Geological Fieldwork 2005

A Summary of Field Activities and Current Research
GEOLOGICAL FIELDWORK 2005
A Summary of Field Activities and Current Research

Ministry of Energy, Mines and Petroleum Resources
British Columbia Geological Survey

Report 2006-1

Paper 2006-1
Ministry of Energy, Mines and Petroleum Resources
Mining and Minerals Division
British Columbia Geological Survey

Parts of this publication may be quoted or reproduced if source and authorship is acknowledged. The following is the recommended format for referencing individual works contained in this publication:


This publication is also available, free of charge, as colour digital files in Adobe Acrobat PDF format from the BC Ministry of Energy and Mines internet website at:

http://www.em.gov.bc.ca/Mining/Geolsurv/Publications/catalog/catfldwk.htm

**COVER PHOTO:** Amy Boulton, a senior field assistant and currently attending the University of Manchester, United Kingdom, examines an outcrop south of Canam Lake, in central British Columbia, as part of an ongoing regional mapping program led by Paul Schiarizza.

---

**British Columbia Cataloguing in Publication Data**
Main entry under title:
Geological Fieldwork: - 1974 -

Annual.
Issuing body varies

Includes Bibliographical references.
ISSN 0381-243X=Geological Fieldwork

FOREWORD

The British Columbia Ministry of Energy, Mines and Petroleum Resources and Geoscience BC present the results of 2005 geoscience surveys and studies in this thirty-first edition of Geology Fieldwork: A Summary of Fieldwork and Current Research. Many articles are contributions from staff of the BC Geological Survey. Geoscience field surveys and the provision of resulting geoscience data have led to claim staking and enhanced mineral exploration expenditures, which may ultimately lead to new mines and economic support for BC communities. As in previous years, the volume also publishes studies by university and industry authors.

This volume also includes 13 articles provided by Geoscience BC, a new, not-for-profit, nongovernment organization mandated to provide geoscience information to stimulate mineral, and oil and gas exploration in British Columbia. The province provided a grant of $25 million as start-up funding for the new organization. The articles span a wide spectrum from geochemical surveys and geological mapping to new tools for accessing provincial databases. For details of the Geoscience BC program, refer to the review, and the individual manuscripts, presented later in this volume.

This past year the BC Geological Survey regional field surveys and collaborative geoscience studies continued the tradition of partnerships with government, industry and universities. Articles in this volume include reports on continuing programs in the Iskut-Bowser Basin and Toodoggone areas, and new geoscience projects in the Canim Lake, coastal (industrial minerals), Greenwood, northeast (coal), northern Vancouver Island and Terrace areas. Industry partnerships provided operating funds and access to private-sector information, particularly for the porphyry copper-gold (Galore Creek and Mt Polley) and Toodoggone programs. This volume also reports on the results of a multiyear investigation into the province’s diamond potential and highlights significant new information for the northeast corner of BC.

Over the past year, the BC Geological Survey published Geological Fieldwork 2004, Exploration and Mining in British Columbia 2004, 18 Open File maps and reports, 3 Geoscience Maps, 25 GeoFile maps, reports and data and 3 Information Circulars. One of the highlight products this year has been the new, 1:250 000-scale, digital geological map of the province — the first lithology-based map of the Province in over 25 years. All geoscience publications are now routinely posted to the Ministry of Energy, Mines and Petroleum Resources website. MapPlace, one of the world’s premier Internet-based geoscience map systems, continues to improve with the addition of new tools and data layers; the site exceeded six million hits during the last year. MINFILE, the mineral deposits database system, has been reprogrammed and made more accessible with a new Internet interface. Clients can now access company mineral assessment reports from the ARIS database, online for the years from 1947 to 1969, and from 1991 to the present.

This Geological Fieldwork volume reflects the hard work and expertise of numerous authors who have earned our thanks for their contributions. The articles have been improved by peer and supervisor review, and the quality services of RnD Technical are acknowledged for helping to put the volume together. The editor, Brian Grant, earns special commendation for being the key person in producing Geological Fieldwork, as he coordinates the organization and publication of the volume.

