

Irbiben granite (West Anti-Atlas, Morocco), witness of an episode of convergence between oceanic lithosphere northward and West African Craton southward

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The Irbiben deposit, formerly mined for its gold, belongs to Tagragra of Akka inlier. It is located in the western Anti-Atlas, about 260 km south-east of Agadir. South of this deposit is the granite massif, object of this study. The methodology is summarized in macroscopic and microscopic petrographic study and geochemical study. This latter, made from geochemical diagrams, is based on the results of geochemical analyses in major and trace elements. This work shows that it is porphyroid-grained texture granite, composed of quartz, plagioclase phenocrysts, alkaline feldspars sometimes with centimetric size and sulphides. Two generations of quartz have been identified, quartz Q1 with rolling extinction testifying an episode of deformation in the inlier and quartz Q2, witnessing of an intense silicification. Plagioclases and alkaline feldspars are profoundly altered in sericite and epidote. Geochemical analysis showed that it is a calc-alkaline granite rich in potassium, peraluminous, of crustal origin. Its geochemical arc signature, Ba enrichment, as well as negative anomalies in Nb, Ti, and P are typical features of magmas from subduction zones. This subduction would come from an episode of convergence between an oceanic lithosphere located to the north and the West African Craton to the south.

Keywords : Irbiben granite, west Anti-Atlas, petro-geochemistry, arc signature, subduction zone