

Paper Number: 2640

Insight into the geodynamics of southern Africa; crustal thickness and upper mantle structure of Botswana

van der Meijde, M.¹, Fadel, I.A.E.M.¹, Paulssen, H.² and Nyepetsi, M.³

¹University of Twente, Enschede, Netherlands, m.vandermeijde@utwente.nl

²Utrecht University, Utrecht, Netherlands

³Geological Survey of Botswana, Lobatse, Botswana

The 3D crustal and upper mantle structure of Botswana is a major gap in our knowledge about the tectonic evolution of Africa. We will present a new model for crust and upper mantle structure. Our model is based on data from the NARS Botswana and AfricaArray networks, broadband temporary networks in southern Africa (Botswana, Namibia, South Africa and Zambia). Additionally, satellite gravity data will be used to update the crustal thickness map of Botswana.

Crustal thickness will be based on receiver function analysis. In between station structure is based on ambient noise analysis. Combined with new information on tectonic provinces in Botswana from new airborne gravity and magnetic methods we will present a first interpretation for a geodynamical model for southern Africa.

The first results show new features in relation to the place of the cratonic roots and a possible lower crust initiation of rifting in central Botswana.

