



2018 Minerals Request for Proposals

RFP 2018-03

Unlocking Value – A Smarter Look at Big Data

If you are a data expert researching the application of machine learning techniques to compiled data sets to add value, identify opportunities or foster innovation in the mineral or coal sector we are interested in your project ideas.

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1. REQUEST FOR PROPOSALS (RFP) KEY DETAILS

Title	RFP 2018-03: Unlocking Value – A Smarter Look at Big Data
Issue Date	July 5th, 2018
Submission Deadline:	October 1, 2018 12:00 noon Pacific Standard Time
Proposal Validity Date	March 31, 2019
Estimated Review Conclusion	December, 2018
Earliest Project Start Date	April 1, 2019
RFP Coordinator:	Christa Pellett, Project Coordinator Email: pellett@geosciencebc.com Phone (604) 662-4147

Problem Statement

The minerals and mining sector is awash in data and may not be capitalizing on it to stimulate changes, generate new ideas, improve processes, create efficiency reduce costs and manage the natural environment. Sector users of data are looking to machine learning techniques to extract new value from their data.

This RFP is anticipated to attract a broad range of applications as it's believed that there are many scenarios where machine learning techniques may be applied. For example, proposals could include a mine's operational data from blast holes to predict grade, modelling water balance changes at mines and their host watersheds based on a climate trend scenarios, or exploring relationships amongst exploration, operations and environmental data. Proposals should focus on providing practical outcomes that can be put to use by the communities that Geoscience BC serves.

RFP Linkage to Geoscience BC's Strategic Plan Objectives

This RFP is looking for proposals that help to meet [Geoscience BC's Strategic Plan](#) Objectives *Identifying New Natural Resource Opportunities* and *Advancing Science & Innovative Geoscience Technologies* and the related goals:

- *Undertake research that adds value to existing or ongoing data sets through ground-truthing studies, data interpretation and mining camp compilations*

- *Increase research and development of innovative exploration and mining methods, tools, approaches and geoscience technologies*

Proposals may include, but are not limited to:

- Research into the use of machine learning technology on very large data sets
- Practical applications of machine learning technology to the mineral or coal sectors
- Ore/waste or seam characterization that is quickly achieved during mining
- Improvement in Mineral Resource characterization, either increase or higher confidence
- Environmental impacts of mine activity
- Predicting changes in the natural environment as related to mine design or operation

Successful project results may include, but are not limited to:

- Machine learning technology that is used regularly and effectively on big data sets
- Innovative approaches and techniques for exploring in BC using machine learning technology
- Demonstrated insights from machine learning using multi-disciplinary data sets to focus exploration efforts
- Ore/waste or seam characterization that improves waste handling, grade control, coal quality, metallurgy, processing
- Published technical articles, data, information, presentations, conference posters
- Baseline understanding of mineral or coal resource potential or natural systems to make informed decisions
- Mine activities driven by machine learning that create predictable, manageable, or reduced impacts upon the environment
- Mine activities driven by machine learning that improve economic competitiveness
- Machine learning outcomes that improve the predictive ability of mines during operation and closure
- Trained, qualified, workers ready to participate in high technology disciplines related to exploration and mining throughout BC
- Broad-based support for mineral exploration in BC

2. RFP SUBMISSION GUIDELINES

2.1 INTRODUCTION

In support of our mission to generate and publicly share high quality and unbiased earth science research and data in British Columbia, Geoscience BC issues requests for proposals (RFP).

The RFP process gives communities served by Geoscience BC an opportunity to directly propose research projects to be undertaken.

2.2 GEOSCIENCE BC'S STRATEGIC OBJECTIVES AND GOALS

Prior to submitting a proposal to this RFP you should review the [Geoscience BC Strategic Plan 2018-2022](#) for details on Geoscience BC's Strategic Objectives relating to the Minerals, Energy and Water Strategic Focus Areas:

- Identifying New Natural Resource Opportunities
- Advancing Science & Innovative Geoscience Technologies
- Facilitating Responsible Natural Resource Development
- Enabling Clean Energy
- Understanding Water

2.3 ELIGIBILITY

Applicants who wish to submit an application to this RFP should be aware the following eligibility criteria:

- Proposals must concern research occurring within British Columbia, Canada. However, researchers or organizations may reside outside of the province or country.
- Proposals will be considered from individuals or teams representing or partnered with First Nations, communities, governments, resource sectors, private consultants, universities or colleges, or not-for-profit agencies.
- Proposals with financial or in-kind support from other organizations will be prioritized.
- Geoscience BC places high value on effective outreach and engagement activities with the resource sectors, academia, communities, Indigenous groups and governments. Successful applicants will be required to participate or lead in these activities as set out in a subsequent Project Agreement.
- Participants in projects will be required to sign in a subsequent Project Agreement that they will not acquire tenures or an interest in tenures (e.g. mineral, coal, petroleum or

natural gas) within the project area, until six months after all project data is made public by Geoscience BC.

