

Ion probe U-Pb Perovskite dating of the Bubiki Kimberlite, Tanzania

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Abstract

The period of formation of kimberlite bodies in Tanzania is not well established. The Bubiki kimberlite, discovered by the author and other geologists of the Geological Survey of Tanzania is one of the few well studied kimberlites in the country. The petrography and geochemistry of cores from Bubiki was studied at the Kimberley Kimberlite Research Laboratory while dating was undertaken by Dr. J.W. Bristow of the Australian University of Canberra. Ion Probe U-Pb dating of perovskite from Bubiki kimberlite indicates intrusive age of 1097 ± 33 Ma (Proterozoic), which is considerably older than the ~52 Ma emplacement age of the Mwadui kimberlite. The late Proterozoic emplacement age of the Bubiki body therefore represents previously unrecognised Epoch of kimberlite magmatism in Tanzania. It is probable that many other kimberlite pipes of similar age awaits discovery. Elsewhere in the world, Proterozoic kimberlite has proven to be richly diamondiferous. The Bubiki Proterozoic kimberlite field may therefore represent a potentially attractive target for diamond exploration in Tanzania.