

# Magnetic/radiometric paralithology of some New England (Australia) granitoids

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Surveys carried out for the NSW Department of Mineral Resources by Geoex and Geometrics during 1981 have provided digital aeromagnetic and radiometric coverage of the New England region between latitudes 29 and 32° S. The Inverell, Grafton-Maclean, Manilla, Dorrigo-Coffs Harbour, Tamworth and Hastings 1:250 000 sheet areas were flown. All the aeromagnetic data have been processed (IGRF removed, gridded and machine plotted) (Figs 1-3). To date only the Dorrigo-Coffs Harbour 1:250 000 sheet radiometric data have been processed.

All the gridded data have been set up on the NSW Department of Lands Dipix Aries II Image Processor. This has assisted interpretation by enabling rapid display of the data. Trends in the data have been enhanced by selective use of filters and colour schemes.

The major structural units in the New England area are clearly seen in the aeromagnetic data. The Hunter-Mooki and Peel Fault systems are present as sub-parallel, north-south trending linear magnetic highs on the Western boundary of the New England Block. Between these features is a zone of low magnetic relief corresponding to Zone A of Leitch (1974). To the east of the Peel Fault lie the Devonian, Carboniferous and

Permian deep marine sediments and Upper Carboniferous, Permian and Triassic Granitoids of the New England Block—Zone B of Leitch (1974). The New England Block is an ideal area for the use of airborne geophysical techniques in assisting geological mapping as it contains a wide selection of contrasting sediments, intrusions and extrusive volcanics. The granitoids in the area are also relatively recently unroofed permitting *in situ* petrophysical measurements to be easily made and fresh samples to be collected for analysis.

Ground magnetic and radiometric surveys have been designed to select petrophysical sampling points thereby facilitating better correlation between airborne data and geology.

The Geological Survey has been examining in detail the area in the north-east of the Guyra 1:100 000 sheet area. The rock units of interest in this area are the Wards Mistake Adamellite, the Oban River Leucoadamellite and the Llangothlin Adamellite. Magnetic and radiometric differentiation within the Wards Mistake Adamellite and to a lesser extent the Oban River Leucoadamellite suggest that a revision of the mapped geology is required.

## Acknowledgments

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## Reference

- Leitch E. C. (1974), 'The geological development of the southern part of the New England Fold Belt', *J. Geol. Soc. Aust.* **21**, 133-156.

