

## Pre- And Post-Conference Workshops

There are four workshops planned prior to Exploration 07 (Saturday and Sunday), and three afterwards (Thursday and Friday). All workshops are being organized by groups or individuals independent of the Exploration 07 Organizing Committee, but are endorsed by Exploration 07. All workshops will be held at the conference venue, the Fairmont Royal York Hotel.

A workshop registration fee includes participation in the workshop, the workshop proceedings in digital and/or hard copy form, buffet luncheon and coffee breaks. When registering for more than one workshop, please ensure that the dates do not conflict. The fees for workshop registration are provided on the conference registration form. Reduced fees for a limited number of students are available.

Any additions and changes to the workshop programmes will be posted on the workshops web page <http://www.exploration07.com/events/workshops.asp> as they are made available by the convenors.

### Workshop 1: Geological Remote Sensing

**September 8 and 9 (Saturday and Sunday)**

**Geological Remote Sensing Group (GRSG)**

**Convenors:** Dave Coulter and Xiaodong Zhou

**Capacity:** 200 registrants

The remote sensing workshop will highlight the latest results from leading exploration remote sensing scientists. Designed as a two day symposium, the talks will focus on case histories, new remote sensing instruments and processing techniques, geologic mapping with remote sensing, and spectroscopic techniques. Explorationists interested in remote sensing, from novices to experts, will find practical information on the use of remote sensing for exploration.

### Workshop 2: Exploration Geochemistry – Basic Principles & Concepts

**September 8 (Saturday)**

**Association of Applied Geochemists (AAG)**

**Convenor:** Bill Coker

**Capacity:** 230 registrants

This workshop will provide comprehensive coverage of the basic principles of applied exploration geochemistry. The presenters are a group of international geochemists who are specialists in various aspects of exploration geochemistry. This workshop is aimed at geoscientists who lack training in the principles and practices of exploration geochemistry but are often required to carry out geochemical surveys.

The presentations and discussions at the Exploration 07 Exploration Geochemistry workshop are:

- **Exploration geochemistry - basic principles and concepts:** Bill Coker, BHP Billiton
- **Sample preparation and analytical techniques:** Gwendy Hall, Geological Survey of Canada

- **Quality control in geochemical analyses:** Barry Smee, Smee and Assoc. Consulting Ltd
- **Geochemical data evaluation and interpretation:** Eric Grunsky, Geological Survey of Canada
- **Regolith mapping, landform evolution, geochemistry applications:** Simon Bolster, Newmont Mining Corp.
- **Till geochemistry and indicator minerals:** Beth McClenaghan, Geological Survey of Canada
- **Soil geochemistry / selective extractions / soil gases:** Dave Lawie, IOGeochemical
- **Drainage sampling – sediments, waters, HMCs:** Ray Lett, British Columbia Geological Survey
- **Biogeochemistry:** Colin Dunn, Consulting Geochemist
- **Groundwater Geochemistry:** Matt Leybourne, GNS Science.

## Workshop 3: Indicator Mineral Methods in Mineral Exploration

September 9 (Sunday)

### Association of Applied Geochemists (AAG)

**Convenors:** Harvey Thorleifson and Beth McClenaghan

**Capacity:** 230 registrants

This workshop will review basic principles and recent developments in indicator mineral methods, including kimberlite indicator minerals, gold grains, as well as base metal indicators. It will include presentations and discussions on an overview of indicator mineral methods, survey design, sample processing methods, mineral chemistry, quality assurance/quality control, indicator mineral methods in precious metal, diamond, and base metal exploration, a laboratory case study that will address sample representativity and integrity, an exploration case study, and a public sector case study dealing with geological survey agency work in systematic mapping. The speakers are experienced and influential indicator mineral specialists from the exploration industry, commercial laboratories, and government agencies. The workshop is being designed to benefit exploration geologists who wish to obtain an overview of indicator mineral fundamentals, and those seeking insights into recent developments in this important field of mineral exploration. Speakers at the Exploration 07 Indicator Mineral Methods in Mineral Exploration short course will be:

- **Introduction:** Harvey Thorleifson, Minnesota Geological Survey
- **Survey design:** Chris Benn, BHP Billiton
- **Sample processing methods:** Beth McClenaghan, Geological Survey of Canada
- **Mineral chemistry:** Bill Griffin, GEMOC
- **QA/QC in indicator mineral recovery and analysis:** Mary Doherty, ALS Chemex
- **Indicator mineral methods in precious metal exploration:** Dave Kelley, Newmont Mining
- **Application of new-age clinopyroxene and garnet thermobarometry techniques in diamond exploration:** Herman Grutter, BHP Billiton
- **Viable indicator minerals in surficial sediments for two major base metal deposit types: Ni-Cu-PGE and porphyry Cu:** Stu Averill, Overburden Drilling Management
- **Field sampling for indicator minerals: How to choose and locate the correct medium and avoid anthropogenic contamination:** Mike Michaud, Overburden Drilling Management
- **Exploration case study: Indicator mineral survey in India:** Dean Pekeski, Rio Tinto
- **Public sector case study: Indicator mineral survey of Minnesota:** Harvey Thorleifson, Minnesota Geological Survey

## Workshop 4: Data Integration and Knowledge Extraction from Exploration Data Sets via Self Organizing Maps

**September 8 (Saturday)**

**Convenors:** Stephen Fraser and Bruce Dickson

**Capacity:** 30 registrants

A workshop for all geoscientists who wish to analyze, visualize and extract new information from complex and disparate spatial data sets. Both formal presentations and interactive demonstrations are planned. Large volumes of data are typically collected during all phases of the resource exploration and evaluation process. Often these data contain diverse types of observations and measurements, and traditional statistical approaches are neither appropriate, nor do they provide the information that is typically required. New methods are needed to improve the efficiency and effectiveness of explorationists as they seek to discover the often subtle clues and relationships associated with mineralization. Self Organizing Maps (SOM) is a relatively new computational approach that can add value and create new knowledge in this process.

