

GOVERNMENT

Yukon Geology Program

Grant Abbott

Yukon Geology Program

Overview	33
Program highlights for 1999	34
Aperçu	39
Appendix 1: Recent publications	40

Yukon Mining Incentives Program Overview, 2000

Ken Galambos

Mineral Resources Branch, Yukon Government

Summary	47
---------------	----

The Robert E. Leckie Awards for Outstanding Reclamation Practices

Karen Pelletier

Mining Land Use Division, Indian and Northern Affairs Canada

Awards	49
--------------	----

Yukon Geology Program

Grant Abbott¹
Yukon Geology Program

Abbott, J.G., 2001. Yukon Geology Program. In: Yukon Exploration and Geology 2000, D.S. Emond and L.H. Weston (eds.), Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, p. 33-45.

OVERVIEW

Now in its fifth year, the Yukon Geology Program (Fig. 1) is a de facto Yukon Geological Survey consisting of two integrated and jointly managed offices with different administrative structures (Fig. 2). Federal funding is provided through the Exploration and Geological Services Division (EGSD), Yukon Region of the Department of Indian Affairs and Northern Development (DIAND), while Yukon Territorial Government (YTG) and cost-shared (YTG/DIAND) funding comes through the Mineral Resources Branch of the Department of Economic Development (YTG). The Geological Survey of Canada (GSC) also maintains an office with the Program.



Figure 1. Yukon Geology Program staff, from left to right (top) Craig Hart, Anna Fonseca, Eric Peterson (bottom) Robert Deklerk, Charlie Roots, Tammy Allen, Mike Burke, Don Murphy, Grant Lowey, Lee Pigage, Ken Galambos, Leyla Weston, Jeff Bond, Panya Lipovsky, Jo-anne vanRanden, Bill LeBarge, Julie Hunt, Ali Wagner, Maurice Colpron, Danièle Héon, Monique Shoniker, Grant Abbott, Shirley Abercrombie, Gary Stronghill, Diane Emond and Gord Nevin.

¹abbottg@inac.gc.ca

The Yukon Geology Program is an informal and temporary organization that will be transformed into a Yukon Geological Survey when the responsibilities of the Northern Affairs Program of DIAND are devolved to YTG. Negotiations have met delays, and the target date for devolution has once again been moved ahead one year to April 1, 2002. The agreement in principal for the transfer is near completion and all parties expect negotiations to be successful.

During the past year, the Program benefited greatly from continued staff stability. YTG hired two GIS technicians, Gord Nevin and Gary Stronghill. Tammy Allen was appointed to a two-year term position to work on the Central Foreland NATMAP Project in La Biche River map area.

PROGRAM HIGHLIGHTS FOR 2000

FIELDWORK

The Yukon Geology Program is committed to providing a balanced complement of field projects, which provide stimulus to the mining and exploration industry and also takes the longer-term view to develop an understanding of the Yukon regional geological framework. The current state of fieldwork and locations of current field projects are shown in Figure 3.

The Yukon Geology Program continued to commit substantial resources to a joint Geological Survey of Canada-British Columbia Geological Survey Branch – Yukon Geology Program initiative, the Ancient Pacific Margin NATMAP (National Mapping Program) project. This project is a multidisciplinary effort to better

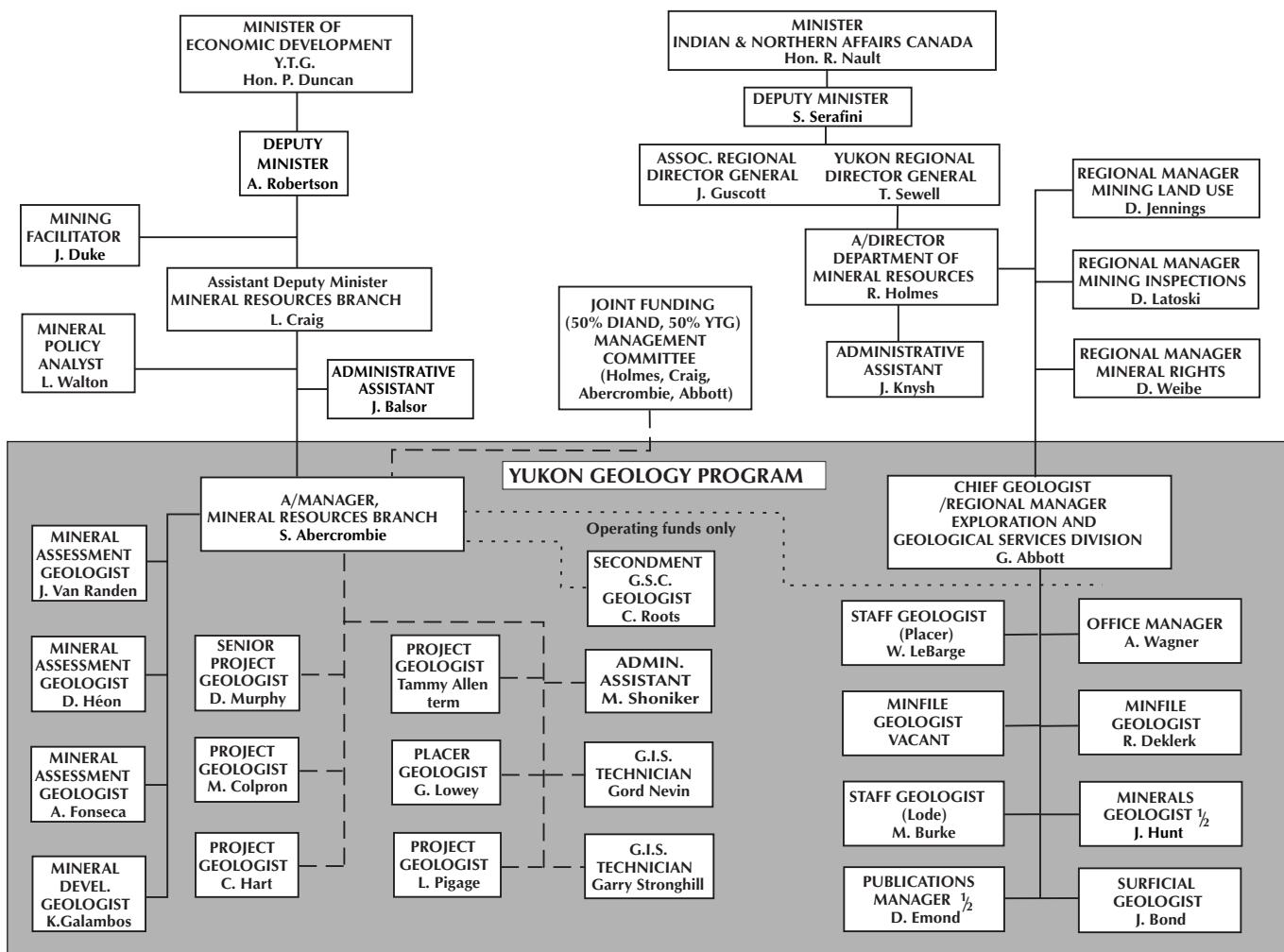


Figure 2. Yukon Mineral Resources organization chart.

