

EGU21-12571, updated on 18 May 2022
<https://doi.org/10.5194/egusphere-egu21-12571>
EGU General Assembly 2021
© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



New insights into the age and metamorphic evolution of the Irumide orogeny in Malawi

Sofia C. Böhme and Steven D. Boger

Institute for Geosciences, University of Mainz, Mainz, Germany (s-boehme@outlook.com)

Metapelitic rocks of the Irumide Domain in central Malawi contain detrital and metamorphic zircons. U-Pb zircon geochronology yielded two age populations, which have been dated at c. 1995 Ma and 1050 Ma. The ages demonstrate that the precursor sediments to these rocks were derived from erosion of the Palaeoproterozoic Ubendian Domain, which is adjacent to the north, and at a later stage were affected by the Irumide orogeny. The metapelitic rocks are characterised by garnet + sillimanite + biotite \pm muscovite \pm K-feldspar mineral assemblages. Phase equilibria modelling shows that they equilibrated under pressure-temperature conditions of about 7 kbar and 700–740°C. In combination with the metamorphic ages this is interpreted to record late Mesoproterozoic (c. 1050 Ma) accretion of a juvenile island arc, the South Irumide Domain, to the southern margin of the Tanzania-Congo Craton.