

# Summary of Yukon Geological Survey's 2008-2009 activities

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*Yukon Geological Survey*

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## ABSTRACT

Yukon Geological Survey (YGS) is delivering 16 field-based projects this fiscal year, including three regional mapping projects, two sedimentary basin studies, five geophysical surveys and five student projects. YGS also provided support for several external collaborators and undertook visits to 29 communities and schools. In addition to field-based activities, staff initiated the development of a new corporate database for managing our various data sets and administered the Yukon Mining Incentives and Mineral and Petroleum Environmental Research Group programs (YMIP and MPERG, respectively).

Following the announcement of the federal GEM (Geo-mapping for Energy and Minerals) program, YGS has been investing significant time providing input to the Geological Survey of Canada on Yukon's geoscience priorities, to ensure the program addresses our clients' needs. Information on Yukon-based GEM activities was presented at the Yukon Geoscience Forum and will be updated in January 2009 at Mineral Exploration Roundup in Vancouver.

## RÉSUMÉ

La Commission géologique du Yukon (CGY) a mis en œuvre 16 projets sur le terrain au cours de la présente année financière, y compris trois projets de cartographie régionale, deux études de bassins sédimentaires, cinq levés géophysiques et cinq projets étudiants. La CGY a également fourni du soutien à plusieurs collaborateurs externes et elle a effectué des visites dans 29 communautés et écoles.

Outre les activités sur le terrain, le personnel de la CGY a lancé les travaux d'élaboration d'une nouvelle base de données pour la gestion des divers jeux de données de la CGY et il a dirigé le Programme d'encouragement des activités minières au Yukon (Yukon Mining Incentives Program - YMIP) ainsi que le groupe de recherche environnementale sur les minéraux et le pétrole (Mineral and Petroleum Environmental Research Group - MPERG).

À la suite de l'annonce du programme de géocartographie de l'énergie et des minéraux (programme de GEM), la CGY a travaillé activement à la communication des priorités géoscientifiques du Yukon à la Commission géologique du Canada, ce qui permettra d'assurer que le programme satisfera les besoins des clients de la CGY. Des renseignements sur les activités du programme de GEM menées au Yukon ont été présentés lors du Forum géoscientifique du Yukon et seront mis à jour lors de la conférence sur l'exploration minérale de 2009 (Mineral Exploration Roundup 2009) à Vancouver.

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## INTRODUCTION

Yukon Geological Survey (YGS) had a busy field season in 2008, carrying out field work across the territory and providing support to a number of external researchers working in Yukon. Several new maps and reports were released in 2008 (see the list of new releases at the end of this volume) and a major information management project was initiated. Forty-five exploration projects were approved for funding under the Yukon Mining Incentive Program (YMIP) and 5 projects received funding from the Mining and Petroleum Environmental Research Group (MPERG). This year, YGS awarded the first annual Bradshaw Memorial Scholarship to Derek Turner of Simon Fraser University, British Columbia. The scholarship, named after YGS geologist Geoff Bradshaw, provides funds to both Canadian and international students enrolled in a graduate program in earth sciences at a Canadian university and whose focus of study is in Yukon.

Following the federal government's announcement of new funding for geological mapping this year (Geo-mapping for Energy and Minerals; or GEM program), YGS has been pursuing discussions with the Geological Survey of Canada (GSC) to define and scope out projects that meet the needs of stakeholders in Yukon's exploration and development sector, as well as addressing the program outcomes defined by the federal government. As of early December, four proposals had been submitted to the GSC

for Yukon-based projects; decisions regarding whether these projects will proceed, and at what level of funding, are anticipated by the end of December.

YGS project activities are presented in the following pages in tabular form. The tables briefly outline project status and current activities; more detailed descriptions of projects may be found elsewhere in this volume (entries that are highlighted are linked to the relevant paper), or can be viewed on the YGS website ([www.geology.gov.yk.ca](http://www.geology.gov.yk.ca)).

## FIELD ACTIVITIES

### MAPPING

During the 2008 field season, YGS staff undertook five field projects (Table 1). These included regional bedrock and surficial mapping and associated thematic studies centred in southwestern Yukon, as well as two studies focused on energy potential in sedimentary basins of northern Yukon. Locations of these projects are shown in Figure 1.

### THEMATIC STUDIES

A variety of thematic studies are being carried out across Yukon by YGS staff in partnership with colleagues from other organizations (Table 2). Locations of these projects are shown in Figure 2.