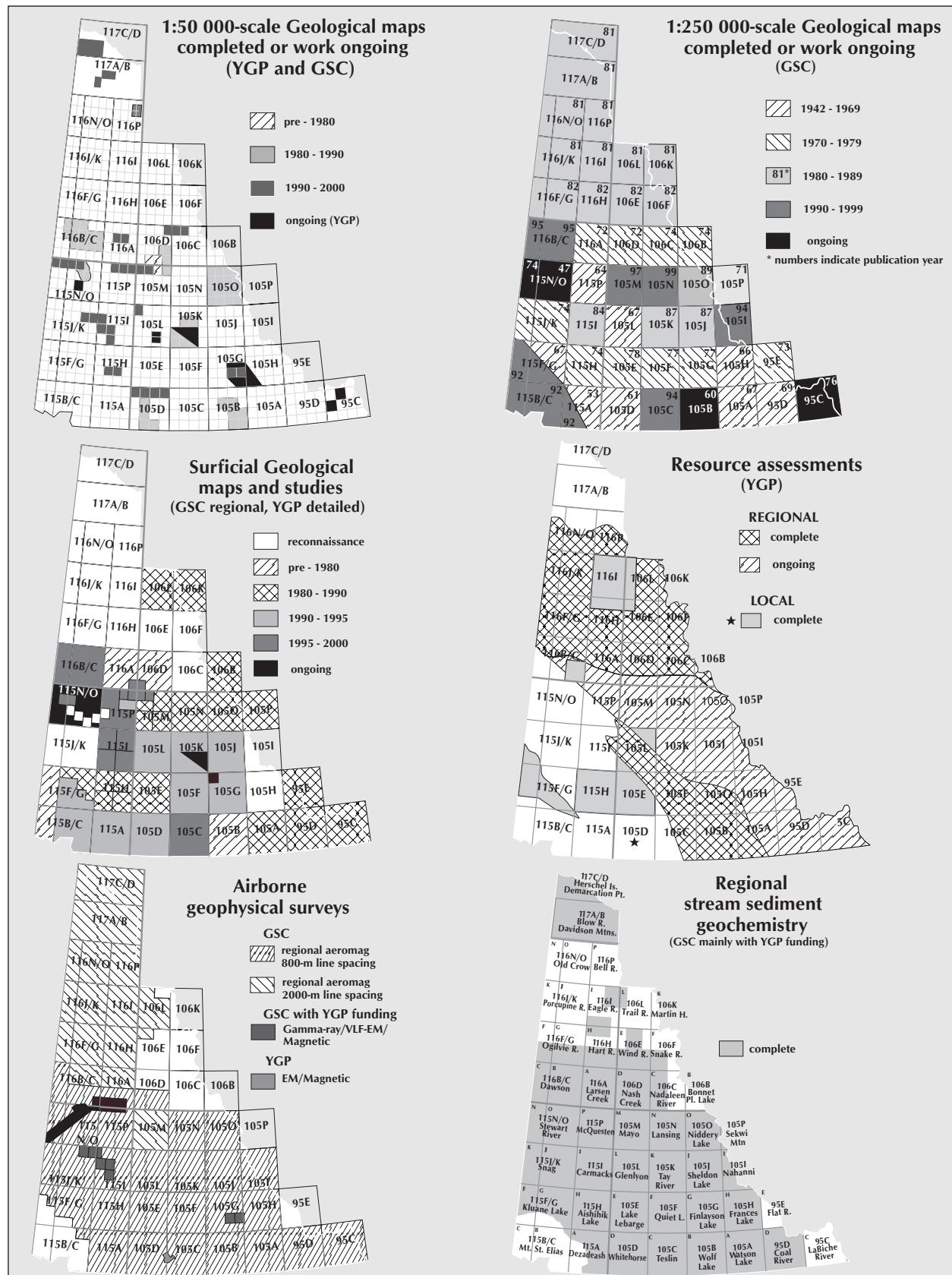


Figure 3. Summary of available geological maps and regional geochemical and geophysical surveys in the Yukon.

understand Yukon-Tanana and Kootenay terranes, arguably the least understood parts of the North American Cordillera.

The Yukon Geology Program contribution to NATMAP includes the ongoing work of Don Murphy in the Finlayson Lake massive sulphide district, fieldwork begun last year by Maurice Colpron in the Glenlyon area, mapping by Charlie Roots in the western half of Wolf Lake map area and the northern half of Jennings River map area in B.C. in partnership with Joanne Nelson and Mitch Mihalynuk of the B.C. Geological Survey Branch, and surficial studies by Grant Lowey in the Stewart River map area in conjunction with regional surficial studies by Lionel Jackson of the GSC.

Other parts of the Ancient Pacific Margin NATMAP include bedrock mapping of Stewart River map area in Yukon by Steve Gordey of the GSC, in southern B.C., regional mapping by Bob Thompson of the GSC, and in east-central Alaska, mapping by David Szumigala of the Alaska State Geological Survey, and mineral deposit studies by Cynthia Dusel-Bacon. Participation by numerous university researchers, graduate students and other specialists has greatly added to the depth and complexity of the project. In the Yukon, these include lithogeochemical studies in the Finlayson Lake area by Steve Piercy and Jim Mortensen of the University of British Columbia and mineral deposit studies by Suzanne Paradis of the GSC. Regular workshops and field trips are one of the main benefits of such a large and diverse project. This summer Jim Mortensen led a field trip along the Top of the World Highway, west of Dawson and into Alaska.

This year, the project received a substantial boost through additional funding provided by Natural Resources Canada's Targeted Geoscience Initiative (TGI). The extra funds were used to conduct an airborne multispectral and magnetometer survey across the Yukon-Tanana Terrane in Stewart River map area where bedrock exposure is especially poor. Preliminary approval was also given for TGI funding over the following two years. Plans for 2001 include accelerated regional mapping of Finalyson Lake map area north of the Tintina Fault, a till geochemical survey in the northern portion of the area between the Anvil and the Finlayson Lake massive sulphide districts, as well as additional geophysical surveys in the Stewart River map area. The proposal for 2002 includes accelerated mapping of the Yukon-Tanana portion of Glenlyon and McQuesten map areas and continued geophysical surveys in Stewart River map area. Priorities for the TGI proposal

were determined largely from the results of the Second Yukon Geoscience Planning Workshop held in March, 1999 (Yukon Geoscience - Looking to the next Millennium, EGSD Open File 2000-14).

