



Activities of the YGS for 2004

by Grant Abbott

The Yukon Geological Survey (YGS) had a successful, but challenging field season this year due to the extreme forest fire conditions. Our new mandate to support hydrocarbon development and increased demands for baseline data to support environmental regulation and land management resulted in a greater diversity of work than in previous years. Projects included bedrock geological mapping, mineral deposit studies, surficial studies and mapping, regional stream geochemistry, topical geology studies, a regional seismic survey, and enhancement of several databases.

Bedrock Mapping

Three bedrock mapping projects included the following: Livingstone Creek, by Maurice Colpron(1); Toobally Lakes, by Lee Pigage(2); and the Kluane Ranges, by Steve Israel(3) These areas were chosen for their mineral potential.

Mineral Deposit Studies

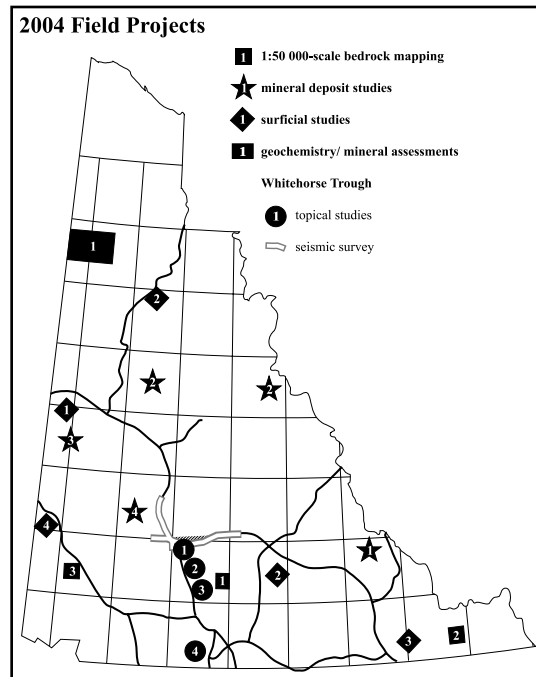
Craig Hart(1) and Julie Hunt(2) have submitted their PhD theses to University of Western Australia and James Cook University. Craig and Lara Lewes have continued work on intrusive-related gold, tungsten and gemstones. Julie is continuing her work on the geology and mineral potential of the Wernecke Breccias. Dr. Jim Mortensen(3) from UBC studied trace element characteristics of placer gold to identify distinct populations and potential lodesources.

Surficial Studies

Surficial studies included work by Bill Lebarge and Mark Nowosad(1) to characterize the grain size distribution in Yukon placer deposits for environmental purposes. Jeff Bond(2) studied "up valley" ice-flow in the "Cassiar Lobe" of southern Yukon and implications for exploration; completed a surficial geology map of the Whitehorse area; and conducted studies of several placer deposits. Panya Lipovsky(3) carried out surficial geological mapping for a biophysical mapping project (Environment, YTG) in southeast Yukon and worked with Crystal Huscroft(4) monitoring land failures related to permafrost melting in central Yukon and impact on water quality of salmon bearing rivers.

Geochemistry/Mineral Assessments

Our Mineral Assessment Geologist, Geoff Bradshaw(1), has been mainly involved in the north Yukon land-use planning initiative. To prepare for a mineral assessment of the region, he conducted a regional stream geochemical survey in partnership with the Geological Survey of Canada (GSC), and



visited mineral occurrences. Geoff has also given presentations to First Nations groups on the mineral potential of their traditional territories.

Whitehorse Trough Project

The Whitehorse Trough Project is aimed at better defining the hydrocarbon potential of this frontier basin. Late this winter, a seismic line was shot across the north end of the basin by the GSC in partnership with YGS. Other components of the project include stratigraphic and sedimentological studies by Grant Lowey(1) with YGS and Darrel Long(2) with Laurentian University, igneous chemistry by Dr. Steve Piercey(3) of Laurentian University and structural studies by Amy Tizzard(3) under the direction of Dr. Steven Johnston at the University of Victoria.

Other Initiatives

This year the YGS received funding through the DIAND Northern Economic Development Fund to continue digitizing assessment reports - the entire collection of more than 5000 reports will be in PDF format and accessible over the internet by year end. We have also acquired the exploration records from the Faro District and outside projects conducted over the year by the various companies that have owned the Faro District (to be available late winter, 2005). Our regional stream geochemical database has been analysed by Georeference Online to identify multielement anomaly clusters (MineMatch). Results are now available online.

