambrian basement and its Paleozoic cover; (ii) the fracture network that affects the Ediacaran-Cambrian transition shows NE to E-trending faults with compressional deformation and polyphased kinematics, where most of the NE-trending fractures are mineralized in barite; (iii) in the Paleozoic cover, the mineralizations are hosted by ante “*Paradoxidès* Schists” formation (Middle Cambrian); (iv) the statistical analysis of the fracturation-mineralization report indicates that mineralization is distributed along the Variscan fault.

According to recent works based on fission track (Gouiza et al., 2016; Malusa et al., 2007), forming conditions and age of the mineralization (Borisenko et al., 2013) and our structural observation and interpretation, the distribution of the mineralization in the Precambrian basement and its Paleozoic cover are controlled (1) stratigraphically by alternating hard and soft formations in the Paleozoic cover, (2) tectonically by reactivation of the network of major basement fault materialized in the transition between the Ouarzazate group (late Ediacaran) and the Paleozoic cover (Middle Cambrian) probably associated with the upflow of post Ediacaran fluid-driven.

Keywords: Ediacaran, Cambrian, Mineralization, Saghro

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