

Shepparton Numurkah Regional Ground Gravity Survey

The Geological Survey of Victoria (GSV) and Geoscience Australia are conducting a ground gravity survey along roads and tracks in northern Victoria between Seymour, Echuca and Wodonga during 2023 (Figure 1). GSV is an agency in the Department of Energy, Environment and Climate Action.

The survey will measure extremely small variations in the Earth's gravity and will help geoscientists understand eastern Victoria's geology better. It is important for future scientific research and to help the government make better earth resource and land management decisions.

The survey is being carried out by geophysical surveying company Daishsat Geodetic Surveyors and is expected to take 12 months to complete. The results will be publicly available on the Earth Resources and Geoscience Australia websites.

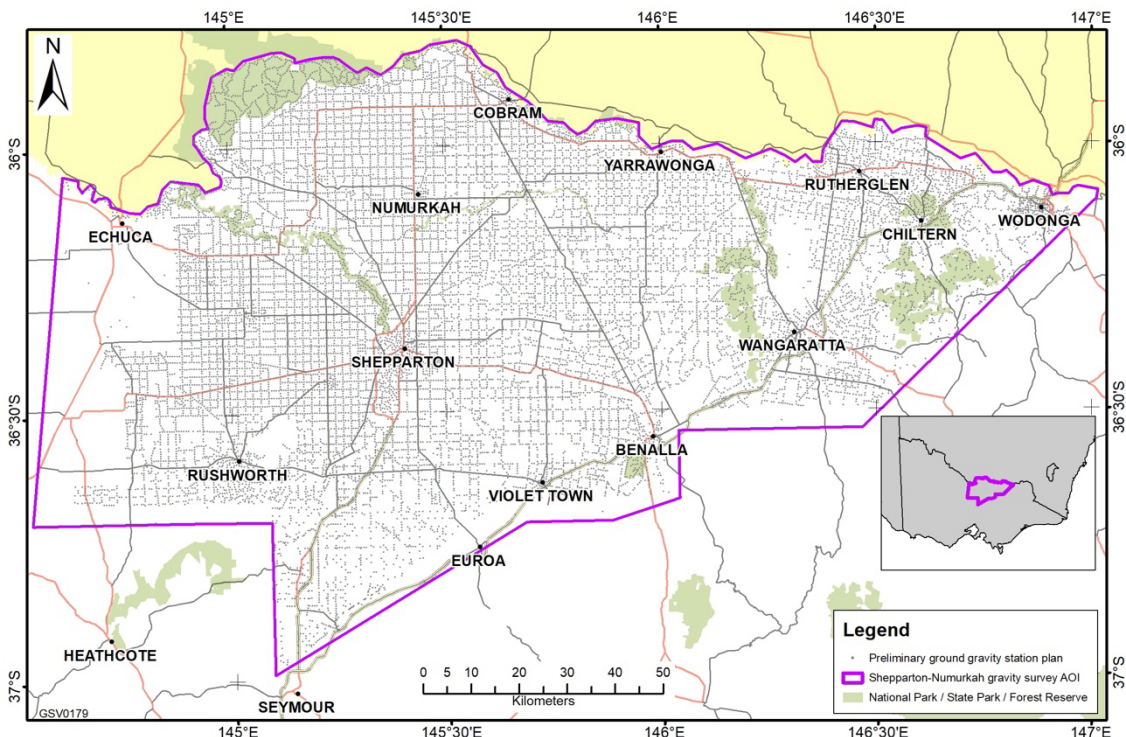


Figure 1 Map showing proposed ground gravity survey locations in Victoria as grey dots

How the gravity survey works

Measurements of the Earth's gravity and a GPS location will be recorded at up to 20,000 sites. The gravity meter (which is a box containing a mass suspended from a spring) is placed on the ground at each site for 1-2 minutes while it measures the strength of Earth's gravitational "pull" at that location (Figure 1).

By taking measurements at many locations, geoscientists can map the differences in Earth's gravity in different places. These differences are associated with the rocks in the Earth's crust and will be used to learn more about geological structures and rock types.

The surveyors and the equipment travel in a 4WD diesel vehicle eg Isuzu D-Max (Figure 2), with a "shadow vehicle" to help alert other road users in high-speed traffic areas (Figure 3).



Figure 2 Example gravity survey vehicle. Photo Daishsat Geodetic Surveyors

Surveyors will move safely to the side of the road to collect data. If a roadside site is unsafe for stopping, they will use a different location nearby or skip that site.



Figure 3 Gravity survey vehicle with shadow vehicle.
Photo: Daishsat Geodetic Surveyors

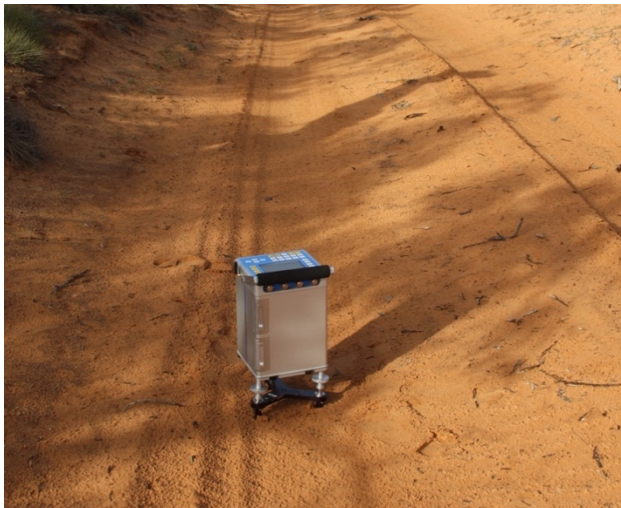


Figure 4 A gravity meter taking a measurement on a track (shows footprints and tyre tracks)
Photo Geological Survey of Victoria

Site selection and property access

Measuring the gravity does not leave any impact on the ground apart from footprints and tyre tracks (Figure 4). Vegetation will not be disturbed, and traffic will not be interrupted. Plants and wildlife will be protected.

Gravity survey sites are on public-access roads (Figure 1). No access to private property is required for surveying. Secure sites for setup of base-station equipment will be arranged with relevant landowners.

Survey authorisation

Public road managers in local and state government organisations have been involved in the survey planning. Site access permits and entry conditions have been organised with road managers as required.

Under Victorian laws, geological surveys can be authorised on behalf of the Department of Energy, Environment and Climate Action under Section 112 (1) of the *Mineral Resources (Sustainable Development) Act 1990*.

Ground gravity acquisition activities will comply with the Victorian *Aboriginal Heritage Act 2006* and *Aboriginal Heritage Regulations 2018*

Experienced gravity survey contractors collect the survey information. The survey is overseen by GSV and Geoscience Australia.

More information

Telephone the Customer Call Centre on 136 186

Email gsv_info@ecodev.vic.gov.au

Visit www.earthresources.vic.gov.au/evgi for an overview of GSV's Eastern Victoria Geoscience Initiative project and for a summary of the geology of eastern Victoria.

Visit Geoscience Australia's Scientific Topics webpage for information on gravity as a geophysical technique <http://www.ga.gov.au/scientific-topics/disciplines/geophysics/gravity>

Accessibility

To receive this document in an alternative format, phone the Customer Service Centre on 136 186, email customer.service@delwp.vic.gov.au, or contact National Relay Service on 133 677. Available at DEECA website (www.deeca.vic.gov.au)

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We acknowledge Victorian Traditional Owners and their Elders past and present as the original custodians of Victoria's land and waters and commit to genuinely partnering with them and Victoria's Aboriginal community to progress their aspirations.