In order to accommodate increasing interest from YTG and industry in hydrocarbon-related geoscience, Tammy Allen and Lee Pigage joined GSC Calgary staff and university researchers on the Central Forelands NATMAP Project in La Biche River map area in southeast Yukon. The three-year project will better define the geologic framework of the area with the highest hydrocarbon potential in all of Yukon.

Another major effort by the Yukon Geology Program is to synthesize and enhance the geological database of the Anvil District. The Faro mine remains closed for the foreseeable future, but the possibility remains for renewed exploration and mining at some point. Lee Pigage has completed bedrock mapping and expects to release a complete set of 11 geological compilation maps of the district at 1:25 000 scale by the spring of 2001. Jeff Bond has completed surficial mapping and a till geochemical survey and expects to release 11 final maps and a bulletin in the spring of 2001. Cliff Stanley has completed a lithogeochemical study of the Grizzly deposit, and will release a report later in the year.

Craig Hart continued his studies of Yukon gold occurrences; splitting his time between those related to the Tombstone intrusive suite northeast of the Tintina Fault, and those in the Dawson Range along trend from the Pogo Deposit in Alaska. Craig also assisted some of the students who received support from the YGP to study various aspects of Yukon gold deposits. These included Mark Lindsay and Julian Stephens, under the supervision of Tim Baker at James Cook University and John Mair at University of Western Australia; Erin Marsh and Seth Mueller under the supervision of Rich Goldfarb at the U.S. Geological Survey; and Scott Heffernan and Kelly Eamon under the supervision of Jim Mortensen at the University of British Columbia. Bedrock geology maps of the Dawson Range copper/gold belt, compiled from earlier mapping with the aid of recent geophysical surveys, are expected to be released in the spring of 2001.

Bill LeBarge and Mark Nowasad continued their studies of the relation between sedimentology, grain-size distribution, and water quality of effluent from placer deposits. Data gathered from this study should assist with the review of the Yukon Placer Authorization in 2001. The

bulletin for the Mayo Placer project is expected to be released in the spring of 2001.

Julie Hunt who is now working half time, is nearing completion of her bulletin on Yukon volcanogenic massive sulphide deposits.

Grant Lowey and Darrel Long undertook a sedimentological study of Cretaceous sedimentary rocks near Ross River where dinosaur tracks were recently discovered.

EXTERNAL SUPPORT

Derek Thorkelson at Simon Fraser University continued his research on Proterozoic rocks and mineral deposits in the Wernecke Mountains with a small study of the Bear River dykes.

John Westgate at the University of Toronto continued tephrochronology studies in the Klondike area.

Robert Creaser and Dave Selby at the University of Alberta began a project to determine the feasibility of using Rhenium/Osmium systematics to determine the age of molybdenum in Yukon mineral deposits.

In order to make Regional Stream Geochemical data from the National Geochemical Reconnaissance Program more accessible, Peter Friske with the Geological Survey of Canada in Ottawa was funded to produce a template for display of existing Open File data in pdf format. We expect to begin releasing existing RGS data as pdf files in the new year.

INDUSTRY LIAISON AND SUPPORT

Mike Burke and Bill LeBarge, our main links to the exploration industry, continued to monitor Yukon hard-rock and placer mining and mineral exploration activity, visit active properties, review reports for assessment credit, and maintain the assessment report library.

YUKON MINFILE

Robert Deklerk maintains the Yukon MINFILE, Yukon's mineral occurrence database, which is another mainstay of the Yukon Geology Program. We have completed an upgrade from Microsoft Access Version 2 to Access 97 with major revision and simplification of the database structure. The updated digital version, with data revised to 1998, will be released on CD-ROM in the spring of 2001. New location maps produced in Arcview will accompany the release. The text version of MINFILE is available on

our website and in hard copy through Exploration and Geological Services Division.

YUKON GEOPROCESS FILE

The Yukon GEOPROCESS File, under the direction of Diane Emond, is an inventory of information on geological process and terrain hazards, including 1:250 000 scale maps showing permafrost, landslides, recent volcanic rocks, structural geology, and seismic events and also includes references and summaries of bedrock and surficial geology. The GEOPROCESS File is intended as a planning aid for development activities and is available for most areas south of 66° latitude. The maps will soon be available in colour, on a single compact disk (CD).

H.S. BOSTOCK CORE LIBRARY

Mike Burke and Ken Galambos maintain the H.S. Bostock Core Library. The facility contains about 128,000 m of diamond drill core from about 200 Yukon mineral occurrences. Confidentiality of material is determined on the same basis as mineral assessment reports. Confidential core can be viewed with a letter of release from the owner. Rock saws and other rock preparation equipment are available to the public.

MINERAL RESOURCE ASSESSMENTS

The Yukon Mineral Resources Branch is responding to an increasing need for geological and metallogenic information to assist resolution of land use issues and conflicts. Some of the pressures have come from First Nation land claims negotiations, and localized land use conflicts such as one within the city limits of Whitehorse. Another important priority of the Yukon Government is to implement the Yukon Protected Areas Strategy, the goal of which is protection and withdrawal of representative land from industrial activity in all 23 ecoregions in the Yukon. YTG Economic Development intends to provide efficient and cost-effective input into the selection process by undertaking a Yukon-wide mineral potential study. Providing information on mineral potential at a regional scale will assist in guiding the selection of areas of interest, in order to minimize the impact on the access to mineral wealth.

A regional mineral potential exercise was conducted in the spring of 1999 for Northern Yukon, in the winter of 2000 for Cassiar Terrane and eastern Yukon-Tanana

Terrane, and in the fall of 2000 for Selwyn Basin. Expert panels estimated the probability of discovering new mineral deposits in geological tracts. Their estimations were processed through the Monte Carlo simulator and the resulting map displays the relative mineral potential of the tracts. The draft mineral potential maps will be used in the planning of the proposed Arctic Dempster Protected Area Strategy, Wolf Lake National Park, Nordenskiold Habitat Protection Area, and Ddhaw Gho Special Management Area. The Cassiar Terrane and eastern Yukon-Tanana Terrane project provides a regional context for proposed protected areas within the Teslin Tlingit Council Traditional Territory, one of which is the Wolf Lake federal initiative. The study area covers most of the Traditional Territory and the portions of the Pelly Mountains and Yukon Southern Lakes ecoregions within it. The Selwyn Basin project will be completed by January 2001, and will be key to land claim negotiations and Yukon Protected Areas Strategy initiatives within Kaska Dena (Liard First Nation and Ross River Council) Traditional Territory. Compilation is ongoing for the next regional assessment to address Stikine and Cache Creek terranes. The assessment is planned for spring of 2001.

