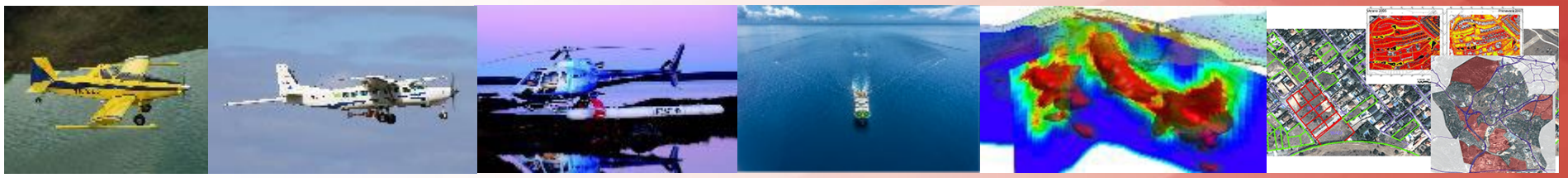
Xcalibur
MULTIPHYSICS

Helitem^2 Survey Operations



Exploring the world
Safer, Clearer, Better

What is Helitem^2?

- Helitem^2 is an airborne electromagnetic (AEM) survey system.
- AEM surveys map the electrical conductivity of the subsurface.
- Towed below a helicopter, the system consists of a transmitter loop, with a receiver located in the loop centre.
- As the aircraft flies along a pre determined flight path, the system transmits a signal into the ground, and the receiver measures the response of the returned signal.
- The signal has a similar output to electric powerlines, or a mobile phone and will not disrupt any equipment, plants or animals.
- This recorded information allows us to “see” what lies beneath the earths surface.

What is Helitem^2?

- Resulting Helitem^2 data can be used to map the electrical conductivity of rocks and soils below ground.
- Where electrical conductivity is high, it can indicate rock layers containing salt water or those which are clay rich or contain mineralisation.
- Where electrical conductivity is low, it can indicate zones of dry rock, sand or fresh water.

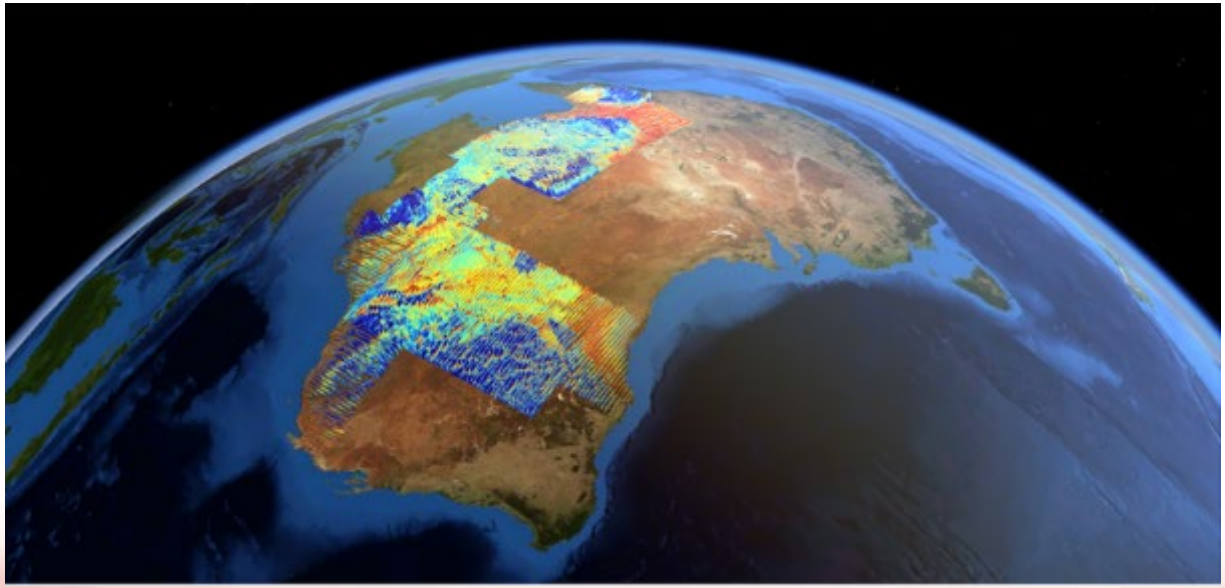
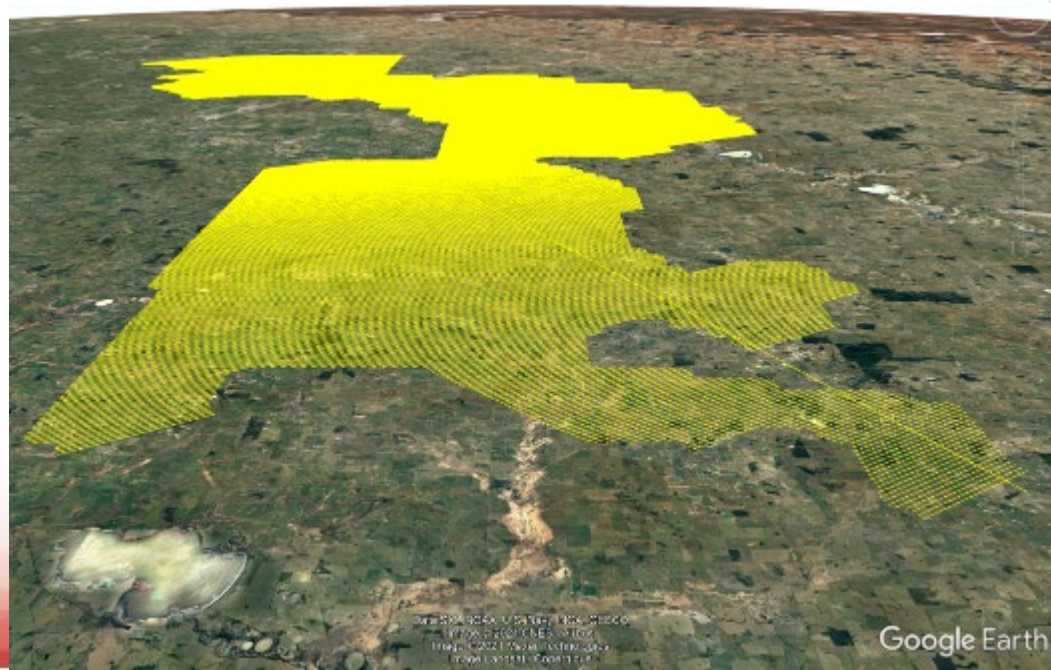


