



Maps, Apps, and Publications: Tools to discover geoscience information in Yukon

Brett Elliot
Yukon Geological Survey



Who I am

- Brett Elliot
- Acting Head, Technical Services, Yukon Geological Survey
- 9 years at the survey
- Background in GIS & Databases



This talk

- Overview of the Yukon
- Infrastructure & Mineral Claims
- About the Yukon Geological Survey
- Our process
- How we share data



A satellite-style map of North America. The Yukon territory in Canada is highlighted in a teal color. A white star marks the location of Vancouver, British Columbia. The map shows the outlines of the United States and Canada, with various state and provincial abbreviations. Surrounding countries like Iceland, Ireland, Spain, Portugal, Greenland, Guyana, Venezuela, and Cuba are also labeled.

Yukon Overview

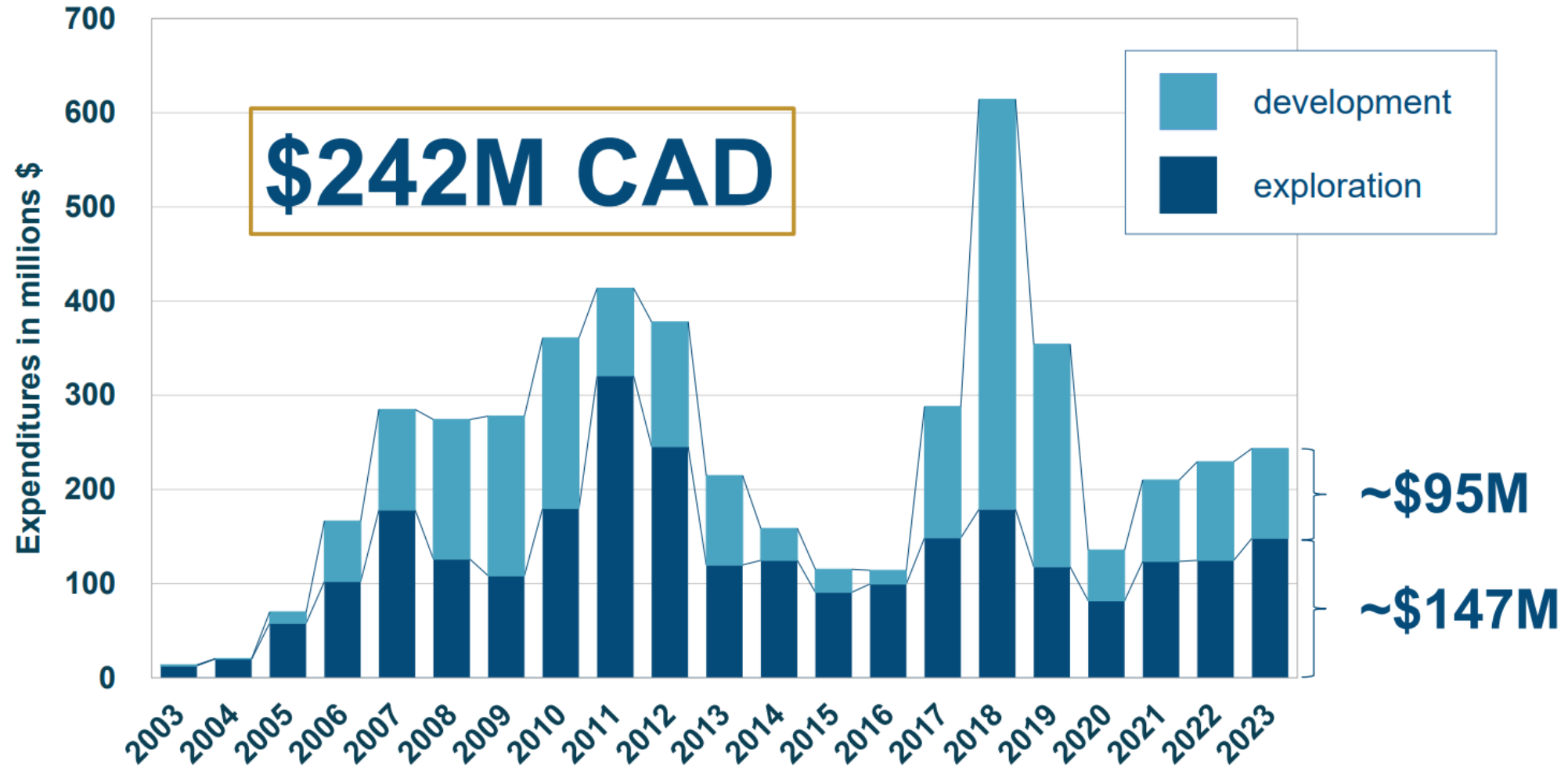
- 2.5 hour flight
- 30 hour drive
- ~2400km



