

The NSW Gravity Model

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ABSTRACT

Gravity is not only a fundamental force in physics, surveying and geodesy but also crucial for life in general. It pins our atmosphere to the Earth, keeps our feet on the ground and causes fluids to flow downhill. The NSW Gravity Model is Australia's first model produced from a comprehensive, state-wide gravity survey captured in a single airborne campaign. This high-quality, high-density dataset delivers critical geoscience information, enhancing outcomes for infrastructure planning, land management, natural hazard assessment and resource development across NSW. It was delivered on time, within scope and budget, in collaboration with the Geological Survey of NSW and Geoscience Australia. The NSW Gravity Model will help surveyors measure height more accurately, assist land managers in understanding groundwater reserves and enable engineers to identify where major natural hazards may occur. It will also drive future resource investment opportunities in NSW by expanding the discoverability of high-value and critical minerals and reduce the financial risks associated with mineral exploration in unexplored or undeveloped areas. This presentation introduces the NSW Gravity Model, discusses the data collection and processing, and outlines the benefits this model will provide to the surveying profession and wider community, with gravity data made freely available to the public for the benefit of all.

KEYWORDS: *Gravity, airborne gravimetry, datum modernisation, height datums.*