



Along strike variations of the Beattie Magnetic Anomaly (South Africa) mapped with magnetotellurics

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The Beattie Magnetic Anomaly (BMA) and the Southern Cape Conductive Belt (SCCB) are two of the largest continental geophysical anomalies in the world. Both anomalies are situated in Namaqua-Natal Mobile Belt in South Africa and have an east-west extension of more than 1000km. They are entirely covered by the sediments of the Karoo Basin. Within the framework of the German-South African collaboration "Inkaba yeAfrica", several geophysical and geological approaches are used to reveal the origin of these anomalies and their relevance in the tectonic evolution of the African continent. In this presentation we will show and discuss magnetotelluric results of a 70km long profile crossing the BMA in the eastern part of the Karoo basin at Jansenville. 2D inversion models of the electrical conductivity distribution of the subsurface show two prominent zones of high conductivity: (i) a sub-horizontal layer within the Kango Basin and (ii) a northward dipping slab from ~10-20km depth coinciding with the maximum of the BMA. This is in contrast to our observations from the Agulhas-Karoo transect in the western part of the Karoo where a conductive slab spatially coinciding with the trace of the BMA is dipping south terminated in ~12km depth. We will compare our results with seismic wide angle reflection/reflection data and aeromagnetic data along both profiles in view of along strike variations of the BMA.