**Table 1.** Mapping projects.

Project	Participants	Summary of activities
Windy-McKinley	Don Murphy, Maurice Colpron (YGS), Cees van Staal (GSC)	Year 3 of a multi-year mapping project: 2008 activities included 1:50 000 bedrock mapping and associated geochronologic and geochemical studies. Project scope has expanded such that Windy-McKinley is the core around which a larger, multi-disciplinary YGS-GSC-BCGS 'Edges' project evolved; Edges will examine the geologic histories and mineral potential of accreted terranes of the northern Cordillera and the tectonically modified edges of those terranes. See Murphy <i>et al.</i> (this volume) for more details.
Stevenson Ridge	Jeff Bond, Panya Lipovsky (YGS)	Year 2 of a multi-year mapping project: 2008 activities included 1:50 000 surficial mapping. Project goals include unravelling early to mid-Pleistocene glacial history along the southern margin of Beringia; evaluating regional placer gold potential and documenting discontinuous permafrost (with implications for landslide hazards and feasibility studies of potential rail link routes).
Kluane Ranges	Steve Israel (YGS)	Final season of 1:50 000 bedrock mapping in Kluane Ranges. Project focus: resolution of regional tectonic and stratigraphic questions within Wrangellia and adjacent Alexander terrane; and assessment of mineral potential (magnetic nickel-copper-PGE, VMS, skarn, porphyry) of the area.
Peel Plateau	Tammy Allen, Tiffani Fraser (YGS)	Final wrap-up field work on joint NWT-Yukon Peel Plateau and Plain project. Activities focused on examination and collection of samples from Upper Paleozoic Imperial and Tuttle formations to better characterize their source and reservoir potential.
Bonnet Plume Basin	Grant Lowey (YGS)	Year 1 of a 2-year study of oil and gas potential of Bonnet Plume basin. Field activities included measurement of stratigraphic sections and sample collection for Rock-Eval, organic geochemistry, etc. See Lowey (this volume) for more details.

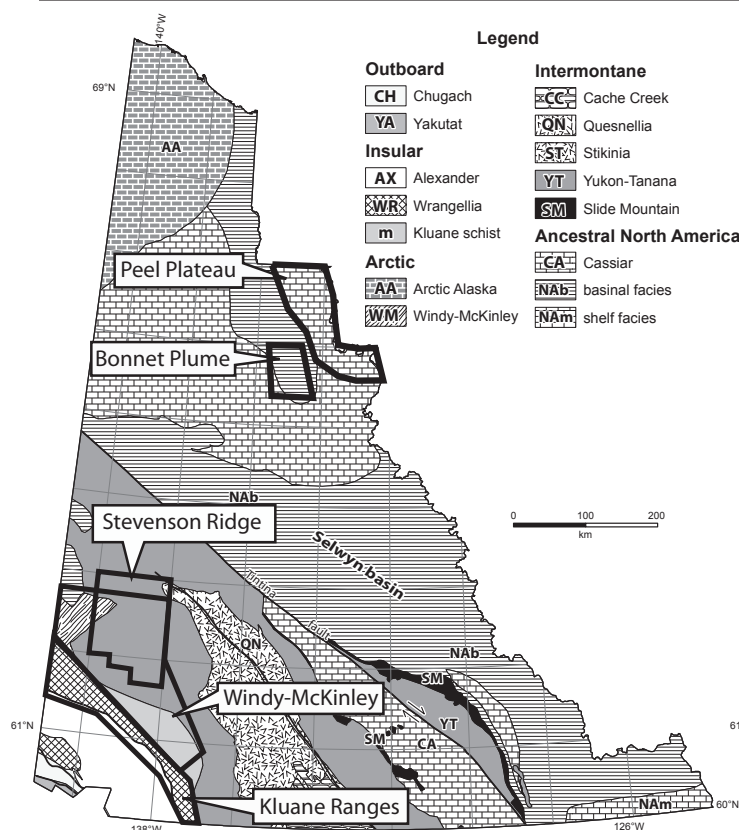


Figure 1. Location of mapping projects.

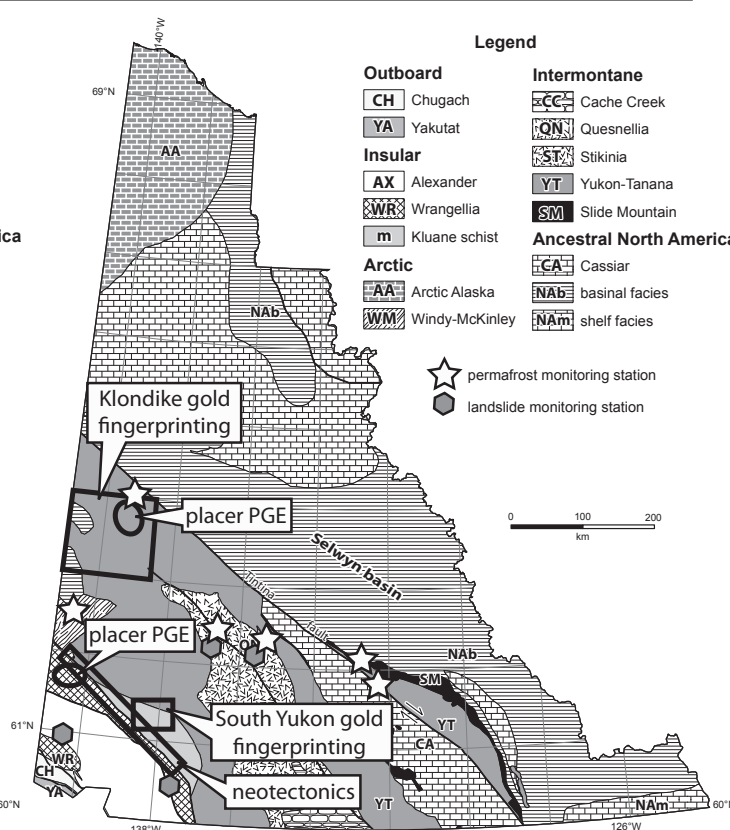


Figure 2. Location of thematic studies.

