

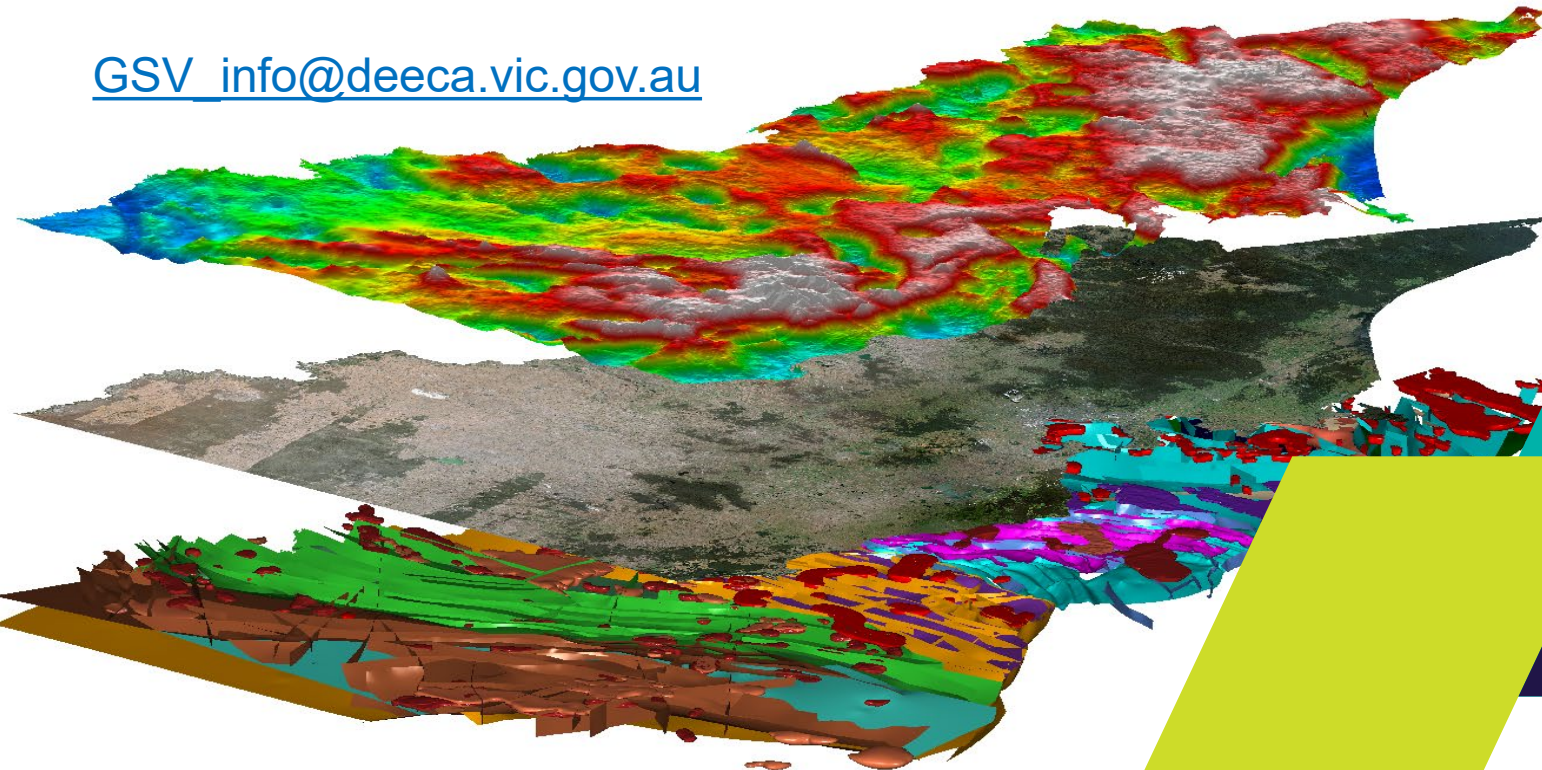
Geophysical data in Victoria

Discoveries in the Tasmanides conference, Orange, NSW

Exploration Geophysics for Geologists workshop presentation, 09/09/2026

Suzanne Haydon, Mark McLean, Phillip Skladzien, Matt Boyd, Luong Tran
Geological Survey of Victoria

GSV_info@deeca.vic.gov.au



Public geophysical data



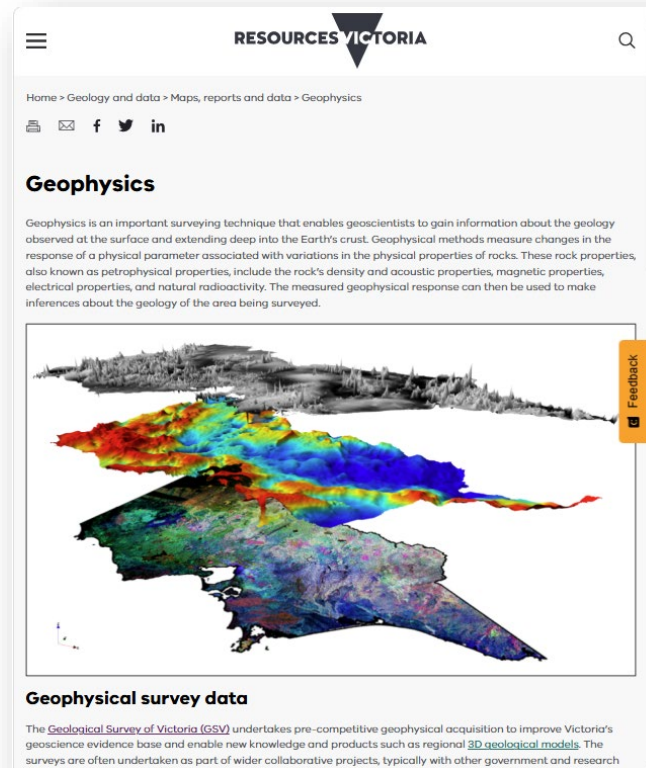
Public datasets

State-wide data compilations

- Airborne magnetics
- Airborne radiometrics
- Ground gravity
- DEM

Government survey data

- Airborne EM
- Airborne gravity/gradiometry
- Magnetotellurics
- Active Seismic/Passive Seismic
- Petrophysics



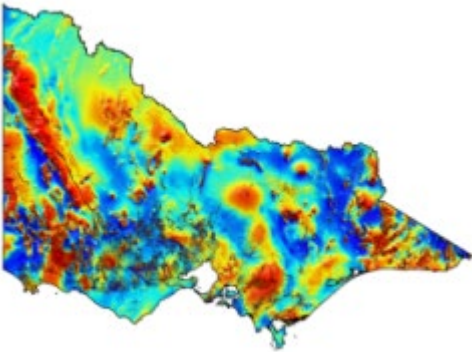
<https://resources.vic.gov.au/geology-and-data/maps-reports-data/geophysics>

Company survey data

- Airborne mag/rad/EM/gravity
- Active Seismic/Passive Seismic
- Ground electrical and electromagnetic surveys
- Petrophysics