- Applicants must be prepared to carry appropriate insurance coverage, including Workers' Compensation and Commercial General Liability for the duration of a project. Depending on the nature of the project, Automobile, Aircraft/Watercraft and Construction Machinery insurance may also be required. More information on specific insurance requirements may be listed in an appendix or determined during negotiation of a Project Agreement.

2.4 PROPOSAL SUBMISSION

An applicant is solely responsible for developing a compelling, clear and complete proposal.

2.4.1 Three Components of a Complete Submission

There are three components to a complete application that must be received by the Geoscience BC RFP Coordinator electronically before the Submission Deadline. Hard copies will not be accepted.

i. Notification. Emailed notification of an intent to submit a proposal to the RFP Coordinator. This is important so any updates or clarifications concerning the RFP process can be shared with you, your proposal contains large files or is sent close to the Submission Deadline.

ii. Proposal. A proposal following the Proposal Template available online and consistent with any instruction included in Appendix A:

- This document must be submitted in MS Word .doc or .docx format
- The completed Proposal Template (including photos and diagrams) should total no more than 15 pages (8.5x11 inch page size only). This does not include the Budget Template, which must be submitted as a separate file, or letters of support. Proposals which exceed this page limit will not be considered.

iii. Budget. A proposal budget that is created using the Budget Template available online and following any additional instruction included in Appendix B:

- This document must be submitted in MS Excel .xls or .xlsx format.

2.4.2 Scale of Proposals and Estimated Budgets

Geoscience BC does not set criteria for scale and budget for proposals it expects; however, the following is intended as guidance.

- **Scoping or pilot-scale proposals:** Proposals that test theory, concept or technology prior to a full-scale study or implementation. These are often months in duration and funded in the \$25,000-75,000 range.
- **Operation or camp-scale or developing innovation proposals:** Proposals that validate theory, a technology, gather data in a laboratory or field setting, produce a measurable product that contributes to broader understanding or new opportunities. These are often months to a year or two in duration and funded in the \$75,000-250,000 range.
- **Regional-scale, multidisciplinary or advanced innovation proposals:** Proposals that generate broad new understandings across a broad geographic area or significant advancement of a technology in a sector. These often integrate several disciplines, involve partnerships and several funding sources. These are often two to four years in duration and funded in the \$250,000-\$1,000,000 range.

2.4.5 Previously Submitted Proposals

Geoscience BC will consider previously-submitted proposals. These must be resubmitted according to the process and the requirements of this RFP.

2.4.6 Current Geoscience BC Projects:

Proposals requesting additional funding for a current Geoscience BC project are asked to notify Geoscience BC at least 30 days before the Submission Deadline and to include an up to date statement of expenditures for the existing project.

2.4.7 Clarification of Submission Requirements

Any clarification regarding this process must be directed to Geoscience BC at least two (2) working days before the Submission Deadline. Geoscience BC shall not be responsible for any misunderstanding of the RFP Documents.

To ensure all participants in the RFP have equal information, answers to enquiries which are relevant to the RFP process will be communicated through the Geoscience BC website and to applicants who have notified their intention to submit a proposal.

2.4.8 Changes to the RFP Documents

Geoscience BC may, prior to the Submission Deadline, without liability, cost or penalty, alter the Submission Deadline and amend or supplement the RFP Documents by addenda only. No other communications of any kind whatsoever will modify the RFP Documents.

2.4.9 Validity of Proposal

Any budget estimates associated with the proposal must remain valid for acceptance up to the Proposal Validity Date.

2.4.10 Amendment of Proposal

A proposal may be amended prior to the Submission Deadline by withdrawing the original proposal and submitting a revised proposal.

After the RFP Submission Deadline, no updates to the proposal will be accepted, unless requested by Geoscience BC.

2.4.11 Costs of a Proposal Preparation

The applicant shall bear all costs and expenses with respect to the preparation and submission of its Proposal and any other activity pertaining to its proposal, including its participation in the RFP process and contract negotiation, if any. Geoscience BC shall not be liable to pay any such costs/expenses regardless of the conduct or the outcome of the RFP process.

2.4.12 Absence of Contractual Obligations during RFP Process

Geoscience BC shall have no obligation to enter into a contract with an applicant.

Geoscience BC shall only have obligations to an applicant if it decides to execute a Project Agreement and such obligations shall be in accordance with the terms and conditions of that agreement as finalized between Geoscience BC and the proponent.