Table 2. Thematic studies.

Project	Participants	Summary of activities
PGE placer	Bill LeBarge (YGS), Yana Fedortchouk (Dalhousie)	Ongoing study of PGE placer potential of Yukon creeks; 2008 activities included collection of samples from Burwash, Dollis and Scroggie creeks and separation of heavy minerals for analysis at Dalhousie University.
Gold geochemistry	Bill LeBarge (YGS), Rob Chapman (Leeds)	Ongoing study of geochemical signatures of placer gold grains from Indian River (Klondike area) and southern Yukon. Analysis being undertaken at University of Leeds (collaboration with Rob Chapman).
SW Yukon neotectonics	Panya Lipovsky, Don Murphy, Steve Israel, Jeff Bond (YGS), Stéphan Mazotti (GSC), John Clague (SFU), Peter Haeussler (USGS)	Ongoing multi-disciplinary studies to constrain locations and slip rates of Denali and Duke River fault systems. 2008 activities included: detailed GPS measurements to determine relative displacement across the Denali fault (Mazotti); sediment coring along Denali fault (Clague); detailed mapping along Duke River fault (Cobbett; see below); and trenching of sediments across Denali fault to determine relative ages of previous slip events.
Permafrost monitoring	Panya Lipovsky (YGS)	Ongoing monitoring. 2008 activities included collection of temperature data from seven permafrost monitoring stations in southern Yukon (see Lipovsky, this volume), as well as compilation of borehole data along Alaska Highway corridor.
Landslide monitoring	Panya Lipovsky (YGS)	Ongoing monitoring of landslide hazards in several locations in Yukon, including Mount Steele, Kusawa Lake, Carmacks and Little Salmon Lake area.

STUDENT PROJECTS

Support was provided by YGS for the field components of eight graduate thesis projects this year. The studies (Fig. 3) are described in Table 3.

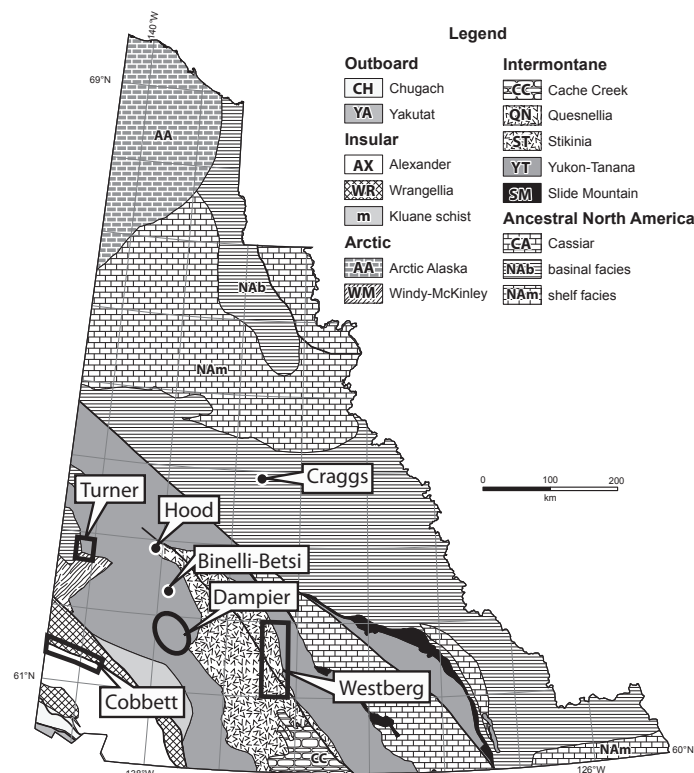


Figure 3. Location of student projects.

Table 3. Student projects.

