

Abstract

The Mutito and the Ikoo faults, two dextral strike-slip faults located in eastern Kenya about 160 km east of Nairobi, represent major dislocations in rocks of the late Proterozoic Pan-African Mozambique belt. They intersect at an approximate angle of 55°. During a geological field mapping project of the Migwani area between 1978 and 1980, the structures and tectonic movements associated with both faults were investigated.

The Mutito Fault, about 130 km long, is oriented almost N-S and forms a 5–7 km wide fault zone on the western side of its steep scarp. Transposed regional foliation, stretch streak lineation of mafic minerals, crushed meta-basic rock inclusions, garnet poikiloblasts with rotated internal textures, silicification, and vertical striations are all characteristic features of the Mozambique belt rocks in the Mutito Fault zone. The Ikoo Fault, about 20 km long, is oriented WNW-ESE and forms an approximately 300 m deep valley. This fault has at least a 3 km eastward dextral tectonic displacement on its northern side. Several minor faults with similar displacements parallel the Ikoo Fault. The Mutito and Ikoo faults are interpreted to have been formed during the Mozambique belt metamorphism in late Proterozoic, but were reactivated at least once during Pleistocene when rejuvenation of the main East African Rift System in Kenya occurred.