

## COMPLETING THE SPECTRUM OF THE AUSTRALIAN DIGITAL MAGNETIC ANOMALY MAP

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Continental-scale merges of Australian airborne magnetic data are only accurate for wavelengths less than about 100 km, due to limitations of survey size and data processing. Wavelengths greater than 400 km are available from satellite data; thus, there is a “gap” in the spectrum for intermediate wavelengths between 100 km and 400 km. Geoscience Australia is filling this gap by acquiring new airborne magnetic data as part of the Australian Government’s new energy initiative. Intermediate wavelengths are important, for example, for better definition of sedimentary basins for petroleum prospectivity evaluation, for interpreted depths to bottom of magnetic sources in attempts to define the Curie point isotherm, and for regional removal in modelling. The AWAGS2 project (Australia-wide Airborne Geophysical Survey) is collecting both gamma-ray spectrometric and total-field magnetic data across Australia with long north-south lines spaced 75 km apart and 80 m terrain clearance. Accurate spatial crustal magnetic data depend upon accurate removal of time variations of Earth’s magnetic field. These are recorded at pairs of ground sites, concurrently with the airborne acquisition, and supplemented by geomagnetic observatory and other data. Routine airborne magnetic surveys rarely use more than one base magnetometer and the long lines of AWAGS2 present a challenge. It cannot be assumed that time variations are spatially uniform (eg., induction in the oceans and crust creates spatial non-uniformities). Removal of time variations depends upon interpolation of data recorded at ground sites and knowledge of induction effects. Removal of the latter is aided by using high-resolution vector data recorded at the base sites. Using the AWAGS2 corrected traverses will improve the accuracy of intermediate wavelengths in the Australian Digital Magnetic Anomaly Map

**Technical Area:** Geophysics in Government Surveys