

GOVERNMENT

Yukon Geological Survey

Grant Abbott and staff
Yukon Geological Survey

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Yukon Geological Survey

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Abbott, J.G. and staff, 2005. Yukon Geological Survey. *In: Yukon Exploration and Geology 2004*, D.S. Emond, L.L. Lewis and G.D. Bradshaw (eds.), Yukon Geological Survey, p. 43-56.

OVERVIEW

The Yukon Geological Survey (YGS; Fig. 1) is in its second year as part of the Minerals Development Branch of the Department of Energy Mines and Resources. YGS is comanaged by Grant Abbott and Rod Hill and includes 24 staff (Fig. 2). The Geological Survey of Canada (GSC) also maintains an office with YGS.

Welcome to new staff members Steve Israel as project geologist and Olwyn Bruce as geological and spatial database administrator. Thanks and farewell to previous spatial database administrator Amy Stuart, to surficial geologist Crystal Huscroft and to Director Jesse Duke. Welcome back to Julie Hunt who has successfully completed a PhD thesis at James Cook University in Australia and congratulations to Craig Hart who has also completed his PhD thesis at the University of Western Australia.



Figure 1. Yukon Geological Survey staff, left to right: Amy Stuart, Craig Hart, Rod Hill, Robert Deklerk, Lee Pigage, Jeff Bond, Grant Lowey, Diane Emond, Karen Pelletier, Bill LeBarge, Monique Raitchey, Geoff Bradshaw, Steve Traynor, Maurice Colpron, Crystal Huscroft, Mike Burke, Lara Lewis, Steve Israel, Olwyn Bruce, Charlie Roots and Grant Abbott. Absent: Julie Hunt, Panya Lipovsky, Don Murphy and Ali Wagner.

Funding for YGS remains close to the same level it has been over the past few years. This year, in addition to our core budget, we obtained additional short-term funding from Department of Indian Affairs and Northern Development (DIAND) through the Northern Geoscience and Knowledge and Innovation Funds, and from NRCan through the Targeted Geoscience Initiative (TGI).

This year, YGS embarked on the third in a series of five-year planning exercises that have guided government geoscience in the Yukon over the last ten years. The documents from previous exercises (“Yukon Geoscience – A Blueprint for the Future” in 1995 and “Yukon Geoscience: Looking to the Next Millennium” in 1999) have been used to design and implement mapping and

research programs that meet the needs of the mineral industry and other clients such as land use planners. The effectiveness and utility of these documents is demonstrated by the large proportion of high-priority projects that have been completed during this time and by the continued support and satisfaction reported by client groups for the work of YGS. The new document is still under development and will be released shortly.

A Technical Liaison Committee to YGS reviews our program twice a year. We are grateful to Chair Gerry Carlson and members Al Doherty, Moira Smith, Jean Pautler, Forest Pearson, Bernie Kreft, Jim Mortensen and Jim Christie for their valuable support and constructive advice. We welcome Greg Lynch to the committee to

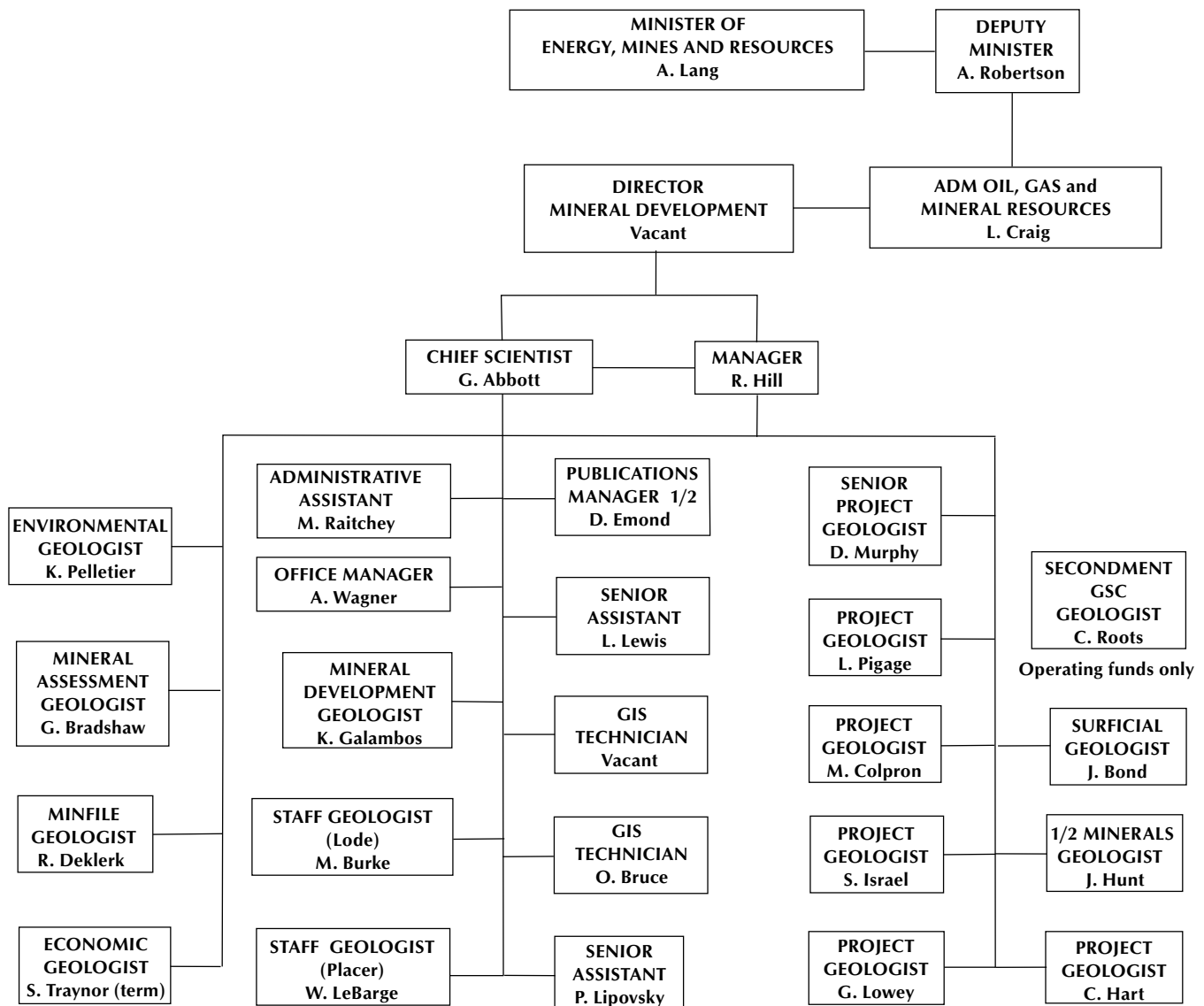


Figure 2. Yukon Geological Survey organization chart.

represent oil and gas interests. Greg has a long association with the Yukon and currently works as a project geologist with Shell Canada.