Project	Participants	Summary of activities
Laberge/Quiet lakes	Elizabeth Westberg (SFU)	Year 2 of fieldwork for MSc thesis supervised by Maurice Colpron (YGS) and Dan Gibson (SFU). Study focuses on documenting tectonothermal history of a portion of Yukon-Tanana terrane. See Westberg, this volume.
SW Yukon glacial history	Derek Turner (SFU)	Year 1 of field work for PhD thesis supervised by Brent Ward (SFU) and Jeff Bond (YGS). Study focuses on stratigraphy of sediments associated with the penultimate Pleistocene glaciation.
Duke River fault	Rosie Cobbett	Year 1 of field work for MSc thesis supervised by Steve Israel (YGS), Cees van Staal (GSC) and Jim Mortenson (UBC). Study examines displacement history of Duke River fault which separates Wrangellia and Alexander terranes.
Central Yukon soil study	Lesley Dampier (SFU and UNBC)	Year 1 of field work for MSc thesis supervised by John Clague (SFU), Paul Sanborn (UNBC) and Jeff Bond (YGS). Study compares modern and Pleistocene soil horizons in upland sites in the Dawson Range. See Dampier, this volume.
Minto deposit	Shawn Hood (UBC)	Year 1 of field work for MSc thesis supervised by Maurice Colpron (YGS) and Ken Hickey (Mineral Deposit Research Unit, UBC). Study focuses on the role of deformation in concentrating Cu and Au at the Minto deposit. Study supported by Capstone Mining Corp. See Hood, this volume.
Dawson Range Au, Ag	Thierry Binelli-Betsi (UNB)	Year 2 of field work for PhD thesis supervised by Dave Lentz (UNB), sponsored by Northern Freegold Resources Ltd. Study focuses on defining regional and local controls on the distribution of mineralized veins.
Keno Hill	Simon Craggs (UNB)	Year 1 of field work for PhD thesis supervised by Dave Lentz (UNB), sponsored by Alexco. Study focuses on structural evolution of Ag-Pb veins.

## GEOPHYSICAL SURVEYS

Four geophysical surveys are planned, or have been completed this fiscal year (Fig. 4). Geophysical surveys funded by YGS are managed by the GSC's Regional Geophysics Section and are jointly released by GSC and YGS. The data collected will support new and ongoing bedrock mapping. Table 4 summarizes the status of each survey.

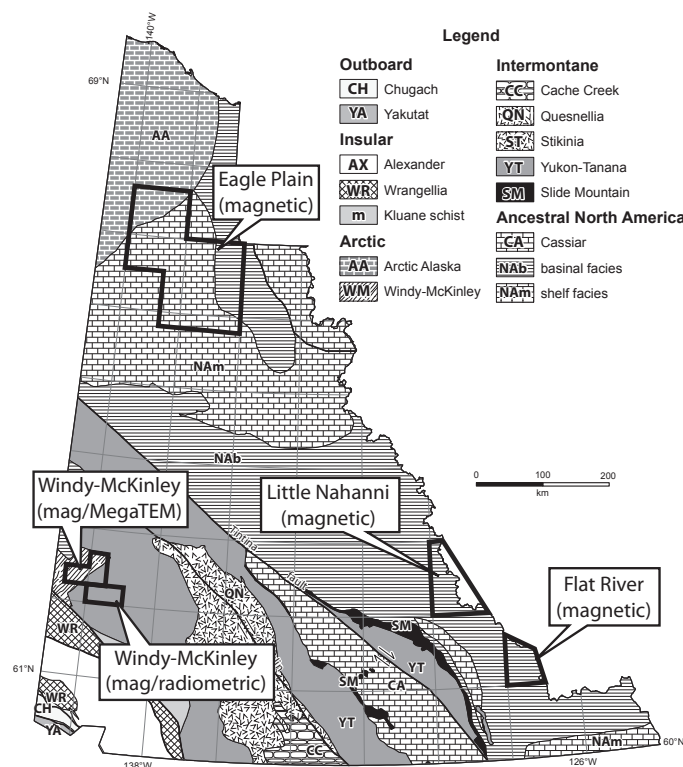


Figure 4. Location of geophysical surveys.

Table 4. Geophysical surveys.

Project	Participants	Summary of activities
Windy-McKinley Mag-EM	YGS, GSC	Combined aeromagnetic/MegaTEM™ survey over a poorly exposed volcanic package interpreted to correlate with rocks of the Delta VMS District of Alaska. Survey funded by INAC (SINED) and GSC (GEM); data collection completed.
Windy-McKinley Mag-Rad	YGS, GSC	Combined aeromagnetic/radiometric survey to delineate distribution and compositional variations of Cretaceous to Tertiary felsic-intermediate volcanic package and to facilitate exploration for epithermal and magmatic hydrothermal mineralization. Survey funded by INAC (SINED); data collection completed.
Eagle Plain Mag	YGS, GSC	Aeromagnetic survey over Eagle Plain scheduled to be flown between January and March 2009. Data will support ongoing bedrock geology compilation under GEM. Survey funded by INAC (SINED).
Little Nahanni- Flat River Mag	YGS, GSC	Aeromagnetic survey over Little Nahanni and Flat River map sheets, scheduled to be flown between January and March 2009. Data will fill gaps in existing regional magnetic coverage. Survey funded by INAC (SINED) and YGS.



## PROJECT WRITE-UPS AND COMPILATION WORK

Several YGS projects have completed the data collection phase and are in the synthesis/write-up stage (Fig. 5). An update of these projects is provided in Table 5.

