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Geochemical mobility associated to gold and base metal mineralization of Mangodara sector, in southern Burkina Faso, Banfora greenstone belt (West Africa Craton)

BERNADIN GNAMOU, HERMANN ILBOUDO AND SÉTA NABA NABA

Université Joseph KI-ZERBO

Presenting Author: bernadingnamou1610@gmail.com

In the Mangodara sector within the Banfora greenstones belt our study focus on geochemical assessment of major and multielement and implying analysis and interpretation of principal component. Gold and base metal mineralization is hosted in highly metamorphic altered felsic (metarhyolite) and intermediate (metadacite and metaandesite) volcanic formations. Mineralogy reveals aluminous assemblage made up of staurolite-kyanite -pyrophyllite that are interpreted to represent the metamorphosed equivalent of aluminous hydrothermal alteration. Associated felsic and intermediate volcanic rocks are respectively enriched in Fe_2O_3 and K_2O; Fe_2O_3, K_2O, MgO, Al_2O_3, CaO, P_2O_5 and Fe_2O_3, MgO, CaO and depleted in MgO, Al_2O_3, CaO, P_2O_5, SiO_2, Na_2O, TiO_2, SiO_2, Na_2O, TiO_2 and SiO_2, Na_2O, K_2O. Al_2O_3 and TiO_2 are immobile in metadacites. Mineralized metaandesites show Fe_2O_3 and K_2O enrichment and MgO, Al_2O_3, CaO, SiO_2 depletion. Al_2O_3 depletion in mineralized kyanite-staurotide bearing metarhyolites suggest the minerals are corroded. Mineralized metarhyolites show enrichment in Au, Ag, Ba, Bi, Cr, Cu, Eu, La, Mo, Ni, Pb, S, Sc, V and depletion in As Sb Co, Sn, Zn while mineralized metaandesites show enrichment in Au, Ag, As, Mo, S, Sb and depletion in Co, Sn, Zn, Bi, Cr, Cu, Eu, Ni, Pb, Sc. Ba, La, V are immobile in metaandesites. finally Ag, As, Sb, Bi, Sn appear as geochemical vector for gold exploration in the study area since gold mineralization is characterized by Au+Ba+Cu+Eu+La+Mo+Ni+S association in metarhyolites and Au+S+Sb+As+Ag+Bi in metaandesites.