2.4.13 Overarching Rights of Geoscience BC

Geoscience BC reserves the right to annul this RFP process and commence a new process, reject any or all proposals received in response to this RFP and accept any proposal in whole or in part.

2.5 REVIEW PROCESS AND SELECTION

After the Submission Deadline has passed, a volunteer Geoscience BC Technical Advisory Committee (TAC) will evaluate the proposals received.

Geoscience BC shall, in its sole discretion, use any evaluation criteria (whether subjective or objective), it deems suitable to evaluate the proposals.

Proposal review and ranking will usually be completed at a Geoscience BC TAC meeting. Geoscience BC staff do not participate in ranking and all TAC Members must follow the [Code of Conduct and Ethics, and Conflict of Interest Guidelines](#).

2.5.1 Review Process and TAC Recommendations

The process for proposal review by the TAC includes:

- Determine if the proposal is within the scope set out in the RFP process and

provides the content and budget required in the provided templates.

- Discuss the proposal with a focus on technical quality, sector relevance, personnel involved and budget as detailed in the next section.
- Rank the proposal in relation to all the proposals in hand.
- Provide the ranking process results and recommendations to the Geoscience BC Board of Directors for funding approval.

2.5.2 Technical Review Criteria

The technical review of a proposal will consider, as a minimum, the following categories and questions:

- **Technical quality** – Is the project technically sound, feasible, and well defined with clearly articulated objectives? Does it improve our collective level of geoscience knowledge? Will it stimulate innovation and geoscience technologies?
- **Sector relevance** – Does the project demonstrate an application to minerals, coal, energy or water in BC? Does the proposal attract investment, inform decisions or support the responsible development of British Columbia’s mineral, coal or energy resources? Is the project supported by matching sector funds or partnerships?
- **Personnel** – Do the proponents have the experience and qualifications to complete the project? Have previous projects been completed and delivered in a timely manner? Are there any training aspects to the project?
- **Budget** – Is the budget well defined and competitive? Is it realistic? Has the project generated supportive funding?

2.5.3 Confidentiality in the Review Process

Geoscience BC's proposal ranking results, and recommendations for funding will remain confidential to Geoscience BC.

Geoscience BC and its partners will take all reasonable precautions to maintain the confidentiality of the information submitted by the applicants, subject to any disclosure required by law. Geoscience BC reserves the right, however, to disclose the proposal to employees, servants, agents, advisors and consultants of Geoscience BC and its partners and affiliates for the purpose of assisting Geoscience BC in evaluating the proposal.

Any employees, servants, agents, advisors and consultants of Geoscience BC and its partners and affiliates who assist Geoscience BC in the evaluation of the proposal will also be required to take all reasonable precautions to maintain the confidentiality of the information submitted by the applicants, subject to any disclosure required by law. The

employees, servants, agents, advisors and consultants of Geoscience BC and its partners and affiliates will not be liable for any damages resulting from any disclosure before, during or after the issuance of this RFP and the submission of a proposal.

2.5.4 Clarification in Review Process

Geoscience BC may, at its sole discretion, seek clarification of any matter in a proposal in any manner it considers appropriate including investigating the abilities and experience of the project participants, seeking information from other parties, requiring the applicants to submit supplementary documentation and seeking the validation of Geoscience BC's interpretation of the proposal.

2.6 REVIEW NOTIFICATION AND PROJECT FUNDING AGREEMENTS

Applicants will be notified if their application has been successful after the Geoscience BC Board considers the TAC's recommendations.

If no suitable proposals are received, no project funds will be awarded.

2.6.1 Notification of Successful Application

Geoscience BC will provide a letter via email to each successful applicant indicating their proposal was accepted for funding.

Geoscience BC reserves the right to approve a smaller budget than submitted in the proposal and/or ask for revisions or modifications.

2.6.2 Notification of Unsuccessful Application

Geoscience BC will provide a letter via email to each unsuccessful applicant indicating their proposal was not accepted for funding.

2.6.3 Notification of Delayed Start or Pending Future Funding

Geoscience BC may need to delay a project start date to align with its budgetary cycle or may wish to hold a proposal in a pending state in anticipation of future funding.

Geoscience BC will provide a letter via email to each applicant indicating their proposal was accepted for funding and an anticipated delayed start or that it wishes to hold the application in a pending state for a specified amount of time.

The proponent will be able to submit an updated project timeline during subsequent funding agreement negotiations.

2.6.4 Negotiation of a Project Agreement

Geoscience BC will initiate project funding agreement negotiations with each successful

applicant who wishes to proceed with their proposal. The proposal document and budget form the specifics of a Project Funding Agreement.