YGS has the responsibility “to build, maintain, and communicate the geoscience and technical information base required to enable stewardship and sustainable development of the Territory’s energy, mineral, and land resources.” Support for the mineral industry remains the primary focus of YGS, but this year we also took on the responsibility for geoscience studies to define petroleum potential. Effort is also going into environmental studies that have relevance to the extractive industries and land use issues. In recent years, interest and demand for geoscience information has increased substantially from regulators, First Nations, the general public and schools. In addition, the interests of resource industries are best served by informed decision-making and informed public opinion. As a result, the largest change is not in what we do, but in the increased diversity of our clients.

PROJECTS

The Yukon Geological Survey completed a successful, but challenging, field season that saw widespread and prolonged forest fires interfere with several projects. This year included a greater diversity of work that reflected our new mandate to support hydrocarbon development and to meet increased demands for baseline data to address environmental and development issues, while continuing to support our primary client, the mineral industry. Projects included 1:50 000-scale bedrock mapping, mineral deposit studies, surficial studies and mapping, regional stream sediment geochemistry, topical geology studies and a regional seismic study. In addition, several office-based projects were undertaken to advance the Yukon Geoscience database.

BEDROCK MAPPING

Three bedrock mapping projects were initiated this year. Near Livingstone Creek, Maurice Colpron continued his work on the Yukon-Tanana Terrane in an area where the source of historical placer deposits has not been defined. In southeastern Selwyn Basin near Toobally Lakes, Lee Pigage continued to map in areas that will help to define the potential for hydrocarbons and for sedimentary-exhalative deposits like those at Faro, Howard’s Pass and Macmillan Pass. In the Kluane Ranges, Steve Israel began a new project to better define the setting of magmatic nickel-copper-PGE deposits associated with Triassic

volcanic and related intrusive rocks of the Nicolai Greenstone.

MINERAL DEPOSIT STUDIES

This year Craig Hart and Lara Lewis focused on beryl and emerald potential in the Yukon while continuing their work on the metallogeny of intrusion-related gold and tungsten. Julie Hunt continued her work on the Wernecke Breccias by focusing on summary reports and posters of their geology and mineral potential, with emphasis on uranium. Jim Mortensen at the University of British Columbia, in partnership with Bill LeBarge, is being supported to undertake a microprobe study to define the trace element characteristics of placer gold in order to identify distinct populations and potential lode sources.

SURFICIAL GEOLOGY STUDIES

Surficial geology studies included ongoing work by Bill LeBarge and Mark Nowosad to characterize the grain size distribution in Yukon placer deposits, to estimate potential impact of sediment discharge from different types of gravel, and to study other sources of contamination in placer districts. Jeff Bond has several projects underway. His studies of the last glacial ice flow in the Pelly Mountains of southern Yukon show that the “Cassiar lobe” of the Cordilleran ice sheet flowed into and up the mountain valleys. These results have significant implications for mineral exploration projects that utilize soil and float geochemistry. He is also completing a surficial geology map of the greater Whitehorse Area. Panya Lipovsky is undertaking surficial geological mapping in southeast Yukon as part of a biophysical mapping project being led by the Department of Environment in support of land use planning initiatives. Panya and Crystal Huscroft have initiated monitoring studies of several land failures related to permafrost melting in central Yukon. These landslides are long-lived and may have a significant impact on water quality in salmon-bearing streams.

GEOCHEMISTRY/MINERAL ASSESSMENTS

Our mineral assessment geologist Geoff Bradshaw has been mainly involved in the north Yukon land use planning initiative. In preparation for a mineral assessment of the area, the first phase of a regional stream geochemical survey was completed in partnership with the Geological Survey of Canada. Field visits to most mineral occurrences were also undertaken. Geoff has also been involved in other Yukon land use planning processes

and has given presentations to First Nations Groups on the mineral potential of their traditional territories.

WHITEHORSE TROUGH PROJECT

The major initiative for YGS this year has been the Whitehorse Trough project which is largely aimed at better defining the hydrocarbon potential of this frontier basin. Late last winter, a seismic line was shot across the north end of the basin by the Geological Survey of

Canada in partnership with YGS. The bulk of the funding was provided by NRCan through their Targeted Geoscience initiative. Other components of the project include stratigraphic and sedimentological studies by Grant Lowey of YGS and Dr. Darrel Long from Laurentian University; igneous chemistry by Dr. Steve Piercey of Laurentian University; and structural studies by Amy Tizzard under the direction of Dr. Steven Johnston at the University of Victoria.

