

Unravelling the Proterozoic history of the granite intrusion of the Karagwe Ankole belt in Rwanda

SHANA DE CLERCQ¹, STIJN DEWAELE¹, JOHAN DE GRAVE¹, THIERRY DE PUTTER² AND FRANK VANHAECKE¹

¹Ghent University

²Royal Museum of Central Africa

Presenting Author: shana.declercq@ugent.be

The Karagwe Ankole belt (KAB) is a Mesoproterozoic orogenic belt, occurring in the Great lakes area in Central Africa. It separates the Archean-Paleoproterozoic Congo craton from the Tanzania blocks and consists of Paleo- and Mesoproterozoic metasedimentary and -volcanic rocks. This orogenic belt is intruded by multiple magmatic events of which two are of great interest: one at ~1375Ma (G1-3 granites) and another at ~1000Ma (G4 granites). The latter granite generation is well-known for its association with the abundant pegmatite and quartz vein-hosted Sn, W, Nb, Ta deposits [1]. The formation conditions of these granite-related mineralization has been relatively well-studied [2], but knowledge on the geochemistry, magmatic evolution and geodynamic setting of these generation of granitoids is very scarce. For the emplacement of the previously mentioned magmatic events, two main hypotheses are currently considered: 1) an intracratonic extensional setting at ~1375Ma followed by a compressional event at 1000Ma [3]; and 2) the formation of an active continental margin with a full-scale continent-continent collision at 1000Ma [4]. Previous study on the granitoids of the Gitarama region favours the intracontinental setting rather than an active continental collisional setting [5]. To finalise the discussion about the Proterozoic history of the KAB, high resolution dating has been performed at two additional areas in Rwanda. Samples of the Akanyaru and Kibuye region are dated by means of LA-ICP-MS zircon and apatite U/Pb dating, in addition to major, minor and trace element geochemistry.

[1]Pohl, W. (1994) *Ore Geology Reviews* 9, 105-130.

[2]Hulsbosch, N., Hertogen, J., Dewaele, S., André, L., Muecher, P. (2014) *Geochimica et Cosmochimica acta* 132, 349-374.

[3]Tack, L., Wingate, M.T.D., De Waele, B., Meert, J., Belousova, E., Griffin, B., Tahon, A. & Fernandez-Alonso, M. (2010), *Precambrium Research* 180, 63-84.

[4] Debruyne, D., Hulsbosch, N., Van Wilderode, J., Balcaen, L., Vanhaecke, F. & Muecher, P. (2015), *Precambrium Research* 264, 82-97.

[5]De Clercq, S., Chew, D., O'Sullivan, G., De Putter, T., De Grave, J., Dewaele, S. (2021), *Precambrium Research*, 356