Information on projects, and the names of the Proponent, Principal Investigator and Project Contributors will be published on Geoscience BC's website.

2.6.5 Project Start and Completion Dates

Projects should not be expected to start earlier than the Earliest Project Start Date and must be completed with final deliverables accepted by Geoscience BC, no later than the project completion date set out in the Project Agreement.

2.6.6 Applicable Laws

Any Project Agreements subsequently negotiated and awarded with respect to this RFP shall be interpreted and governed, and the relations between the Parties determined, by the laws in force in the province of British Columbia and the parties attorn to the jurisdiction of the British Columbia Courts.

2.7 ADDITIONAL INFORMATION

2.7.1 Information Provided by Geoscience BC

No representation or warranty, expressed or implied, is made and no responsibility of any kind is accepted by Geoscience BC, or its advisors, employees, consultants or agents, for the completeness or accuracy of any information contained in the RFP Documents or that is provided during the RFP process or contract negotiation process, or under a contract that may be entered into, if any.

2.7.2 No Public Statements

Recipients of or applicants to this RFP shall not issue any public statement or news release pertaining to this RFP or subsequent Project Agreement without the prior written consent of Geoscience BC.

2.8 CONTACT INFORMATION

Requests for further information, clarification or for any other purpose related to this RFP can be directed to the RFP Coordinator.

3. APPENDIX A - PROPOSAL TEMPLATE AND INSTRUCTIONS

A proposal template is available online for this RFP on the Geoscience BC website RFP page. This document must be submitted in MS Word .doc or .docx format.

The completed Proposal Template (including photos and diagrams) should total no more than 15 pages (8.5x11 inch page size only). This does not include the Budget Template, which must be submitted as a separate file, or letters of support. Proposals which exceed this page limit will not be considered.

Please note that some written sections have word limits. As the Proposal Template will not restrict the number of words entered, it is the applicant's responsibility to ensure that the word limits are respected.

Do not include promotional material or brochures as an attachment to the application.

4. APPENDIX B - BUDGET TEMPLATE AND INSTRUCTIONS

A budget template is available online for this RFP at the Geoscience BC website RFP section. This template needs to be completed and submitted to Geoscience BC in .xls or .xlsx format (do not submit as a .pdf).

Add lines as necessary to properly complete your budget (e.g. if there are multiple personnel at different rates of pay, add a line for each group). Sub-categories (e.g. camp costs, fluid inclusions etc.) can be edited to best fit your application, and sub-categories not used should be deleted. All costs must be in Canadian dollars.

Display columns for budget totals for the entire project. If desired, the budget can also be broken down by major stages identified by summary tasks or by year, but the total budget for the whole project must be readily apparent.

Please be sure to confirm that your budget spreadsheet adds up correctly, and that the numbers included match the summary information you include in the Proposal Template.

4.1 Additional Instructions for Completing a Budget

4.1.1 Goods and Services Tax ("GST")

Funding for projects approved through this RFP will not include Goods and Services Tax ("GST"), as Geoscience BC does not consider project funding to be a 'Taxable Supply' under the Excise Tax Act. Geoscience BC considers project funding to be exclusive of GST to the extent that the principal proponent is entitled to claim input tax credits or rebates in respect to their expenditure of these monies. If GST paid is claimed as a project expense under a Geoscience BC grant, the principal proponent will provide Geoscience

BC with a detailed breakdown of these amounts together with an explanation as to why these amounts were not claimed as input tax credits or GST rebates, and copies of all invoice on which GST was paid and is being claimed as a project expense, including the GST registration number of each supplier.

4.1.2 Capital Costs

Geoscience BC does not cover Capital Costs over \$1000 (e.g. computer purchases, field gear) without prior approval.

4.1.3 Overhead

Please be aware that Geoscience BC does not pay overhead. For university applicants, a letter confirming Geoscience BC's policy regarding overhead can be provided on request during the application process.

4.1.4 Insurance Coverage

Please be aware that Geoscience BC requires that appropriate insurance coverage between maintained for the duration of each project.

Mandatory:

- Workers Compensation
- Commercial General Liability (minimum of \$2 million, up to \$5 million depending on the scope of the project)

Project-specific:

- Automobile (\$2 million)
- Aircraft or Watercraft (\$10 million)
- Construction Machinery

4.1.5 Matching and In-Kind Funding

Include funding requested from Geoscience BC and a summary of any matching or in-kind funding that has been secured or will be requested from other sources (details of each additional funding source will be included in the Proposal Template). Components of the proposed project do not need to be separated out as to the source of funds, unless matching or Geoscience BC funds will be directed to a certain part of the project budget.