

Relationship between the Zimbabwe Craton and adjacent Zambezi Orogenic Belt: a structural-metamorphic transect across a craton margin (2 - Pan-African evolution)

DIRKS, P.H.G.M. AND JELSMA, H.A. Department of Geology, University of Zimbabwe, PO Box MP167, Harare, Zimbabwe.

The Zimbabwe Craton is bound along its northern margin by the Zambezi Orogenic Belt, that records a complex Pan-African (0.8-0.5 Ga) tectono-thermal evolution. In the craton and adjacent Archean high-grade gneisses, most of the Pan-African deformation is restricted to a 5-10 km wide zone parallel to the contact with a Neoproterozoic gneiss terrane. In this zone recrystallisation and folding of Archean fabrics is prominent, but no new foliation has developed.

In the Neoproterozoic gneiss terrane, dominant fabrics are related to extensional deformation at around 800 Ma. Fold geometries can be linked by a common N to NE plunging lineation developed in a pervasive shear foliation, characterised by a top-to-the-NE, normal sense of shear. 800 Ma metamorphic conditions were similar in the Neoproterozoic and Archean gneiss terranes, at around 7 kbar and 650°C, but high-P granulite remnants preserve older fabrics and textures, that yield conditions of about 12 kbar and 750°C. Decompression textures in such gneisses are common.

At around 530 Ma, the Zambezi Belt experienced reburial of the craton margin and recrystallisation and retrograde re-hydration at metamorphic conditions of about 6-8 kbar and 600-650°C. Deformation is related to the southward emplacement of thrust sheets onto the craton margin. Related fabrics and metamorphic assemblages reflect compressional cooling (Archean gneisses), isobaric cooling (Proterozoic gneisses) and compressional heating (craton), respectively, relative to earlier textures.