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A Reappraisal of the Structures, Alteration and Tectonic Setting of the Rambi Gold Target, Western Kenya

Maryce N. Obindah
The University of Nairobi, Nairobi, Kenya

Rambi gold prospect, located in southwestern Busia-Kakamega Greenstone Belt, has been worked for gold since the 1930s. As promulgated by the colonialists, the mineralization model conforms to a quartz-vein-hosted gold system within a shear zone. This study is set to reappraise the gold prospectivity of the Rambi target through an integrated mordernized exploration approach. It is geared towards confirming the existence of gold ore in the target as per the colonial records. Airborne magnetic and geochemical datasets are the main methods used to assess the geology and geological structural patterns that lead to probable gold mineralization zones in the prospect. In this study, the shear zone in the Rambi target has been delineated from an interpretation of airborne geophysical data. The magnetic data component of the airborne data was processed to accentuate the structural fabric of the area. The major lineaments in the prospect trend NE with less equal offsets in the orthogonal direction, which have formed new target zones in the prospect.These shear lineaments reveal two main deformation episodes in the area as supported by analysis from the fabric diagrams . The lineaments are grouped into D2 and D3 tectonic episodes that trend in the ENE-WSW and WNW-ESE direction, respectively. From the data retrieved from the recent 2018 exploration excercise, the colonial mined reef structurally lines up with the D2 structures. These structures form the two prospective internal shear zones, which are under-explored by both colonialists and other companies that have previously undertaken exploration activities over the target. This discloses more potential sites for increased exploration. The major fracture systems that play a significant role in the location of gold ore in the study area are the internal shear zones.