



The southeastern Dronning Maud Land province in East Antarctica

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Systematic airborne geophysical surveys conducted by the Alfred-Wegener-Institute over the last decades have investigated a significant part of Dronning Maud Land in East Antarctica and have revealed, amongst other findings, an aerogeophysical prominent province in southeastern Dronning Maud Land. Both its magnetic and gravity signature differs from those of the western and southwestern Dronning Maud Land, and we assume that it represents a distinct tectonic terrane. This province is characterized by a subdued magnetic anomaly field with elongated parallel positive anomalies, which are truncated by the Forster magnetic anomaly in the northwest, are flanked by the complex magnetic anomaly pattern of the Sør Rondane Mountains in the northeast, and continue presumably farther eastwards. Pronounced negative values of Bouguer gravity indicate thick continental crust of up to 50 km for this region in contrast to significantly higher values of Bouguer gravity in western and southwestern Dronning Maud Land. A few nunataks crop out within the northern portion of this province between the Wohlthat-Massiv and the Sør Rondane Mountains. In 2011 and 2012 collected rock samples from these nunataks and nearby moraines show a predominance of metasedimentary rocks of yet unknown age. Furthermore, undeformed late- to post-tectonic granitoids have been discovered within the southeastern DML province. The conclusions of these findings revise the speculation of a continuous suture zone connecting the Shackleton Range south of Coats Land in the west and the Lützow Holm Bay region in the east and supplement the hypotheses that East-Antarctica is rather a mosaic of different crustal fragments composed of Archaean nucleoids and of Proterozoic to Palaeozoic mobile belts, than to be primarily one stable craton.