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Miscellaneous Release—Data 202

**Geophysical Data Acquired for Geoscientific Profiles in the Timmins–Kirkland Lake Area: Discover Abitibi Initiative**

by D.J.W. Dawson, D.F. Morrison, C. Pawluk, J. Grant, A. Spector, E.L. Mueller and S.W. Reford

This release contains the measured and processed geophysical data acquired for the geoscientific profiles described in Open File Report (OFR) 6189. Ground geophysical data for 3 parallel profiles, most of which are 2 km in length and spaced 200 m apart, were acquired at 15 different sites chosen for their proximity to known mineral deposits of various types. The data acquired include magnetic, gravity and pole–dipole induced polarization. In addition, an Insight Section was acquired on 1 profile at each site, usually the central profile, using a modified gradient induced polarization array. All standard reductions and corrections were applied to the data. The chargeability and resistivity data from both the Insight Sections and pole–dipole surveys were inverted using the University of British Columbia Geophysical Inversion Facility (UBC–GIF) DCIP2D inversion program. In addition, 5 regional maps, available in portable document format (*.pdf*), show the regional setting of the geoscientific profiles under the following themes: bedrock geology, residual magnetic field, Bouguer gravity field, electromagnetic field apparent conductance/conductivity and digital elevation model. A digital version of OFR 6189, including the 15 back-pocket charts, is also available in portable document format (*.pdf*). The measured and processed data are available in ASCII and Geosoft® formats on 1 CD-ROM.




Discover Abitibi
A project of innovation, cooperation and revitalization

Découvrons l' Abitibi
Un projet d' innovation, de coopération et de renouvellement

Discover Abitibi Initiative
The Discover Abitibi Initiative is a regional, cluster economic development project based on geoscientific investigations of the western Abitibi greenstone belt. The initiative, centred on the Kirkland Lake and Timmins mining camps, will complete 19 projects developed and directed by the local stakeholders. FedNor, Northern Ontario Heritage Fund Corporation, municipalities and private sector investors have provided the funding for the initiative.

Initiative Découvrons l'Abitibi
L'initiative Découvrons l'Abitibi est un project de développment économique régional dans une grappe d'industries, projet fondé sur des études géoscientifiques de la ceinture de roches vertes de l'Abitibi occidental. Cette initiative, centrée sur les zones minières de Kirkland Lake et de Timmins, mènera à bien 19 projets élaborés et dirigés par des intervenants locaux. FedNor, la Société de gestion du Fonds du patrimoine du Nord de l'Ontario, municipalités et des investisseurs du secteur privé ont fourni les fonds de cette initiative.

FedNor
Canada

Timmins

KIRKLAND LAKE
THE RIGHT ENVIRONMENT

Ontario
Northern Ontario Heritage Fund
Fonds du patrimoine du Nord de l'Ontario

## Description

Open File Report (OFR) 6189, which accompanies this release, describes the acquisition, inversion and presentation of geophysical data acquired for geoscientific profiles in the Timmins–Kirkland Lake area, funded by the Discover Abitibi Initiative. The goals of the project were 1) to provide a concise visualization of several deposit types in the region; 2) to provide exploration personnel with a ready source for comparisons of geophysical data types related to known deposits, allowing explorationists to evaluate their anomalies against these deposit types; and 3) to disseminate the data sets and other products to clients in digital and hard-copy formats.

Ground geophysical data for 3 parallel profiles, most 2 km in length and spaced 200 m apart, were acquired at 15 different sites (Figure 1; Tables 1 and 2) chosen for their proximity to known mineral deposits of various types. The data acquired include magnetic, gravity and pole–dipole induced polarization. In addition, an Insight Section was acquired on one profile at each site, usually the central profile, using a modified gradient induced polarization array. All standard reductions and corrections were applied to the data. The chargeability and resistivity data from both the Insight Sections and pole–dipole surveys were inverted using the University of British Columbia Geophysical Inversion Facility DCIP2D inversion program.

A back-pocket chart was prepared for each site for the survey line where the Insight Section was acquired. The processed field data from each method is presented in profile form (magnetic, gravity) or section form (Insight Section, pole–dipole induced polarization). In addition, the inversion results from the Insight chargeability and apparent resistivity are presented. For each site, a geological section was prepared for comparison with the geophysical, using data provided by the property holders. The geophysical anomalies were evaluated with respect to the known geology. Guidelines for ground geophysical exploration in the Abitibi region are provided.

