

Development of a Google Earth Query Tool for Wider Dissemination of British Columbia Geochemical Data to the Geoscience Community

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Introduction

Timberline Natural Resource Group and Golder Associates have developed a Google Earth™-based query tool. This tool is for the exploration of the QUEST Project geochemical data recently released by Geoscience BC and is available through Geoscience BC's website (<http://www.geosciencebc.com/s/DataReleases.asp>).

Being able to query the regional geochemical data provides the user an extra dimension of visualization. Instead of seeing every sample location point and having to discern which are of interest, the user is able to input specific criteria (element concentrations) into a web form and the result will be the selected points, which match the criteria, delivered directly into Google Earth. This way each user is empowered with a tool that allows for the exploration of the Geoscience BC geochemical data, interacting with it rather than simply looking at it.

The data explorer currently includes three QUEST Project geochemical datasets released by Geoscience BC in 2008 (Figure 1; Jackaman, 2008a–c). All QUEST Project datasets and reports can be downloaded from Geoscience BC's website (<http://www.geosciencebc.com/s/DataReleases.asp>). The geochemical datasets used in the data explorer are

Geoscience BC Report 2008-3: QUEST Project sample reanalysis (Jackaman, 2008a),

Geoscience BC Report 2008-5: Regional lake sediment and water geochemical data, northern Fraser Basin, central British Columbia (parts of NTS 093G, H, J, K, N & O; Jackaman, 2008b), and

Geoscience BC Report 2008-7: Regional stream sediment and water geochemical data, Pine Pass (NTS 093O), British Columbia (Jackaman, 2008c).

In addition, the collection and analyses of the QUEST Project geochemical samples are described in Jackaman and Balfour (2008).

Project Background and Motivation

Geoscience BC has invested considerable time, effort and money in providing a wealth of new public geoscience data for the central interior of BC. With highly technical products like data, it is crucial that it is both accessible and interpretable by all users, both in the mineral exploration industry and the general public. Often data in its rawest form can be very difficult to work with.

For the technically proficient user, there are freely available resources on the web to help interpret the available data. However, choosing something the user is already familiar with will increase the ease of use and successful interpretation of the data. For this reason, Google Earth was chosen as the platform for the Geoscience BC data, as many in the mineral exploration field already use Google Earth on a regular basis for planning, research or recreational purposes. In addition, the user does not need to rely on a number of different applications to make their decisions. Logistical planning can be undertaken from the same interface as the actual geological research and the user's own data can be easily added and viewed in context with Geoscience BC's data.

Data Explorer

The data explorer (Cadell and Mulligan, 2009) is based on Google Earth with the integration of bespoke web and database technologies. It interrogates an optimized spatial database of geochemical samples at the behest of the user, providing the answer as a Google Earth visualization (a KML file). The questions the user can ask are based on the chemical breakdown of each sample. For example, the data explorer can be queried to identify all reanalyzed stream-sediment samples with Au >100 ppb and Cu >500 ppm. A KML file identifying all samples with these characteristics will be returned to the user. This file is delivered to the computer of the user so they can store the results of any queries they run. Each sample is identified by a placemark, which when selected displays the geographic co-ordinates of the

