

The Rwenzori, a Small Mountain Range in a Rift System – Uplift and Exhumation History

F. Bauer¹, U.A. Glasmacher¹, P. Reiners², U. Ring³, A. Schumann⁴, B. Nagudi⁴, and T. Bechstädt¹

¹ Institute of Geology and Paleontology, Heidelberg University, Germany

² Department of Geosciences, University of Arizona, USA

³ Department of Geological Sciences, University of Canterbury, New Zealand

⁴ Department of Geology, Makerere University, Kampala, Uganda

The Rwenzori Mtns. are situated in the northern part of the western branch of the East African Rift System (EARS), along the border between the Democratic Republic of Congo and Uganda. They represent an uplifted basement block that consists of metamorphic rocks of Precambrian origin, showing similar lithologies to the metamorphic rocks of the Tanzania craton. Due to their significant height of more than 5000 m and their extraordinary position within a rift setting, the Rwenzori Mtns. represent a key area for rift-flank uplift in the EARS. Furthermore they seem to play a significant role regarding climate changes in eastern Africa by influencing regional atmospheric circulation resulting in a significant impact on the climate in central and eastern Africa.

Apatite fission-track and apatite (U-Th)/He thermochronometric data are combined with thermokinematic modelling to reveal the uplift and exhumation history of this small mountain range. Similar to other areas of the EARS the thermochronometric data cover the evolution since the Early Cretaceous. A large gap in ages occurs between the Lower Cretaceous and the Oligocene. The exhumation rates increase in Paleogene to Neogene times. The present study is part of the DFG-financed RiftLink-research project.

Key words: Thermochronology, East African Rift system, Exhumation