Regional airborne geophysical data

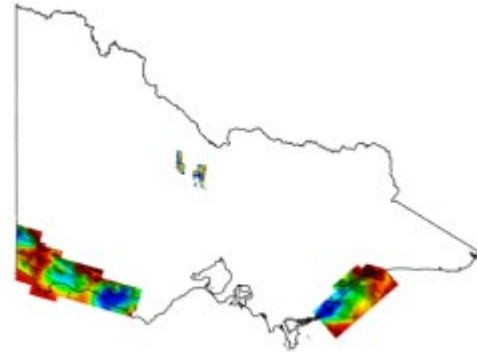
Airborne magnetics



Radiometrics



Airborne gravity and gravity gradiometry



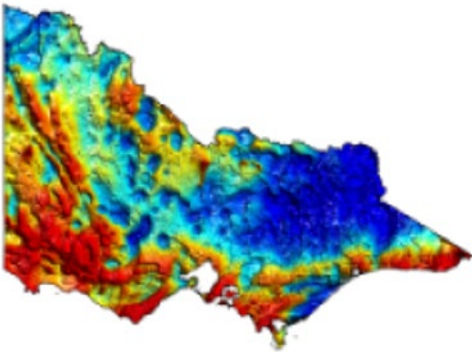
Airborne electromagnetics



<https://resources.vic.gov.au/geology-and-data/maps-reports-data/geophysics/regional-geophysical-data>

Regional ground geophysical data

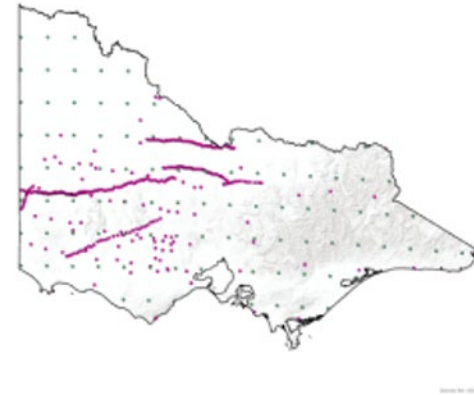
Ground gravity



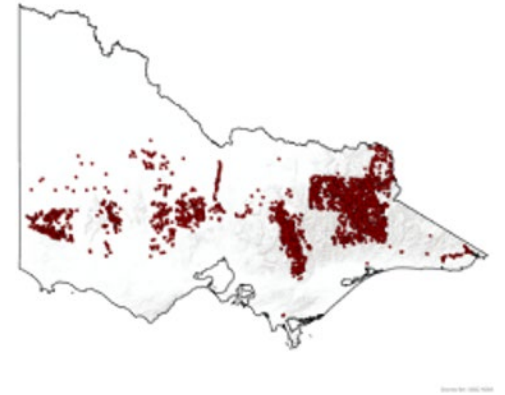
Seismic



Magnetotellurics

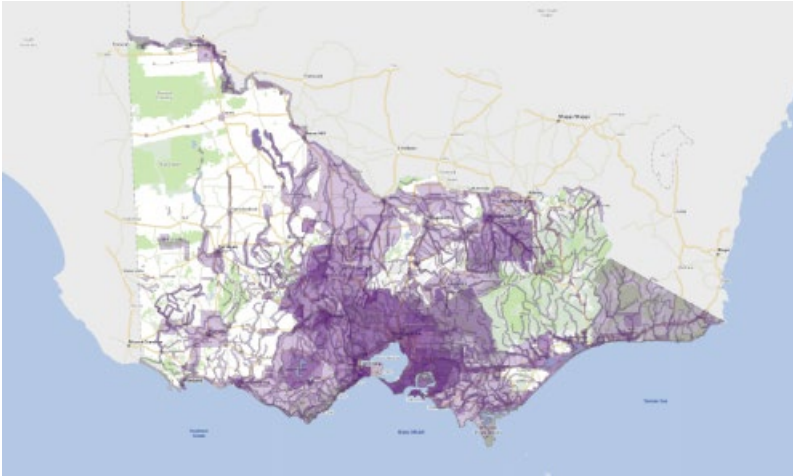


Petrophysics



<https://resources.vic.gov.au/geology-and-data/maps-reports-data/geophysics/regional-geophysical-data>

Elevation models



- Vicmap Elevation LiDAR Collection
- Available from approved service providers/resellers



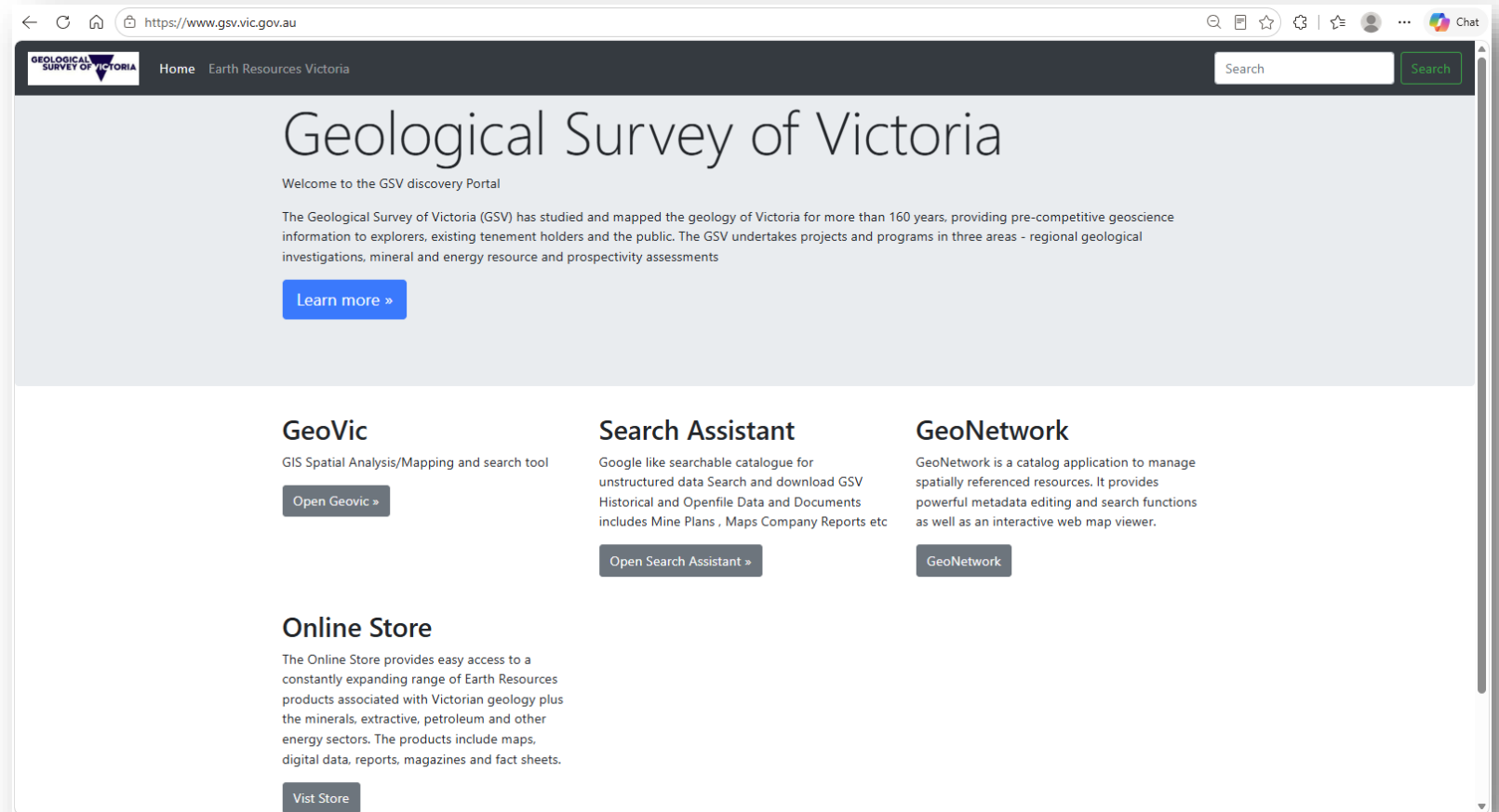
- Vicmap Elevation DEM 10m
- Vertical accuracy +/-5 m
- Available under a Creative Commons licence from Data.Vic and GA's ELVIS platform

