

Geosolutions Pty Ltd



Geosolutions Pty Ltd is a South Australian Geophysical Exploration company conducting airborne Electromagnetic and Magnetometer surveys worldwide. With over 30 years experience utilizing the most advanced technology we are able to provide the highest quality data sets in any environment.

Airborne TDEM

Geosolutions operates the **REPTEM** Time Domain Electro-magnetic system which measures the electrical conductivity of the ground below the sensor. It induces a current into the ground and measures the electromagnetic response over time. As well as being used for finding and mapping conductive mineral deposits the system is also designed to measure early time TDEM responses to enable accurate geological mapping. This is a fully automated system operated from a helicopter platform which allows lower costs to the client and a high level of safety. The equipment is designed to be aerodynamic and lightweight, this allows it to collect better data while reducing costs through longer survey endurance and lower power requirements for the helicopter. The weight of the system is 330kg and is flown at an airspeed of 55 knots.



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Airborne Magnetics

The small, lightweight **HeliMag** system can collect high resolution magnetic data from any Helicopter. It is fully automated which removes the need for additional crew while flying the survey. The Magnetometer itself is a Geometrics G-822A cesium-vapor sensor which is designed for aerial applications. Geosolutions has developed its own proprietary Magnetometer Counter further increasing sampling rates and quality of the data.

The magnetometer is mounted in a towed bird on a 100ft sling. This removes all magnetic interference from the helicopter (no compensator required) to give the highest quality magnetic data of any airborne system. Differential GPS and a laser altimeter are also mounted in the bird. By using a sling from the helicopter, heights and airspeeds considered safe as per the respective helicopter manufacturers Height / Velocity curve can be maintained. The all up weight of the equipment is approximately 30 kilograms and is flown at 80 knots giving a 1.5 metre sample rate across the ground.



HeliMag in operation. Tennant Creek, NT
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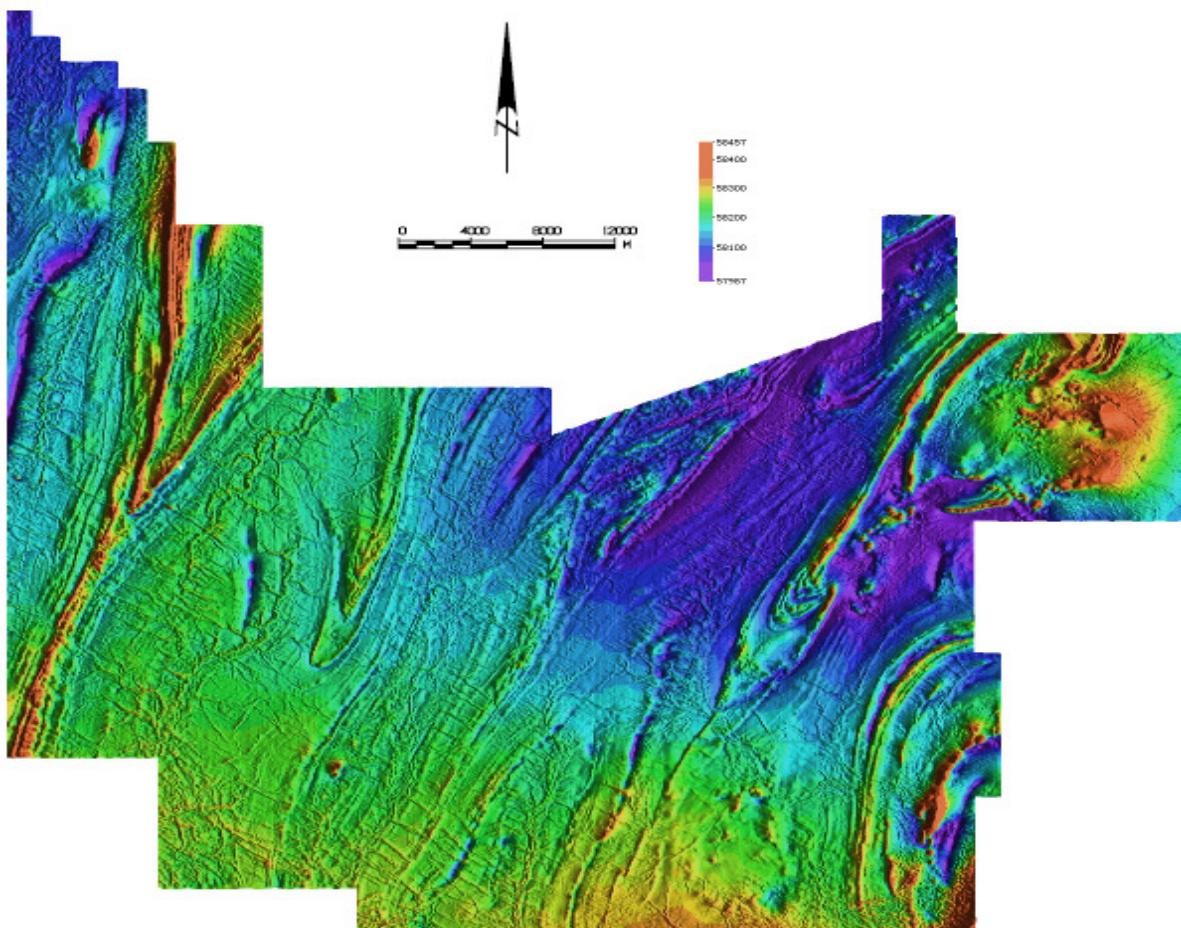
HeliMag survey underway in Nevada USA

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Data Processing

Geophysical data is initially processed in the field immediately after landing using Geosolutions extensive proprietary data processing software. This ensures that quality control is of the highest standard. Fully processed data and a written report is normally forwarded to the client within 7 days of completion of the survey.