Workshop participants will be introduced to data mining via the Self Organizing Map approach.

Various examples and studies will be presented to demonstrate the breadth of the technique's potential. The workshop will be biased towards practical examples; and there is an opportunity (limited) for attendees to provide data sets that will be analyzed and presented to the whole group (email [stephen.fraser@csiro.au](mailto:stephen.fraser@csiro.au) for details). Participants will also be entitled to a trial version of the software. No prior knowledge of data mining is required to attend the course.

## Workshop 5: ArcView 9 for Geoscientists (short course)

**September 13 and 14 (Thursday and Friday)**

**Instructor:** Iain Allen

**Capacity:** 30 registrants

This two-day course will teach you how to use ArcView 9.2, using geologic data to perform geologic tasks. The course will be taught by two experienced trainers and has been field-tested at many of the largest companies in mining, including BHP Billiton, Barrick Gold, Inco and Placer Dome. 60-day evaluation versions of the software will be provided for those who do not have ArcView. You will require your own computer. Attendance is restricted to 30 people to ensure the quality of the training. Each attendee will receive a comprehensive printed workbook and data CD.

### Day One

- Exercise 1 – Geological, Structural and Geophysical Data in ArcView
- Exercise 2 – Symbolizing Geoscience Data
- Exercise 3 – Combining a Geophysical Image with a Geology Map
- Exercise 4 – Creating a Geology Map for Plotting
- Exercise 5 – Georeferencing Images
- PowerPoint – Introduction to Map Projections
- Exercise 6 – Working with Projections in ArcView

## Day Two

- Exercise 7 – Interpreting Geochemical Data – Graduated Colors and Symbols
- Exercise 8 – Finding Anomalous Geochemical Samples
- Exercise 9 – Data Management With ArcCatalog
- Exercise 10 – Building a Personal Geodatabase
- Exercise 11 – Digitizing and Editing in ArcView
- Appendix One – Formatting Excel Data For Use In ArcView

A more detailed summary of the course is available from [iain.allen@gmail.com](mailto:iain.allen@gmail.com).

## Workshop 6: Geophysical Contributions to New Discoveries

September 13 (Thursday)

### Canadian Exploration Geophysical Society (KEGS)

**Convenors:** Paolo Berardelli and Charley Murphy

**Capacity:** 200 registrants

This workshop will focus on the applications of geophysical systems and processing techniques to mineral discoveries, with an emphasis on case histories. Presentations will be made by exploration and instrumentation geophysicists covering a range of geophysical methods, both airborne and on the ground. There will be examples of exploration targets from oil sands to gold, over many geographic regions. The workshop will include a booklet of abstracts and a CD of the presented papers. The speakers for Geophysical Contributions to New Discoveries are:

- **New generation of high sensitivity airborne potassium magnetometers for minerals exploration:** Hrvoic
- **Airborne resistivity mapping with Helicopter TEM: An oil sands case study:** Walker and Rudd
- **Exploration and discovery with the Geotech VTEM airborne electromagnetic system:** Barlow et al
- **Lessons learnt from three massive sulphides test sites:** Cheng et al
- **Advantages of decorrugation of aeromagnetic data using the Naudy-Fuller space domain filter:** Mogren and Fairhead
- **Cinco de Mayo project, north-central Chihuahua, Mexico:** Robertson et al
- **A new mining camp discovered with beep mats and INFINITEM:** Gaucher
- **Electrical and magnetic properties of the Duport gold deposit, Ontario:** Ferguson et al
- **Synthetic model testing and Titan-24 DC-resistivity results over an Athabasca-type unconformity uranium target at Wheeler River, Athabasca Basin, northwestern Saskatchewan:** Legault et al
- **Kimberlite delineation by seismic side-scans from boreholes:** Cosma et al
- **Borehole radiometrics - Past, present and future:** Stowell
- **Update on development of a borehole gravity meter for mining applications:** Seigel et al
- **Borehole Resistivity Logging and Tomography for Mineral Exploration:** Qian et al
- **Post-mining reconciliation of BHR predicted resource elevation models:** Smith et al
- **Exploration and optimized extraction of retained gold inventory in heap leach stacks prior to closure:** Fink et al



## Workshop 7: Airborne Surveys: Planning, Logistics and Safety

September 14 (Friday)

**International Airborne Geophysics Safety Association (IAGSA)**

**Convenors:** Mike Carson and Stan Medved

**Capacity:** 200 registrants

This workshop will provide a review of the planning and risk analysis needed to execute an effective airborne survey program, with a particular emphasis on safety. Survey types, specifications and aircraft characteristics will be covered highlighting often overlooked aircraft performance constraints. A sample risk analysis including a detailed description of current and proposed risk mitigation measures will be developed with a discussion on how these measures may have prevented survey related accidents.