Image Courtesy of Ley-Cooper etal. 2021

How is Helitem^2 acquired?

- The aircraft flies along on a pre determined flightpath with lines planned at consistent line spacing.
- The aircraft maintains a fixed height above the ground of 75 m (~225ft) during survey acquisition.
- Data along each line is usually acquired in a single pass.
- The aircraft position is recorded and monitored in real time by GPS.
- Operations will be based from regional airports.
- At no time will access to private property be required by the Helitem^2 crew.



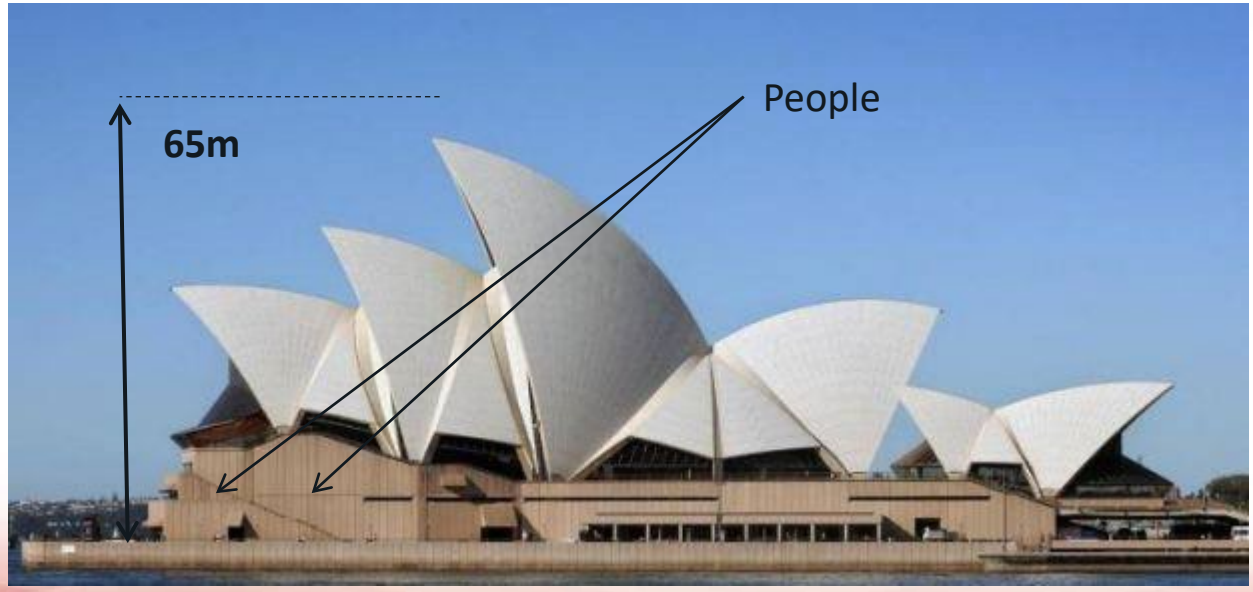
Low Level Flying

Low Level flying operations is specifically licensed by CASA and are subject to more regulation than normal flying operations.