The image below shows the data from a **HeliMag** survey in South Australia. The survey was flown utilizing a Robinson R22 helicopter in 2006.

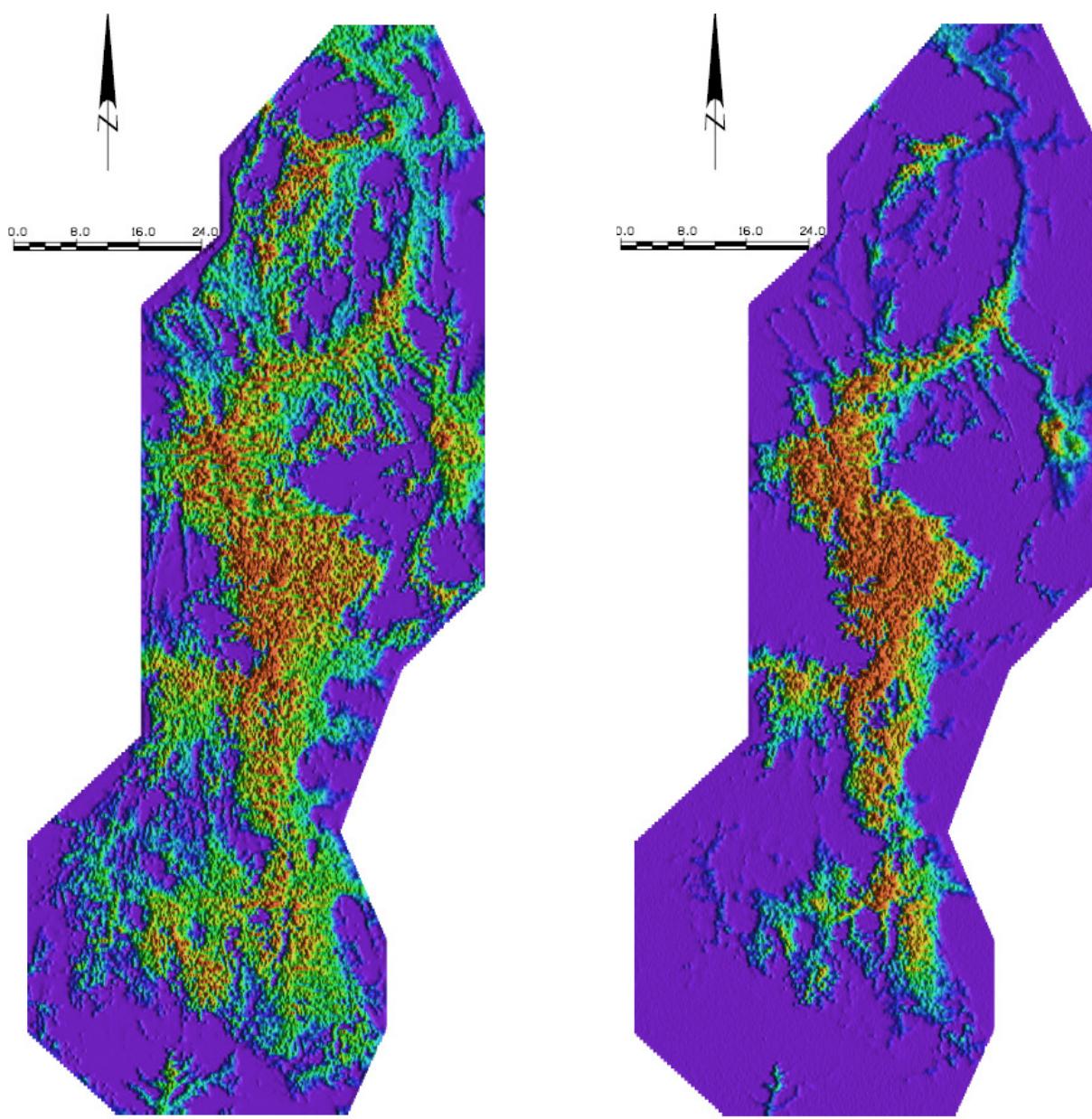


Note the north-west / south-east trending dykes which are less than 1 Nano-tesla in amplitude

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Data Processing

The images below show data collected on a large (>15000 line km) **REPTEM** survey in Western Australia during 2008. The early time image on the left shows much greater detail than the later time image on the right. The area contains numerous salt lakes and associated drainages which appear as the predominant response in the 3.0 msec image. Geological features not associated with the drainage system can easily be interpreted from the early time image.



TDEM response at 0.53 msecs

TDEM response at 3.0 msecs