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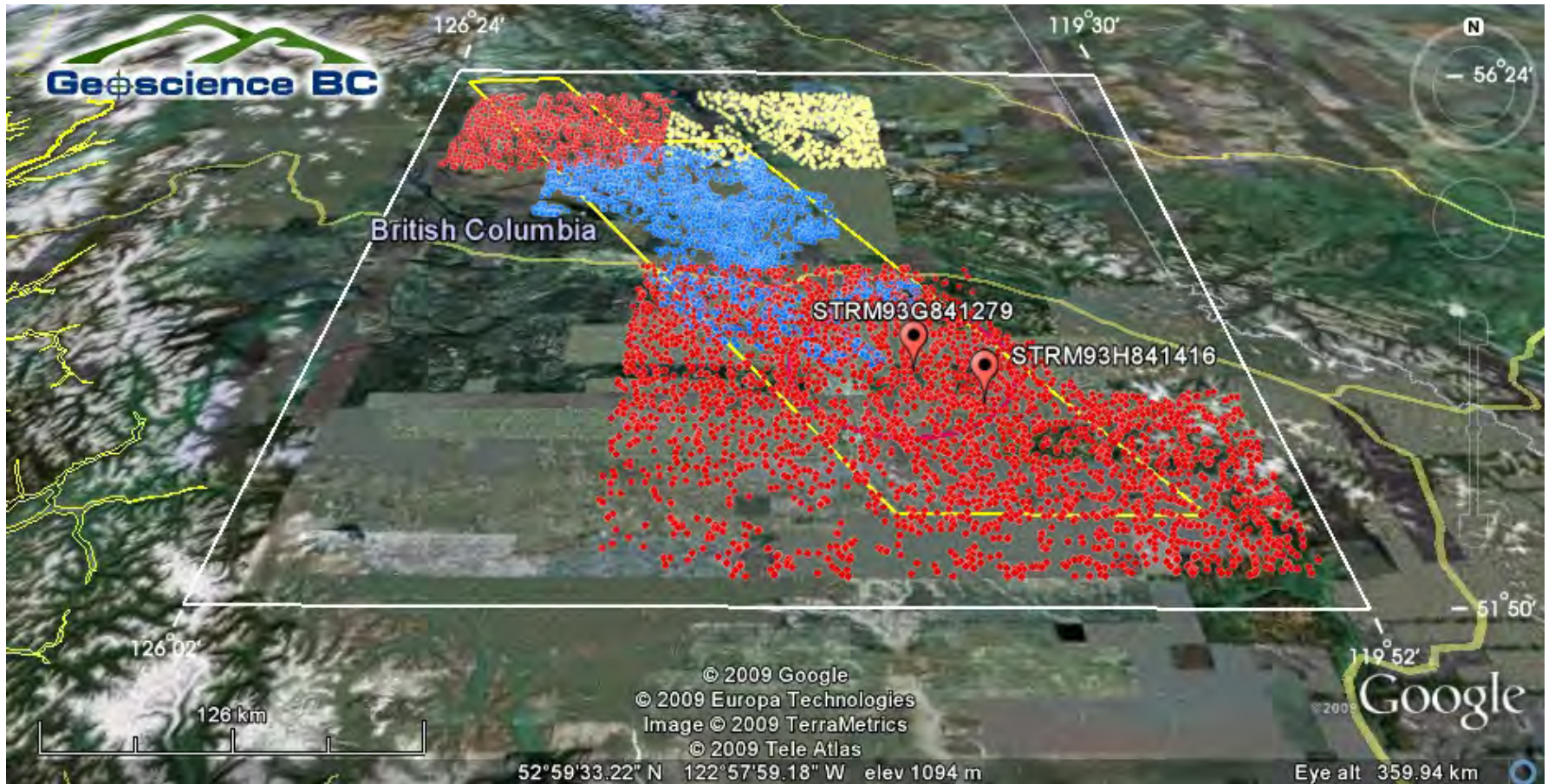


Figure 1. Sample locations included in Geoscience BC's three geochemical datasets, which the data explorer currently interrogates, shown with a query result (two placemarks), British Columbia. The QUEST Project area is outlined in white and the QUEST-South Project geophysical survey area is outlined in yellow.

