

Petrography and geochemistry of volcano-sedimentary and plutonic formations of the Agbahou gold deposit, Côte d'Ivoire

N'Guessan Nestor Houssou^{*}, Inza Coulibaly, Fossou Jean Luc Hervé Kouadio, Marc Ephrem Allialy
*LGSM, UFR of Earth Sciences and Mineral Resources, University of Felix Houphouet-Boigny, 22 BP
582 Abidjan 22, Côte d'Ivoire*

^{*}E-mail : nestor.houssou@gmail.com

Located southwest of Toumodi-Fettekro Birimian greenstone belt, in the centre-west of Côte d'Ivoire, Agbahou gold deposit contains three major lithological units: (i) a volcano-plutonic unit composed of basaltic to andesitic lavas, sills of microdiorite and microgabbro; (ii) a volcano-sedimentary unit containing volcanoclastites (of basaltic and dacitic compositions) and sediments (shale and metagrauwacke); (iii) the late felsic dykes (rhyolite and rhyodacite), probably contemporaneous with the granitoids, form the third unit. These lithologies have undergone phenomena of metamorphism and hydrothermal alteration. The metamorphism is greenschist facies, but can reach the amphibolite facies in deformation zones and around granitoid intrusions. Carbonation, silicification and sulphidation are the most important hydrothermal alterations in the Agbahou deposit and to a lesser degree chloritization, sericitization and albitization. Basalts are tholeiitic and the most differentiated facies are calc-alkaline. Lithophilic element enrichment (LILE) and negative Nb and Ta anomalies suggest that the basalts probably have developed in a subduction context. However, these rocks show an affinity close to N-MORB. Their source may be a spinel lherzolite. The most differentiated facies are derived from these basalts by fractional crystallization. Metasediments are linked to the field of an active continental margin.

Keywords: Côte d'Ivoire, Birimian, Agbahou, subduction, active continental margin