

Q&A - Narrabri Airborne Electromagnetic (AEM) survey.

November 2023

What is CSIRO doing in Narrabri?

CSIRO scientists have engaged contractors SkyTEM Australia to conduct an airborne electromagnetic (AEM) survey of the Narrabri region for a two-week period in mid to late November.

The survey is part of a GISERA groundwater research project [Understanding connectivity between coal seams and aquifers](#) and is designed to provide geophysical data about the subsurface geology of the region, from the surface to a depth of around 400 metres.

What will the airborne electromagnetic survey involve?

The CSIRO AEM survey in Narrabri will involve a helicopter flying at low altitude (60 m) towing an electromagnetic array, which looks like a large, elongated hoop at about 35 metres above ground level.

The survey flight path follows parallel transects – like a lawn mower pattern – over sections of the Pilliga Forest covered by the Narrabri Gas Project area.

Are AEMs safe?

Yes. Electromagnetic (EM) fields from the AEM system are comparable with EM fields generated by powerlines, household wiring or TV antennae.

What might people see?

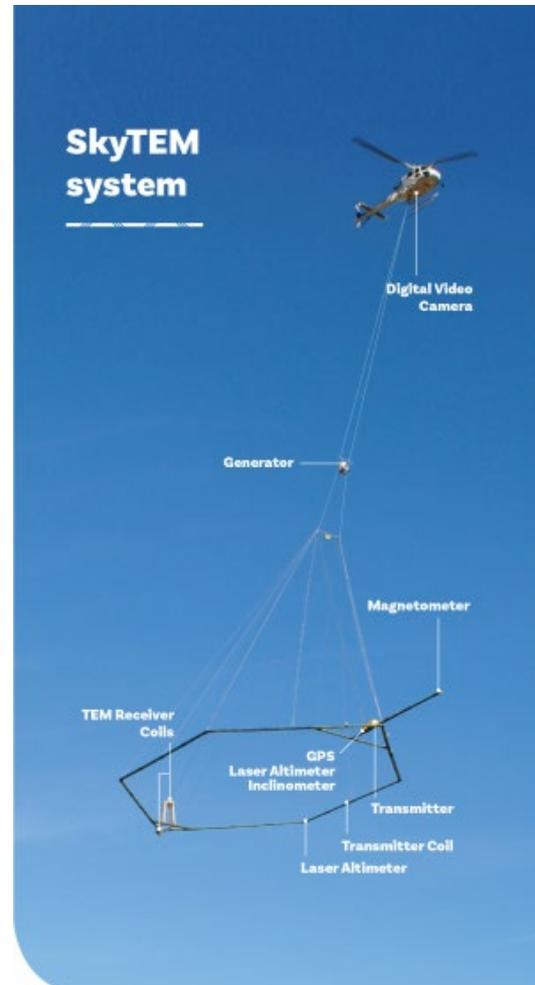
The AEM survey will involve a helicopter flying at low altitude (60m) towing an electromagnetic array at about 35m above the ground (see image).

When will the survey take place?

The helicopter will fly daily, weather permitting, during daylight hours from around **Friday 17 November** until **Thursday Friday 1 December**. Dates may change due to helicopter availability.

Where will the survey take place?

The survey flight path follows parallel transects approximately 1200 metres apart over sections of the Pilliga Forest, as well as over agricultural land to the north and east of the forest (see map).



Why is this AEM survey being done?

The survey is part of a GISERA groundwater research project [Understanding connectivity between coal seams and aquifers](#) and is designed to provide geophysical data about the subsurface geology of the region, from the surface to a depth of around 400 metres.

The purpose is to identify or rule out geological “intrusions” or faults from deeper formations into these relatively unstudied shallow surface formations.

Why is this research important?

This project improves knowledge of groundwater systems in the Gunnedah and Surat Basins in the Narrabri region and refines our understanding of potential for hydrogeological connectivity pathways between shallow aquifers and deeper formations.

Who is SkyTEM Australia?

SkyTEM Australia is a leading airborne geophysical survey company offering the acquisition and advanced processing of transient electromagnetic, magnetic and radiometric data. SkyTEM Australia has global experience with AEMs, including in Australia for State and Federal Government agencies.

What about privacy considerations?

AEMs are routinely used in Australia and around the world to obtain valuable scientific data about groundwater and other geologic features. AEM technology is only able to obtain information about sub-surface characteristics, such as changes in salinity and soil or rock types.

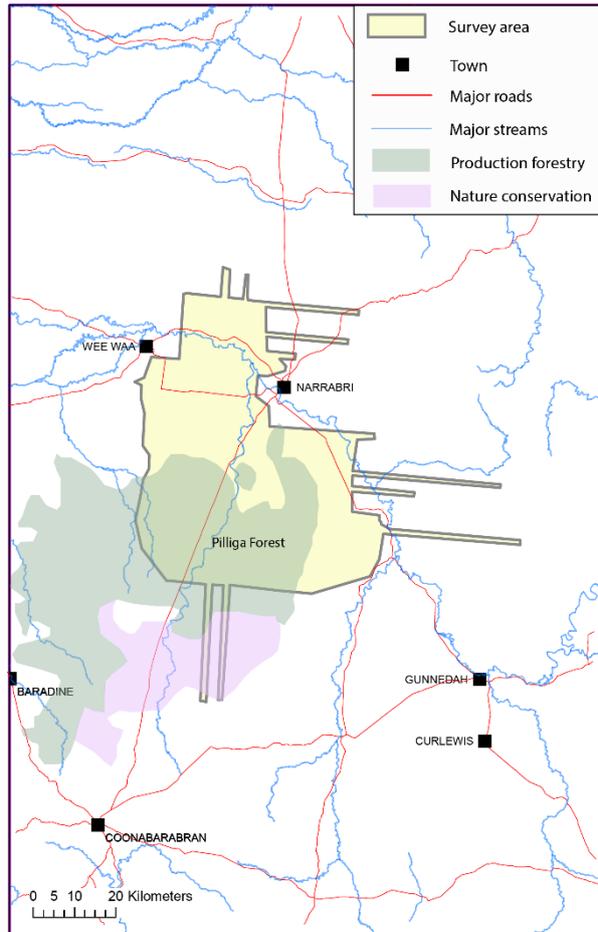
Will the helicopter fly over my house?

The helicopter pilot will adhere to strict Civil Aviation Safety Authority requirements, and wherever possible the helicopter will avoid towns, private residences, farmhouses, sheds, livestock mustering and watering points, and steep terrain.

Who is funding this research?

The GISERA groundwater research project “Understanding connectivity between coal seams and aquifers” is funded by the Federal Government (\$770K, 68%), the NSW Government \$98K, 9%) and CSIRO in kind (\$257K, 23%).

Where can I learn more about airborne electromagnetic surveys?



The NSW Government has conducted a number of AEM surveys and provides a range of information and videos [available here](#). The Australian Government's Geoscience Australia also conducts AEM surveys and provides [information here](#).

Where can I get more information

Contact CSIRO enquiries on 1300 363 400 or email gisera@csiro.au