Field-based mineral deposit model studies were conducted in the Bonnet Plume Lake, Frances Lake, and La Biche River areas.

Due to the ongoing review of the implementation of Yukon Protected Areas Strategy, no detailed mineral resource assessments were conducted in 2000. Geological mapping, prospecting and sampling in anticipation of detailed mineral resource assessments were carried out in the Richardson Mountains, McArthur Range, and Nordenskiold River area.

Staff thoroughly review land claim selections and provide technical information to territorial land claim negotiators. Comments are provided on mineral potential, exploration history, mineral land tenure and access. Staff also updates and distributes the Yukon Land Status Map.

YUKON MINING INCENTIVE PROGRAM

The Yukon Government provides grants for grass roots exploration and initial development of properties. This year a total of \$761,800 was distributed to 54 prospectors under the supervision of Ken Galambos.

PUBLICATIONS

The Yukon Geology Program is now converted to fully digital publishing. All geological maps are now printed and new publications are being produced from a digital format, on-demand. This advance will greatly reduce our printing and storage costs. An increasing number of Yukon Geology Program publications are available for download free of charge on our website at www.geology.gov.yk.ca/publications. Yukon Geology Program publications are published by Exploration and Geological Services Division, DIAND and are available at the address below.

Geoscience Information and Sales
c/o Whitehorse Mining Recorder
102-300 Main Street
Whitehorse Yukon Y1A 2B5
Ph. (867) 667-3266, Fax. (867) 667-3267
E-mail: [geosales @inac.gc.ca](mailto:geosales@inac.gc.ca)

To learn more about the Yukon Geology Program, visit our homepage at <http://www.geology.gov.yk.ca> or contact us directly:

Grant Abbott, Chief Geologist
Exploration and Geological Services Division
Indian and Northern Affairs Canada
345-300 Main Street
Whitehorse, Yukon Y1A 2B5
Ph. (867) 667-3200
E-mail: abbottg@inac.gc.ca

Shirley Abercrombie, Acting Manager
Mineral Resources Branch
Department of Economic Development
Government of Yukon
P.O. Box 2703
Whitehorse, Yukon Y1A 2C6
Ph. (867) 667-3438
E-mail: sabercro@gov.yk.ca

APERÇU

Le Service de géologie du Yukon (fig. 1), qui en est maintenant à sa cinquième année d'existence, est dans les faits la commission géologique du Yukon et consiste en deux bureaux intégrés présentant des structures administratives différentes mais qui sont gérés conjointement (fig.2). Le financement par le fédéral est fourni par l'entremise de la Division des Services d'exploration et de géologie du ministère des Affaires indiennes et du Nord canadien (MAIN), alors que le financement par le territoire et à coûts partagés (GTY/MAIN) est obtenu par l'entremise de la Direction des ressources minérales du ministère de l'Expansion économique (gouvernement du territoire du Yukon (GTY)). La Commission géologique du Canada (CGC) maintient également un bureau auprès du Service.

Le Service de géologie du Yukon est une organisation informelle et temporaire qui sera transformée en commission géologique du Yukon lorsque les responsabilités du Programme des affaires du Nord seront dévolues au GTY. Il y a eu des retards dans les négociations et la date cible de cette dévolution a été devancée d'un an et fixée au premier avril 2002. L'entente de principe concernant le transfert est presque complétée et toutes les parties s'attendent à ce que les négociations soient couronnées de succès.

Le programme de géologie du Yukon compte de nombreuses fonctions dont les principales sont les suivantes : assurer la liaison entre l'industrie minérale et le gouvernement; tenir des bases de données géologiques telles que Yukon MINFILE (gîtes minéraux), Yukon GEOPROC-ESS FILE (processus géologiques et dangers du terrain) et Yukon Placer MINFILE (gisements placériens : cette base est toujours en cours d'élaboration); tenir un point de vente de cartes et de publications et une carothèque (H.S. Bostock Core Library); et enfin, promouvoir et exécuter de nouvelles recherches géologiques, et en publier les résultats.

La plupart des travaux de recherche géologique sont maintenant exécutés de concert avec des initiatives d'autres agences gouvernementales. Dans le cadre de CARTNAT (programme de cartographie géologique de l'ancienne marge du Pacifique) par exemple, la Commission géologique du Canada, la Direction de la Commission géologique de la Colombie-Britannique et le programme de géologie du Yukon mènent en ce moment un projet multidisciplinaire en vue de mieux comprendre les terranes de Yukon-Tanana et de Kootenay, soit les

parties considérées comme les moins bien connues de la cordillère nord-américaine. Ces travaux, qui se déroulent au Yukon et en Colombie-Britannique, comprennent des travaux de cartographie géologique dans le district de Finlayson Lake, dans la région de Glenlyon, dans la région de Wolf Lake et dans la région de Jennings River (dans le nord de la Colombie-Britannique), de même que des travaux de cartographie géologique du socle et des dépôts superficiels dans la région de Stewart River. D'autres études connexes (par exemple sur les gîtes minéraux) menées au Yukon, en Colombie-Britannique et en Alaska par les géologues du programme de géologie du Yukon, des chercheurs universitaires, des étudiants de deuxième et de troisième cycle, et autres spécialistes ont grandement contribué à la valeur scientifique du projet. En outre, on a effectué un levé multispectral et magnétométrique aéroporté du terrane de Yukon-Tanana dans la région de Stewart River où le socle rocheux est très peu exposé.

Des travaux de cartographie géologique dans la région de LaBiche River, une région présentant un potentiel d'hydrocarbures, ont été aussi poursuivi dans le cadre de CARNAT 'Central Forelands'.

Au nombre des autres objectifs majeurs visés par le programme de géologie du Yukon, mentionnons celui consistant à synthétiser et à améliorer la base de données géologiques du district d'Anvil, initiative qui comprend la cartographie géologique du socle rocheux et des dépôts superficiels, et des levés géochimiques de till, en plus de l'étude des gîtes minéraux. Les indices aurifères du Yukon sont aussi à l'étude, l'attention portant sur ceux associés à la suite intrusive de Tombstone au nord-est de la faille de Tintina et sur ceux de la chaîne de Dawson, qui sont en ligne avec le gisement de Pogo en Alaska. Les études se poursuivent dans le domaine des placers, l'intérêt portant sur la relation entre la sédimentologie, la répartition granulométrique et la qualité de l'eau des effluents provenant des dépôts placériens. Une étude sédimentologique a aussi été menée dans des roches sédimentaires du Crétacé près de Ross River, dans une région où l'on a récemment découvert des pistes de dinosaures.