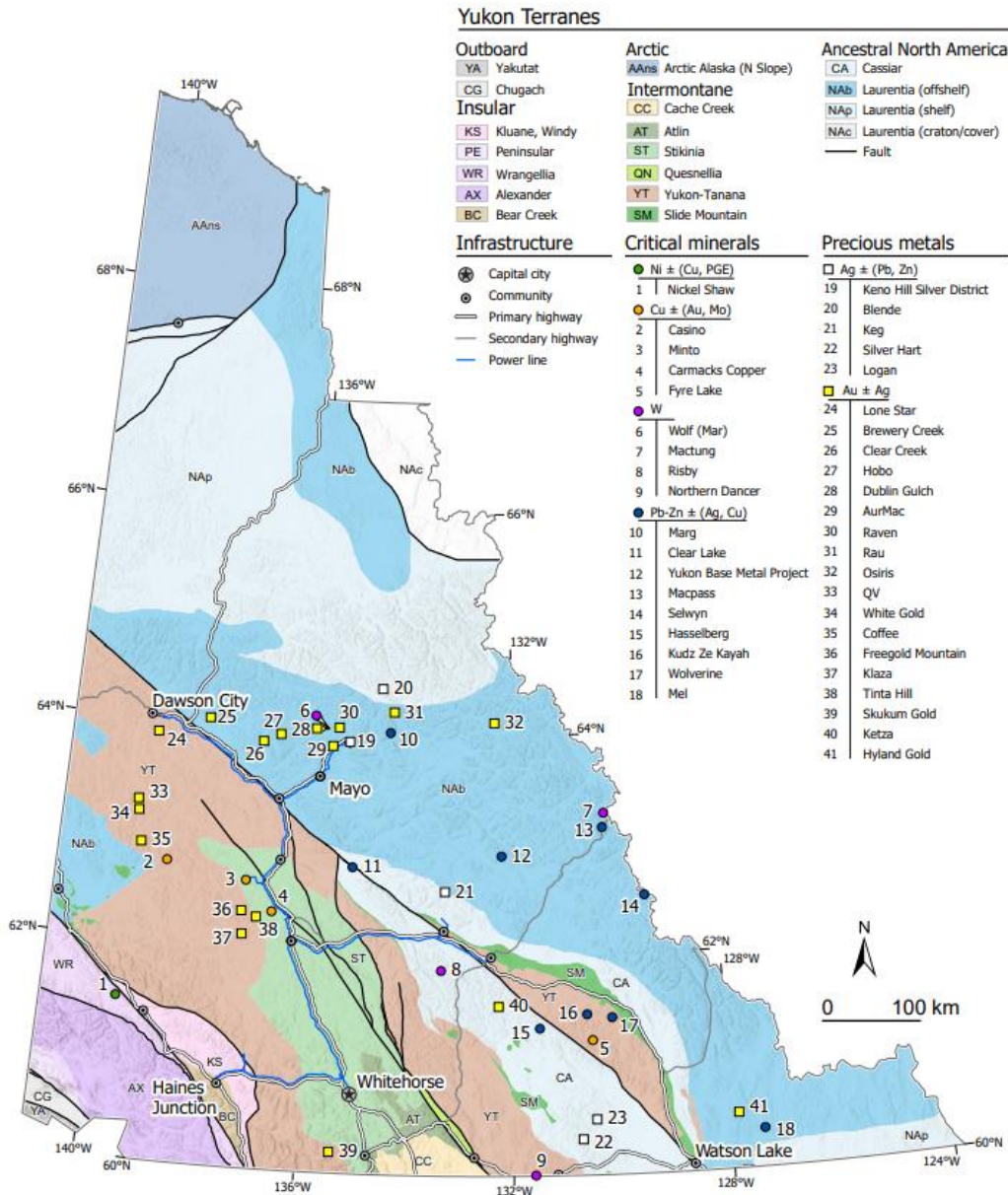
Yukon Overview

	Yukon	Kazakhstan
Population	40,000	20,000,000
Area	482,000 km ²	2,724,900 km ²
Population Density	0.08 people / km ²	7.34 people / km ²
GDP	\$3.1 Billion CAD	\$350 Billion CAD

