



Australian National Geophysical Data Compilations

Australia has world-class coverage of onshore and near-offshore airborne total magnetic intensity (TMI) data, onshore airborne gamma-ray spectrometric data and ground gravity data. Shipborne TMI and gravity data cover parts of Australia's marine jurisdiction.

AIRBORNE MAGNETIC AND RADIOMETRIC MAPS OF AUSTRALIA

Airborne magnetic and radiometric coverage of the Australian continent is among the best in the world. This extensive coverage is the result of more than 60 years of data acquisition by state, territory and Australian Government geoscience agencies, complemented by publicly available company data.

The Magnetic Anomaly Map of Australia is now in its 5th edition, and contains significant improvements to data quality, coverage and resolution over previous editions. The map, released by Geoscience Australia in 2010, is based on a new TMI composite grid of the continent with a cell resolution of 3 seconds of arc (about 80 m). The composite grid results from combining nearly 800 individual survey grids.

The first Radiometric Map of Australia was released by Geoscience Australia in 2009, and this compilation shows the distribution of airborne measured potassium (percent K), uranium (ppm equivalent U) and thorium (ppm equivalent Th) over 80% of the Australian continent at 100 metre resolution.

An independent magnetic and radiometric calibration survey was acquired by Geoscience Australia during 2007. This Australia-wide Airborne Geophysical

Survey (AWAGS) enabled control of the base levels of overlapping TMI survey grids, thereby constraining long magnetic wavelengths, and also enabled adjustment of all the radiometric surveys to the International Atomic Energy Agency's Global Radioelement Datum. The new datum provides a baseline for all current and future airborne gamma-ray spectrometric surveys in Australia. Geoscience Australia acquired the AWAGS data through the Australian Government's Onshore Energy Security Program. North-south lines were flown with a spacing of 75 km and east-west lines with a spacing of 400 km. Average acquisition height was 80 m above ground level.

AUSTRALIAN NATIONAL GRAVITY DATABASE

The Australian National Gravity Database contains information on gravity surveys conducted in Australia and its offshore Territories. Gravity survey reports, data and maps are sourced from within Geoscience Australia, state and territory governments, mineral and petroleum exploration companies, universities and overseas organisations. The Australian National Gravity Database currently contains information on more than 1.5 million point gravity observations taken from more than 2300 surveys conducted over the last 60 years.

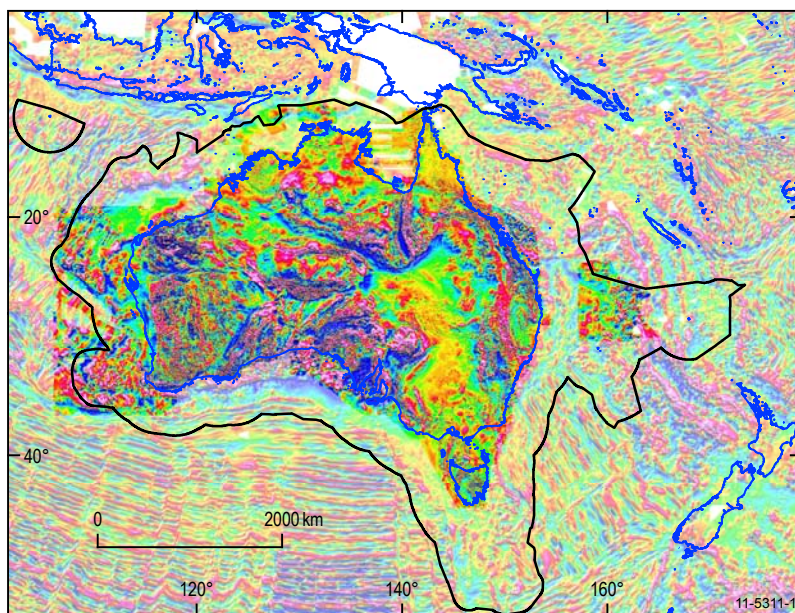


Figure 1. Magnetic map of the Australian region showing Geoscience Australia's airborne total magnetic intensity data onshore and levelled ship-track data offshore. The EMAG2 global magnetic compilation is shown in the background. The black line shows the outer limit of Australia's resource jurisdiction.

FOR FURTHER INFORMATION:

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The consistency of the Australian National Gravity Database is controlled by a set of over 900 more accurately observed gravity stations that form the Australian Fundamental Gravity Network (AFGN). These stations are in about 250 locations throughout Australia. About 10% of the AFGN stations have been established by absolute gravity measurements, while the rest of the network is made up of relative measurements constrained by the absolute sites.