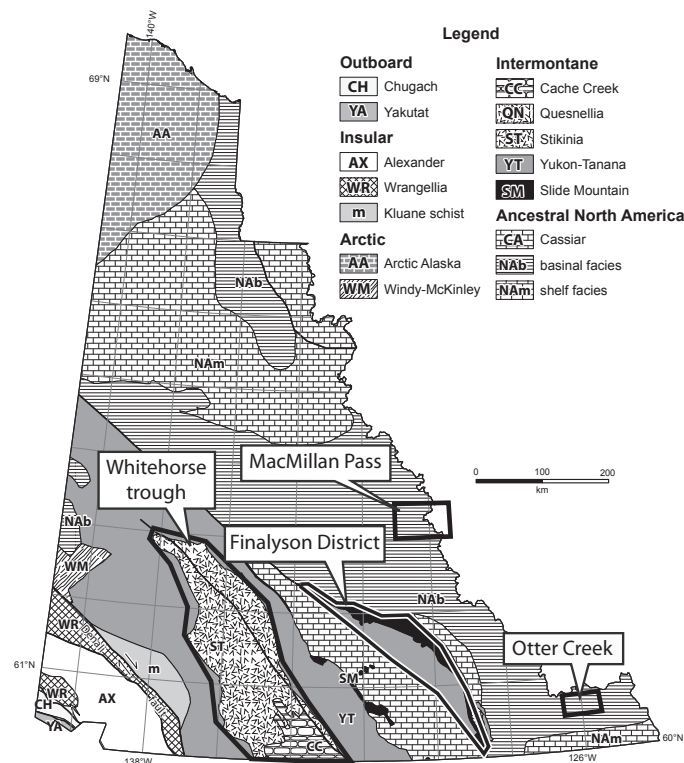


Figure 5. Location of project write-ups and compilation work.

Table 5. Project write-ups and compilation work.

Project	Participants	Summary of activities
Otter Creek	Lee Pigage (YGS)	Two 1:50 000 scale bedrock geology maps released in November 2008 (Toolbally and Pool Creek). Accompanying Bulletin under technical review; anticipate release early 2009.
Glenlyon/ Whitehorse trough	Maurice Colpron, Grant Lowey (YGS), Don White, Steve Gordey (GSC)	Paper on Petroleum source rock potential of Whitehorse trough (Lowey <i>et al.</i> , in press) submitted to Bulletin of Canadian Petroleum Geology. Publications underway include Open File geology maps of Whitehorse trough (Colpron), a paper interpreting the seismic section across the basin (Colpron and White), a structural interpretation of the basin (Colpron <i>et al.</i> ) and a YGS Bulletin on Whitehorse trough (contributions by Lowey, Colpron and others).
Finlayson District	Don Murphy (YGS)	First draft of Finlayson District bedrock compilation complete; writing initiated on accompanying Bulletin.
MacMillan Pass	Grant Abbott (YGS)	Synthesis of six 1:50 000 scale bedrock geology maps (Niddery Lake) underway; work initiated on accompanying Bulletin.
Yukon Bedrock Geology	Maurice Colpron, Lee Pigage, Don Murphy, Steve Israel, Olwyn Bruce (YGS), Steve Gordey (GSC)	Yukon-wide digital bedrock geology compilation. Project entails upgrading of Gordey and Makepeace (1999) map, incorporating geologic data generated by YGS since 1999 and upgrading of accompanying geodatabase.
Yukon Surficial Geology	Jeff Bond, Panya Lipovsky, Aubrey Sicotte (YGS)	Yukon-wide digital surficial geology compilation. Project entails digitizing of existing Yukon surficial geology maps and integration into a common legend.

## STUDIES IN SUPPORT OF LAND USE PLANNING

YGS carries out resource assessment studies in support of Yukon's Land Use Planning (LUP) process. Currently, two studies are underway (Table 6).

**Table 6.** *Studies in support of land use planning.*

Project	Participants	Summary of activities
Dawson region placer potential	Bill Lebarge (YGS)	Compilation of various data layers (drainage, surficial geology, mineral occurrences, placer production data, etc.) to support assessment of placer potential in Dawson region. Dawson LUP.
Peel aggregate inventory	Kristen Kennedy (YGS)	Map-based inventory of aggregate resources in Peel watershed area, based on air photo interpretation and available subsurface data. Peel LUP.

## ON-GOING STUDENT RESEARCH

Several YGS-supported thesis students who have completed the field component of their projects are currently undertaking analytical work and writing up their studies (Table 7).

