

Update on Geoscience BC's 2012 Geophysical Programs

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Introduction

Geoscience BC continued to fly new geophysical surveys in 2012 with the acquisition of aeromagnetic data at a line spacing of 250 m in northwestern British Columbia and on northern Vancouver Island. These new, regional, tightly spaced and high-quality aeromagnetic datasets are a game-changer for exploration in BC. The quality of these new datasets allows them to be used for district-scale to property-scale targeting and mapping. In addition to the acquisition of new data, Geoscience BC is implementing a new program to purchase proprietary industry geophysical data that will then be released to the public.

QUEST-Northwest

Geoscience BC launched the QUEST-Northwest Project in April 2011. The QUEST-Northwest Project aims to compile and update existing datasets, as well as provide new geoscience data, to help focus exploration in this highly prospective region of the province. The main activities include bedrock geological mapping, a regional ground geochemical program and a compilation of existing high-quality industry aeromagnetic data (Simpson, 2012; Jackaman, 2012).

The QUEST-Northwest geophysical program has flown three aeromagnetic surveys. Two of these surveys were flown in 2011 (Block 1 and Block 2; Figure 1) and the most recent survey (part of Block 3) was flown in the summer of 2012 (Figure 1). All surveys were flown at 250 m line spacing, in an east-west orientation with 2500 m spaced tie lines. They were flown using a controlled drape over the terrain with a nominal ground clearance of 80 m. The terrain is rugged and varied, ranging in elevation from 400 m to more than 2000 m. The details of the 2011 surveys were published in Simpson (2012) and the data were released at

Mineral Exploration Roundup 2012. The 2012 survey (part of Block 3) was flown by Geo Data Solutions (Laval, Quebec) in July and August 2012. The survey was flown using the same specifications and the same HeliMAG stinger system used to survey Block 2 (Simpson, 2012). The survey area comprised approximately 1198 km². The planned release date is late 2012.

During the survey planning stage of Block 3, Geoscience BC learned that a portion of the planned survey had recently been flown (in late 2011 and early 2012) by a private mineral exploration company. Rather than re-fly the area, Geoscience BC agreed to purchase the data at a reduced rate from the company. The company survey was flown at 100 m line spacing in a northeast-southwest orientation and has been fully integrated into the new Geoscience BC dataset. The combined surveys are being released as one seamless dataset. The total area of the new combined dataset for Block 3 being released by Geoscience BC is 1398 km².

Historical coverage in the QUEST-Northwest area is fairly typical, district-scale, fixed-wing aeromagnetics with approximately 1.6 km line spacing. The new 250 m line-spaced, low-level helicopter-borne aeromagnetic survey provides a step-change in the quality of data and is a game-changer for exploration companies working in this highly prospective region of the province (Figure 2). These new datasets should stand the test of time and provide the exploration geologist with the opportunity for district-scale to property-scale targeting and mapping.

Northern Vancouver Island

The Northern Vancouver Island (NVI) Exploration Geoscience Project is a partnership between Geoscience BC and the Island Coastal Economic Trust (ICET). In addition, the Ministry of Jobs, Tourism and Skills Training has provided generous support for stakeholder engagement in the project-development phase, through the Campbell River Regional Economic Pilot initiative.

The NVI Exploration Geoscience Project will generate new geoscience data for northern Vancouver Island, near the communities of Campbell River, Port Hardy, Port McNeill, Alert Bay, Port Alice and Zeballos (Figure 3).

Keywords: *airborne magnetics, aeromagnetic data, Quesnel Terrane, Stikine Terrane, QUEST-Northwest Project, Northern Vancouver Island Exploration Geoscience Project*

