

GEM Systems, Inc.
135 Spy Court
Markham, ON CANADA L3R 5H6
Ph. 905 752-2202 Fax 905 752-2205
info@gemsys.ca www.gemsys.ca



Airborne Tri-Directional Surveys in Progress. Toronto, Canada.

December 18, 2005. Aeroquest Surveys Ltd. has recently been flying a tri-directional helicopter-borne gradiometer for gold and base metal exploration targets in British Columbia and Newfoundland. Provided by GEM Advanced Magnetometers, the system delivers high-resolution measured gradients in three orthogonal directions – along-track, across track and vertical for geologic mapping, characterization of structure and selection of drill targets.

Industry interest in the tri-directional survey approach reflects both the advantages of “measured” magnetic gradiometry as well as the unique characteristics of GEM’s magnetic sensor technology. The primary advantage of the system is the ability to detect of weak magnetic features due to increased sensor sensitivity, calculation of “real” magnetic gradients, and the low flying height that a helicopter-based system provides. Other advantages include absence of diurnal effects, lower noise, terrain correction of total field magnetics and enhanced interpretation.

The technology in use is based on GEM’s unique optically pumped Potassium sensors. Already in use by select survey groups around the world, the Potassium technology features the highest sensitivity in commercial magnetometers at 1 pT / ÖHz RMS; minimal heading error for consistent data; sampling rates of up to 100 Hz for maximum survey density; robust sensors for maximum uptime and productivity; highest absolute accuracy for effortless work with multi-sensor gradiometers; and helicopter or fixed wing configurations for flexibility.

The tri-directional gradiometer consists of a three-armed towed bird configured with 4 sensors for calculation of magnetic gradients, including vertical, horizontal across-track and horizontal along track gradients. This configuration does not require magnetic compensation and the adjustable bird skirt allows for further flight optimization and noise reduction. Additional components include a bird-mounted GPS antenna for accurate positioning of the bird during flight. Data capture is either to the GSMP-30A acquisition console or a 3rd party data acquisition unit.

GEM develops airborne, ground, and stationary magnetometers and gradiometers for earth science professionals. The company’s advanced Overhauser, Potassium and Proton Precession instruments are used globally for academic research, mineral exploration, environmental and engineering geophysics, UXO detection, archaeology, and earthquake research. “Our World is Magnetic.”