

# Tectonics and Control of Gold Mineralization in the Ferkessedougou Meta-Sedimentary Basin (Northern Côte d'Ivoire)

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## ABSTRACT

The aim of our work is to understand the processes at the origin of the gold mineralization of Ouarigué (Ferkessedougou) located in the north of Côte d'Ivoire, precisely 100 km east of the Tongon mine operated by the Barrick company. A combination of remote analysis and field mapping, trenching, and core drilling was carried out. To this are added laboratory work (microscopy, analyzes of whole rocks). The lithology includes a basic meta-sedimentary unit intersected by a plutonic complex then by an intermediate complex. The meta-sedimentary set consists of argillite, sandstone, arkosic sandstone. The intrusions are composed of tonalites. All of these packages are cut by diorite and granodiorite dykes. The meta-sediments show a strong S1 schistosity consistent with the D1 shortening of the Birimian domain. The emplacement of tonalite promotes deformation (D2) by schistosity planes S2. Finally, the brittle D3 deformation is induced by diorite dykes. Two types of gold mineralization have been identified. The first form is disseminated and hosted in tonalite contact zones with meta-sediments. The second form is located in quartz veins of tonalite. The paragenesis of the Ouarigué prospect is of the Au-Te ±Bi ±Mo± Pb± Re type and is linked to the emplacement of tonalite in a context of subduction. This is the signature of gold deposits of the "Intrusion - related gold system - IRGS" type.

**Keywords:** Orogenic gold, Ferkessedougou, Ivory Coast, West African Craton