<https://www.land.vic.gov.au/maps-and-spatial/spatial-data/vicmap-catalogue/vicmap-elevation>

Accessing and discovering geophysical data



Geological Survey of Victoria discovery portal

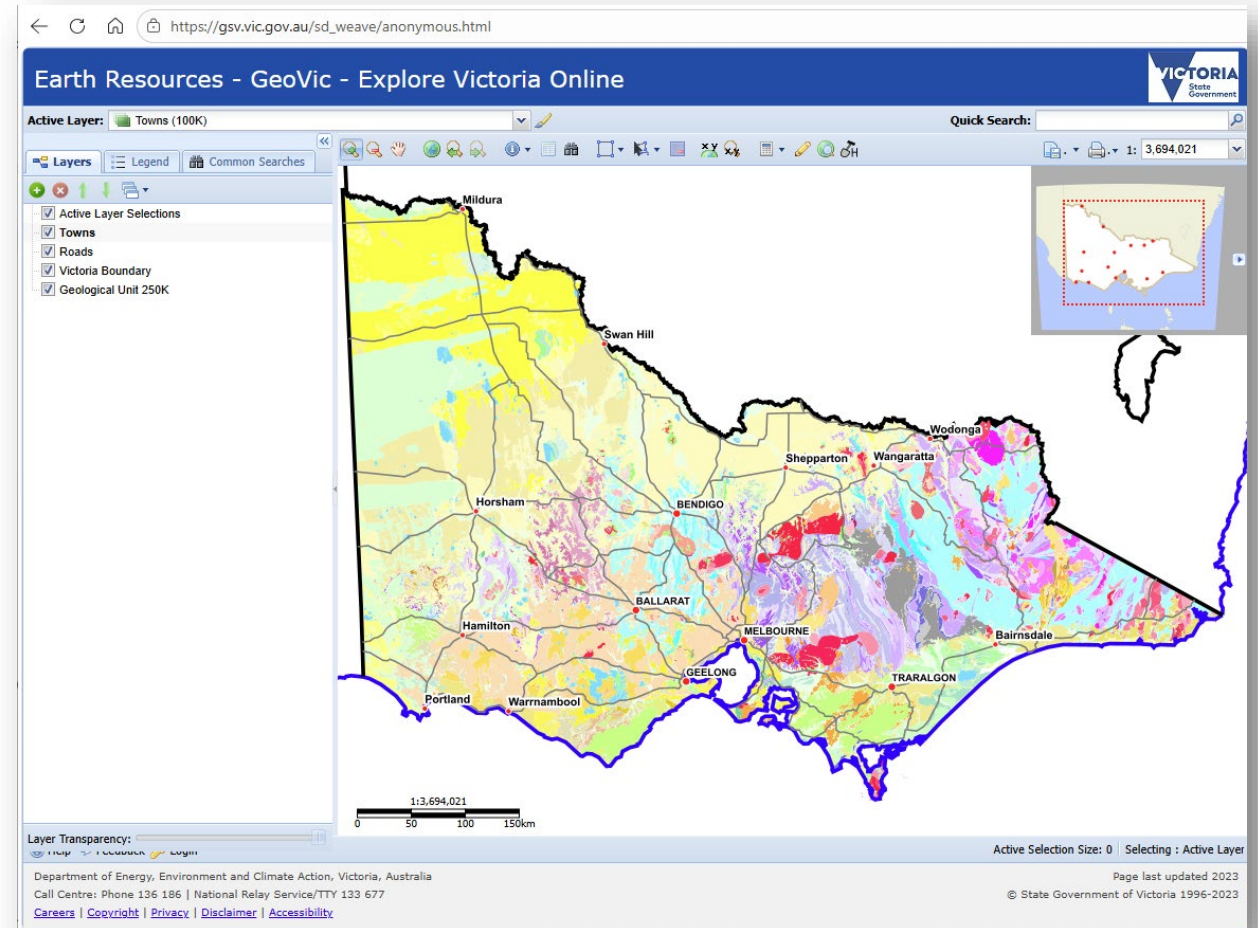


www.gsv.vic.gov.au

GeoVic

Online GIS

- Geological interpretations
- Geophysical interpretation layers
- Images of magnetics, radiometric, gravity
- Airborne geophysical surveys
- Gravity points
- Seismic points and lines
- Petrophysics points



<https://resources.vic.gov.au/geology-and-data/maps-reports-data/geovic>

GeoVic: Airborne Geophysical Survey Index

Step-by-step instructions:

How to use [GeoVic](#) to find
airborne survey data
held in the [GSV Online Catalogue](#)

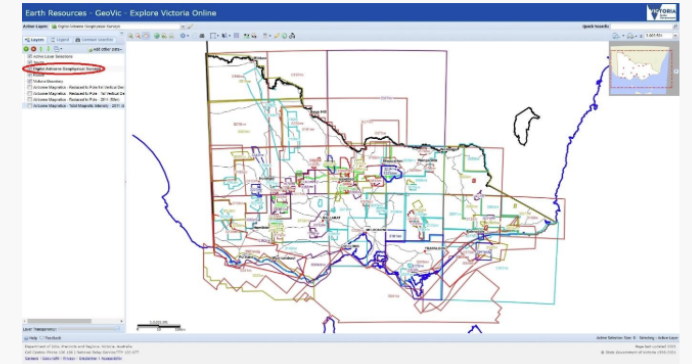
Geology and data

- > Victoria's geology
- > Geological Survey of Victoria
- > Industry and investment
- > **Maps, reports and data**
 - > GeoVic
 - Geoscience presentations and papers
 - Geochemistry data
 - > **Geophysics**
 - > **Regional geophysical data**
 - Drillhole database
 - > Drill Core Library
 - 3D geological modelling
- > Minerals
- > Quarry materials
- > Gemstones
- > Oil and gas
- > Geothermal energy

Linking from the Geophysical Survey Index to survey data on the GSV Online Catalogue

These instructions explain how to access survey reports and data directly from the GeoVic [Airborne Geophysical Surveys Index](#).

