

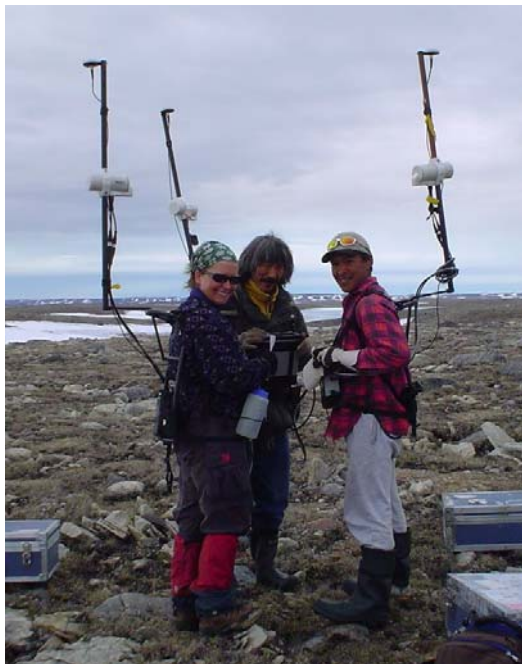
Overview

Magnetics for mineral exploration continues to develop with a variety of existing and new capabilities designed to assist in the efficient mapping and characterization of mineral prospects.

In this brief overview, we review GEM's (www.gemsys.ca) efforts to addressing today's exploration imperatives through advanced magnetic technologies.

Proven Ground Magnetics

Magnetics continues to be the most relied-upon method for ground-based work with almost every project calling for a magnetometer or gradiometer.

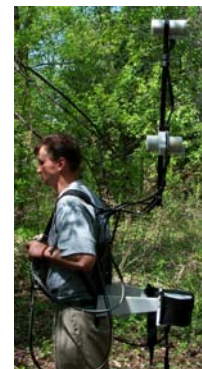


As shown in the above image from a diamond exploration project, GEM's

systems are routinely used in many different exploration environments and for many different exploration targets, including gold, diamonds, base metals, etc.

For exploration professionals, some of the advantages of GEM's systems include:

- High Definition Data – Unmatched Results
- Ideal Field Companion – Lightweight and Low Power
- Latest Technology – Most Active R&D in Magnetics
- Freedom to Choose – Overhauser, Potassium or Proton
- Ease of Use – The Choice of Operators Around the World
- Versatile Navigation – Internal / External GPS with Guidance
- Rugged – Backed by the Industry's Leading 2 Year Warranty



Advanced Airborne Systems

Airborne applications in mineral exploration continue to increase based on the cost-effectiveness of this approach for regional and detailed mapping.



As shown below, GEM has been active in airborne magnetometry through its proprietary optically pumped Potassium technology. This technology and GEM's airborne implementations have a variety of benefits for today's airborne data consumer.

Key benefits include:

- Latest Configurations – Single and Multi-Sensor
- Range of Solutions – Helicopter and Fixed-Wing
- Highest Sampling – Up to 100 Times / Sec
- Highest Sensitivity – $4 \text{ pT} / \sqrt{\text{Hz}}$ @ 20 Times / Sec
- Lowest Heading Error - $<0.1 \text{ nT}$
- Greatest Range of Choices – Sensitivity, Gradient Tolerance
- Interfacing & Compatibility – With Standard Acquisition Systems



In 1982-3, GEM became the first manufacturer to build and fly a 4-sensor magnetic gradiometer. This approach is now being followed by explorationists for improved definition of anomalies, detection of anomalies between lines, etc.

Today's Multi-Sensor Solutions

One of the trends in magnetometry for mineral exploration is the interest in multi-sensor (gradiometric) configurations of instrument packages.



Multi-sensor instruments offer benefits for traditional undertakings such as removal of diurnals. As well, there is an increased interest in multi-sensors due to:

- Platform Options – Snowmobile, Boat, Towed Cart, Hand Cart
- Enhanced Resolution – Closely Spaced Data
- Efficient Definition – Structural Features
- Augmented Mapping – Subvertical Contacts
- Location Determination – Off-line Sources
- Detect and Delineate – Pipe-like Sources

GEM Version 7.0 – The “Efficiency” Release

With the resurgence in mineral exploration and continuing demands on time, explorationists are seeking tools that will enable them to achieve greater efficiencies in both the field and office.

The new v7.0 release of GEM's magnetometers and gradiometers is designed to enhance efficiency in key areas, such as field work; data input and output, and preparation of data for advanced post-processing as required to deliver exploration products, such as models and maps.

Specific v7.0 capabilities include:

- Line Format for Data Import
- “Quieter” Magnetic Field Readings
- Picket Marking / Annotation
- Improved Lane Guidance
- GPS Elevation for Enhanced Magnetic Data Modeling
- <1.5 m Internal GPS Capability
- Enhanced GPS Resolution
- USB-RS232 Adapter for Easy Data Transfer from Non RS232 PCs
- Programmable Export Format



Upgrade Pathway and Free Diagnostic Check-Up

GEM v5.0 and v6.0 magnetometers and gradiometers owners can take advantage of key v7.0 features through an upgrade process. The upgrade includes a *free diagnostic check-up and evaluation of all major components*. An upgrade is a great way to acquire new features AND ensure that you continue to operate your system at its operational peak! Book your upgrade now as appointments will be filling up quickly!

Standard Format for Data Import

The line-oriented format is a standard for magnetics software (Encom, Geosoft, and Intrepid). Each data block is marked by a line number (ex. Line 34) followed by data. V7.0 ensures easier data import.

"Quieter" Magnetic Field Readings

GEM has enhanced its proprietary frequency counting algorithm to improve data quality and reduce overall noise.

Picket Marking / Annotation

Picket marking enables the operator to mark a picket for data fusion and geo referencing. Or, mark topographic highs and lows for later use in modeling.

Improved Lane Guidance

Lane guidance notifies the operator when they are moving "off" of the survey line. Version 7.0 provides a large onscreen arrow which enables the operator to more tightly control survey "wander".

Versatile (Programmable) Output

Earth science software users who are working with magnetics data often desire flexibility in data formats. Now, customers have a choice of a default output format or up to 10 data fields.

GPS Elevation for 2D & 3D Modeling

Many users of magnetic data are seeking to employ advanced 2D and 3D modeling for augmented interpretation, integration of results, and risk reduction. GEM has now integrated GPS elevation data – providing key values required by modeling routines and helping to ensure that magnetic modeling results reflect "true" geology (including elevation).

Enhanced resolution for GPS surveys

GPS-based surveying is only as precise as the resolution to which the system can resolve distances. Previously, GEM's Universal Transverse Mercator (UTM) resolution was 1m; now it has been enhanced to 0.01m. This eliminates the possibility of having two or more readings recorded at the "same" location.

<1m Internal GPS Capability

With Version 7.0, GEM now supports an internal board with specifications to <1.5m resolution via WAAS and EGNOS. And for customers who are operating outside of these systems, GEM also designed an external GPS for measurement using OmniStar or Thales networks.