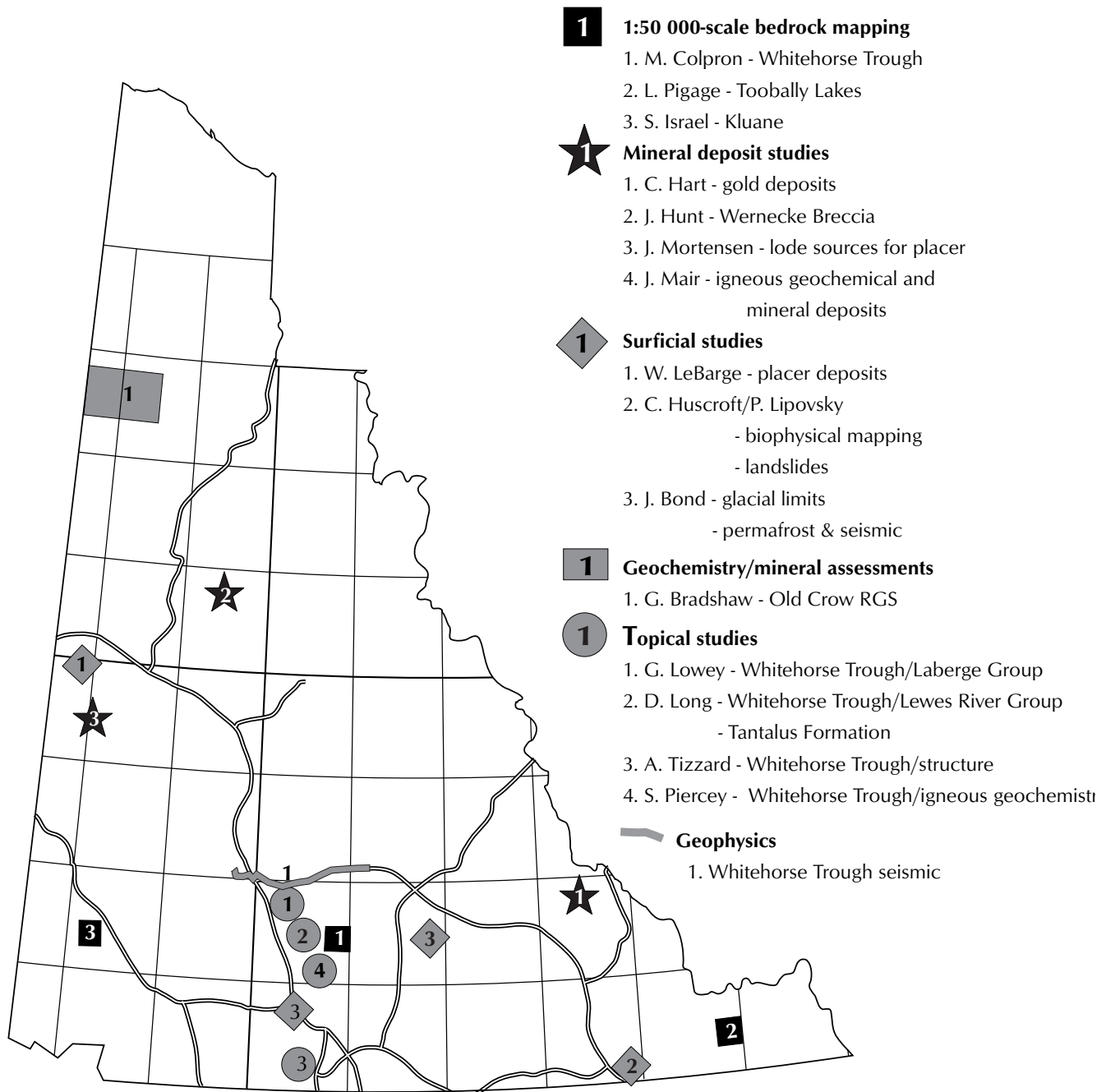


Figure 3. Field projects carried out or sponsored by the Yukon Geological Survey in 2004.

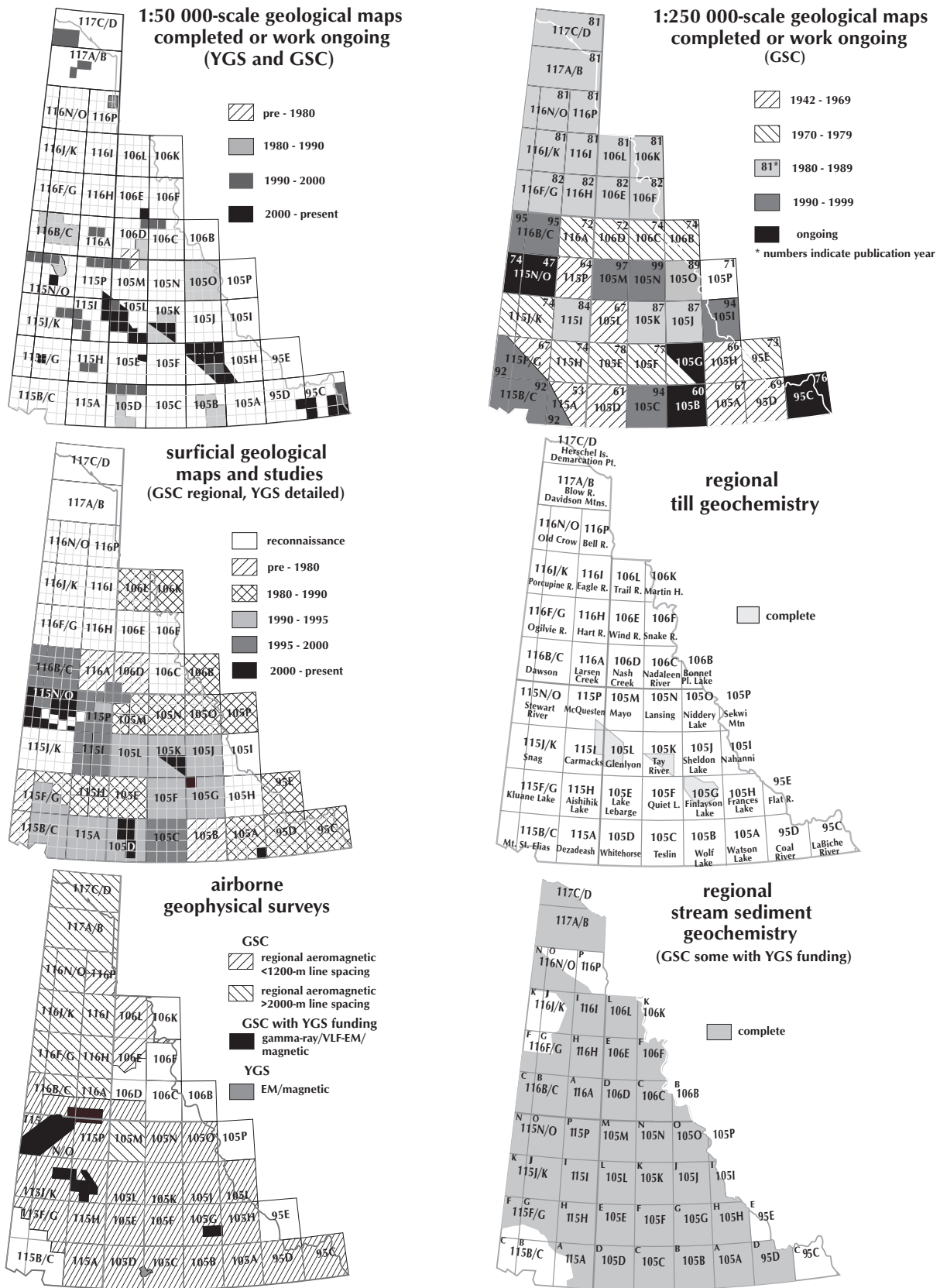


Figure 4. Summary of available geological maps, and regional geochemical and geophysical surveys in the Yukon.