La Direction générale des Ressources minérales du gouvernement du Yukon répond actuellement à un besoin croissant d'information dans les domaines de la géologie et de la métallogénie, aux fins du règlement des questions et des conflits relatifs à l'aménagement du territoire, notamment la Stratégie des zones protégées du

Yukon. Le but de cette dernière est de réserver des terres représentatives pour les protéger de toute activité industrielle dans les 23 écorégions du Yukon. Le ministère du Développement économique du Yukon a annoncé une participation efficace et rentable au processus de sélection en entreprenant une étude du potentiel minéral de l'ensemble du territoire. Le programme de géologie du Yukon joue un rôle proactif en fournissant de l'information et des études sur le potentiel minéral à l'échelle régionale, afin de faciliter la sélection des sites d'intérêt et de minimiser ainsi l'impact sur l'accès aux richesses minérales.

Le gouvernement du Yukon accorde des subventions de prospection et de développement initial, dans le cadre du Programme d'encouragement pour l'exploitation minérale du Yukon. On a attribué cette année un total de 761 000 \$ à 54 prospecteurs.

Les publications du programme de géologie du Yukon sont diffusées par la Division des services géologiques et d'exploration (MAINC). Un nombre croissant de publications du programme de géologie du Yukon sont aussi disponibles sans frais à : www.geology.gov.yk.ca. Tous les publications sont disponibles à l'adresse suivante :

Bureau d'information et des ventes en géosciences
a/s Conservateur des registres miniers
Affaires indiennes et du Nord canadien
300 rue Main-bur.102
Whitehorse (Yukon) Y1A 2B5
Téléphone : (867) 667-3266
Courriel : geosales@inac.gc.ca

Pour en savoir plus long sur le Programme d'études géologiques du Yukon, visitez notre page d'accueil à <http://www.geology.gov.yk.ca> ou communiquez directement avec :

Grant Abbott, Géologue principal intérimaire
Division de l'exploration et des services géologiques
Affaires indiennes et du Nord canadien
300 rue Main-bur. 345
Whitehorse (Yukon) Y1A 2B5
Téléphone : (867) 667-3200
Courriel : gabbott@gov.yk.ca

Shirley Abercrombie, Gestionnaire intérimaire
Division des ressources minérales
Ministère de l'Expansion économique
C.P. 2703
Whitehorse (Yukon) Y1A 2C6
Téléphone : (867) 667-3438
Courriel : sabercro@gov.yk.ca

APPENDIX 1: RECENT PUBLICATIONS

BULLETIN

Thorkelson, D.J., 2000. Geology and mineral occurrences of the Slats Creek, Fairchild Lake and "Dolores Creek" areas, Wernecke Mountains (106D/16, 106C/13, 106C/14), Yukon Territory; Bulletin 10, three accompanying maps (1:50 000 scale).

OPEN FILES

Abbott, J.G. and Emond, D.S. (eds.), 2000. Yukon Geoscience – Looking to the Next Millennium; Open File 2000-14, 35 p.

Allen, T.L. and Pigage, L.C., 2000. Geological map of Pool Creek (95C/5), southeastern Yukon (1:50 000 scale); Open File 2000-11.

Bond, J.D., 2000. Surficial geological map and till geochemistry of Weasel Lake (105G/13), central Yukon (1:50 000 scale); Open File 2000-9.

Colpron, M., 2000. Geological map of Little Salmon Lake (parts of 105L/1, 2 & 7), central Yukon (1:50 000 scale); Open File 2000-10.

Hunt, J.A, Abbott, J.G and Hart, C.J.R., 2000. Preliminary metallogenetic maps of Yukon (25 pages); Open File 2000-1.

Murphy, D.C., 2000. Preliminary geological map of part of the Klatsa River area (105H/3), southeastern Yukon (1:50 000 scale); Open File 2000-15.

Murphy, D.C., 2000. Preliminary geological map of part of the 'Tuchitua River – north' (105H/4), southeastern Yukon (1:50 000 scale); Open File 2000-16.

Murphy, D.C., 2000. Preliminary geological map of the Money Creek area (105H/5), southeastern Yukon (1:50 000 scale); Open File 2000-17.

Pigage, L.C., 2000. Geological map of Mount Mye (105K/6 NW), central Yukon (1:25 000 scale); Open File 2000-2.

Pigage, L.C., 2000. Geological map of Mount Mye (105K/6 NE) and Barwell Lake (105K/11 SE), central Yukon (1:25 000 scale); Open File 2000-3.

Pigage, L.C., 2000. Geological Map of Swim Lakes (105K/2 SE), central Yukon (1:25 000 scale); Open File 2000-4.

Pigage, L.C., 2000. Geological map of Swim Lakes (105K/2 NE), central Yukon (1:25 000 scale); Open File 2000-5.

Pigage, L.C., 2000. Geological map of Swim Lakes (105K/2 W), central Yukon (1:25 000 scale); Open File 2000-6.

Pigage, L.C., 2000. Geological map of Mount Mye (105K/6 E), central Yukon (1:25 000 scale); Open File 2000-7.

Pigage, L.C., 2000. Geological map of Blind Creek (105K/7 SW), central Yukon (1:25 000 scale); Open File 2000-8.

Pigage, L.C., 2000. Geological map of Rose Mountain (105K/5 NE), central Yukon (1:25 000 scale); Open File 2000-13.

YGP OUTSIDE ARTICLES

Flanigan, B., Freeman, C., McCoy, D., Newberry, R. and **Hart, C.**, 2000. Paleo-reconstruction of the Tintina gold belt – Implications for mineral exploration. In: The Tintina Gold Belt: Concepts, Exploration and Discoveries, British Columbia and Yukon Chamber of Mines, Special Volume 2, p. 35-48.

Flanigan, B., Freeman, C., McCoy, D., Newberry, R. and **Hart, C.**, 2000. Paleo-reconstruction of the Tintina gold belt, Alaska and Yukon Territory, Canada – Implications for mineral exploration. In: Geology & Ore Deposits 2000 - The Great Basin & Beyond, Reno-Sparks, Nevada.

Goldfarb, R., **Hart, C.**, Miller, M., Miller, L., Farmer, G.L. and Groves, D., 2000. The Tintina gold belt: A global perspective. In: The Tintina Gold Belt: Concepts, Exploration and Discoveries, British Columbia and Yukon Chamber of Mines, Special Volume 2, p. 5-34.

Hart, C.J.R., Baker, T. and **Burke, M.**, 2000. New exploration concepts for country-rock hosted, intrusion-related gold systems, Tintina gold belt in Yukon. In: The Tintina Gold Belt: Concepts, Exploration and Discoveries, British Columbia and Yukon Chamber of Mines, Special Volume 2, p. 145-172.

