

Lithostructural framework for orogenic gold deposits in the Kédougou inlier (case of Massawa and Sofia on the MTZ)

Mame Codou Ndiaye^{1,*}, Mamadou Gueye¹, Papa Malick Ngom²

¹*Institut des Sciences de la Terre, Faculté des Sciences et Techniques, Université Cheikh Anta Diop de Dakar, BP 5005, Dakar-Fann, Senegal,*

²*Département de Géologie, Faculté des Sciences et Techniques, Université Cheikh Anta Diop de Dakar, BP 5005, Dakar-Fann, Senegal*

*E-mail: mamecodou1.ndiaye@ucad.edu.sn, lalinguere100@yahoo.fr

The lithostructural interpretation highlights that Kedougou-Kenieba Inlier (KKI) is characterized by volcanic domain and sedimentary basin with NE trending. The contact between the Mako bimodal volcanic belt and the Diale basin is defined by the NE trending Main Transcurrent Shear Zone (MTZ) of regional extension. At the latitude of Massawa and Sofia gold deposits, the MTZ is a corridor of 15 km wide where these two deposits set respectively at the eastern and the western borders.

The lithologies in the MTZ corridor are mainly constituted of explosive intermediary to felsic volcanism composed of pyroxene-plagioclase andesitic lavas with abundant volcanoclastites interbedded with detrital metasediments showing graphitic horizons. They are intruded by various generations of magmatic rocks ranging from ultramafic, mafic, intermediate to granitic compositions.

Intrusions of ultramafic and felsic rocks are more abundant in the western part of the MTZ (Sofia) in comparison to the eastern side (Massawa) where these rocks are weakly represented. These two (2) main domains are separated by a NE trending tuff horizon intruded by granitic plutons outcropping as circular shape bodies.

The structures intersected in this MTZ corridor are mainly defined as thrusts and transcurrent shear zones striking NNE. Rare isoclinal folds were refolded by later phases of deformation.

The Massawa deposit consists of gold, pyrite and arsenopyrite with quartz-stibnite-gold vein at the later stage, while in the Sofia mineralization, gold and pyrite are frequently observed in silica, K-feldspar and carbonate alteration horizons and hosted in strongly sheared felsic intrusive and quartz feldspar porphyry bodies.

Keywords: MTZ, orogenic deposit, gold, lithostructural, shear zone, Kedougou