**Table 7.** *On-going student research.*

Project	Participants	Summary of activities
Borehole study	Megan James (U of O)	Writing up MSc thesis supervised by Panya Lipovsky (YGS) and Toni Lewkowicz (U of O). Project examines recent changes in permafrost recorded in boreholes along Alaska Hwy in SE Yukon.
Eagle Plain	Kristen Kennedy (U of A)	Final stages of MSc thesis supervised by Duane Froese (U of A). Study examines development of the Eagle Plain flood channel during late Laurentide glaciation.
Wheaton Valley study	Amber Church (SFU)	Final stages of MSc thesis supervised by John Clague (SFU) and Jeff Bond (YGS). Project focused on periglacial-related mass wasting in upper part of Wheaton Valley drainage. See Church, this volume.
Wernecke Supergroup	Francesca Furlanetto (SFU)	Working on MSc thesis supervised by Derek Thorkelson (SFU). Study involves comparison of detrital ages from sediments of Wernecke Supergroup and correlative units in the Cordillera. See Furlanetto, this volume.
Petrogenesis of Cretaceous granites	Kirsten Rasmussen (UBC)	PhD in final stages of completion; supervised by Jim Mortenson (UBC). Project contributes to a larger study of the age and petrogenesis of Cretaceous plutons and their role in the generation of gold and tungsten deposits in the north Cordillera.
Ages of west Laurentia overlap sequences	Luke Beranek (UBC)	Ongoing PhD supervised by Jim Mortensen (UBC). Study entails dating of detrital zircons across North American continental margin–Slide Mountain–Yukon–Tanana terranes and examining the implications for timing of terrane collision.
Wheaton River glacier biogeochemistry	Monica Bruckner (Montana State)	Final stages of MSc thesis supervised by Mark Skidmore (Montana State University) and Jeff Bond (YGS). Study characterizes biogeochemistry of meltwater from the Wheaton River glacier.
Aquatic ecosystems SW Yukon	Joan Bunbury (U of O)	Working on PhD thesis supervised by Konrad Gajewski (U of O). Studying impacts of White River eruption on aquatic ecosystems in SW Yukon. See Bunbury, this volume.

## SINED FUNDING

Indian and Northern Affairs Canada (INAC) has provided funding to YGS over the last four years to support geoscience work that contributes to economic development in the territory. The funds are part of INAC's 2005 to 2009 Strategic Investment in Northern Economic Development (SINED) program. Table 8 shows a summary of the projects undertaken with SINED resources during the funding period, and the deliverables generated to date, as well as those that are anticipated.

## GEM PROJECT PLANS 2008 TO 2013

Following the announcement of the Government of Canada's Geo-mapping for Energy and Minerals (GEM) program, YGS and GSC have been discussing potential collaborative projects that would fulfil both the program outcomes identified by GSC (such as increased exploration success rates) and address the needs of YGS clients in the resource development sector. GEM projects will fall under one of two GSC programs: GEM Minerals or GEM Energy, each of which will focus on generating new geologic information that will stimulate investment in resource exploration and development.

**Table 8.** *SINED funding.*

Project	SINED	Status	Products to date
<b>2005-06</b>			
Aeromag survey of Wernecke Mountains	\$820 000	Survey flown winter 2006	GSC OF 5412 to 5424/YGS OF 2008-6 to 18
Stream sediment survey of Flat River sheet	\$82 000	Survey completed	GSC OF 5329/YGS OF 2006-18
Digitization of surficial geology maps	\$100 000	Completed; maps available on request	Yukon surficial geology compilation underway
<b>2006-07</b>			
Re-analysis of archived stream sediment samples	\$35 000	Samples from NTS sheets 105G, 105J analysed	GSC OF 5696, 5694; YGS OF 2008-3, 2008-4
Stream sediment survey (Kandik Basin)	\$161 000	Survey completed	GSC OF 5319, 5695/YGS OF 2006-17, 2008-2
Digitization of surficial geology maps	\$110 000	Completed; maps available on request	Yukon surficial geology compilation underway
<b>2007-08</b>			
Re-analysis of archived stream sediment samples	\$39 000	Samples from NTS sheets 105H, 105I analysed, QA/QC underway	
Airborne geophysics in Windy-McKinley area	\$688 000	Survey deferred to fall 2008	
Mapping in Windy-McKinley area	\$100 000	Bedrock and surficial mapping completed July 2007	YGS Open File 2007-9
Aeromag survey of Eagle Plain	\$384 000	Survey deferred to winter 2009	
<b>2008-09</b>			
Re-analysis of archived stream sediment samples	\$39 000	NTS sheet 105N work underway: GSC Open File anticipated spring 2009	
Aeromag survey of Eagle Plain	\$504 000	Survey contract awarded for winter 2009	
Aeromag survey of Kandik Basin	\$315 000	Funds redirected to Eagle Plain survey in winter 2009	
Airborne geophysics in Windy-McKinley area	\$398 000	Mag-EM and Mag-radiometric surveys flown fall 2008	
Mapping in Windy-McKinley area	\$100 000	Field work completed July 2008	YGS Open File 2009-1
Peel area aggregate inventory	\$35 000	Work underway	
Bedrock mapping, Francis River (Selwyn)	\$90 000	Reconnaissance completed; ramping up to begin summer 2009	Full project plan complete; ramp-up spring 2009



Four Yukon projects have been defined to date, two of which were initiated this fiscal year, and two of which, if approved, will start in 2009/2010. The projects were defined based on the following criteria: geoscience knowledge gaps identified by YGS staff; client needs as defined by the YGS Technical Liaison Committee; priorities identified in consultation with GSC over the past two years; and the capacities of each partner. At the time this paper was written, project proposals and budgets were under review by GSC management; project approval and resource allocation decisions are anticipated by late December. More up-to-date information on the status of each project is anticipated early in 2009 and will be available through GSC or YGS.