MINING ENVIRONMENT RESEARCH GROUP (MERG)

Karen Pelletier continued to administer the Mining and Environmental Research Group (MERG), YTC. Five projects were approved for funding in 2003/4. Baseline Selenium Studies by Laberge Environmental Services examined the fate and cycling of selenium in the natural environment at Earn Lake. The study is regarded as an initial step towards developing selenium water quality guidelines applicable to northern conditions, specifically for the Yukon. Final Repairs to Noname Bioengineering Structures by Laberge Environmental Services in the Carmacks area involved the completion of repairs using geo-textile to partially failed willow fences that were constructed to correct permafrost melt and extensive erosion on a north-facing slope. A Bio-Engineering Demonstration Project on the Klondike River at Germaine Creek was undertaken by M. Miles and Associates Ltd. and Polster Environmental Services. The aim of the project is to demonstrate how bioengineering can be used to stabilize various erosional environments at a site that is accessible and visible to the public. The project involved a large outreach component that included on-the-job training for interested participants and an information sign at the site. T. Hutchinson and Alison Clark from Trent University were funded for a second and final year of a MSc thesis project. The objective of the project, entitled "Creating a self-sustaining plant community in derelict mine sites in the YT using native colonizing vegetation by" is to create a long-term revegetation management solution for abandoned mine sites in the Yukon using local native plant species. Funding provided to the Metal Leaching and Acid Rock Drainage Prediction Methods project by Bill Price of NRCan will be put towards the completion of guidelines and recommended methods for the prediction of metal leaching. These methods and guidelines will be nationally applicable and will serve as a 'tool-kit' of current best-testing procedures, including northern considerations.

Karen continues to review Mining Land Use and Water License applications, and monitor reclaimed sites to document the effectiveness of mitigation practices. She represents the YGS on several committees that sponsor environmental research involving geology. Karen has also been involved in developing a best practices guide for reclamation of placer mines.

YUKON MINING INCENTIVES PROGRAM (YMIP)

The Yukon Mining Incentives Program is administered by Ken Galambos. This year, funding was offered to 66 of 78 applications for a total of \$1 046 500. Nine of the successful applications were in the Grassroots-Prospecting, three in the Grassroots-Grubstake, 21 in the Focused Regional and 33 in the Target Evaluation modules. These applicants included 73% Yukon-based individuals or companies.

With the surge in the price of gold, there was a corresponding surge in precious metals exploration. In all, 70% of successful applicants were exploring for the yellow metal, including 20% who were exploring for alluvial gold; 27% proposed exploration programs for base metals (primarily copper); two applicants explored for gemstones or other commodities.

LIAISON TO INDUSTRY, FIRST NATIONS AND THE PUBLIC

YGS recognizes the importance of effectively communicating information on the geology and mineral and energy resources of the Yukon to a broad audience that includes: industry, resource managers, First Nations and the general public. We are continuing to focus more attention on developing strategies and products that meet these needs.

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.

Karen Pelletier, Charlie Roots and other YGS staff continue to make presentations in the schools and conduct field trips in the communities. New products developed this year to increase public awareness of the geology and mineral resources of the Yukon include: an interpretive guide to the Whitehorse Copper Belt by Danièle Héon; a geological map and interpretive display of Tombstone Park by Charlie Roots; and a geological map of southwest Yukon with emphasis on the Kluane Ranges and Kluane Park in partnership with the Geological Survey of Canada.

INFORMATION MANAGEMENT AND DISTRIBUTION

With the increasing volume of information generated by YGS and others, and rapidly evolving digital technology, the Survey has placed more effort and resources into making geological information more accessible. A large part of our effort has gone into developing and maintaining key databases and making all of our information internet-accessible. Ongoing activities include support for the H.S. Bostock Core Library and the Energy, Mines and Resources (EMR) library (Elijah Smith Building).

DATABASES

With new reporting requirements to securities regulators, widely recognized mineral deposit models are becoming increasingly important. In cooperation with the British Columbia Geological Survey, Anna Fonseca and Geoff Bradshaw have adapted the British Columbia Geological Survey Mineral Deposit Models for the Yukon. These models are now incorporated into Yukon MINFILE and will be published in early 2005.

Yukon MINFILE, the Yukon's mineral occurrence database, is maintained by Robert Deklerk and Steve Traynor. An update was released in November, 2004. The database now contains 2606 records, of which more than 500 have been revised, and is complete to the end of 2003. All mineral occurrences are now assigned to a deposit model. Reserve tables have been completely revised and updated to match, as closely as possible, the Canadian Institute of Mining Standards for Reporting Mineral Resources and Reserves.

The Yukon Placer Database, compiled under the direction of Bill LeBarge, was updated in the spring of 2004. The database is in Microsoft Access 2000 format and is a comprehensive record of the geology and history of Yukon placer mining. The database contains descriptions of 440 streams and rivers, and 1356 associated placer occurrences of which about 200 were updated for this version. It also includes location maps in Portable Document Format (PDF).

The Yukon GEOPROCESS File, under the direction of Diane Emond, is an inventory of information on geological processes and terrain hazards. It includes 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 are now standardized in colour, and available on a single compact disk. Maps with text are in AutoCAD 2000 and PDF formats.