Lang, J.R., Baker, T., **Hart, C.J.R.** and Mortensen, J.K., 2000. An exploration model for intrusion-related gold systems. Society of Economic Geologists Newsletter, no. 40, p. 1-15.

- Lowey, G.W.**, 2000. The Tatshenshini shear zone (new) in southwestern Yukon: Comparison with the Coast Mountains structural zones in southeastern Alaska, and implications regarding the Shakwak suture. *Tectonics*, vol. 19, p. 512-528.
- Mortensen, J.K., **Hart, C.J.R.**, Murphy, D.C. and Heffernan, S., 2000. Temporal evolution of Early and mid-Cretaceous magmatism in the Tintina gold belt. In: *The Tintina Gold Belt: Concepts, Exploration and Discoveries*, British Columbia and Yukon Chamber of Mines, Special Volume 2, p. 49-58.
- Symons, D.T.A., Williams, P.R., McCausland, P.J.A., Harris, M.J., **Hart, C.J.R.** and Blackburn, W.H., 2000. Paleomagnetism and geobarometry of the Big Creek Batholith suggests that the Yukon-Tanana Terrane has been a parautochthon since Early Jurassic. *Tectonophysics*, vol. 326, p. 57-72.
- Symons, D.T.A., Harris, M.J., Gabites, J.E. and **Hart, C.J.R.**, 2000. Eocene (51 Ma) end to northward translation of the Coast Plutonic Complex: Paleomagnetism and K-Ar dating of the White Pass Dikes. *Tectonophysics*, vol. 326, p. 93-109.
- YUKON GEOLOGY PROGRAM ABSTRACTS/EXTENDED ABSTRACTS/LITHOPROBE CONTRIBUTIONS**
- Allen, T.** and **Pigage, L.**, 2000. Preliminary geology of the Pool Creek map area (NTS 95C/5), southeastern Yukon. In: *Central Foreland NATMAP Project, 2000 Fall Workshop Program and Abstracts*, R.B. MacNaughton (ed.), p. 6-9.
- Colpron, M.**, 2000. Coherent stratigraphic succession from Little Salmon range (Yukon-Tanana Terrane), central Yukon. *Lithoprobe SNORCLE Report No. 72*, p. 189-191.
- Colpron, M., Murphy, D.C.** and Mortensen, J.K., 2000. Mid-paleozoic tectonism in Yukon-Tanana Terrane, northern Canadian Cordillera: Record of intra-arc deformation. *Lithoprobe SNORCLE Report No. 72*, p. 139.
- Colpron, M., Murphy, D.C.** and Mortensen, J.K., 2000. Mid-Paleozoic tectonism in Yukon-Tanana Terrane, northern Canadian Cordillera: Record of intra-arc deformation. *Geological Society of America Abstracts with Programs*, vol. 32, No. 6, p. A-7.
- Colpron, M., Murphy, D.C.** and Mortensen, J.K., 2000. The Tatshenshini shear zone (new) in southwestern Yukon: Comparison with the Coast Mountains structural zones in southeastern Alaska, and implications regarding the Shakwak suture. *Tectonics*, vol. 19, p. 512-528.
- Colpron, M., Murphy, D.C.** and Mortensen, J. K., 2000. Mid-Paleozoic tectonism in Yukon-Tanana Terrane, northern Canadian Cordillera: Record of intra-arc deformation. In: *GeoCanada 2000 CD Abstracts*, Joint meeting of the Canadian Geophysical Union, Canadian Society of Exploration Geophysicists, Canadian Society of Petroleum Geologists, Canadian Well Logging Society, Geological Association of Canada, and the Mineralogical Association of Canada, Calgary, Alberta.
- Farmer, G.L., Mueller, S., Marsh, E., Goldfarb, R.J. and **Hart, C.J.R.**, 2000. Isotopic evidence on sources of Au-related mid-Cretaceous Tombstone Plutonic Suite granitic rocks, Clear Creek District, Yukon. *Geological Society of America Abstracts with Programs*, vol. 32, No. 6, p. A13.
- Harris, M.J., Symons, D.T.A., **Hart, C.J.R.** and Blackburn, W.H., 2000. A summary of Jurassic paleomagnetic data describing the tectonic motions of the terranes underlying the Intermontane Belt, Canadian Cordillera. *Lithoprobe SNORCLE Report No. 72*, p. 224.
- Harris, M.J., Symons, D.T.A., **Hart, C.J.R.**, Blackburn, W.H. and McCausland, P.J.A., 2000. Geotectonic motions of the northern Canadian Cordilleran terranes: A paleomagnetic summary. In: *GeoCanada 2000 CD Abstracts*, Joint meeting of the Canadian Geophysical Union, Canadian Society of Exploration Geophysicists, Canadian Society of Petroleum Geologists, Canadian Well Logging Society, Geological Association of Canada, and the Mineralogical Association of Canada, Calgary, Alberta.
- Harris, M.J., Symons, D.T.A., **Hart, C.J.R.**, Blackburn, W.H. and McCausland, P.J.A., 2000. Paleomagnetic evidence for the tectonic motions of the terranes underlying the northern Intermontane Belt, Canadian Cordillera: A Summary. *Lithoprobe SNORCLE Report No. 72*, p. 155-164.
- Hart, C.J.R.**, Baker, T., Lindsay, M.J., Oliver, N.H.S., Stephens, J.R. and Mair, J.L., 2000. Structural controls on Tombstone Plutonic Suite gold deposits, Tintina gold belt, Yukon. *Geological Society of America Abstracts with Programs*, vol. 32, No. 6, p. A18.
- Huscroft, C.A., Barendregt, R.W., Jackson, L.E., Villeneuve, M. and **Hart, C.J.R.**, 2000. Paleomagnetic and geomorphic evidence for extensive Brunhes age volcanism, the Fort Selkirk-Rosebud Creek area, Yukon Territory, Canada. *American Geophysical Union, Autumn Meeting, San Francisco*.

