

Geology of subsheets J, K and Q of Bure map sheet (NC 37 - 5)

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ABSTRACT

The mapped area is located in the northwestern part of the country within Western Gojam and Awi zones of the Amhara National Regional State. The main objective of this work is to produce a 1:50,000 scale geological map of eastern-half of Kubar, Shindi and northern part of Gomer (north of Abay River) subsheets of Bure sheet (NC37-5/J, K and Q) with an accompanying geologic report, with aim to produce the geologic map of Bure sheet at a scale of 1:250,000.

The geology of the area underlies by Precambrian rocks, Paleozoic and Mesozoic sediments, Cenozoic volcanics and Quaternary covers.

The Precambrian rocks of the area are divided into two litho-tectonic units: i) the Suri Domain, and ii) the Mabil Domain. They are variably intruded by pre/syn- to late- and post-tectonic intrusives ranging in compositions from gabbro to granite. The Suri Domain is represented by high-grade (amphibolite facies) gneiss and migmatites with subordinate metasedimentary schist/gneiss and amphibolite. The ductile transpressional Bitr Shear Zone (BSZ) bound the domain in the east with the Mabil domain, but the western limit of the domain is beyond the study area. The Mabil Domain is represented by low-grade (greenschist facies) basic metavolcanics, greenschist, and amphibolite, with associated mafic-ultramafic rocks. The domain is bounded by the BSZ to the west with the Suri domain. The eastern boundary of the domain is beyond the study area and is defined by a NE-trending ductile shear zone with the high-grade gneiss and migmatites.

Despite the limitation of available data, the relationships between, foliations, folds, shear zones and strike-slip faults allow for the establishment of four phases of deformation (D_1 , D_2 , D_3 , and D_4) in the Precambrian rocks of the area, which appear to be related to a continuous progressive deformation that reflects temporal and spatial partitioning between coaxial (flattening) and non-coaxial (strike-slip shearing) deformation, which are typical of deformational belt formed in obliquely convergent orogen. D_1/D_2 deformation is a progressive shortening which resulted in the development of tight to isoclinal recumbent

folds (F_1) and associated regional NNE-SSW trending foliations (S_1) during D_1 and steepening of D_1 structures by tight to isoclinal upright folds (F_2) with shallow to moderate plunging axes during D_2 deformation. D_3 deformation is represented by transpressional BSZ, which resulted in the juxtaposition of the Suri and Mabil domains. Sinistral strike-slip shearing and conjugate dextral brittle-ductile strike-slip faults/shear zones represent D_4 deformation.

The Paleozoic sediments are comprised of interbedded siltstone, shale and mudstone with glacial beds, and appear to be correlatable to the Upper Carboniferous glacial rocks mapped in the other parts of the country. The Mesozoic sediments mapped in the area belong to the Adigrat Sandstone.

The Cenozoic volcanics in the area are divided into three diachronous basaltic units represented as TV_1 , TV_2 , and TV_3 . TV_1 and TV_2 are correlatable to Tertiary Trap (= plateau) volcanics and TV_3 to the Quaternary plateau volcanics.

Gold and base metals in the Mabil domain and apatite in the Gongi intrusive complex are particular interest of mineralization in the area. Moreover, the Quaternary soil covers have good agricultural potential.