

Neoproterozoic magmatism of the Mozambique Belt in eastern Tanzania

CHEN Tingyu, Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China

The Mozambique Belt in eastern Tanzania is divided into the inner zone and the outer zone. The amphibolite facies rocks are predominated in the inner zone while the granulite facies rocks prevail in the outer zone.

The studied rocks in the inner zone are sampled around Mpwapwa in the Kiboriani Mountains. They include amphibolite, plagioclase-amphibolite and garnet-bearing pyroxene granulite. Chemical analyses reveal that they are metamorphosed basalt and andesite in petrology and belong to the tholeiitic series. They show very strong Eu anomaly, indicating a strong magmatic differentiation. In the east of the zone, an anorthosite is dated at 633 ± 7 Ma and a granulite from the Uluguru Mountains at 618 ± 16 Ma with Sm-Nd method (M.A.H. Makobo & E. Nakamura, 1995).

The granulites in the outer zone are sampled from the area near Lushoto in the Usambara Mountains, NE Tanzania. Petrochemical analyses show that they are andesite and basalt-andesite in composition and show moderate or obvious Eu anomaly. In the northwest section of the zone, i.e., in the Pare Mountains, an U-Pb zircon age of 645 ± 10 Ma for a two-pyroxene granulite from the Mountains is published (S. Muhongo, 1994).

The study reveals that the amphibolites in the inner zone may be basalts erupted within the Mozambique Ocean while the granulites in the outer zone may represent andesitic magmatism of Island-arc type on the east side of the Mozambique Ocean in Neoproterozoic.