

## Airborne gravity survey



The **Geological Survey of Victoria** (GSV) is conducting an airborne gravity survey across south west Victoria to measure extremely small variations in the Earth's natural gravity field. The survey will help inform the Victorian Gas Program's (VGP) scientific research into potential new onshore conventional gas and offshore gas resources in the region.

GSV often conducts geoscientific research to better understand Victoria's geology. Airborne surveys have been successfully completed many times in Victoria and across Australia.

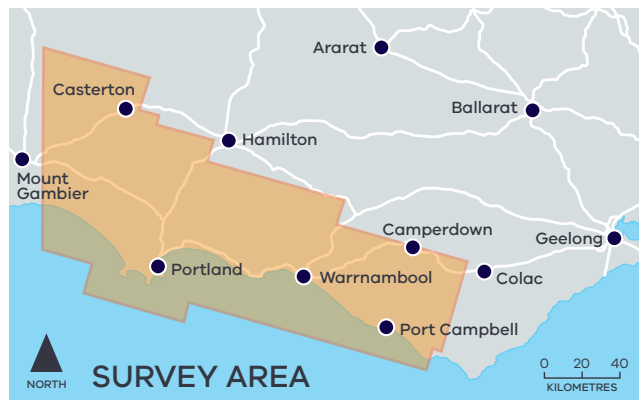
The survey will be carried out by two small, fixed wing aircraft carrying state-of-the-art technology. The planes will fly in public airspace at an altitude of 150 metres, increasing to 300 metres over built-up areas.

A single engine Cessna Grand Caravan 208B will be used to conduct the onshore portion of the survey. A twin-engine aircraft will be used for the offshore component.

### When

Flying will commence in August 2018 and take approximately 12 weeks. The aircraft will fly seven days a week during daylight hours and only in favourable weather.

### Where



The survey area includes approximately 16,000 km<sup>2</sup> of the Otway Basin, stretching from edge of the Otway Ranges to the South Australian border, and from south of the Grampians to approximately 18 km offshore. The planes will be seen over the municipalities of Colac Otway, Corangamite, Moyne, Warrnambool, Southern Grampians and Glenelg.

The survey will be flown using a flight path of parallel lines spaced 500 metres apart in a NW-SE orientation. The planes will travel at approximately 220 km per hour (or 62m per second) and most lines on the flight path will only be flown over once.

### Why

The data collected will help government geologists interpret the shape of subsurface rock structures and refine geological models of the Otway Basin (offshore, nearshore and onshore).

Geological modelling is a key tool to help inform future approaches to managing our natural gas resources.

### How

The gravity-sensing equipment carried in the aircraft is based on the principle of accelerometers. This complex technology records extremely small variations in Earth's gravity field while operating in a moving aircraft.

## Geoscience takes to south west skies

An airborne gravity survey is a low impact way to build scientific understanding of the region's geology.

## Will the airborne gravity survey:

- **transmit any signals to the ground?**
  - Gravity data acquisition is passive and does not emit any signals.
- **gather any other information?**
  - The aircraft will use an airborne laser scanner to acquire local topography data which is important to support accurate gravity data processing. The aircraft will also monitor their height using standard aircraft laser and radar altimeters.
  - The aircraft will also record variations in the Earth's natural magnetic field using a magnetometer. The magnetometer is also a passive system and does not emit any signal.
- **have any other impacts?**
  - Other than the specialised equipment, the planes are no different to any other aircraft. Noise levels on the ground will be transient and less than the sound of a passing motorbike.
  - To minimise noise impact on protected marine mammals, the aircraft will increase elevation over the Logans Beach whale nursery and the Cape Bridgewater and Lady Julia Percy Island protected seal breeding colonies.
  - Birds are not expected to be affected due to the altitude of the aircraft. Locations with known concentrations of birds such as Gannet colonies and other wetland areas will be highlighted in the flight safety plan.
  - The survey operator will be in regular contact with officers from the Department of Environment, Land, Water and Planning regarding wildlife sightings and suitable mitigations.
  - There will be no impact on fishing or farming activities.
- **impact landholder privacy?**
  - Gravity, magnetic and topography data collected during this survey will not provide any information about personal land use.
- **lead to gas exploration?**
  - The results of the survey will not directly detect the presence of gas.
  - To determine the locations of prospective and non-prospective areas for onshore conventional gas discoveries, geoscientists will assess the findings from the airborne gravity survey along with other scientific and environmental studies (such as mapping, lab analysis, groundwater testing, drilling, seismic data) to enable a more thorough understanding of the subsurface.
- **lead to fracking?**
  - No. Fracking to extract onshore unconventional gas is permanently banned in Victoria under the *Resources Legislation Amendment (Fracking Ban) Act 2017*. This decision was made for the protection of agriculture, the environment and regional communities.

### Who

The survey is being managed by GSV, a Victorian Government scientific agency.

GSV has contracted CGG Aviation (Australia) Pty Ltd (CGG), which specialises in airborne gravity, to conduct the survey. All flight details will comply with Civil Aviation Safety Authority regulations.

Following processing of the raw data, survey results will be available online.

### Further information

For more details about the VGP and the survey, including flight details, visit [earthresources.vic.gov.au/gasprogram](http://earthresources.vic.gov.au/gasprogram), call 136 186 or email [VGP@ecodev.vic.gov.au](mailto:VGP@ecodev.vic.gov.au)