The Yukon Digital Geology compilation was updated in 2003 by Steve Gordey and Andrew Makepeace of the Geological Survey of Canada with funding from YGS. It includes syntheses of bedrock geology and glacial limits, compilations of geochronology, paleontology and mineral occurrences, and a compendium of aeromagnetic images, as well as an oil and gas well database. All are now available on CD-ROM. Bedrock geology and glacial limit paper maps are also available at 1:1 000 000 scale.

The Yukon Regional Geochemical Database 2003, compiled by Danièle Héon, contains all of the available digital data for regional stream sediment surveys that have been gathered in the Yukon under the Geological Survey of Canada's National Geochemical Reconnaissance Program. It is available on CD-ROM in Microsoft Excel 2000 format and in ESRI ArcView Shapefile format. The database has been enhanced this year through a contract with Georeference Online. Multielement anomaly clusters were generated using Minematch software and matched with mineral deposit models. This exercise was essentially the same as one undertaken on the British Columbia stream geochemical database through the Rocks to Riches Program. Results are now available online through the YGS Map Gallery.

The YukonAge Database, compiled by Katrin Breitsprecher and Jim Mortensen at the University of British Columbia with funding from YGS, was updated in 2004. It can be viewed on the on-line YGS Map Gallery in a version modified by Mike Villeneuve and Linda Richard of the Geological Survey of Canada. The database now contains 1556 age determinations derived from 1166 rock samples from the Yukon Territory. It is available in both Microsoft Access 2000 format and as a flat file in Microsoft Excel 2000 format so that the data may be viewed without Microsoft Access.

The Yukon Geoscience Publications Database, 2003, compiled by Lara Lewis and Diane Emond, is current to 2003 and contains more than 5000 references to papers on Yukon geology and mineral deposits, including YGS publications. A completely up-to-date searchable version is now available on our website.

This year, YGS was fortunate to receive funding through the DIAND Northern Geoscience Program to continue

digitizing assessment reports. By April 2005, the entire collection of more than 5000 open reports will be in PDF format and accessible over the internet. In addition, we have acquired exploration records from the various companies that owned properties in the Faro District. This acquisition includes both records of the Faro District as well as outside projects; the records should be available for viewing by late winter of 2005.

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.

EMR LIBRARY

The EMR library in the Elijah Smith Building is an invaluable resource that is available to the public, but often overlooked. It is Yukon's largest scientific library and includes collections that, prior to devolution, belonged to Indian and Northern Affairs Canada and the Department of Energy, Mines and Resources, Yukon Government. The library houses Yukon assessment reports, maps (including geological, topographical and aeromagnetic), and aerial photographs. It contains most geological journals and a good selection of references on general geology, Yukon geology and economic geology. This year, the library* has updated its online search capabilities, making search and retrieval of assessment reports and other documents easier and more efficient. The library will also be the point of contact for access to Faro exploration records. In addition to geological information, the library also has books, reports and journals for the following subjects: oil and gas, forestry, agriculture and energy.

INFORMATION DISTRIBUTION

YGS distributes information in three formats: 1) paper maps and reports are sold and distributed through our Geoscience Information and Sales Office; 2) many recent publications and databases are available in digital format

on CD-ROM also from the same outlet; and, 3) most of our publications are available as free downloads on our website (www.geology.gov.yk.ca). A catalogue of assessment reports is also available online*.

We are pleased to make spatial data available through our interactive map server – the Map Gallery; it can be accessed through the YGS website. We are continuing to improve the Map Gallery. This year a shaded relief map has been added and vector data can now be clipped and downloaded. Users are encouraged to provide feedback and suggest improvements (see website address below).

Hard copies of YGS publications are available at the following address.

Geoscience Information and Sales
c/o Whitehorse Mining Recorder
102-300 Main Street (Elijah Smith Building)
P.O. Box 2703 (K102)
Whitehorse Yukon Y1A 2C6
Ph. (867) 667-5200
Fax. (867) 667-5150
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To access publications and to learn more about the Yukon Geological Survey, visit our website at <http://www.geology.gov.yk.ca>, or contact us directly.

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To access the EMR library website:
www.emr.gov.yk.ca/library
Phone: (867) 667-3111
E-mail: emrlibrary@gov.yk.ca

*www.emr.gov.yk.ca/library

2004 PUBLICATIONS AND MAPS

YGS BULLETINS

Lowey, G.W., 2004. Placer Geology of the Stewart River (115N&O) and Dawson (116B&C) map areas, west-central Yukon, Canada. Yukon Geological Survey, Bulletin 14, report and two maps 1:250 000 scale, CD-ROM.

Pigage, L.C., 2004. Bedrock geology compilation of the Anvil District (parts of NTS 105K/2, 3, 5, 6 and 7), central Yukon. Yukon Geological Survey, Bulletin 15 (includes two 1:100 000- and fifteen 1:25 000-scale maps); also available on CD-ROM.

YGS OPEN FILES

(also see under Joint YGS/GSC Open Files)

Héon, D. (compiler), 2004. The Whitehorse Copper Belt, Yukon – An annotated geology map. Yukon Geological Survey, Open File 2004-15, 2 sheets, 1:50 000 scale.

Huscroft, C.A., Lipovsky, P.S. and Bond, J.D., 2004. A regional characterization of landslides along the Alaska Highway Corridor, Yukon. Yukon Geological Survey, Open File 2004-18, report and CD-ROM, 65 p.

Israel, S. (comp), 2004. Geology of southwest Yukon. Yukon Geological Survey, Open File 2004-16, 1:250 000 scale.

Israel, S., 2004. Preliminary bedrock geology of the Quill Creek area (parts of NTS 115G/5, 6 and 12), southwest Yukon. Yukon Geological Survey, Open File 2004-20, 1:50 000 scale.

Kiss, F., Coyle, M., Forté, S. and Dumont, R., 2004. Aeromagnetic Total Field and Shaded Magnetic Vertical First Derivative 106F/NE-NW, 106K/NW-NE, 106L/NE-NW and 116P/SW-SE. Yukon Geological Survey, Open File 2004-4 to 9, 13 and 14; Geological Survey of Canada, Open Files 4503 to 4507, 4510, 4511 and 4514. 1:250 000 scale.

