

Geology of subsheets X of the Yabello map sheet (NB37-14)

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ABSTRACT

The studied area is located in southern Ethiopia, Yabello map sheet (NB 37-14/X). It is underlain by poly-deformed and -metamorphosed Precambrian crystalline basement rocks and minors Quaternary calcrete and alluvial cover.

The basement rocks of the area comprised of banded granulite, granodioritic gneiss, mafic-ultramafic rocks and syn- to post-tectonic intrusives (granites and quartz- monzonite).

Pre-granulite and post-granulite deformations and three metamorphic events (M1 to M3) are recognized. The earliest pre-granulite deformations are interpreted to be synchronous to M1 and affected the banded granulite unit (Pgnt). This may be a prePan-African event. In the post- granulite three phases of deformations designated as D1, D2 and D3 are also identified. The second metamorphic event M2 which attains its peak at mid-amphibolite facies and D1 deformation are associated to each other, and develop the gneissosity in the granodiorite gneiss. D2 and D3 are regionally significant, and producing a major N-S upright, synformal and antiformal folds and shear zones, respectively. Both occurred under low-grade metamorphism (M3).

May be, except the pre-granulite structures and M1 metamorphism in the banded granulite, the other lithologic and tectonometamorphic evolution of the area are interpreted to be occurred during the Pan-African time and representing an arc terrain, with the mafic and ultramafics could be ophiolitic assemblage.

The occurrence of shear zones, alterations and low-grade rocks possibly made the area geologically favorable for mineralization.