OFFSHORE MAGNETIC AND GRAVITY DATA

Geoscience Australia holds ship-track magnetic and gravity data from close to 700 marine surveys conducted by various institutions in Australian waters between 1960 and 2009. These data were last combined and levelled to minimise misties at ship-track cross-overs on a national scale in the late 1990s. New levelled datasets that incorporate recent survey data in areas of specific scientific or exploration interest have been generated for:

- the Capel and Faust basins, deepwater basins about 800 km off the east coast; and
- the southwest margin of the Australian continent.

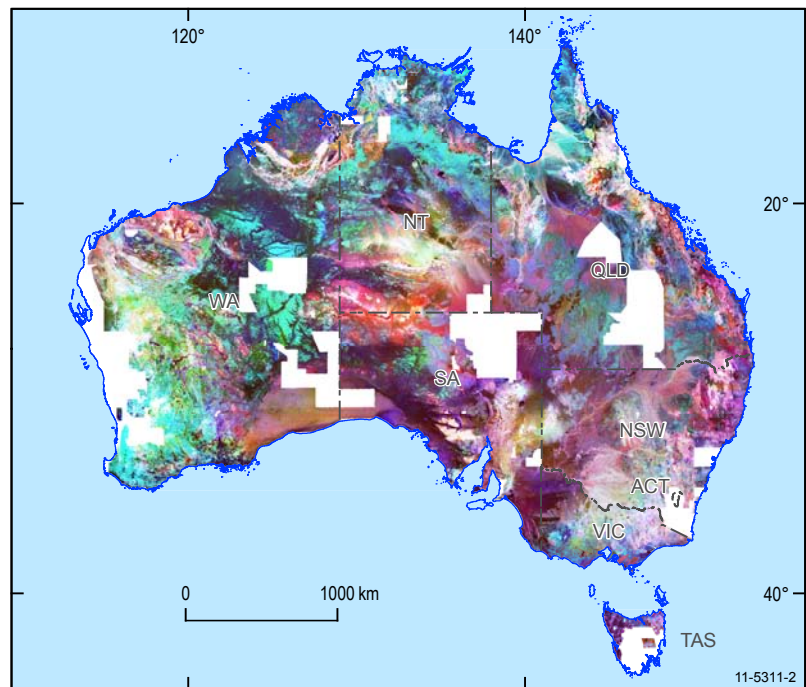


Figure 2. Radiometric map of the Australian continent, showing the distribution of airborne measured potassium (percent K) in red, uranium (ppm equivalent U) in blue and thorium (ppm equivalent Th) in green as a colour composite.

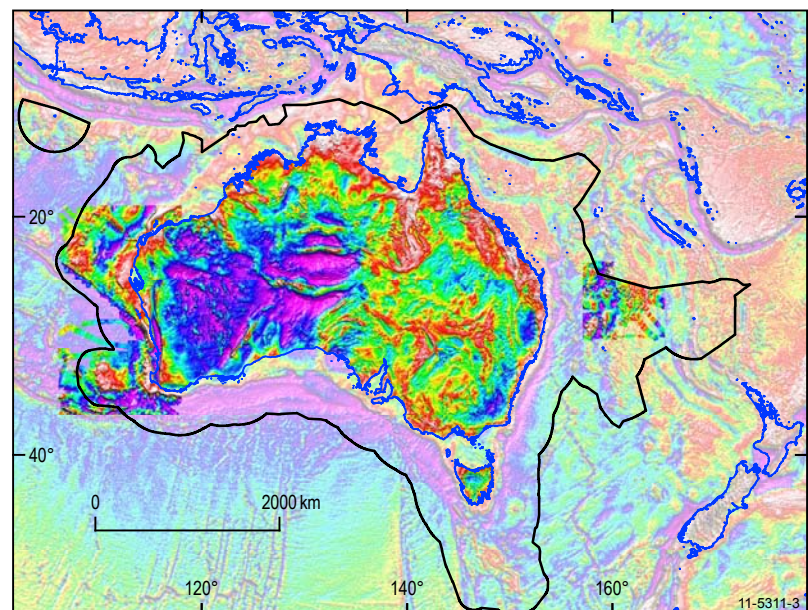


Figure 3. Gravity map of the Australian region showing Geoscience Australia's onshore geodetic Bouguer anomalies and levelled ship-track free-air anomalies for the southwestern margin and Capel/Faust basins. Free-air anomalies from the DNSC08GRA global satellite-derived dataset are shown in the background. The black line shows the outer limit of Australia's resource jurisdiction.