1. Turn on "Digital Airborne Geophysical Surveys" index layer.

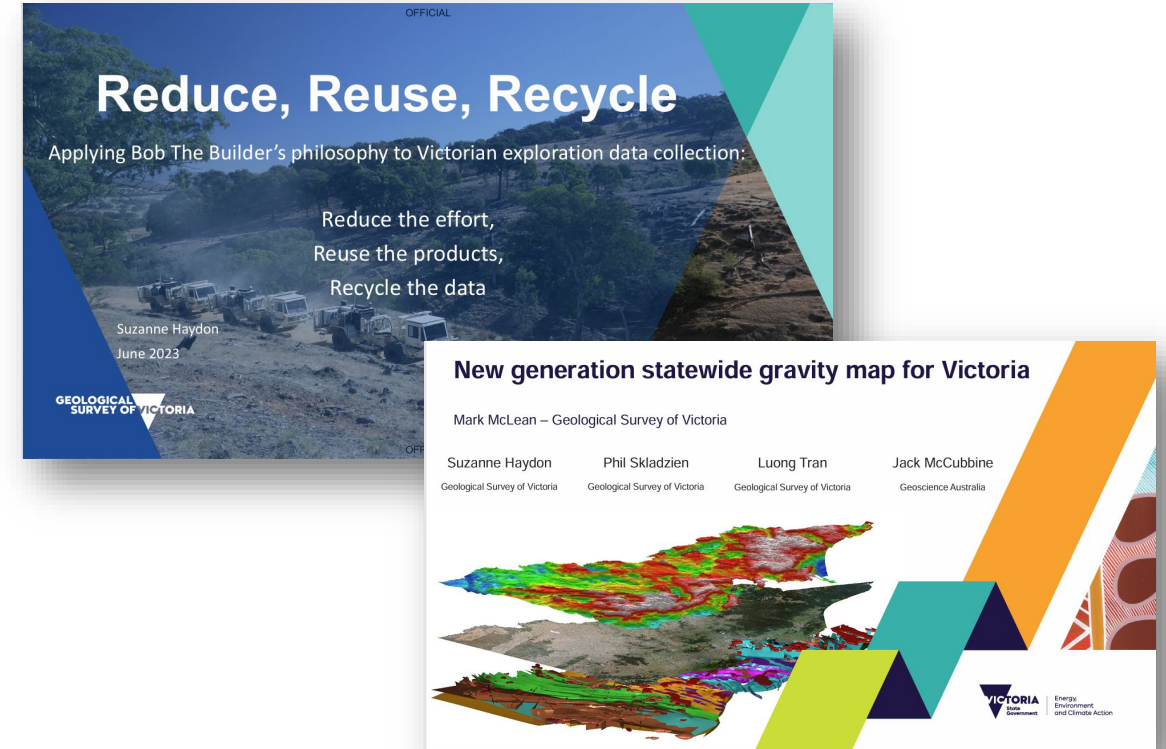
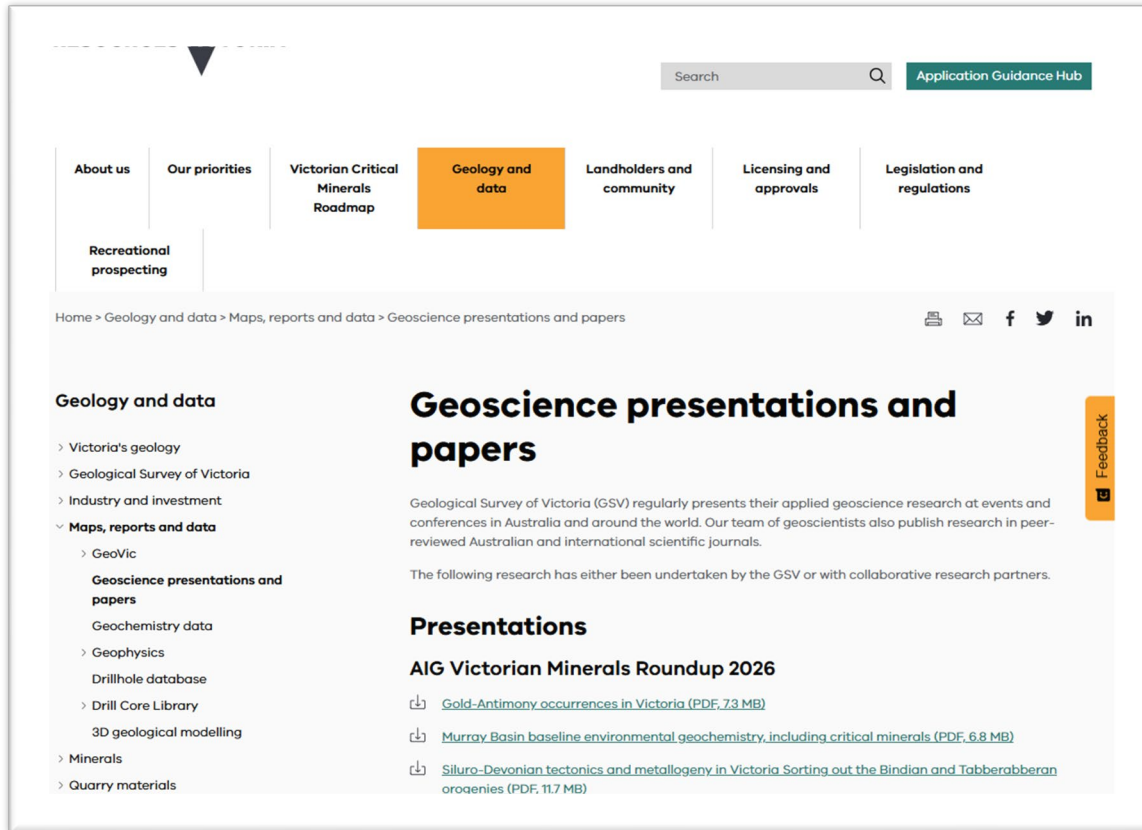


2. Set layer to active by right clicking on layer.



<https://resources.vic.gov.au/geology-and-data/maps-reports-data/geophysics/regional-geophysical-data/linking-gsv-catalogue>

Resources Victoria website: GSV presentations and papers



<https://resources.vic.gov.au/geology-and-data/maps-reports-data/presentations-and-papers>

Geological Survey of Victoria catalogue (Search Assistant)

Geological Survey of Victoria

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15 Results

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Relevance

Publication Year

From

To

Spatial Filter

?

Category

?

Filter Category

Mining Tenement Report (8)

Map: Published (3)

SEISMIC (3)

Departmental Report: Unpublish

Title: EL 3309, Pretty Sally

GSV Reference ID: 20852

Subject

MAHER, S. & ARAVANIS, T., 1994. CRA Exploration Pty Ltd. EL 3309, Pretty Sally. Annual report for the period ending 27 August 1994. Report No 20305, 54 pp. Earth Resources Division Expired Exploration Reports File.

Authors

MAHER, S., ARAVANIS, T.

Publisher

CRA Exploration Pty Ltd

Year

1994

Category: Mining Tenement Report

Subcategory: Annual Report

Files (2)

Select all

Unselect all

Add Selection

Remove Selection

EL3309_G20852_199408_Annual.tif

tif

1.72 MB

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EL3309_G20852_199408_Annual.pdf

pdf

1.66 MB

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<https://gsv.vic.gov.au/SearchAssistant2/search?q=>

CRA EXPLORATION PTY. LIMITED
A.C.N. 000 057 102

TITLE: EL 3309 PRETTY SALLY, VICTORIA
ANNUAL REPORT FOR THE PERIOD ENDING
27th AUGUST, 1994

AUTHOR: S. MAHER & T. ARAVANIS

Geology Ref: 10
20852
Survey 2009
Aug 1994
EL 3309

Scale 1:10000

Vertically scaled 50 nT/cm
Base level 80100

Diurnally corrected magnetic data

CRA EXPLORATION PTY. LIMITED
PRETTY SALLY EL 3309
SPANKERS/FROGHOLLOW ROADS
GROUND MAGNETIC PROFILE
Author: S. MAHER & T. ARAVANIS
Date: 1994
Scale: 1:10000
Date: 1994
Date: 1994

Geological Survey of Victoria

Earth Resources Publications (online store)

Publications Home

Publications search GO

Brochures and guides

Digital data

- 3D Geological Models
- Geophysical Data Packages
- Geoscientific Data Packages
- Latrobe Valley Coal Model
- Open File Mineral Tenement Data Packages

Maps

Reports

Magazines

Geophysical Data Packages

For a detailed description of GSV Geophysical data types please head to this page [Geophysics](#).

Product 1 to 14 of 14
Page: 1

[Alexandra / Maffra - Gridded and Located airborne geophysics](#) Download Free

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- 3D Victoria Reports
- Geological Survey Bulletins
- Geological Survey Reports
- Extractive Geoscience Reports
- Former mines and quarries framework
- Geology of Victorian Parks
- Geothermal Reports
- Gold Undercover Reports
- Papers
- Rediscover Victoria Drilling Reports

Technical Records

Product 21 to 31 of 31
Page: [1](#) [2](#)

[GSV TR2011/4 - Primary gold ore fields in the Stawell Zone, Victoria](#) Download Free

[GSV TR2012/1 - Heavy Mineral Sands in the Murray Basin of Victoria](#) Download Free

www.earthresources.efirst.com.au

Victorian Government open data

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Search Results (33 datasets found)

geophysics

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Category

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33 datasets found for "geophysics"

Datasets

Gravity Reading Locations and Measurement

Measurements of the Earth's gravitational field have been taken at these locations. Gravity Readings differ depending upon density of rock. This can be an indication of rock types.