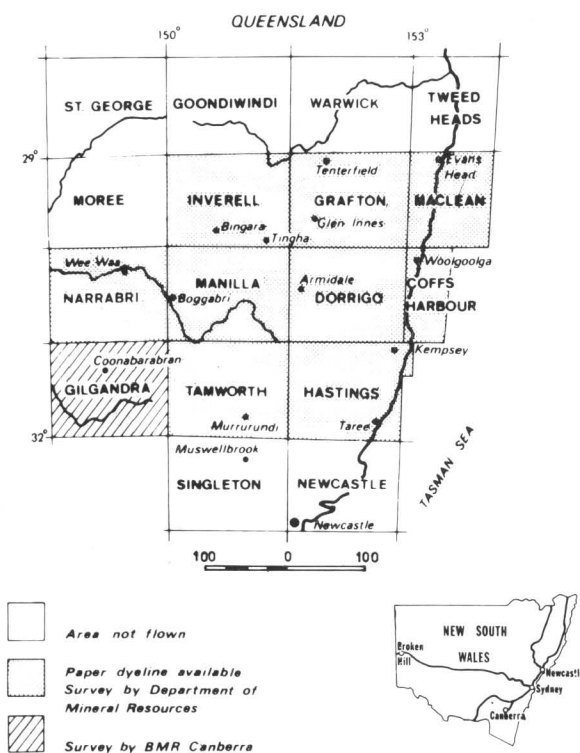
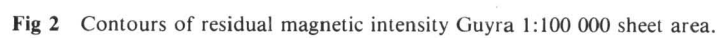
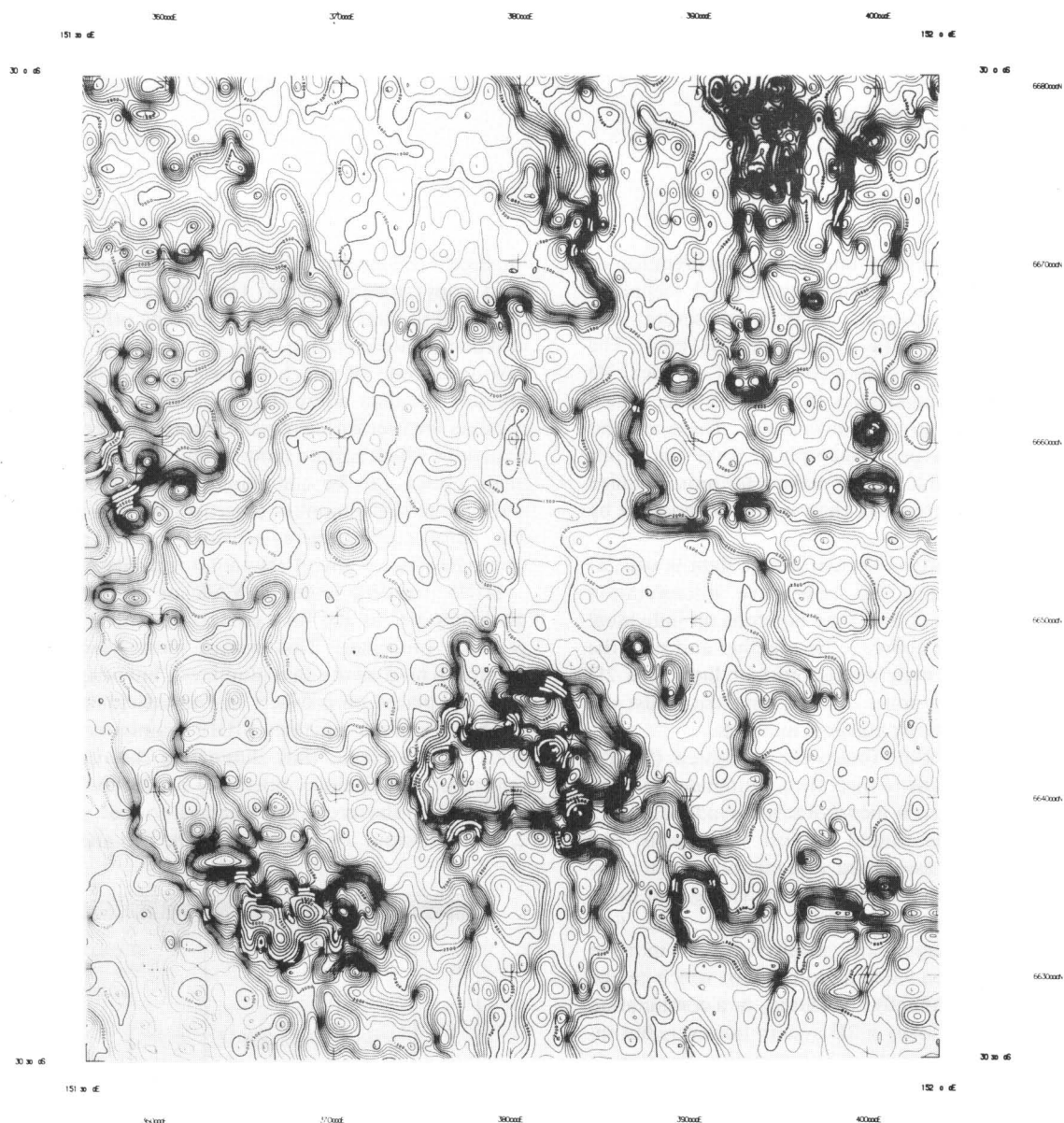


Fig 1 Locality diagram showing airborne geophysical cover of the New England Region, NSW.



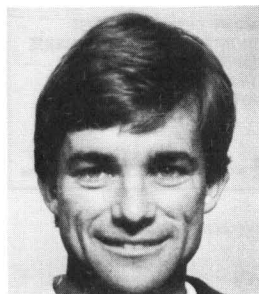


**Fig 3** Contours of total radiometric count Guyra 1:100 000 sheet area.



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