AIRBORNE MAGNETICS

GPX SURVEYS
Airborne & Ground Geophysics
GPX Surveys has a variety of fixed wing and helicopter platforms available to suit any job, regardless of location or size. Surveys are conducted to gather the best possible data for the client whilst employing the safest and most practical methods of data gathering.

Our state of the art systems enable us to resolve magnetic field changes to a resolution of 0.2pT.

**Applications**

**Minerals**
Magnetic measurements are an integral part of most mining related airborne geophysical surveys. They provide a valuable addition to other data sets such as electromagnetic and radiometric data. As a standalone tool magnetic data has moved far beyond target hunting and can now be used for detailed mapping of geological structures and lithology.

**Oil & Gas**
Improved resolution in magnetometers, sensors and aircraft positioning has resulted in more use being made of airborne magnetic surveys for hydrocarbon exploration. High Resolution Aeromagnetic data is now being used for the detection and detailed mapping of faults and fracture systems throughout the sedimentary section. This is in addition to the traditional task of mapping basement structure and lithology.

**Coal**
Modern aeromagnetics are increasingly being used in the exploration, feasibility and development stages of the coal mining sector to provide detailed structural (fault) mapping and identification of intrusive volcanic plugs and sills. Accurate mapping of these geological features is extremely important in the initial estimation of calculated reserves and the development and planning of mining methods and associated costs.

**Geothermal Energy**
The use of aeromagnetic data in the geothermal energy exploration sector is important to create a detailed structural interpretation which assists with accurate placement of geothermal injection and recovery wells.

**Geological Survey Mapping**
For many years various government geological mapping agencies and international aid agencies (eg World Bank) have funded country scale geological / geophysical mapping programs to provide useful and affordable databases designed to encourage exploration investment. These programs have utilised both detailed and regional aeromagnetics as the primary database to encourage this investment.

**Geotechnical Engineering**
Airborne magnetic data has the ability to accurately map geological structures and lithology. Geotechnical engineering applications include assessing geological stability, earthquake fault zone identification and delineating groundwater control structures.

**Equipment**

**AGIS – Airborne Geophysical Information System**
The Airborne Geophysical Information System (AGIS) is an advanced, software driven instrument specifically designed for airborne or ground geophysical survey work. The AGIS is a fully integrated survey system incorporating the state of the art MMS4 Magnetometer Processor and is automatically synchronised to GPS time.

**MMS4 – Multiple Magnetometer Sensor Processor**
The MMS4 is a high resolution (0.2pT), fast sampling (20Hz) magnetometer processor unit that continuously measures the magnetic signals from up to four magnetometer sensors. It has the option to provide real time magnetic compensation of the airframe motion.

This magnetometer was designed to work with the AGIS acquisition system or a computer communicating on a serial protocol RS232. It contains synchronisation input for the GPS pulse per second (pps) to assure precise signal sampling without quantising errors.

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