Data and Resources

GRAVITY DWG

More information

Go to Resource

GRAVITY DXF

More information

Go to Resource

GRAVITY GDB

More information

Go to Resource

GRAVITY SHP

More information

Go to Resource

GRAVITY MIF

More information

Go to Resource

GRAVITY TAB

More information

Go to Resource

GRAVITY Extended TAB

More information

Go to Resource

GRAVITY WHS

More information

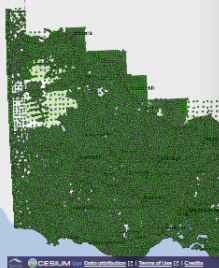
Go to Resource

GRAVITY WIS

More information

Go to Resource

Map preview



Open File Digital Airborne Geophysical Survey Index for Victoria

Contains survey boundary polygons and associated survey metadata that include acquisition parameters. All open file airborne geophysical surveys are included where data were acquired digitally. Data for the surveys is available via GAD09 http://www.geoscience.vic.gov.au/gad09_browse
http://www.geoscience.vic.gov.au/gad09_browse

Data and Resources

DIGSURV DWG

More information

Go to Resource

DIGSURV DXF

More information

Go to Resource

DIGSURV GDB

More information

Go to Resource

DIGSURV SHP

More information

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DIGSURV MIF

More information

Go to Resource

DIGSURV TAB

More information

Go to Resource

DIGSURV Extended TAB

More information

Go to Resource

DIGSURV WHS

More information

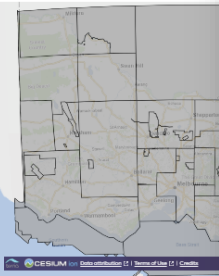
Go to Resource

DIGSURV WIS

More information

Go to Resource

Map preview



Geophysics (1:250,000), Geological Interpretation of Geophysical Features Arc

This dataset contains interpreted geological data, using combined interpretations of airborne magnetic, radiometric and gravity survey data, mapped at 1:250,000.

At scales larger than 1:100,000 the display is a combination of both 1:100,000 and 1:250,000 geophysical mapping. Recent 1:250,000 geophysical mapping has been of such quality and detail it has been used to supersede older 1:100,000 mapping. This occurs in the following areas: St Arnaud 524-4, Dunolly 7624, Charlton 7525, Wedderburn 7625 and part of Ararat 7423 are superseded by St Arnaud 524-4, Bendigo 7224, Heathcote 7624 and Hoppersdale 7524 are superseded by Bendigo 525-1.

Ballarat 7223, Ararat 7423, Horsham 524-3 and St Arnaud 524-4 supersede Grampians 7222 where there is overlap.

The Ouyen 524-15 and Horsham 524-3 map areas are datasets derived from a combination of Geological Interpretation of Basement Geophysical Features maps and Geological Interpretation of Post-Cretaceous Geophysical Features maps performed by Moore, D. H.

This data has been collected by the Geological Survey of Victoria. This dataset is accompanied by other datasets representing sub-surface geological polygons, structural lines, miscellaneous lines and metamorphism.

Data and Resources

GPGEOL250ARC DWG

More information

Go to Resource

GPGEOL250ARC DXF

More information

Go to Resource

GPGEOL250ARC GDB

More information

Go to Resource

GPGEOL250ARC SHP

More information

Go to Resource

GPGEOL250ARC MIF

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GPGEOL250ARC TAB

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GPGEOL250ARC Extended TAB

More information

Go to Resource

Additional Information

Field	Value
Published (Metadata Record)	2/7/19/2009
Last updated	30/3/2006
Organisation	Department of Energy, Environment and Climate Action
Category	Spatial Data
License	Creative Commons Attribution 4.0 International
Full metadata URL	https://metashare.maps.vic.gov.au/geonetwork/jsp/geonetwork/search/metadata?dataset=524-4-524-15&ds=1010&ds=1010&format=json&format=json&format=json&format=json
Update Frequency	Irregular
Point of contact	https://data.vic.gov.au/contact-us

www.data.vic.gov.au

Current Projects



Victorian ground gravity

Land based gravity stations acquired prior to 2008.

- Nominal 1.5 km spacing
- 147,166 stations (black)

GEOSCIENCE VICTORIA., 2008. Statewide airborne magnetic and radiometric grids, 2005. Victoria - Gridded Airborne Geophysical Data, and Located and Gridded Gravity CD-Rom, updated 2008. GeoScience Victoria. www.gsv.vic.gov.au/rid/167394

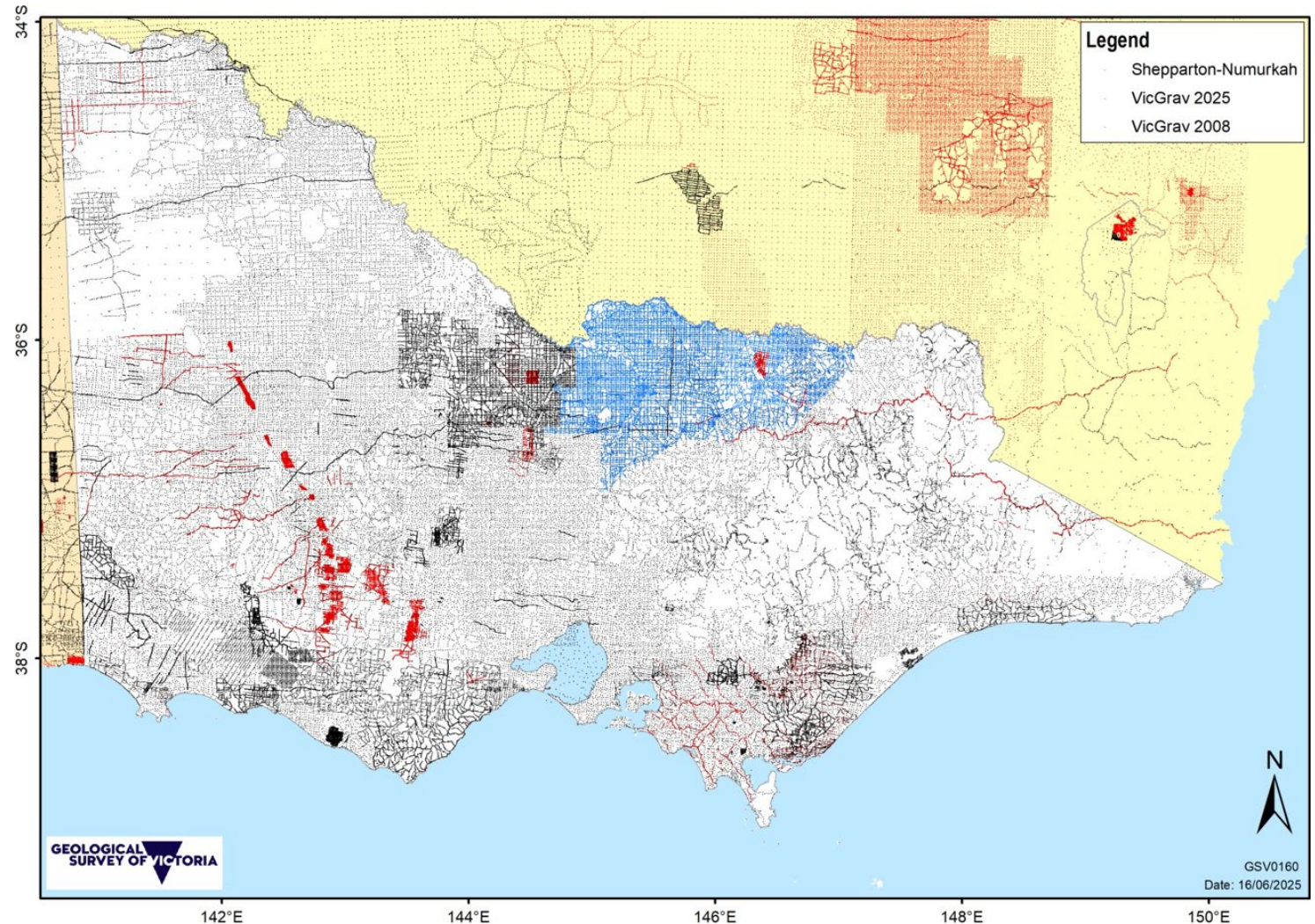
Shepparton-Numurkah survey

- 23,456 new stations (blue)