The four Yukon-based GEM project proposals are described briefly below.

### EDGES PROJECT (GEM MINERALS)

Project co-leads: Bert Struik (GSC), Don Murphy (YGS), Joanne Nelson (BCGS)

Proposed project duration: 2008 to 2013

The Edges project will examine the geologic history and mineral potential of the most exotic terranes of the northern Cordillera: the Insular (Wrangellia and Alexander) and Cache Creek terranes. Individual studies will include not only the mineral potential of the terranes themselves, but will examine the metallogeny of the regions at the edges of both the peri-Laurentian and exotic terranes where accretionary processes (arc magmatism, deformation, etc.) have modified them.

Project activities include bedrock mapping, geophysical surveys and thematic research such as innovative metallogenically oriented isotopic studies, lithogeochemistry and tectonic synthesis. Areas targeted for study within Yukon include the Windy-McKinley area, Kluane Ranges, McQuesten, and Stevenson Ridge (Fig. 6). Windy-McKinley and Kluane Ranges mapping projects, already underway, are the core around which the Yukon component of the Edges Project has been built. Other 2008 to 2009 Edges activities include an aeromagnetic survey of the McQuesten area (planned for winter/spring 2009; see Fig. 6) and two geophysical surveys in the Windy-McKinley area.

During the course of the Edges Project, a number of workshops and field trips are planned which will provide clients an opportunity to offer feedback to project participants and to see the geologic problems being addressed in a field environment.

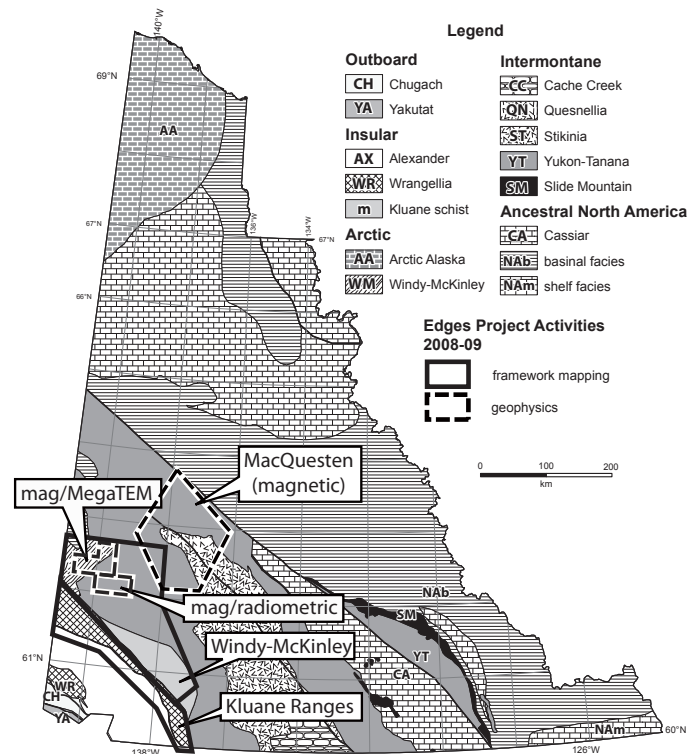


Figure 6. Location of studies in support of land use planning.

### YUKON ENERGY PROJECT (GEM ENERGY)

Project lead: Larry Lane (GSC)

Proposed project duration: 2008 to 2013

The Yukon Energy Project will focus a number of different activities in five of Yukon's sedimentary basins, with the intent to better understand the petroleum systems of the basins and upgrade existing hydrocarbon resource assessments for each. The basins of interest are Eagle Plain, Peel Plateau, Bonnet Plume, Liard basin and Whitehorse trough. Individual activities in each basin range from updating bedrock geology maps, generation of cross sections, stratigraphic and sedimentologic studies, generation of new Rock-Eval and vitrinite reflectance, and scanning existing geological and geophysical reports to allow better access to industry data.

## COAL RIVER MAPPING PROJECT (GEM MINERALS)

Project co-leads: Charlie Roots (YGS), Grant Abbott (YGS)

Proposed project duration: 2009 to 2010

Coal River mapping project is a tightly focussed, one-year project designed to upgrade stratigraphic and structural relations in NTS map sheet 95D and integrate recently acquired aeromagnetic data into the existing bedrock map. Coal River area is prospective for several deposit types including SEDEX, MVT and a variety of Cretaceous intrusion-related metal deposits. An additional component of the proposed project entails surficial mapping of the eastern part of the map sheet, where no surficial geology map currently exists. The surficial map will provide a framework for drift prospecting in the area.