Lowey, G.W., Deforest, S. and Lipovsky, P.S., 2004. Stewart River Placer Project station location map, portions of NTS Sheets 116B & C and 115N & O. Yukon Geological Survey, Open File 2004-12; also Map 1 in Bulletin 14, 1:250 000 scale.

Murphy, D.C., Kennedy, R. and Tizzard, A., 2004. Geological map of parts of Waters Creek and Fire Lake map areas (NTS 105G/1, 2), southeastern Yukon. Yukon Geological Survey, Open File 2004-11, 1:50 000 scale.

Pigage, L.C., 2004. Preliminary geology of NTS 95D/8 (northern Toobally Lakes area), southeast Yukon. 1:50 000 scale. Yukon Geological Survey, Open File 2004-19.

Roots, C., Nelson, J. and Stevens, R., 2004. Geology of Seagull Creek (105B/3), Yukon Territory. Yukon Geological Survey, Open File 2004-1; Geological Survey of Canada, Open File 4632, 1:50 000 scale.

Roots, C., Nelson, J., Mihalynuk, M., Harms, T., de Keijzer, M. and Simard, R.L., 2004. Geology of Dorsey Lake (105B/4), Yukon Territory. Yukon Geological Survey, Open File 2004-2; Geological Survey of Canada, Open File 4630, 1:50 000 scale.

Roots, C., Nelson, J. and Stevens, R., 2004. Geology of Morris Lake (105B/5), Yukon Territory. Yukon Geological Survey, Open File 2004-3; Geological Survey of Canada, Open File 4631, 1:50 000 scale.

Sebert, C., Hunt, J.A. and Foreman, I.J., 2004. Geology and litho-geochemistry of the Fyre Lake copper-cobalt-gold sulphide-magnetite deposit, southeastern Yukon. Yukon Geological Survey, Open File 2004-17, 46 p.

Walton, L., 2004. Exploration criteria for coloured gemstone deposits in the Yukon. Yukon Geological Survey, Open-File 2004-10, 184 p.

YGS GEOSCIENCE MAPS

Pigage, L.C., 2004. Intrusive suites and major stratigraphic-tectonic successions, Yukon (1:100 000 scale). Yukon Geological Survey, Geoscience Map 2004-1; also Plate 1 in YGS Bulletin 15.

Pigage, L.C., 2004. Geological map of Anvil District, Yukon (1:100 000 scale). Yukon Geological Survey, Geoscience Map 2004-2; also Plate 2 in YGS Bulletin 15.

Pigage, L.C., 2004. Geological map of Rose Mountain (NTS 105K/5 NW), Yukon (1:25 000 scale). Yukon Geological Survey, Geoscience Map 2004-3; also Plate 3 in YGS Bulletin 15.

Pigage, L.C., 2004. Geological map of Rose Mountain (NTS 105K/5 NE), Yukon (1:25 000 scale). Yukon Geological Survey, Geoscience Map 2004-4; also Plate 4 in YGS Bulletin 15.

- Pigage, L.C., 2004. Geological map of Rose Mountain (NTS 105K/5 SE), Yukon (1:25 000 scale). Yukon Geological Survey, Geoscience Map 2004-5; also Plate 5 in YGS Bulletin 15.
- Pigage, L.C., 2004. Geological map of Mount Mye (NTS 105K/6 NW), Yukon (1:25 000 scale). Yukon Geological Survey, Geoscience Map 2004-6; also Plate 6 in YGS Bulletin 15.
- Pigage, L.C., 2004. Geological map of Mount Mye (NTS 105K/6 W), Yukon (1:25 000 scale). Yukon Geological Survey, Geoscience Map 2004-7; also Plate 7 in YGS Bulletin 15.
- Pigage, L.C., 2004. Geological map of Faro (NTS 105K/3 NW) and Mount Mye (NTS 105K/6 SW), Yukon (1:25 000 scale). Yukon Geological Survey, Geoscience Map 2004-8; also Plate 8 in YGS Bulletin 15.
- Pigage, L.C., 2004. Geological map of Mount Mye (NTS 105K/6 NE) and Barwell Lake (NTS 105K/11 SE), Yukon (1:25 000 scale). Yukon Geological Survey, Geoscience Map 2004-9; also Plate 9 in YGS Bulletin 15.
- Pigage, L.C., 2004. Geological map of Mount Mye (NTS 105K/6 E), Yukon (1:25 000 scale). Yukon Geological Survey, Geoscience Map 2004-10; also Plate 10 in YGS Bulletin 15.
- Pigage, L.C., 2004. Geological map of Faro (NTS 105K/3 NE) and Mount Mye (NTS 105K/6 SE) (1:25 000 scale). Yukon Geological Survey, Geoscience Map 2004-11; also Plate 11 in YGS Bulletin 15.
- Pigage, L.C., 2004. Geological map of Blind Creek (NTS 105K/7 NW), Yukon (1:25 000 scale). Yukon Geological Survey, Geoscience Map 2004-12; also Plate 12 in YGS Bulletin 15.
- Pigage, L.C., 2004. Geological map of Blind Creek (NTS 105K/7 SW), Yukon (1:25 000 scale). Yukon Geological Survey, Geoscience Map 2004-13; also Plate 13 in YGS Bulletin 15.
- Pigage, L.C., 2004. Geological map of Swim Lakes (NTS 105K/2 W), Yukon (1:25 000 scale). Yukon Geological Survey, Geoscience Map 2004-14; also Plate 14 in YGS Bulletin 15.
- Pigage, L.C., 2004. Geological map of Blind Creek (NTS 105K/7 SE), Yukon (1:25 000 scale). Yukon Geological Survey, Geoscience Map 2004-15; also Plate 15 in YGS Bulletin 15.

Pigage, L.C., 2004. Geological map of Swim Lakes (NTS 105K/2 NE), Yukon (1:25 000 scale). Yukon Geological Survey, Geoscience Map 2004-16; also Plate 16 in YGS Bulletin 15.

Pigage, L.C., 2004. Geological map of Swim Lakes (NTS 105K/2 SE), Yukon (1:25 000 scale). Yukon Geological Survey, Geoscience Map 2004-17; also Plate 17 in YGS Bulletin 15.

