

Geology of subsheets C, D and E of the Yabello map sheet (NB37-14)

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ABSTRACT

The study area consists of the Precambrian rocks, the Tertiary olivine-phyric basalt and the Quaternary sediments.

The Precambrian rocks comprising the study area are undifferentiated metasedimentary rocks, fine to medium grained amphibolite with minor metagabbro, pelitic schist and schistose amphibolite, ultramafic schists, actinolite and chlorite schist with minor amphibolite, quartz-dioritic gneiss, granodioritic gneiss (Gdgn1), granitic gneiss (aegirine bearing) (Gtgn1), granitoid gneiss complex and pink megacrystic metagranite. The granitoid gneiss complex comprises the tonalitic, granodioritic (Gdgn2), granitic (Gtgn2) and minor alkali-granitic gneiss. The metasedimentary rocks and amphibolites with associated ultrabasic rocks were country rocks for different and successive phases of intrusive rocks. Together with intruded rocks they were subjected to two prograde regional metamorphisms, five phases of deformation and the later retrogressive metamorphisms.

The early metamorphic event was synchronous with D1 deformation while the second metamorphic event was synchronous with D3 deformation. The D1 deformation was responsible for the development of early foliation (schistosity or gneissosity) parallel to thrust fault plane in all rocks except pink megacrystic metagranite. The pink megacrystic metagranite was syn- to late- tectonic to D3 deformation. The lithologies of the area are controlled, occasionally, by D2 deformation and mostly, by D3 deformation. The D2 deformation controlled lithologies are trending E-W. The D3 deformation controlled lithologies are trending N to NNW. The D4 deformation was responsible for regional low-grade shearing and partial alteration of minerals (for example, biotite to chlorite) along the F4 fold limbs. The mappable unit of actinolite and chlorite schist developed along the D5 deformation strike-slip shear zone, in the north-eastern part of subsheet E.