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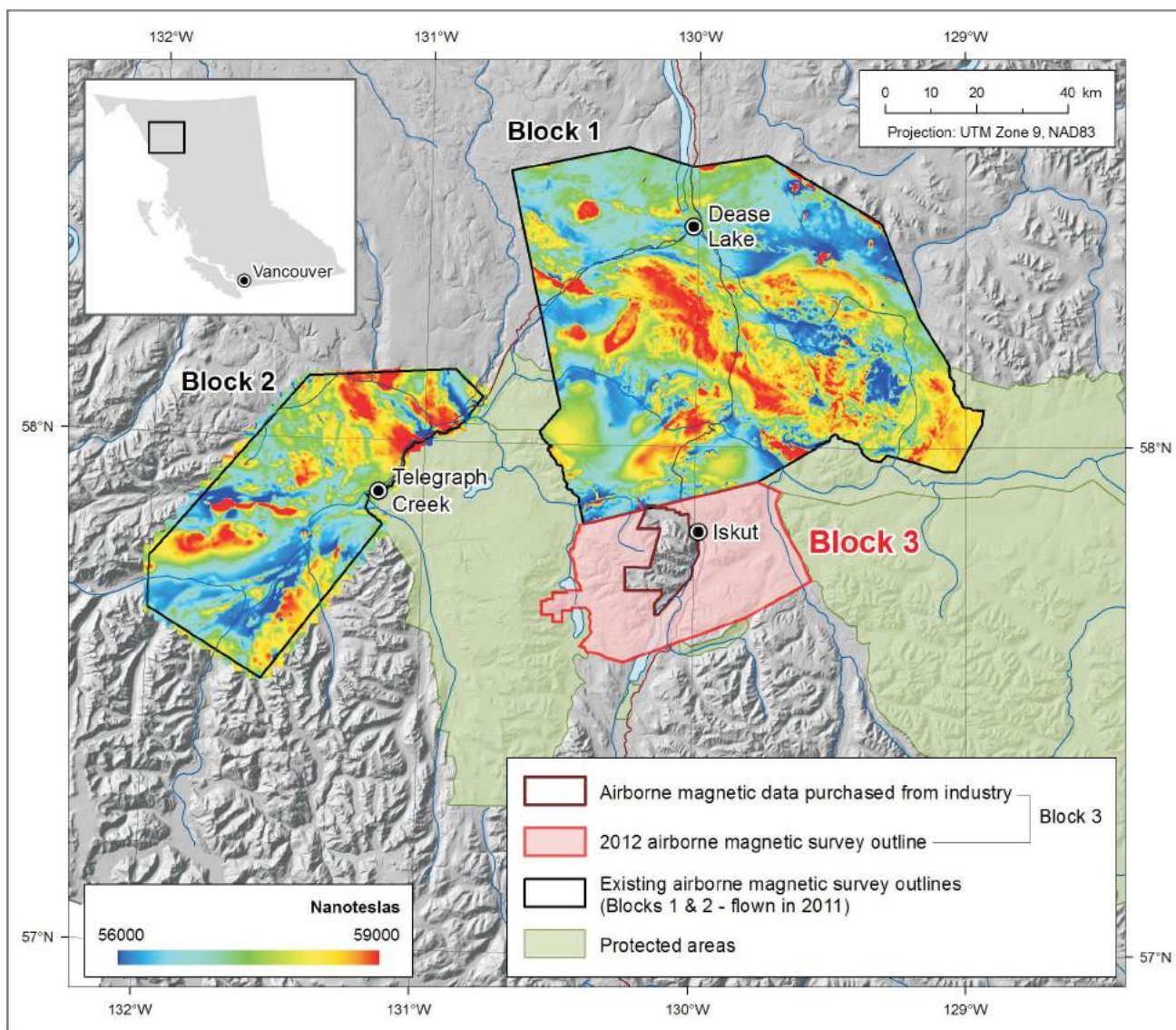


Figure 1. Geoscience BC's QUEST-Northwest Project area showing the three geophysical survey outlines flown in 2011 and 2012, as well as the data purchased from industry. Data from GeoBase® (2004), Natural Resources Canada (2007) and DataBC (2008).

This new regional information will help attract mineral exploration interest and investment, increase the understanding of the mineral potential, and provide local First Nations and communities with more information on the geology of the region.

The project activities include an aeromagnetic survey and a stream-sediment geochemical sampling and reanalysis program. Both of these programs were undertaken in the summer and fall of 2012 (Figure 3). In addition, the project to date has supported two community awareness sessions on geoscience, mineral exploration and mining. Details of the geochemical program are outlined in Jackaman and Lett (2013).

The geophysical survey was flown by Geo Data Solutions (Laval, Quebec), using the HeliMAG stinger system, at 250 m line spacing in a northeast-southwest orientation with 2500 m spaced tie lines. It was flown using a controlled drape over the terrain with a nominal ground clearance of 80 m. The survey area comprised approximately 4204 km² (Figure 3). Release of the geophysical data from the survey is planned for Mineral Exploration Roundup 2013.