YGS DATABASES

Deklerk, R. and Traynor, S. (comps.), 2004. Yukon MINFILE 2004 – A database of mineral occurrences. Yukon Geological Survey, CD-ROM.

LeBarge, W.P. (comp), 2004. Yukon Placer Database 2004 – Geology and mining activity of placer occurrences. Yukon Geological Survey, CD-ROM.

Breitsprecher, K., Mortensen, J.K. and Villeneuve, M.E. (comps.), 2004. YukonAge 2004 – A database of isotopic age determinations for rock units from Yukon Territory. Yukon Geological Survey and Geological Survey of Canada, CD-ROM.

JOINT YGS/GSC OPEN FILES AND GEOSCIENCE MAPS

Kiss, F., Coyle, M., Forté, S. and Dumont, R., 2004. Aeromagnetic Total Field and Shaded Magnetic Vertical First Derivative 106F/NE-NW, 106K/NW-NE, 106L/NE-NW and 116P/SW-SE. Yukon Geological Survey, Open File 2004-4 to 9, 13 and 14; Geological Survey of Canada, Open Files 4503 to 4507, 4510, 4511 and 4514, 1:100 000 scale.

JOINT YGS/AGRICULTURE AND AGRI-FOOD CANADA PUBLICATION

Smith, C.A.S., Meikle, J.C. and Roots, C.F., 2004. Ecoregions of the Yukon Territory – Biophysical Properties of Yukon Landscapes. Agriculture and Agri-Food Canada, PARC Technical Bulletin 04-01, Summerland, British Columbia, 313 p., report and CD-ROM.

YGS CONTRIBUTIONS

- Hart, C.J.R.**, Goldfarb, R.J., **Lewis, L.L.** and Mair, J.L., 2004. The Northern Cordillera Mid-Cretaceous Plutonic Province: Ilmenite/Magnetite-Series Granitoids and Intrusion-Related Mineralisation. *Resource Geology*, vol. 54, no. 3, p. 253-280.
- Huscroft, C.A.**, Ward B.C., Barendregt R.W., Jackson Jr. L.E. and Opdyke N.D., 2004. Pleistocene volcanic damming of Yukon River and the maximum age of the Reid Glaciation, west-central Yukon. *Canadian Journal of Earth Sciences*, vol. 41, p. 151-164.
- Marsh, E.E., Goldfarb, R.J., **Hart, C.J.R.** and Johnson, C.A., 2003. Geology and geochemistry of the Clear Creek intrusion-related gold occurrences, Tintina Gold Province, Yukon, Canada. *Canadian Journal of Earth Sciences*, vol. 40, p. 681-699.
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La Commission géologique du Yukon

Grant Abbott et Maurice Colpron
Le Service de géologie du Yukon

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APERÇU

La commission géologique du Yukon (CGY; Figure 1, p. 43) en est à sa deuxième année au sein de la Division de la mise en valeur des ressources minérales du ministère de l'Énergie, des Mines et de Ressources. La CGY est gérée conjointement par Grant Abbott et Rod Hill et comprend vingt-quatre employés (Figure 2, p. 44). La commission géologique du Canada (CGC) maintient aussi un bureau à la CGY.

Nous accueillons cette année Steve Israel à titre de géologue de projet et Olwyn Bruce comme gérante des données géologiques spatiales. Nous disons au revoir à Amy Stuart, gérante des données spatiales, Crystal Huscroft, géologue du Quaternaire, et à notre directeur, Jesse Duke. De plus, Craig Hart et Julie Hunt ont présenté leur thèse de doctorat, respectivement à l'Université d'Australie-occidentale (University of Western Australia) et à l'Université James Cook en Australie.

Le financement de la CGY demeure essentiellement au même niveau depuis quelques années. Cette année, en plus de notre financement de base, nous avons obtenus un financement additionnel à court terme du ministère des Affaires indiennes et du Nord canadien par l'entremise des Fonds pour le savoir et l'innovation, et du ministère canadien des Ressources naturelles dans le cadre de l'initiative géoscientifique ciblée.

Cette année, la CGY s'est embarquée dans le troisième d'une série d'exercices de planification quinquennal qui ont guidé les travaux géoscientifiques gouvernementaux au Yukon au cours de la dernière décennie. Les documents résultants des exercices précédants (« Yukon Geoscience – A Blueprint for the Future » en 1995, et « Yukon Geoscience : Looking to the Next Millenium » en 1999) furent à la base de la conception et de l'exécution de projets de cartographies et de recherches qui répondent aux besoins de nos clients dans l'industrie minérale et d'autres groupes tels que ceux préoccupés de la gestion des terres. L'usage et l'efficacité de ces documents est clairement indiquée par le nombre de projets de « haute priorités » complétés depuis leurs publication et par la satisfaction et le support continu de nos clients envers les travaux de la CGY.

Un Comité de liaison technique à la CGY examine nos programmes deux fois par année. Nous remercions le président, Gerry Carlson et les membres du comité Al Doherty, Moira Smith, Jean Pautler, Forest Pearson, Bernie Kreft, Jim Mortensen et Jim Christie pour leur précieux appui et les conseils constructifs qu'ils nous fournissent. Nous accueillons au comité Greg Lynch qui représentera les intérêts du secteur pétrolier. Greg a une longue association avec le Yukon et travaille présentement pour Shell Canada à titre de géologue de projet.

La CGY a la responsabilité « d'accumuler, de gérer et de communiquer la base d'information géoscientifique et technique nécessaire pour la gérance et le développement durable des ressources en énergie, en minéraux et en terres du territoire ». Le soutien à l'industrie minérale reste l'objectif premier de la CGY, mais cette année on a aussi assumée la responsabilité des études géoscientifiques ayant pour but l'évaluation du potentiel pétrolier du territoire. Des ressources sont

aussi consacrées aux études environnementales pertinentes aux industries d'extraction et à l'utilisation des terres. Au cours des dernières années, la demande d'information géoscientifique de la part des organismes de réglementation, des Premières nations, du grand public et des écoles a considérablement augmenté. De plus, les intérêts de l'industrie des ressources sont mieux servis par une prise de décision éclairée et un public bien informé. Le changement le plus important pour la CGY n'est donc pas dans la nature de nos activités, mais plutôt dans la diversité croissante de notre clientèle.

