



The Forster Magnetic Anomaly: reading between the lines to better understand a major suture crossing central Dronning Maud Land

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Combined aeromagnetic and geological investigations in the area of Dronning Maud Land have led to several hypotheses regarding the assembly of East Antarctica as an integral part of Gondwana. One hypothesis suggests that a prominent NE-SW trending magnetic lineament in central Dronning Maud Land, the Forster Magnetic Anomaly (FMA), represents a major suture between rocks with African affinities and Archean to Mesoproterozoic ages in the West and juvenile Early Neoproterozoic rocks of the recently defined TOAST (Tonian Oceanic Arc Super Terrane) in the East. Consistent with this idea, satellite gravity data have recently revealed that a major change in lithospheric thickness coincides with the FMA.

The FMA was first identified during aerogeophysical surveys carried out by the Alfred Wegener Institute between 2001 and 2005, and lies well to the south of isolated mountainous outcrops that do not directly help to identify the anomaly source. The Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research and the Federal Institute for Geosciences and Natural Resources collected aerogeophysical data in 2015-17 from Neumayer III and Kohnen stations, with the objective to densify existing coverage of the FMA from a line spacing of 10 km up to a line spacing of 5 km.

We will present preliminary aerogeophysical data that provide a better image of the FMA itself, and with it an interpretation of the transition from an African continental plate margin to Early Neoproterozoic accretionary rocks.