Purchasing Proprietary Industry Geophysical Data

Geoscience BC is implementing a new program to purchase proprietary industry geophysical data, modelled after the successful Ontario Geological Survey (OGS) Request

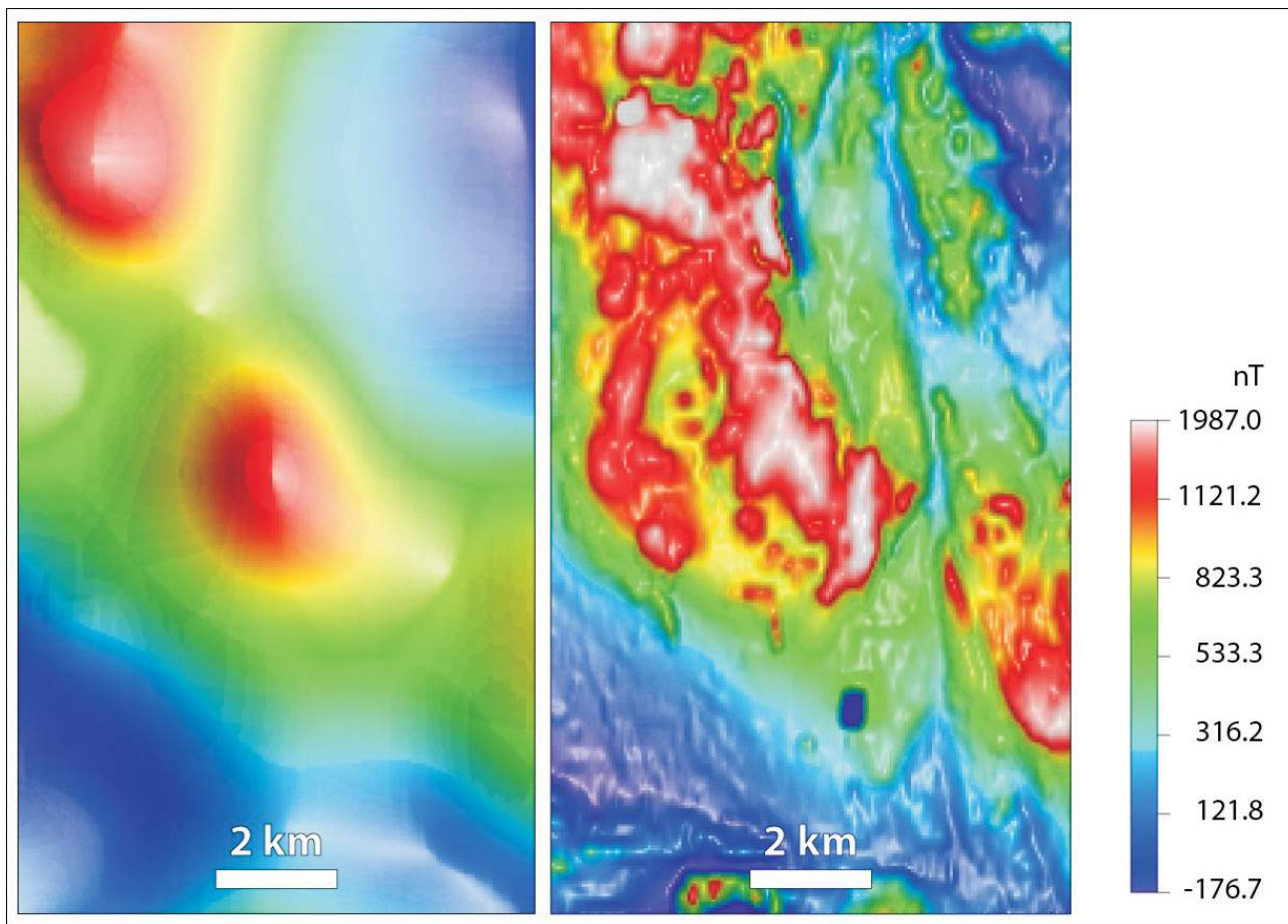


Figure 2. Example of the step-change in quality in the new aeromagnetic data from QUEST-Northwest. The image on the left shows the historical Geological Survey of Canada data and the image on the right shows the new Geoscience BC data for the same area. Data from Natural Resources Canada (2012). Abbreviation: nT, nanoteslas.

for Data for Purchase of Proprietary Airborne Geophysical Data. The OGS model uses a formula to evaluate industry data and determine a purchase price, which ensures a consistent, reproducible and fair process for determining price. Geoscience BC will initially focus on aeromagnetic data within selected areas of BC that complement Geoscience BC projects. Through this program, Geoscience BC hopes to encourage companies to see the value in sharing information while increasing the publically available high-resolution aeromagnetic coverage of the province.