Haydon, S.J. & Skladzien, P.B., 2025. Shepparton-Numurkah Regional Ground Gravity Survey. Geological Survey of Victoria Technical Record 2025/1. Geological Survey of Victoria. Department of Energy, Environment and Climate Action. Melbourne, Victoria. 32 p. www.gsv.vic.gov.au/rid/172763

Additional government, industry, student surveys

- 48,839 new stations (red)



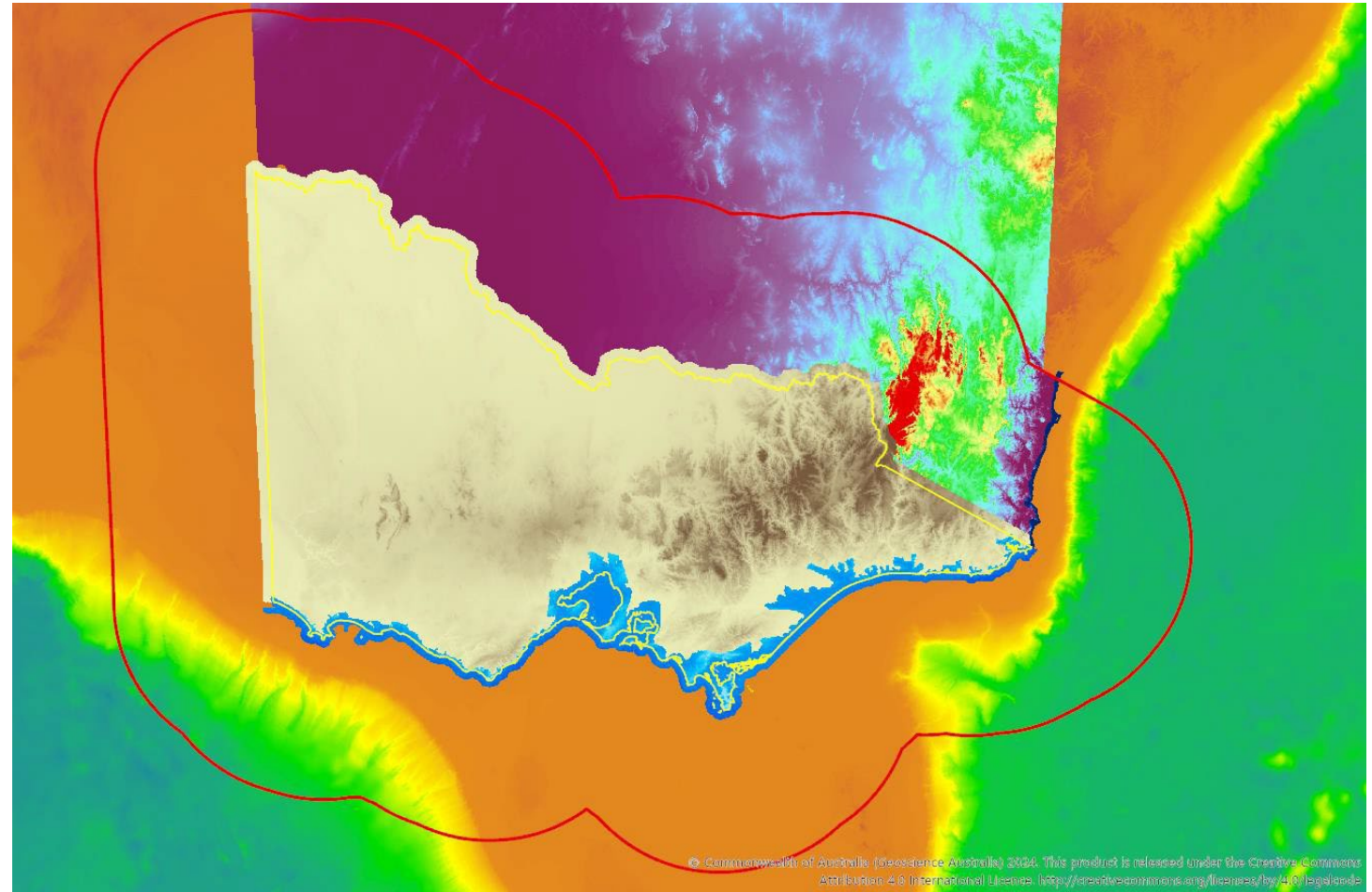
In progress: New VicGrav compilation

New statewide DEM

GSV is building a new DEM using
LiDAR and Vicmap Elevation DEM
10m with surrounding data to 167 km