- Lowey, G.W.**, 1999. The fluvial geology of placer gold deposits in the Indian River area, west-central Yukon (abstract). In: CANQUA-CGRC 1999, Canadian Quaternary Association – Canadian Geomorphology Research Group, Program and Abstracts, Calgary, p. 43-44.
- Lowey, G.W.**, 2000. When I heard the learn'd geologist (poem). *Geolog*, vol. 29, p. 28.
- Piercey, S.J., Murphy, D.C.**, Mortensen, J.K. and Paradis, S., 2000. Arc-rifting and ensialic back-arc basin magmatism in the northern Canadian Cordillera: Evidence from the Yukon-Tanana Terrane, Finlayson Lake region, Yukon. *Lithoprobe SNORCLE Report No. 72*.
- Mair, J.L., Hagemann, S.G., Goldfarb, R.J. and **Hart, C.J.R.**, 2000. Scheelite Dome, Tombstone gold belt: An example of intrusion-related, metasedimentary-rock-hosted gold mineralization. Geological Society of America Cordilleran Section, Abstracts with Programs, vol. 32, No. 6, p. A27.
- Marsh, E., Goldfarb, R., **Hart, C.** and Johnson, C., 2000. Auriferous sheeted quartz veins of the Clear Creek intrusion-related gold deposit, Tintina mineral belt, Yukon, Canada. In: Gold in 2000, Extended Abstracts Volume, L.A. Bucci and J.L. Mair (eds.), Lake Tahoe, Nevada, p. 53-56. Available from Centre for Global Metallogeny, University of Western Australia.
- Marsh, E.E., Goldfarb, R.J., Johnson, C.A., Kester, C.L. and **Hart, C.J.R.**, 2000. Geochemical constraints on the genesis of lode gold occurrences, Clear Creek area, Tombstone gold belt, Yukon. Geological Society of America Cordilleran Section, Abstracts with Programs, vol. 32, No. 6, p. A28.
- McCausland, P.J.A., Symons, D.T.A., **Hart, C.J.R.** and Blackburn, W.H., 2000. Minimal geotectonic motion of Yukon-Tanana Terrane relative to North America: Preliminary paleomagnetic results from the Dawson Range Batholith. *Lithoprobe SNORCLE Report No. 72*, p. 146-154.
- Murphy, D.C.** and Piercey, S.J., 2000. The Money Creek thrust, Yukon-Tanana Terrane, southeastern Yukon: Intra-terrane shortening by thrust re-activation of a syn-depositional fault. Geological Society of America Cordilleran Section Abstracts with Programs, vol. 32, No. 6, p. A57.
- Piercey, S.J., **Murphy, D.C.** and Mortensen, J.K., 2000. Magmatic diversity in a pericratonic realm: Tales from the Yukon-Tanana Terrane in the Finlayson Lake region, southeastern Yukon, Canada. Geological Society of America Cordilleran Section Abstracts with Programs, vol. 32, No. 6, p. A62.
- Piercey, S.J., Paradis, S., **Murphy, D.C.** and Mortensen, J.K., 2000. Tectonic setting of felsic metavolcanic-hosted volcanogenic massive sulfide (VMS) mineralization in the Finlayson Lake district, Yukon-Tanana Terrane, southeastern Yukon, Canada. Geological Society of America Cordilleran Section Abstracts with Programs, vol. 32, No. 6, p. A62.
- Roots C.F.**, Nelson, J.L., Orchard, M.J. and Bamber, E.W. 2000. Faunal assemblages and age range of carbonate rocks among pericratonic assemblages in southern Yukon and northern BC. Geological Society of America Cordilleran Section Abstracts with Programs, vol. 32, No. 6, p. A65.
- ### YUKON THESIS
- Clapham, M.E., 2000. Lower and Middle Jurassic stratigraphy and ammonite fauna of the northern Whitehorse Trough, Yukon, Canada. Unpublished BSc Thesis, University of British Columbia.
- ### YUKON GEOLOGICAL PUBLICATIONS OF INTEREST
- Burn, C.R., 2000. The thermal regime of a retrogressive thaw slump near Mayo, Yukon Territory. *Canadian Journal of Earth Sciences*, vol. 37, p. 967-981.
- Cook, F.A., Clowes, R.M., Snyder, D.B., van der Velden, A.J., Hall, K.W. and Vasudevan , K., 2000. SNORCLE reflection survey 1999-2000: Corridors 2 and 3. *Lithoprobe SNORCLE Report No. 72*, p. 122-123.
- Coulson, I.M. and Dipple, G.M., 2000. Evolution of HF and HCl activity in magmatic volatiles of the Emerald Lake Pluton, Tombstone Plutonic Suite, Yukon Territory. Geological Society of America Cordilleran Section Abstracts with Programs, vol. 32, No. 6.
- Creaser, B. and Spence, G., 2000. Crustal seismic velocity structure of the northern Cordillera, southern Yukon Territory, *Lithoprobe SNORE line 31. Lithoprobe SNORCLE Report No. 72*, p. 110-113.

- de Keijzer, M., Williams, P.F. and Carr, S.D., 2000. Reflections on Lithoprobe-SNORCLE line 31 in light of the structure of the Teslin zone in the Last Peak area (NTS map 105E/9), southern Yukon Territory. *Lithoprobe SNORCLE Report No. 72*, p. 114-121.
- Driver, L.A., Creaser, R.A., Chacko, T.A. and Erdmer, P., 2000. Petrogenesis of the Cretaceous Cassiar Batholith, Yukon-British Columbia, Canada: Implications for magmatism in the North American Cordilleran Interior. *Geological Society, Bulletin*, vol. 112, p. 1119-1133.
- Froese, D.G., Barendregt, R.W., Enkin, R.J. and Baker, J., 2000. Paleomagnetic evidence for multiple Late Pliocene – Early Pleistocene glaciations in the Klondike area, Yukon Territory. *Canadian Journal of Earth Sciences*, vol. 37, p. 863-877.
- Gordey, S.P. and Makepeace, A.J., 2000. New digital compilation of Yukon geology. *Lithoprobe SNORCLE Report No. 72*, p. 128.
- Groat, L.A., Ercit, T.S., Wise, M.A., Wengzynowski, W. and Eaton, W.D., 2000. The Crown Emerald showing, southeastern Yukon. *Geological Society of America Cordilleran Section Abstracts with Programs*, vol. 32, No. 6, p. A15.
- Harms, T.A., 2000. Proposed terrane affinities of pericratonic assemblages in northern British Columbia and southern Yukon, Canada. *Geological Society of America Cordilleran Section Abstracts with Programs*, vol. 32, No. 6, p. A17.
- Heffernan, R.S. and Mortensen, J.K., 2000. Age, geochemical, and metallogenic investigations of Cretaceous intrusions in the Tintina gold belt, southeastern Yukon. *Geological Society of America Cordilleran Section Abstracts with Programs*, vol. 32, No. 6, p. A.
- Huscroft, C.A., 2000. Volcanic and terrace stratigraphy along the Yukon River between Fort Selkirk and White River, Yukon Territory. *Geological Society of America Cordilleran Section Abstracts with Programs*, vol. 32, No. 6, p. A20.
- Jackson, D.E. and Lenz, A.C., 2000. Some graptolites from the late Tremadoc and early Arenig of Yukon, Canada. *Canadian Journal of Earth Sciences*, p. 1177-1193.
- Kotler, E. and Burn, C.R., 2000. Cryostratigraphy of the Klondike “muck” deposits, west-central Yukon Territory. *Canadian Journal of Earth Sciences*, vol. 37, p. 849-861.
- Ledo, J., Jones, A.G. and Ferguson, I.J., 2000. New SNORCLE magnetotelluric data: Preliminary implications. *Lithoprobe SNORCLE Report No. 72*, p. 124-127.
- MacNaughton, R.B., Narbonne, G.M. and Dalrymple, R.W., 2000. Neoproterozoic slope deposits, Mackenzie Mountains, northwestern Canada: Implications for passive-margin development and Ediacaran faunal ecology. *Canadian Journal of Earth Sciences*, vol. 37.
- Morris, G.A. and Creaser, R.A., 2000. Geochemical and isotopic constraints on the source terranes of mid-Cretaceous granites in the Teslin area. *Lithoprobe SNORCLE Report No. 72*, p. 140-142.
- Morris, G.A., 2000. Early Eocene magmatism in NE Washington State and SW Yukon Territory. *Geological Society of America Cordilleran Section Abstracts with Programs*, vol. 32, No. 6, p. A32.
- Mortensen, J.K. and Yukon-Tanana Working Group, 2000. Temporal evolution of mid-Paleozoic magmatism. In: Yukon-Tanana Terrane, Northwestern Canada. *Geological Society of America Cordilleran Section Abstracts with Programs*, vol. 32, No. 6, p. A57.
- O'Dea, M., 2000. Structural controls on mineralization at Scheelite Dome, Yukon Territory. *Geological Society of America Cordilleran Section Abstracts with Programs*, vol. 32, No. 6, p. A60.
- Preece, S.J., Westgate, J.A., Alloway, B.V. and Milner, M.W., 2000. Characterization, identity, distribution, and source of late Cenozoic tephra beds in the Klondike district of the Yukon, Canada. *Canadian Journal of Earth Sciences*, vol. 37, p. 983-996.
- Resnick, J. and Francis, D., 2000. Eocene magmatism along the Sloko volcanic arc. *Lithoprobe SNORCLE Report No. 72*, p. 143-145.
- Stephens, J.R. and Mair, J.L., 2000. Structural control on intrusion-related gold mineralization at Clear Creek, Scheelite Dome and Dublin Gulch, Tombstone gold belt: Implications for E-W shortening in a low magnitude, low differential stress regime. *Geological Society of America Abstracts with Programs*, Reno, Nevada, vol. 32, p. A83.

