© 2010 by Geoscience BC.
All rights reserved. Electronic edition published 2010.

This publication is also available, free of charge, as colour digital files in Adobe Acrobat® PDF format from the Geoscience BC website: http://www.geosciencebc.com/s/DataReleases.asp.

Every reasonable effort is made to ensure the accuracy of the information contained in this report, but Geoscience BC does not assume any liability for errors that may occur. Source references are included in the report and users should verify critical information.

When using information from this publication in other publications or presentations, due acknowledgment should be given to Geoscience BC. The recommended reference is included on the title page of each paper. The complete volume should be referenced as follows:


ISSN 1916-2960 Summary of Activities (Geoscience BC)

Cover photo: Bryan Hardel at camp near Mt. Bolton, east of Kitimat, overlooking the Kitimat River
Photo credit: Geoffrey Pignotta, 2009
Foreword

Geoscience BC is pleased to present the results of ongoing and recently completed geoscience projects and surveys in this, our third edition of the Geoscience BC Summary of Activities. The volume is divided into three sections, and contains a total of 25 papers, making this our largest volume so far. Industry consultants and contractors, university-based researchers and government geoscientists working on Geoscience BC–funded projects in British Columbia prepared most of the papers.

The first section contains two papers on the QUEST-South Project, Geoscience BC’s major mineral exploration initiative in 2009. Like the QUEST (2007) and QUEST-West (2008) projects before it, QUEST-South combines regional geochemical surveys and reanalysis with airborne geophysics, but focuses on BC’s southern interior. Results for the QUEST-South project will be released in early 2009.

The second section contains seventeen papers on mineral exploration–related partnership projects supported by Geoscience BC, including geochemical, surficial geology, mapping, mineral deposit and data compilation projects. The papers range from preliminary reports after a first field season to final reports highlighting project end results. The papers are organized roughly by project type and location to allow the reader to quickly identify papers of interest.

The third section contains six papers on hydrocarbon-related partnership projects supported by Geoscience BC. Three papers focus on central British Columbia’s Nechako Basin, which has been the main focus of Geoscience BC’s oil and gas program since 2005. The final three papers focus on northeastern BC, including a paper highlighting a Geoscience BC–Industry partnership initiative in the Horn River Basin.

All papers are also available on Geoscience BC’s website (www.geosciencebc.com), and readers are encouraged to visit the website for additional information on all Geoscience BC projects, including project abstracts, posters and presentations, previous Summary of Activities or Geological Fieldwork articles, and final datasets.

Acknowledgments

Geoscience BC would like to thank all authors of the Summary of Activities papers, including project proponents, graduate students and Geoscience BC staff, for their contributions to this volume. Geoscience BC would also like to thank RnD Technical for their work in editing and assembling the volume.

Christa Sluggett, M.Sc.
Project Geologist and Communications Co-ordinator
Geoscience BC
www.geosciencebc.com
Contents

**QUEST-South Projects**


**Minerals Projects**

Heberlein, D.R.: Comparative study of partial and selective extractions of soils over blind porphyry copper-gold mineralization at Kwanika and Mount Milligan, central British Columbia (NTS 093N/01, /19): fieldwork, soil conductivity and pH results ........................................... 11

Bouzari, F., Hart, C., Barker, S. and Bissig, T.: Porphyry indicator minerals (PIMs): exploration for concealed deposits in south-central British Columbia (NTS 092I/06, 093A/12, 093N/01, /14) ........................................ 25

Sacco, D.A., Ward, B.C., Maynard, D., Geertsema, M. and Reichheld, S.: Terrain mapping, glacial history and drift prospecting in the northwest corner of McLeod Lake map area (part of NTS 093J), central British Columbia ............................................................. 33

Ferbey, T.: Quaternary geology and till geochemistry of the Nadina River map area (NTS 093E/15), west-central British Columbia ......................................................... 43

Bissig, T., Vaca, S., Scharizza, P. and Hart, C.: Geochemical and physical variations in the Late Triassic Nicola Arc and metallogenic implications, central British Columbia (NTS 092P, 093A, N): preliminary results ............................................................. 49

Mitchinson, D.E. and Bissig, T.: Enhancing geophysical interpretation and mineral deposit modelling through knowledge of physical rock properties: magnetic susceptibility studies for porphyry deposits in the QUEST and QUEST-West areas (NTS 93E, K, N) ............................. 53


Byrne, K., Tosdal, R.M. and Simpson, K.A.: Coherent and clastic rocks in the Southwest Zone alkalic porphyry copper-gold system, Galore Creek, northwestern British Columbia (NTS 104G) ........................................ 87

Pignotta, G.S., Mahoney, J.B., Hardel, B.G. and Meyers, J.L.: Volcanic facies, deformation and economic mineralization in Paleozoic strata of the Terrace-Kitimat area, British Columbia (NTS 103J) ........................................ 105

Smith, J.L. and Archart, G.B.: Isotopic investigation of the Adanac porphyry molybdenum deposit in northwest British Columbia (NTS 104N/11): final project report ........................................ 115

Höy, T.: Geology of the Deer Park map area, southeastern British Columbia (NTS 082E/08) ........................................... 127

Canil, D.: Ultramafic intrusions, detailed geology and geobanometry of the Jurassic Bonanza Arc in the Port Renfrew region, southern Vancouver Island (NTS 092C) ........................................... 141

Ruks, T., Mortensen, J.K. and Cordey, F.: New Results of Geological Mapping and Micropaleontological and Lead Isotopic Studies of Volcanogenic Massive Sulphide–Hosting Stratigraphy of the Middle and Late Paleozoic Sicker and Buttle Lake Groups on Vancouver Island, British Columbia (NTS 092B/13, 092C/16, 092E/09, /16, 092F/02, /05, /07) ........................................... 149

Cadell, W.M. and Mulligan, G.: Development of a Google Earth query tool for wider dissemination of British Columbia data to the geoscience community .......................... 171

Barlow, N.D., Flower, K.E., Sweeney, S.B., Robinson, G.L. and Barlow, J.R.: QUEST and QUEST-West Property File: analysis and integration of Property File’s Industry File documents with British Columbia’s MINFILE (NTS 093, 094A, B, C, D, 103I) ........................................... 175


**Oil and Gas Projects**