To support new gravity terrain
corrections

Will be released as a product by GSV



In progress: New statewide DEM

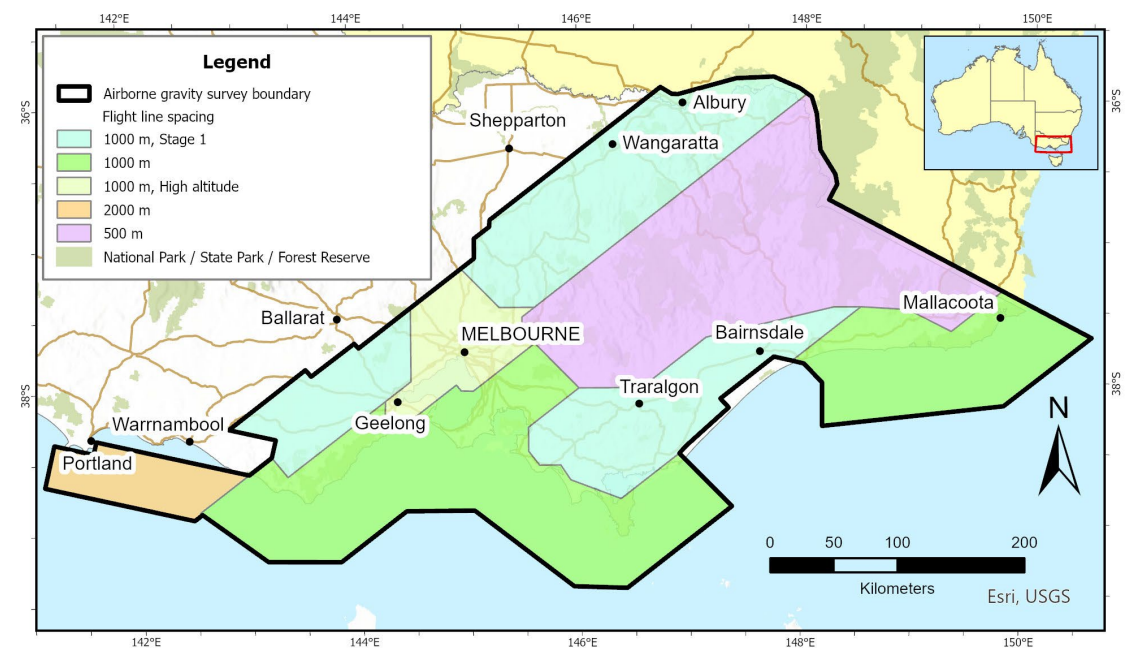
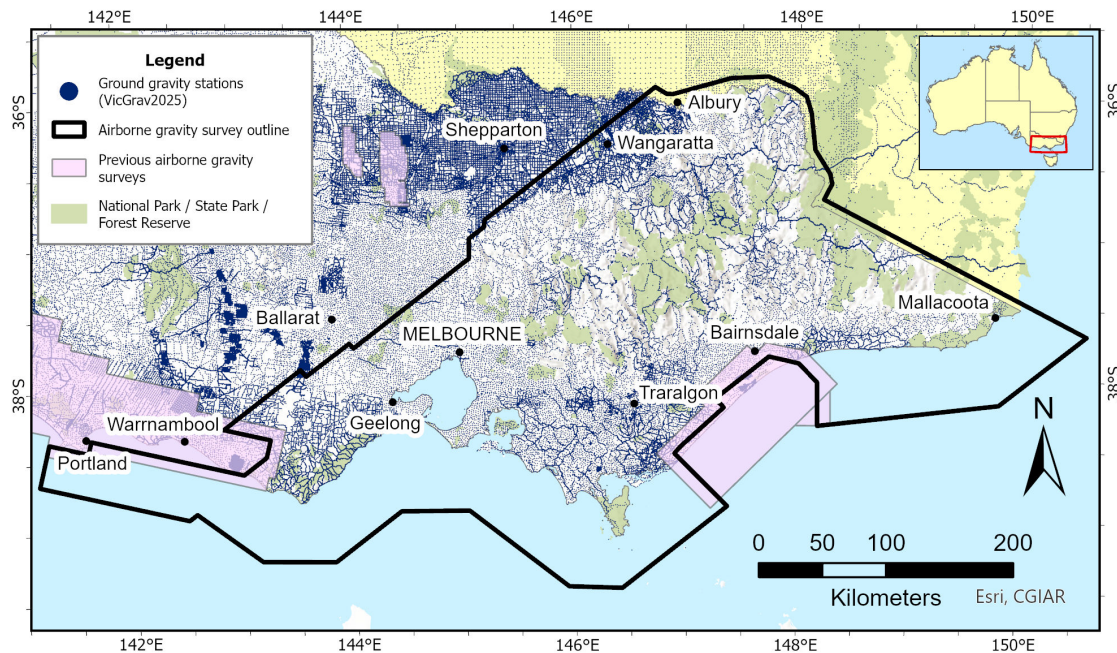
Greater Melbourne and eastern Victoria airborne gravity survey

- Survey covers approximately 150,000 square kilometres
- Total line km = 197217.37 km

Report and data released 2026

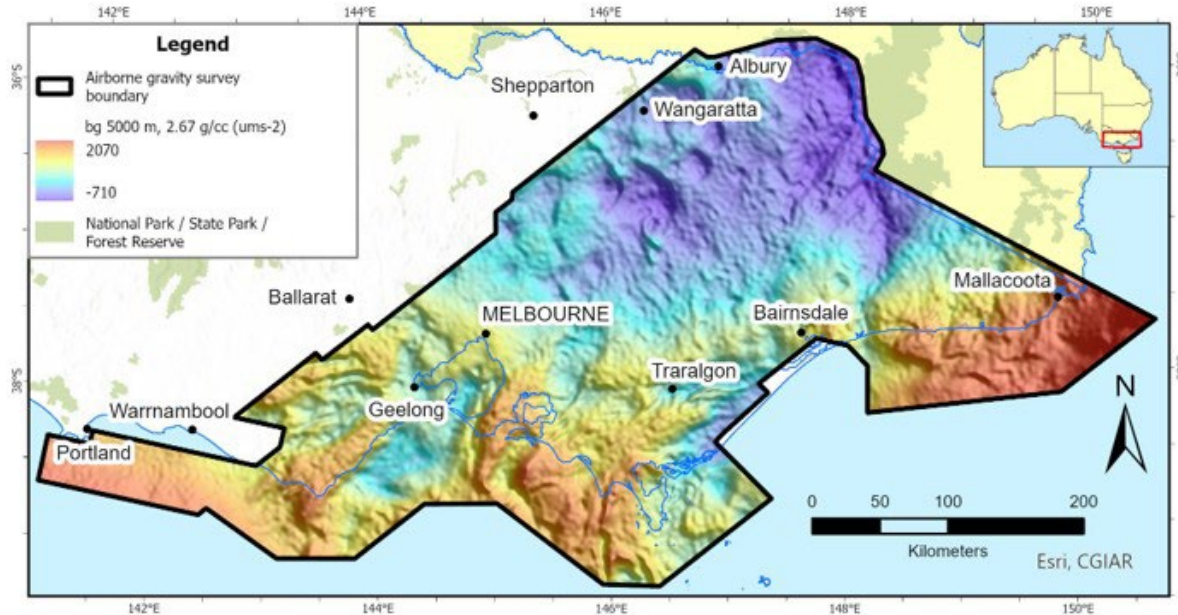
Collaboration:

- Geological Survey of Victoria
- Surveyor General Victoria
- Geoscience Australia

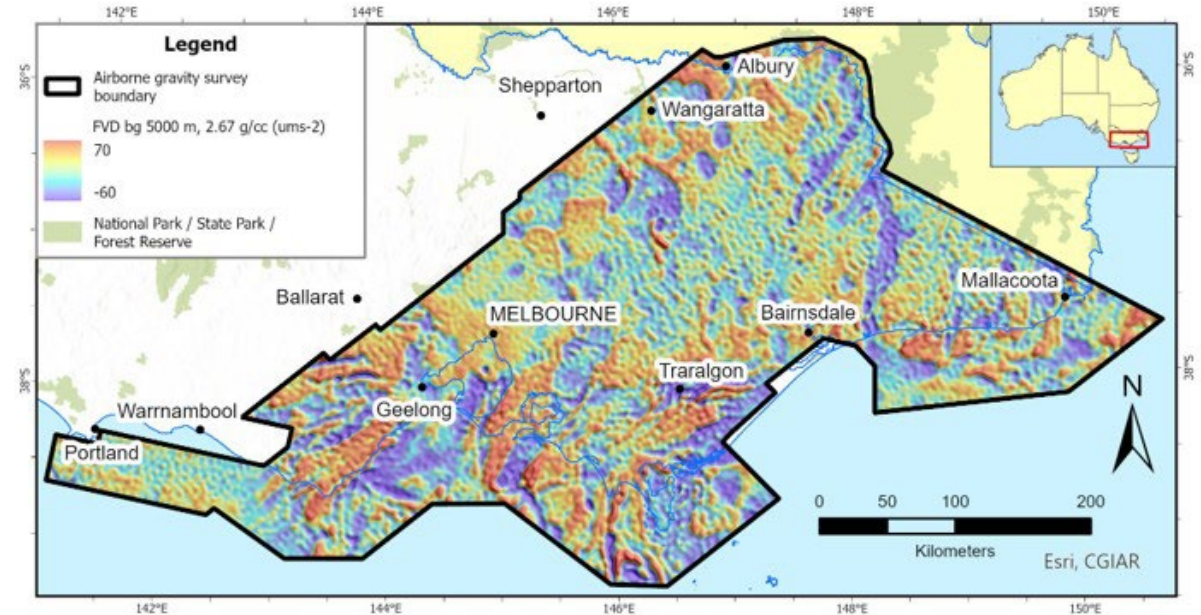


Haydon S.J., 2026. Greater Melbourne and Eastern Victoria Airborne Gravity Survey. Geological Survey of Victoria Technical Record 2026/1. Geological Survey of Victoria. Department of Energy, Environment and Climate Action. Melbourne, Victoria. 45p. www.gsv.vic.gov.au/rid/173526