- Stephens, J.R. and Mair, J.L., 2000. Structural controls on intrusion-related gold mineralization at Clear Creek, Tintina gold belt, Yukon Territory, Canada. In: Gold in 2000, J.L. Mair and L.A. Bucci, (eds.), Extended Abstract Volume, Lake Tahoe, Nevada, p. 57-60. Available from the Centre for Global Metallogeny, University of Western Australia.
- Westgate, J.A., Preece, S.J., Kotler, E. and Hall, S., 2000. Dawson tephra: A prominent stratigraphic marker of Late Wisconsinan age in west-central Yukon, Canada, vol. 37, p. 621-627.
- Yarnell, J.M. and Stanley, G.D. (Jr.), 2000. Two Triassic reef faunas from terranes in Alaska and Yukon and their paleogeographic significance. Geological Society of America Abstracts with Programs, Reno, Nevada, vol. 32, p. A12
- GEOLOGICAL SURVEY OF CANADA**
- Cecile, M.P., 2000. Geology and structure cross-sections, Fango Lake, Yukon Territory; long. 131°30'-132°00', lat. 63°30'-63°45', scale 1:50 000 (NTS 105O/12). Geological Survey of Canada, Open File 1966A.
- Cecile, M.P., 2000. Geology of the northeastern Niddery Lake map area, east-central Yukon and adjacent Northwest Territories. Geological Survey of Canada, Bulletin 553, 120 p.
- Currie, L.D., Kubli, T.E. and McDonough, M.R., 2000. Preliminary geology, Chinkeh Creek (95C/9), Yukon and Northwest Territories; 1 colour map, scale 1:50 000. Geological Survey of Canada, Open File 3843.
- Currie, L.D., Kubli, T.E. and McDonough, M.R., 2000. Preliminary geology, Babiche Mountain (95C/8), Yukon and Northwest Territories; 1 colour map, scale 1:50 000. Geological Survey of Canada, Open File 3844.
- Morrow, D.W. and MacLean, B.C., 2000. Regional interpretations of public domain seismic in the Liard region north of 60°: Pre-Phanerozoic events, Phanerozoic stratigraphy and Laramide deformation; 1 poster. Geological Survey of Canada, Open File 3852.
- Morrow, D.W. with contributions by Dubord, M.P., Uyeno, T.T., Norris, A.W. and Norford, B.S., 2000. Lower Paleozoic stratigraphy of northern Yukon Territory and northwestern District of Mackenzie. Geological Survey of Canada, Bulletin 538, 202 p.
- Stevens, R.A. and Harms, T.A., 2000. Bedrock geology of the Dorsey Range, southern Yukon Territory and northern British Columbia (NTS 105B/3, 4, and parts of 105B/5, 6, 105O/13, 14), 1 colour map, scale 1:100 000. Geological Survey of Canada, Open File 3926.
- Stone, P., 2000. High resolution aeromagnetic total field survey of Yukon Territory-Northwest Territories, Phase II; scale 1:100 000, 12 sheets. Geological Survey of Canada, Open File 3199.
- Ward, B.C. and Jackson, L.E. (Jr), 2000. Surficial geology of the Glenlyon map area, Yukon Territory. Geological Survey of Canada, Bulletin 559, 68 p.

MINING ENVIRONMENT RESEARCH GROUP (MERG) PUBLICATIONS:

- Microbial Technologies, 2000. Biological Detoxification of Cyanide in Northern Environments; MERG Open File 2000-1.
- Mougeot Geoanalysis and Withers, S., 2000. Assessment of Long-term Vegetation and Site Conditions at Reclaimed Yukon Mineral Exploration; MERG Open File 2000-2.
- LeBarge Environmental Services, 2000. Investigations into Passive Wetlands Treatment of Mine Drainage to Remove Heavy Metals at Various Sites at United Keno Hill, Central Yukon; MERG Open File 2000-3.
- Mann, W.D., 2000. Adit Ice Plug Prevention; MERG Open File 2000-4.
- EBA Engineering Consultants Ltd., 2000. Downhole Geophysics Program Faro Tailings Area, Rose Creek, Faro, Yukon; MERG Open File 2000-5.
- MacGregor, D., 2000. Possible Mechanisms of Natural Attenuation of Metal-bearing Waters in Soils in Northern Climates; MERG Open File 2000-6.