Mapping Out Your Next Wilderness Expedition

By Elaine Schiman

As president of the junior exploration company Cordilleran Minerals, Mark Lindsay of Whitehorse spends a good part of each summer exploring for minerals in the Yukon bush. By contrast, he spends most of each winter inside, working from his home office. But he's still found a way to go exploring each winter – virtually.

Lindsay is a big fan of the Yukon Geological Survey's Interactive Map Gallery, located on the Survey's website at www.geology.gov.yk.ca. "I use the Map Gallery pretty much every day, especially from November through February," says Lindsay. "That's when I'm doing my exploration planning for next year, and preparing reports on what we did last year. It's a very impressive and extremely useful website."

Lindsay isn't the only one who thinks so. The Yukon Geological Survey has had a lot of interest in its Map Gallery from prospectors and mining companies, and increasingly from the general public as well. "It's a great resource for anyone who wants to spend time on the land or to learn about Yukon geography, geology, and land use," says Grant Abbott, the Survey's Chief Geologist. "The site isn't that widely-known yet, but from the enthusiasm shown by those who've seen it, we think it could have a much wider audience."

Perhaps one of the Gallery's most useful functions is that it gives visitors the capability to create and print a customized map of any corner of the Yukon they choose. "Prospectors and geologists are our main users now," says Abbott. "But I can see a wide variety of people wanting to create their own maps - hikers, canoeists, trappers, hunters, outfitters. The Gallery is backed up by databases and references to publications and papers, which makes it a valuable resource for anyone doing research, such as First Nations, land use planners, teachers, students and naturalists."

The Map Gallery was set up about three years ago, to give prospectors and mining companies easy access to the information they needed to make exploration decisions.

Much of the information in the Gallery is tailored for their use, such as up-to-date information on geophysics, geochemistry, mineral occurrences, mineral claims, who owns them and when they expire.

There is also a selection of other types of information of interest to a wider audience, such as topography, elevation, rivers, streams and lakes, roads and trails as well as the boundaries of First Nation lands, parks, protected areas and special management areas. You can even see all locations of earthquakes and their severity.

"There are 32 different sets of information, or 'layers' that you can combine in different ways, depending on your interests in an area," says Olwyn Bruce, a Geographic Information Specialist with the Survey, who maintains the Gallery. "You can click on various layers of the map, to activate or deactivate them. That way, the map you build and print will only show what you want it to."

Mark Lindsay is an expert at this. With a practiced hand guiding the computer mouse, he tours the Map Gallery, starting with the Regional Stream Geochemistry Map, a multi-coloured map of the Yukon that fills the entire computer screen. He picks an area he wants to "explore," highlights it and clicks. Within a few seconds, a new map appears, showing a close-up view of the areas he selected. He wants to see any occurrences of a number of metals, such as silver, gold, copper and mercury, so he uses the menu along the left side of the screen to select that information and "shut off" other types of information that he doesn't need.

A number of black dots show up on the map, almost as if someone had spattered ink across the screen. These are "anomalies" that show enough mineralization to indicate the possible presence of a deposit. Later, he goes to another map in the Gallery which shows him magnetic readings for the same area, another important piece of the puzzle. By the time he's done, he's found a spot that just might be worth exploring and staking. He can then turn on the quartz claims layer to find out if it is staked. By clicking on a button he can "activate" that layer. Using the information tool he can click on a mineral claim and find out who owns it and when it expires.

"The Gallery has an incredible amount of data that you can use for assessing mineral potential," says Lindsay. "When you see something you're interested in on the map, you can click on it and call up detailed information on that area."

Lindsay uses the Gallery for his work, but he can easily see the site becoming a popular tool for those with recreational interests in the outdoors. "The Yukon Mosaic layer gives you a kind of relief map, which shows mountains and valleys, lakes and streams. You might find a lake you want to try fishing at, or an area you want to try hiking into. And the topography will tell you how much of a challenge that hike might be."

"We have some very faithful users," says Abbott. "They've told us that they like the ease of access the Map Gallery gives them to information they need, no matter where they are in the world. Being on the web, the Gallery enhances awareness of Yukon geology, mineral potential and resources. We just want to make sure that local Yukoners also know about the Gallery and what it can do for them, no matter what kind of exploring they do in the Yukon's wilderness."



Yukon Geological Survey's Chief Geologist Grant Abbott

Events

32nd Yukon Geoscience Forum

November 21-24, 2004

High Country Inn, Whitehorse, Yukon

This annual event, organized by the Yukon Chamber of Mines, features updates on exploration development and reclamation activities for Yukon Geology.