## WERNECKE–MACKENZIE MOUNTAINS COOPERATIVE MAPPING PROJECT (GEM MINERALS)

Project co-leads: Charlie Roots (GSC), Steve Israel (YGS), Edith Martel (NWT Geoscience Office)

Proposed project duration: 2009 to 2013

The Wernecke–Mackenzie mountains cooperative mapping project area straddles the border between Yukon and NWT (NTS 106B and 106C) and is underlain by Proterozoic and Paleozoic sedimentary rocks of ancestral North America. The rocks host numerous stratabound base metal occurrences (Cu, Fe, Pb, Zn), as well as breccia zones with IOCG+U potential, but the regional stratigraphic and structural framework for the area is poorly understood. This project proposes to upgrade existing bedrock geology maps and undertake targeted thematic studies that will document local and regional mineralizing systems, examine basin architecture, and address outstanding stratigraphic and structural questions. In addition to bedrock mapping, the proposed study includes a component of surficial mapping that will aid in the interpretation of new regional stream sediment geochemical data and support drift prospecting.

The status of GEM project proposals will be shared publicly in January 2009 when more detailed information on project activities and planned deliverables is available.

## PROGRAMS

### YUKON MINING INCENTIVES PROGRAM

The Yukon Mining Incentives Program (YMIP) supports mineral prospecting and exploration activities in Yukon by providing a portion of the risk capital required to locate and evaluate mineral occurrences. YMIP is administered by Steve Traynor. This fiscal year, \$774 500 was committed to 45 projects. Funded projects include five under the Grassroots – Prospecting module (2 placer and 3 hardrock projects); 11 under the Focused Regional module (1 placer and 10 bedrock projects); and thirty under the Target Evaluation module (11 placer and 19 hardrock projects).

### MINING AND PETROLEUM ENVIRONMENTAL RESEARCH GROUP

The Mining and Petroleum Environmental Research Group (MPERG) is a cooperative working group comprising government agencies, environmental and resource development companies, Yukon First Nations and non-government organizations (NGOs). The program's mandate is to support and promote research to address environmental issues for mining and petroleum development in Yukon. MPERG funds are administered by Karen Pelletier.

MPERG provided funds for five projects in 2008 to 2009. Deliverables are briefly described below:

1. A fact sheet for Yukoners that explains the properties of uranium and provides information on modern uranium exploration and mining techniques.
2. A study of the factors which influence ecological recovery rates along seismic lines.
3. A comparative analysis of the factors that influence the success of re-vegetation projects based in part on previous MPERG studies.
4. An expanded study, building on findings from 2007, of the biological uptake of naturally occurring selenium (Se) in aquatic life in selected Yukon Rivers.
5. An evaluation of the Brewery Creek mine from initial permitting and assessment through to closure/ remediation to better understand heap-leach mining in northern environments.

## OUTREACH

YGS serves a wide range of clients that include the mineral and petroleum exploration sectors, prospectors, placer miners, Yukon First Nations, Land Use Planning Commissions and the general public. Regular interaction with our clients is important to us as it provides an opportunity to keep them informed of our activities and products, and allows us to receive feedback regarding their concerns, interests and information needs.

Mike Burke visited all major Yukon exploration projects this year, monitoring progress at each site and collecting information for the YGS annual report of exploration highlights (see Burke, this volume). Bill Lebarge visited placer operations, collecting data for the Placer database and maintaining contacts among operators (see Lebarge, this volume). The professional contacts maintained by Mineral Services staff provide valuable information on exploration trends and issues that influence YGS workplans.

Another target group for outreach is Yukon residents. YGS staff undertake a variety of outreach and public education activities each year, coordinated by Karen Pelletier. In 2008, YGS staff visited 29 schools and communities, presenting lectures, leading walking tours and taking part in open houses. Demand for such activities continues to increase.

Finally, Lee Pigage liaised with the Peel Land Use Planning Commission, providing information on the mineral and hydrocarbon potential of the Peel planning area and providing updates to YGS staff and management on the status of Yukon's land use plans. He also monitored activities associated with the North Yukon and Dawson land use plans.

## INFORMATION MANAGEMENT AND DISTRIBUTION

YGS Technical Services group manages data and oversees the distribution of information via the web and through publications. Current YGS data reside in a number of databases which were built on different platforms (Oracle, Access, Excel) at different times. A project was initiated this year to build a single corporate database in which to house all data; this will eliminate duplication of fields between the databases, standardize information and streamline data entry, data creation and data delivery. It will also prepare us to move our web services from ArcIMS to ArcGIS Server, which will enable access to YGS data via web mapping services, web feature services, Google Earth and Microsoft Virtual Earth. We will continue to support our on-line Map Maker application as well.

Olwyn Bruce, Aubrey Sicotte and Karen MacFarlane are spearheading this project. It is anticipated that the entire project will take about two years to complete, with the database build being the first step and the web transition to follow. Testing, documentation and training of staff and clients will be part of the process. In the meantime, existing YGS databases are being maintained and the data they contain are being updated regularly. Rob Deklerk continued to manage the MINFILE database. Four new mineral occurrences were added this year and four map sheets were updated to reflect recently released assessment reports. An extract of MINFILE data in Access format is scheduled for release in late January, 2009. Future updates of the data will be available for download via the web or on request.