D.V. Lefebvre
Chief Geologist
British Columbia Geological Survey
## CONTENTS

Alldrick, D.J.: Eskay Rift Project (NTS 103O, P, 104A, B, G, H), Northwestern BC ........................................... 1

Bath, A.B and Logan J.M.: Petrography and Geochemistry of the Late Triassic Bootjack Stock (NTS 093A/12), South-Central BC .................................................. 5

Barresi, T. and Nelson, J.L.: Usk Map Area (NTS 103I/9), Near Terrace, BC: Cross-Sections and Volcanic Facies Interpretation ................................................. 21

Diakov, L.J. and Rhodes, R.: Geology Between the Tooodogone River and Chukachida Lake (Parts of NTS 094E/06, 07, 10 and 11), North-Central BC ................. 29


Lett, R.E.: Geochemical Surveys in the Lillooet Area (NTS Areas 092J, 092I, 092O, 092P), Southwestern BC .... 63

Legun, A.S.: The Gates Formation in the Wolverine River Area, Northeastern BC ........................................... 73

Logan, J.M. and Bath, A.B.: Geochemistry of Nicola Group Basalt from the Central Quesnel Trough at the Latitude of Mount Polley (NTS 093A/5, 6, 11, 12), Central BC .... 83

Massey, N.W.D.: Boundary Project: Reassessment of Paleozoic Rock Units of the Greenwood Area (NTS 082E/02), Southern BC .................................................. 99

Mihalynuk, M.G. and Friedman, R.M.: U-Pb Isotopic Ages of Intrusive Rocks Related to Mineralization North of Terrace, BC .................................................. 109

Nelson, J.L., Barresi, T., Knight, E. and Boudreau, N.: Geology and Mineral Potential of the Usk Map Area (NTS 103I/09), near Terrace, BC ........................................ 117

Nixon, G.T., Kelman, M.C., Stevenson, D., Stokes, I.A. and Johnston, K.A.: Preliminary Geology of the Nimpkish Map Area (NTS 092L/07), Northern Vancouver Island, BC .................................................. 135

Peterson, N.D., Russell, J.K. and Mahoney, J.B.: Mantle-Derived Peridotite Xenoliths from the Western Intermontane Belt, Whitesail Lake map area (NTS 093E), Western BC ........................................ 153

Schiarizza, P. and Boulton, A.: Geology and Mineral Occurrences of the Quesnel Terrane, Canim Lake Area (NTS 092P/15), South-Central BC ........................................ 163


Simandl, G.J., Robinson, N.D. and Paradis, S.: Dolomite in BC: Geology, Current Producers and Possible Development Opportunities along the West Coast ........ 197


### GEOSCIENCE BC

Stevens, R.A.: Summary of Geoscience BC Program Activities 2005 .................................................. 231

Cook, S.J. and Dunn, C.E.: Preliminary Results of the Cordilleran Geochemistry Project: A Comparative Assessment of Soil Geochemical Methods for Detecting Buried Mineral Deposits, 3Ts Au-Ag Prospect (NTS 93F/3), Central BC .................................................. 237


Jackaman, W.: Drainage Sediment and Water Geochemical Surveys in the Anahim Lake and Nechako River Map Areas (NTS 93C and F), Central BC .................................................. 295

MacIntyre, D.: Geology and Mineral Deposits of the Skeena Arch, West-Central BC: A Geoscience BC Digital Data Compilation Project .................................................. 303

Mahoney, J.B., Haggart, J.W., Hooper, R.L., Snyder, L.D. and Woodsworth, G.J.: Geological Setting and Mineralization Potential of the Southwestern Whitesail Lake Map Area (NTS 93E), Western BC: Preliminary Assessment .................................................. 313

Marshall, D., Lesizcka, M., Xue, G. and Close, S.: Update on the Mineral Deposit Potential of the Nootka Sound Region (NTS 92E), West Coast of Vancouver Island, BC .................................................. 323

Mortensen, J.K.: Stratigraphic and Paleotectonic Studies of the Middle Paleozoic Sicker Group and Contained VMS Occurrences, Vancouver Island, BC .................................................. 331