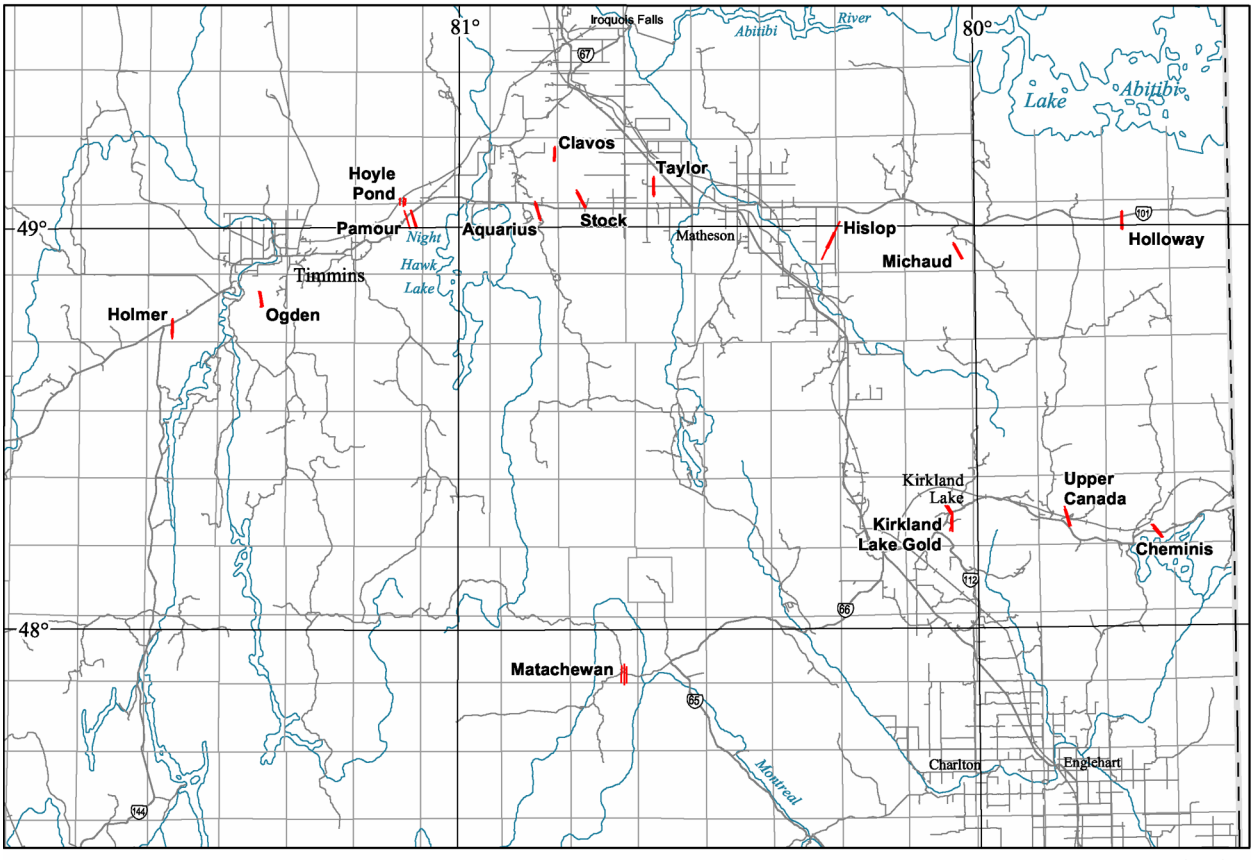



**Figure 1.** Location of the ground geophysical surveys at 15 sites.

**Table 1.** Names of the 15 sites for which data are provided on this MRD (*see* Figure 1 for locations).

| | |
|---|---|
| Aquarius | Matachewan |
| Cheminis | Michaud |
| Clavos | Ogden |
| Hislop | Pamour |
| Holloway | Stock |
| Holmer | Taylor |
| Hoyle Pond | Upper Canada |
| Kirkland Lake Gold | |

**Table 2.** Contents and descriptions of files on this MRD (*see* Figure 1 for locations).

| Folder | Subfolder | Sub-subfolder | Descriptions | File Extension(s) | No. survey lines |
|---|---|---|---|---|---|
| \Data | "site name" | \Gravity | • gravity database in Geosoft® format | *.gdb* | 3 |
| | (*see* Table 1) | \Insight | • Insight database in Geosoft® format | *.gdb* | 1 |
| | | | • Insight sections of chargeability and resistivity in Geosoft® format | *.map* | 1 |
| | | | • UBC inversion sections of chargeability and resistivity in Geosoft® format | *.map* | 1 |
| | | \Magnetic | • magnetic database in Geosoft® format | *.gdb* | 3 |
| | | \Pole-Dipole | • field data in Geosoft® format | *.dat* | 3 |
| | | | • pseudosection of chargeability and resistivity in Geosoft® format | *.map*, *.grd* | 1 |
| | | | • UBC inversion data as<br>– input files<br>and<br>– output files | <br>– *.chg, .con, .msh, .xyz*<br>– *.bmp* | 1 |
| \Regional Maps | | | • bedrock geology | *.pdf* | |
| | | | • residual magnetic field | *.pdf* | |
| | | | • Bouguer gravity field | *.pdf* | |
| | | | • electromagnetic apparent conductance/conductivity | *.pdf* | |
| | | | • digital elevation model | *.pdf* | |
| \Report | | | • Open File Report 6189 | *.pdf* | |
| | \Back Pocket Charts | | • large-format presentation for each of the 15 sites of the geophysical profile data | *.pdf* | |