

Abstract

The geology of the Ithanga Hills area is composed of high grade late Precambrian metamorphic rocks of the Mozambique belt, Tertiary (?) volcanics, largely tuffs, that overlie the Mozambiquian rocks unconformably and Recent fluvial deposits of the Thika River valley with occasional kunkar limestone. The Precambrian rocks include mica-schists, biotite gneisses, migmatites, granitoid gneisses and granites, amphibolites, metamorphosed andesitic basalts, veins and pegmatites. These rocks were formed under high grade regional metamorphism in the upper conditions of the amphibolite facies and contain sillimanite and almandine garnets as index minerals. The degree of granitization of these rocks increased south-eastwards culminating in the formation of granitoid gneisses and granites.

The structural trend is NW-SE in the northern half of the area and becomes circular around the granitoid gneisses in the southern half. There are two types of foliations, S_1 , which is the prominent regional foliation, striking NW-SE and the later S_2 foliation transposed from S_1 and striking NE-SW. The regional lineation, L_1 , plunges either to NW or to SE, while the later lineation, L_2 , plunges to SW. Folds are often overtuned to SW or are recumbent. Boudins present in the area are both of metabasic inclusions and quartzo-feldspathic veins and pegmatites. Tectonic joints are also widespread in the area. From the statistical projections of foliation planes and lineations, the area is structurally heterogeneous but divisible into two sub-areas with higher fabric symmetries; the northern sub-area with a monoclinic fabric symmetry and a B_1 fold axis plunging at 10° to N 330° , and then the southern sub-area with a circular fabric symmetry.