TRAVAUX SUR LE TERRAIN

La CGY a connu cette année une campagne de travaux sur le terrain mouvementée en raison des conditions extrêmes d'incendies forestiers, mais néanmoins couronnée de succès. Nos travaux furent plus diversifiés en réponse à notre nouveau mandat de soutien à la mise en valeur des hydrocarbures et à la demande accrue pour les données de base à l'appui de la réglementation dans le domaine de l'environnement et de la gestion des terres, tout en continuant nos projets en support de l'industrie minière. Des projets ont été menés en cartographie géologique du substratum rocheux et en géochimie régionale des cours d'eau, en plus des études de gisements minéraux, d'études géologiques détaillées, d'études et de travaux de cartographie de formations superficielles, d'un levé sismique régional et de l'amélioration de plusieurs bases de données.

CARTOGRAPHIE DU SUBSTRATUM ROCHEUX

Trois projets de cartographie du substratum rocheux ont été complétés dans les régions ci-après : ruisseau Livingstone par Maurice Colpron; lacs Toobally par Lee Pigage; et ruisseau Quill par Steve Israel. Ces régions avaient été choisies pour leur potentiel minéral.

ÉTUDES DE GISEMENTS MINÉRAUX

Craig Hart et Lara Lewis ont poursuivi leurs travaux sur l'or associé aux roches intrusives, le tungstène et les pierres précieuses. Julie Hunt poursuit ses travaux sur la géologie et le potentiel minéral des brèches de Wernecke. Jim Mortensen de l'université de Colombie-Britannique a étudié en collaboration avec Bill LeBarge (CGY) les caractéristiques des éléments traces des gîtes d'or placériens afin d'identifier des populations distinctes et d'éventuelles sources d'or filonien.

ÉTUDES DE FORMATIONS SUPERFICIELLES

Parmi les études des formations superficielles, mentionnons les travaux de Bill LeBarge et Mark Nowosad visant à caractériser la granulométrie des gîtes placériens au Yukon à des fins environnementales. Jeff Bond a étudié l'écoulement glaciaire de «haute vallée» pour le «lobe de Cassiar» au Yukon méridional et ses incidences pour l'exploration; il a complété une carte géologique des formations superficielles de la région de Whitehorse et plusieurs études de gîtes placériens. Panya Lipovsky a effectué des travaux de cartographie géologique de formations superficielles pour un projet de cartographie biophysique (ministère de l'Environnement du Yukon) dans le sud-est du Yukon et a travaillé avec Crystal Huscroft à la surveillance des effondrements de terrain liés à la fonte du pergélisol dans le centre du Yukon et à l'étude de leur incidence sur la qualité des cours d'eau à saumons.

ÉVALUATIONS GÉOCHIMIQUES/MINIÈRES

Notre géologue évaluateur des ressources minérales, Geoff Bradshaw, a principalement travaillé dans le cadre de l'initiative de planification de l'utilisation des terres du nord du Yukon. Afin de préparer une évaluation minérale de la région, il a effectué un levé géochimique régional des cours d'eau en partenariat avec la CGC en plus d'examiner plusieurs indices de minéralisation. Geoff a en outre tenu à l'intention de groupes des Premières nations des présentations sur le potentiel minéral de leurs territoires traditionnels.

PROJET DU BASSIN DE WHITEHORSE

Le Projet du bassin de Whitehorse fut l'initiative majeure de la CGY cette année; il vise à mieux définir le potentiel en hydrocarbures de ce bassin sous-exploré. Vers la fin l'hiver dernier, un relevé sismiques à l'extrémité nord du bassin fut exécutés par la CGC en partenariat avec la CGY. Des études stratigraphiques et sédimentologiques par Grant Lowey (CGY) et Darrel Long de l'Université Laurentienne, une étude de la chimie des roches ignées par Steve Piercey de l'Université Laurentienne et des études structurales par Amy Tizzard sous la direction de Steven Johnston de l'Université de Victoria constituent d'autres volets de ce projet.

AUTRES INITIATIVES

Cette année la CGY a reçu un appui financier par l'entremise du fonds de développement économique du ministère des affaires indiennes et du Nord canadien pour la poursuite de la numérisation des rapports d'évaluation – toute la collection comptant plus de 5000 rapports sera convertie au format PDF et accessible par Internet avant la fin de l'année. Nous avons en outre acquis les dossier d'exploration des projets menés au fil des ans dans le district de Faro et à l'extérieur par les diverses sociétés qui en ont été propriétaires (disponibles vers le fin de l'hiver, 2005). Notre base de données géochimiques sur les cours d'eau a été analysée par la société Georeference Online afin d'y repérer des groupements d'anomalies multi-éléments (MineMatch). Les résultats sont maintenant disponibles en ligne.

DIFFUSION DE L'INFORMATION

La Commission géologique du Yukon (CGY) produit maintenant une gamme complète de publications numériques. Toutes nouvelles cartes et rapports géologiques sont disponibles sur demande en format numérique, et toutes publications récentes sont aussi disponibles (sous format PDF) sans frais sur notre site internet (<http://www.geology.gov.yk.ca>). De plus, une gammes de rapports d'évaluation de propriété minières est maintenant disponible par l'entremise de notre site internet. Nous sommes aussi fier de notre service de carte interactive ('Map Gallery'). Ce service est disponible par l'entremise de notre site internet et permet la visualisation de la géologie régionale, des sites MINFILE, des levés régionaux de géochimie des sédiments de ruisseaux, de la topographie, des routes et des communautés du Yukon, et des sélections des terres des nations autochtones. Les données vectorielles peuvent maintenant être sélectionnées et téléchargées. Certaines des améliorations à venir incluent l'addition de données géophysiques, géochronologiques et paléontologiques. De plus, la couverture des concessions minières sera bientôt disponible.

Les publications de la Commission géologique du Yukon sont diffusées par le Bureau d'information et des ventes en géoscience. Elles sont disponible à l'adresse suivante :

Bureau d'information et des ventes en géosciences
a/s Conservateur des registres miniers
le ministère de l'Énergie, des Mines et des Ressources
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