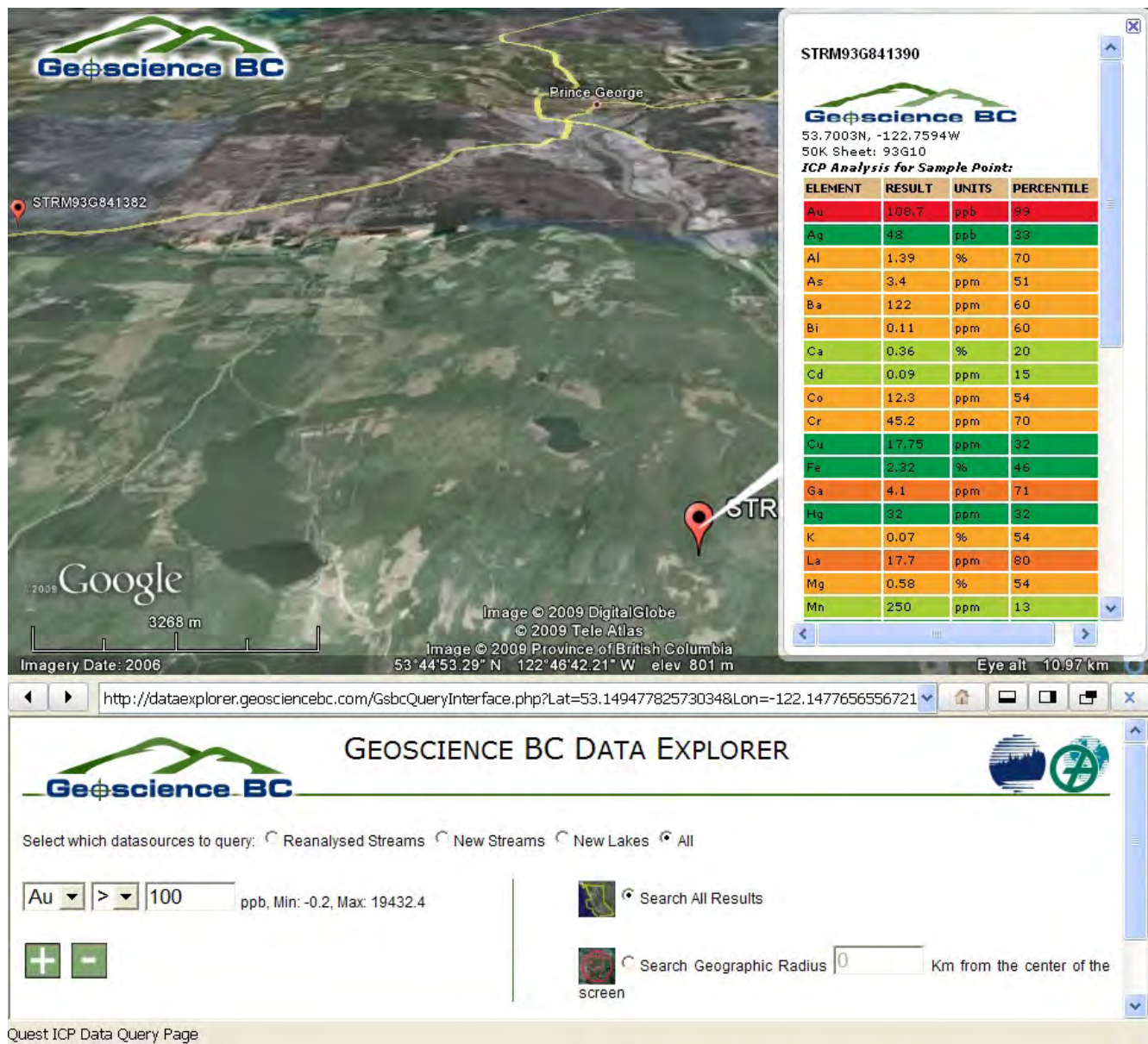


Figure 2. A screen shot of the data explorer interface, after a query is run (south of Prince George, British Columbia).

sample, the 1:50 000 map sheet the sample is from, and the entire geochemical dataset for that sample (colour-classed by percentile) in a balloon (Figure 2). Alternately, the user can choose to run a geographic query where the analysis is only undertaken within a specific radius of the centre point of the screen (e.g., find all samples with Cu >400 ppm within 30 km of a given location).

Background data available to the user includes a) polygons outlining the QUEST study area; b) polygons outlining the area covered by the QUEST Project geophysical surveys (Barnett and Kowalczyk, 2008); and c) a layer of all the geochemical sample points from the three projects. The latter allows the user to compare their queried findings with the point locations of all three entire datasets. Additionally, all the standard background data associated with Google Earth is available and the user can add any of their own datasets, as they would with Google Earth normally.

Conclusion

This project sought to increase the accessibility to the Geoscience BC QUEST Project geochemical data. The data explorer does this by providing the data in a nonproprietary format, which is readily accessible by a free and hugely popular platform. Since its release, the data explorer has witnessed 1000 page views from 21 different countries.

The data explorer can be accessed through Geoscience BC's website ([http://www.geosciencebc.com/s/2009-](http://www.geosciencebc.com/s/2009-08.asp)

[08.asp](http://www.geosciencebc.com/s/2009-08.asp); Geoscience BC Report 2009-8) or directly at <http://dataexplorer.geosciencebc.com:8080/>.

References

- Barnett, C.T. and Kowalczyk, P.L. (2008): Airborne electromagnetics and airborne gravity in the QUEST Project area, Williams Lake to Mackenzie, British Columbia (parts of NTS 093A, B, G, H, J, K, N, O; 094C, D); *in* Geoscience BC Summary of Activities 2007, Geoscience BC, Report 2008-1, p. 1-6.
- Cadell, W. and Mulligan, G. (2009): Geoscience BC data explorer; Geoscience BC, Geoscience BC Report 2009-8, URL <<http://dataexplorer.geosciencebc.com:8080/>> [November 2009].
- Jackaman, W. (2008a): QUEST Project sample reanalysis; Geoscience BC, Report 2008-3, 4 p.
- Jackaman, W. (2008b): Regional lake sediment and water geochemical data, northern Fraser Basin, central British Columbia (parts of NTS 093G, H, J, K, N & O); Geoscience BC, Report 2008-5, 446 p.
- Jackaman, W. (2008c): Regional stream sediment and water geochemical data, Pine Pass (NTS 093O), British Columbia; Geoscience BC, Report 2008-7, 262 p.
- Jackaman, W. and Balfour, J.S. (2008): QUEST Project geochemistry: field surveys and data reanalysis, central British Columbia (parts of NTS 093A, B, G, H, J, K, N, O); *in* Geoscience BC Summary of Activities 2007, Geoscience BC, Report 2008-1, p. 7-10.