Summary

Geoscience BC continues to prioritize high-quality, tightly spaced aeromagnetics as one of the key datasets for successful exploration in BC. Two new surveys were flown in 2012 in the QUEST-Northwest Project and Northern Vancouver Island Exploration Geoscience Project areas. Geoscience BC is also initiating a program to purchase proprietary industry aeromagnetic data in selected parts of the Province. All Geoscience BC data are released free to the public through the Geoscience BC website (<http://www.geosciencebc.com/s/DataReleases.asp>).

Acknowledgments

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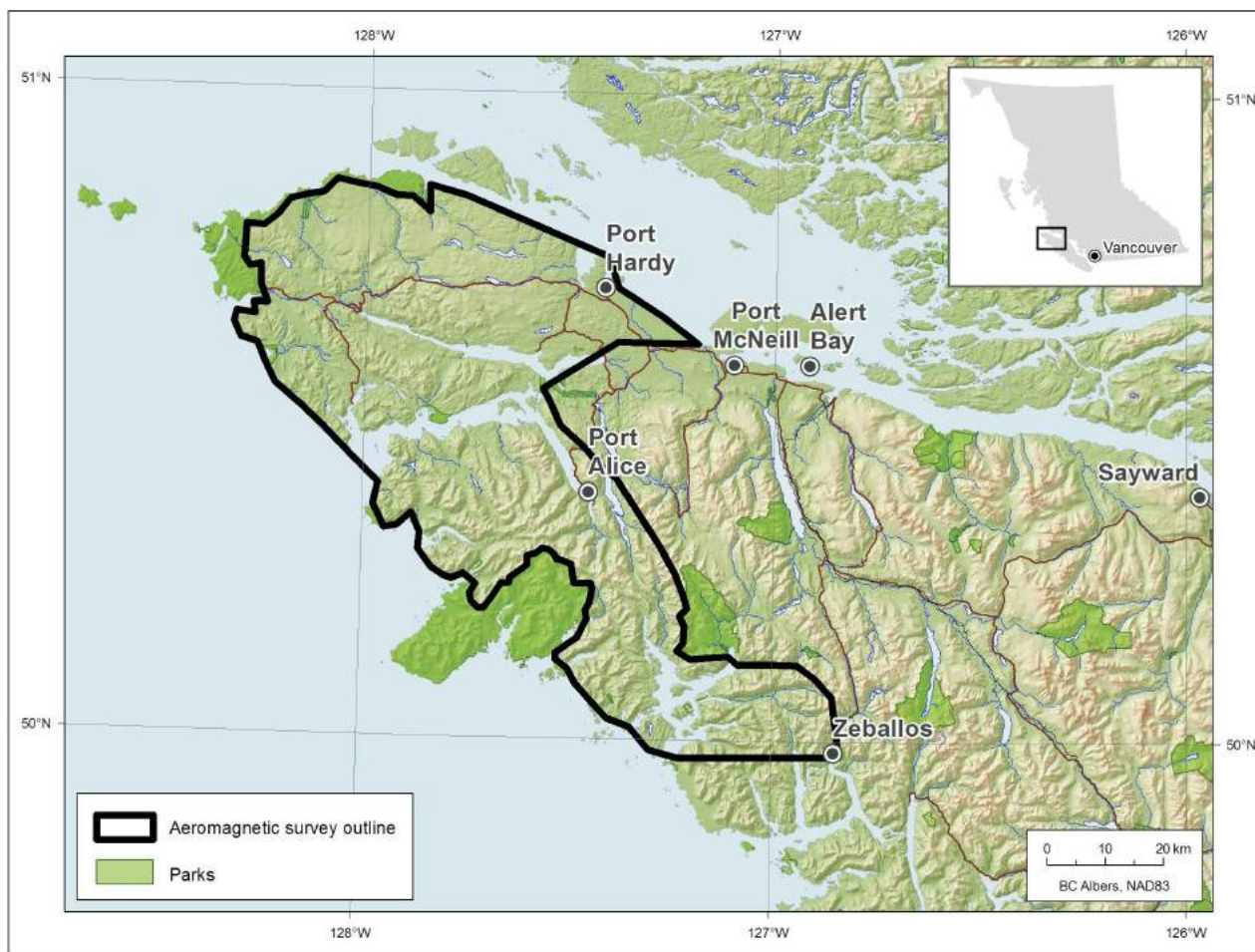


Figure 3. Geoscience BC's Northern Vancouver Island Exploration Geoscience Project area, showing the location of the geophysical survey. Data from GeoBase® (2004), Massey et al. (2005), Natural Resources Canada (2007) and DataBC (2008).

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