This year, the YGS geologists will again provide overview talks at a number of sessions.

Mike Burke - overview of exploration and mining activity in the territory.

Bill Lebarge - overview of placer activity.

Grant Abbott - update on the YGS.

Steve Isreal - preliminary results from bedrock mapping within the Kluane Ranges, southwest Yukon.

Maurice Colpron - preliminary investigation of the bedrock geology in the Livingstone Creek area.

Julie Hunt, Tim Baker (James Cook University) and **Derek Thorkelson** (Simon Fraser University) - large-scale breccia processes associated with Proterozoic iron-oxide-copper-gold mineralization in the Wernecke Mountains.

Grant Lowey - sedimentology, stratigraphy and source rock potential of the Richthofen Formation (Jurassic), northern Whitehorse Trough.

Jeff Bond - McConnell glacial ice flow and sediment dispersion patterns in the Pelly Mountains.

Be sure to visit our poster displays, which will be located this year in the trade show convention area.

You may also want to take part in the Department of Energy, Mines and Resources workshop on the draft Yukon Mine Reclamation and Closure Policy on November 20, 9am-4pm in the General Store at the Gold Rush Inn. For information, please contact Kevin Brewer at 667-8708.

For more information on the Forum, visit www.ycmines.ca/forum.html

Northern Latitudes Mining Reclamation Workshop

“Meeting the Challenges of Northern Climates”

May 24-26, 2005

Dawson City, Yukon

The Northern Latitudes Mining Reclamation Workshop is a joint U.S. and Canada project to facilitate interaction on reclamation and restoration methods, particularly related to mining. The third bi-annual workshop is co-hosted by the Canadian Land Reclamation Association, which will broaden the spectrum of topics to encompass general land reclamation and urban restoration.



The objective of the workshop is to bring together governments, industry, consultants, Alaska Natives, Northern First Nations and Inuit Groups who undertake reclamation/restoration projects or are involved in land management in the north or in comparable environments, to share information and experiences.

For more information contact Karen Pelletier at the Yukon Geological Survey (867) 456-3808 or email karen.pelletier@gov.yk.ca

DawsonRocks'04

In July, the YGS organized a technical conference on the geology, mineral deposits and placers of the Dawson region. This mini-conference indeed rocked, with attendance exceeding our expectations.

About 55 people took in Dr. Lee Groat's (University of British Columbia) public lecture on “The Blue and the Green. Exploring for Emeralds and Aquamarine in Yukon.”

Over 85 attended the technical talks on the Klondike placer gold; Yukon-Tanana Terrane and its associated VMS deposits; the lode gold in the Klondike; and iron-oxide copper gold deposits in the North American margin.

Forty-four people participated in the associated field trips that toured the Klondike Gold Fields, Brewery Creek Gold Mine and the Dempster HEM-Yukon Olympic occurrence.

“The best thing about this conference was the exceptional quality of the presentations,” YGS geologist Craig Hart said. He and Copper Ridge Explorations, Inc. President Gerry Carlson organized the conference. Dawson resident Cathy Wood did all of the expediting that ensured it ran smoothly.

“Many of the presentations were the culmination of that individual's project over the last five to ten years.”

Craig was also pleased with the diversity of the participants. “There was everyone from global exploration managers working for big international companies to prospectors to Dawson summer students.”

Several corporate sponsors provided donations that provided food, drink and supplies during the event. They, along with the many volunteers, helped make the conference a success.

Many in attendance want to see the event held again next year, which is a testament to how well the conference went over. It was a great opportunity to meet people, exchange ideas, and learn more about this mineral-rich region of the Yukon. There are rumours that there were a few option agreements and joint-venture deals in the works.

We'll let you know well in advance if DawsonRocks'05 is in the works.

New Publications and Open Files Available from the YGS

You may view and download many of our publications free of charge from our website at

www.geology.gov.yk.ca/publications.

Bulletin 14: Placer Geology of the Stewart River (115N&O) and Dawson (116B&C) map areas, west-central Yukon, Canada, by G.W. Lowey (includes two 1:250 000-scale maps). Report and maps \$25; Report only \$15; CD-ROM \$30.

Bulletin 15: Bedrock geology compilation of the Anvil District (parts of NTS 105K/2, 3, 5, 6 and 7), central Yukon, by L.C. Pigage (includes two 1:100 000- and fifteen 1:50 000-scale maps). Report and maps \$75; Report only \$15, CD-ROM \$30.