- Flights are restricted to daylight hours only.
- When operating with the Helitem^2 system, direct overflight of buildings or vehicles is not allowed and the helicopter will deviate its flightpath around these obstacles.
- When operating within 100 m of any building or vehicle, the aircraft will pull up to a height of 300 ft. Once clear of the obstacle, the aircraft will descend back to survey height and continue along line.

Helitem^2 Flying Height

- The Helitem^2 survey height is 75m (262ft) above ground level. At this height, the helicopter would clear the highest point of the Sydney Opera House by 10m.
- The transmitter loop towed behind the helicopter flies at 35m above ground level.
- Helitem^2 aircraft flying height is roughly equivalent to a 23 storey building.



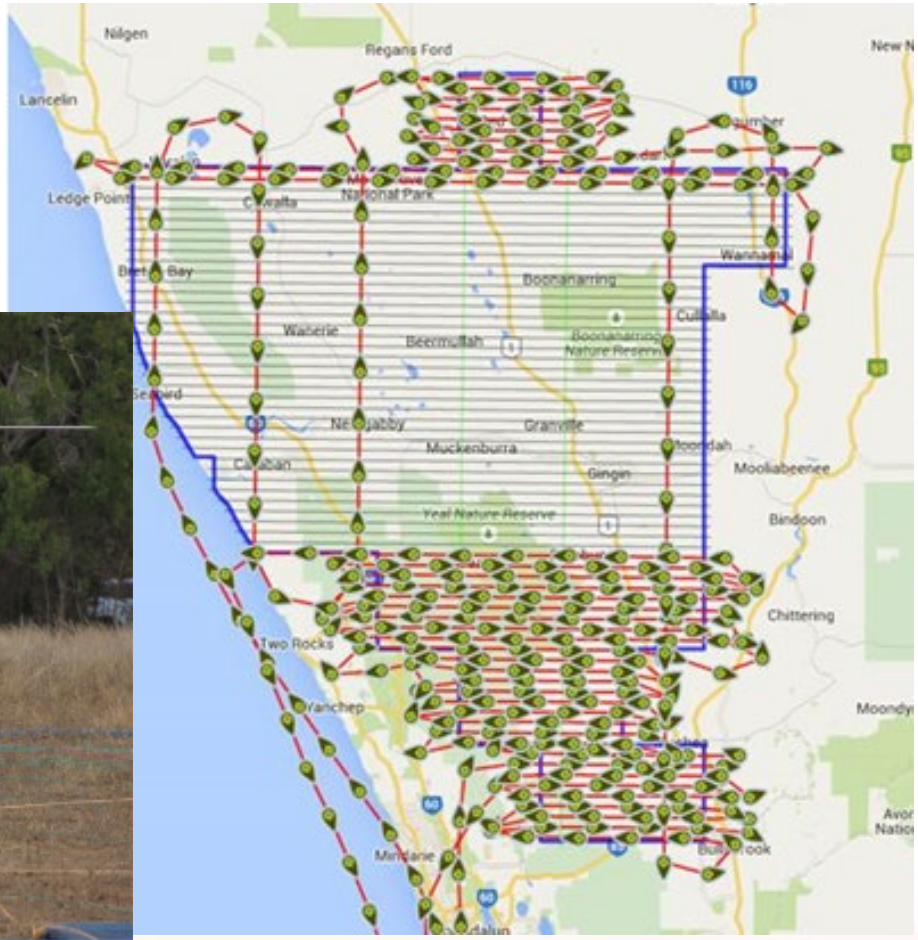
Operating Noise

- Noise from the Helitem[2] survey aircraft operating near your property may be up to ~87dB[1]
- This is similar, but lower to the noise level experienced while operating a standard backyard lawnmower, except the noise of the aircraft will last no longer than around 30 seconds and would only peak at its maximum level for a couple of seconds if directly above a listener.
- Animals and livestock may react to the aircraft noise however in our experience any response is generally very minor and short lived.
- Congregations of animal in pens or yards will not be overflown.

[1] https://www.easa.europa.eu/sites/default/files/dfu/TCDSN%20EASA.R.008%20Issue%2009.pdf

Aircraft Position

Real time GPS positioning logs the aircraft location at all times during survey operations



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Thank You