Greater Melbourne and eastern Victoria airborne gravity survey



Final Topographic Gravity, 5000 m full-wavelength spatial filter, 2670 kg/m³, Vertical



First Vertical Derivative of Final Topographic Gravity, 5000 m full-wavelength spatial filter, 2670 kg/m³, Vertical

Haydon S.J., 2026. Greater Melbourne and Eastern Victoria Airborne Gravity Survey. Geological Survey of Victoria Technical Record 2026/1. Geological Survey of Victoria. Department of Energy, Environment and Climate Action. Melbourne, Victoria. 45p. www.gsv.vic.gov.au/rid/173526

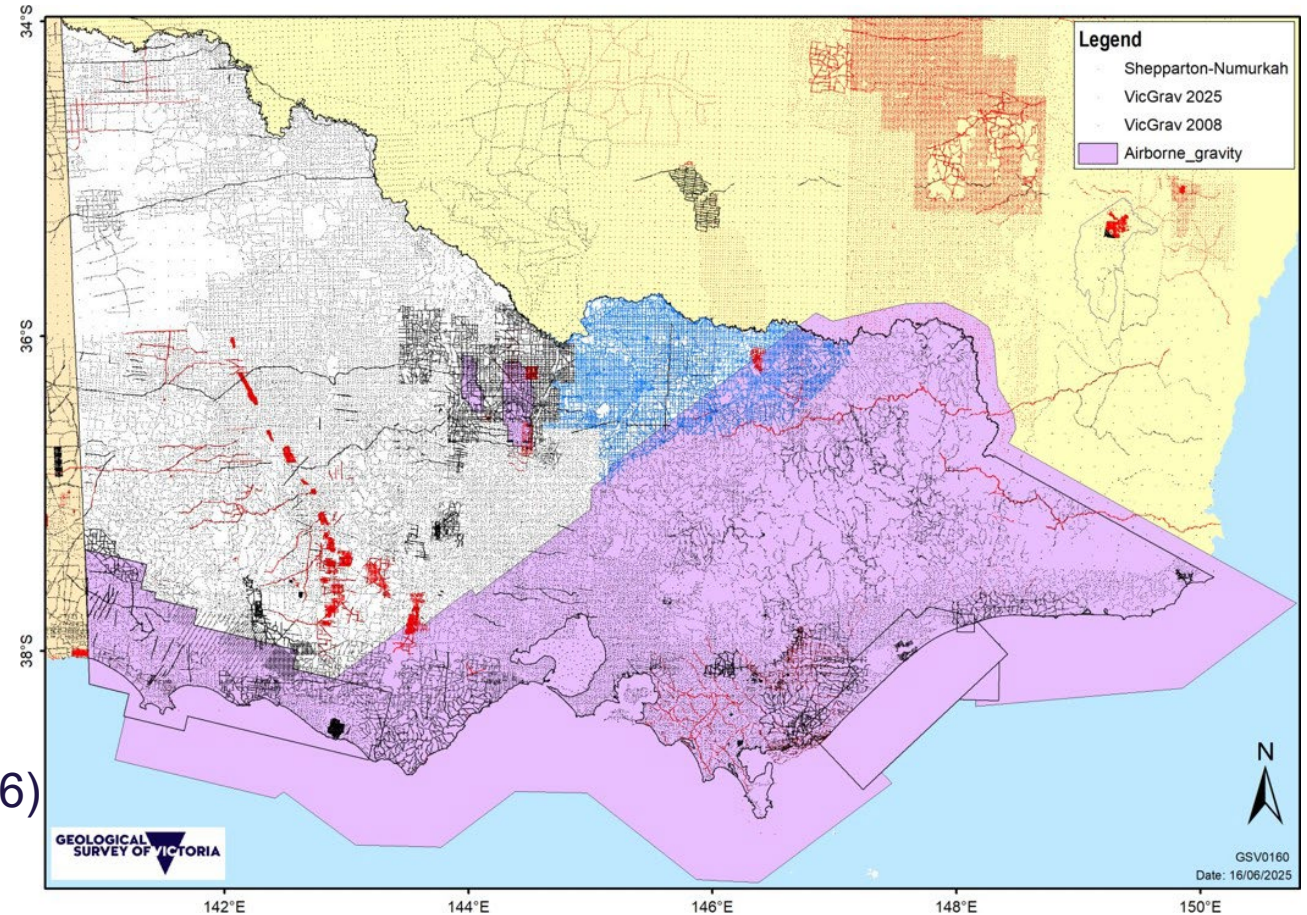
Merge Victorian ground and airborne gravity

Ground gravity

- VicGrav 2008
- Additional 72,295 stations (to 2025)

Airborne gravity/ gradiometry

- Bass Strait AGG (2002)
- Lakes Entrance AGG (2002)
- Four Eagles AGG (2004)
- Gippsland Nearshore AG (2011)
- Otway AGG (2019)
- Fosterville AGG (2019)
- Greater Melbourne and Eastern Victoria AG (2026)



In progress: GSV and GA collaboration

Central Victoria AEM survey

Joint project between GSV and Geoscience Australia

Tempest fixed-wing system
Lines at 10 km spacing east-west
Central area at 2.5 km line spacing

Flying now

Data and products for public release after QAQC

In progress: GSV and GA collaboration



Australian Government
Geoscience Australia



Proposed Activity Information

Central Victoria Airborne Electromagnetic Survey

Geoscience Australia and the Geological Survey of Victoria, will carry out an Airborne Electromagnetic (AEM) survey north and west of Melbourne in 2025. National and local experts led by Geoscience Australia will gather, analyse and interpret new and existing geoscience data and knowledge to improve understanding of Victoria's and Australia's geology for the benefit of all Australians.

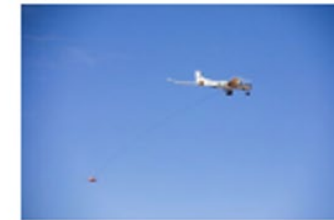
Why is this survey important?

This survey is being carried out to obtain data that will enhance understanding of geology and natural resources of the region. This information will support informed decisions making the resource management.

Survey method

AEM aircraft are fitted with instruments to map variations in the natural electrical conductivity of the ground to a depth of several hundred metres.

During the survey, a signal will be transmitted from the aircraft into the ground. The signal produces a current in the ground that is similar to that generated by an electric fence. Groundwater can detect the returned signals that are analysed to map variations in the electrical conductivity of the ground caused by the presence of groundwater and some minerals.



An AEM system in action.

How AEM works:
<https://www.ga.gov.au/science-data-geoscience/airborne-electromagnetic>

For further information about AEM survey:
<https://www.ga.gov.au/science-data-geoscience/airborne-electromagnetic>

What you may see or hear

An aeroplane, towing equipment behind, will fly at approximately 120 metres above the ground, along flight lines 2.5 km and 10 km apart. If you would like more information or to discuss the activity, please contact Geoscience Australia.

Timing and location

The airborne survey is expected to be carried out between July and November 2025 across the area outlined in the figure below.



Important to know

Pre-survey data acquired by Geoscience Australia will be publicly available after quality control and assurance checks have been performed. Public release of this information may contain explicit spatial location information such as specific deployment locations and/or areas which may be interpreted as containing gas industries and emissions potential.

For further information:
Geoscience Australia
Email: geophysicalsurvey@ga.gov.au
Phone: 1300 654 645



Energy,
Environment
and Climate Action