Upcoming Geoscience Maps 2004-1 to 17, Various bedrock geology maps of the Anvil District, by L.C. Pigage, two 1:100 000- and fifteen 1:25 000-scale maps. These maps accompany Bulletin 15. \$5 each.

Yukon MINFILE 2004 - A database of mineral occurrences, compiled by R. Deklerk and S. Traynor. CD-ROM \$30.00

Yukon Placer Database 2004 - Geology and mining activity of placer occurrences, compiled by W.P. LeBarge. CD-ROM \$30.

YukonAge 2004 - A database of isotopic age determinations for rock units from Yukon Territory, compiled by K. Breitsprecher, J.K. Mortensen and M.E. Villeneuve. CD-ROM \$30.

YGS Open File 2004-1/GSC Open File 4632: Geology of Seagull Creek (105B/3), Yukon Territory, by C. Roots, J. Nelson and R. Stevens, 1:50 000 scale. \$5.

YGS Open File 2004-2/GSC Open File 4630: Geology of Dorsey Lake (105B/4), Yukon Territory, by C. Roots, J. Nelson, M. Mihalyuk, T. Harms, M. de Keijzer and R.L. Simard, 1:50 000 scale. \$5.

YGS Open File 2004-3/GSC Open File 4631: Geology of Morris Lake (105B/5), Yukon Territory, by C. Roots, J. Nelson and R. Stevens, 1:50 000 scale. \$5.

YGS Open File 2004-4 to 9, 13 and 14/GSC Open Files 4503 to 4507, 4510, 4511 and 4514: Aeromagnetic Total Field and Shaded Magnetic Vertical First Derivative 106F/NE-NW, 106K/NW-NE, 106L/NE-NW and 116P/SW-SE, by F. Kiss, M. Coyle, S. Forté and R. Dumont. \$15 ea.



YGS Open-File 2004-10: Exploration Criteria for Coloured Gemstone Deposits in the Yukon, by Lori Walton. \$5.

YGS Open File 2004-11: Geological map of parts of Waters Creek and Fire Lake map areas (NTS 105G/1, 2), southeastern Yukon (1:50 000 scale), by D.C. Murphy, R. Kennedy and A. Tizzard. \$5.

YGS Open File 2004-12: Stewart River Placer Project station location map, Portions of NTS Sheets 116B & C and 115N & O, also known as Map 1 in Bulletin 14, by G.W. Lowey, S. Deforest and P.S. Lipovsky. \$5.

YGS Open File 2004-15: The Whitehorse Copper Belt, Yukon - An annotated geology map, compiled by D. Héon, 2 sheets, 1:50 000 scale. \$5.

YGS Open File 2004-17: Geology and litho geochemistry of the Fyre Lake copper-cobalt-gold sulphide-magnetite deposit, southeastern Yukon, by C. Sebert, J.A. Hunt and I.J. Foreman. \$5.

YGS Open File 2004-18: A Regional Characterization of Landslides in the Alaska Highway Corridor, Yukon, by C.A. Huscroft, P.S. Lipovsky and J.D. Bond. Report & CD-ROM \$35; Report only \$5.

YGS Open File 2004-19: Preliminary geology of NTS 95D/8 (northern Toobally Lakes area), southeast Yukon (1:50 000), by L.C. Pigage. \$5.

YGS Open File 2004-20: Preliminary bedrock geology of the Kluane Ranges (parts of NTS 115G/5,6 and 12), southwest Yukon (1:50 000 scale), by S. Israel. \$5.

PARC Technical Bulletin 04-01: Ecoregions of the Yukon Territory - Biophysical Properties of Yukon Landscapes, by Yukon Ecoregions Working Group, edited by C.A.S. Smith, J.C. Meikle and C.F. Roots, Agriculture and Agri-Food Canada. Report \$45; CD-ROM \$30.

To purchase the publications contact: Geoscience Information and Sales, Department of Energy, Mines & Resources, Room 102, Elijah Smith Building, P.O. Box 2703, Whitehorse, Yukon, Y1A 2C6 Phone: (867) 667-5200; Email: geosales@gov.yk.ca

Chevron Minerals

Release of geological, geochemical, geophysical and drilling data from the 1970's and 1980's. This data is now available in the Yukon EMR Library thanks to a donation of material from Chevron Minerals. The EMR Library is located in Suite 335, 300 Main Street, Whitehorse.

Tel:(867) 667-3111; E-mail: emrlibrary@gov.yk.ca

Web: www.emr.gov.yk.ca/Library

Upcoming Publications

YGS Open File 2004-16: Geology of Southwest Yukon (1:250 000 scale), compiled by S. Israel. \$5.