Mining and Exploration Expenditure



Projects with a compliant mineral deposit calculation



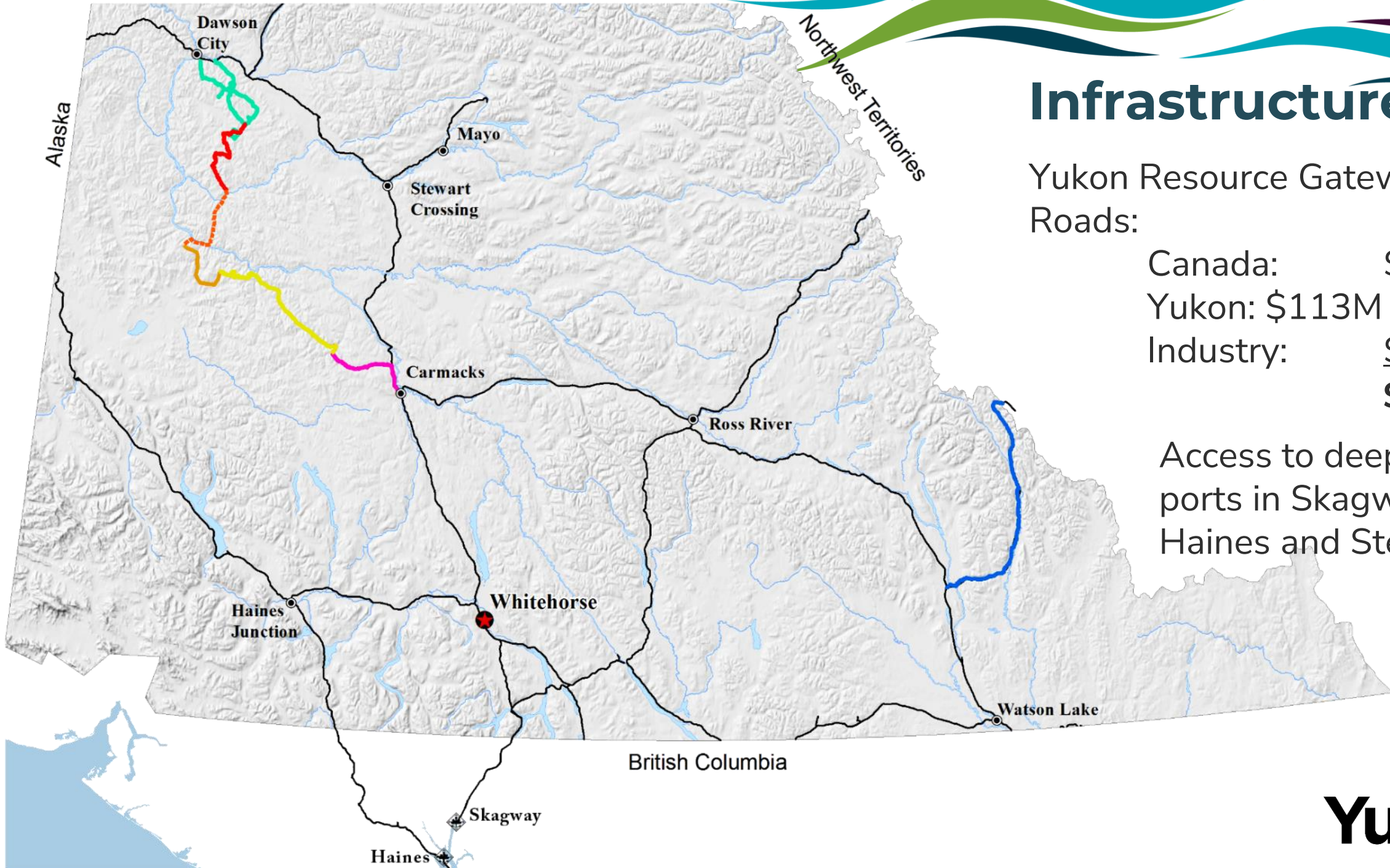
Yukon's Mineral Endowment



YUKON

Mineral Deposits Summary
2023





Infrastructure

Yukon Resource Gateway

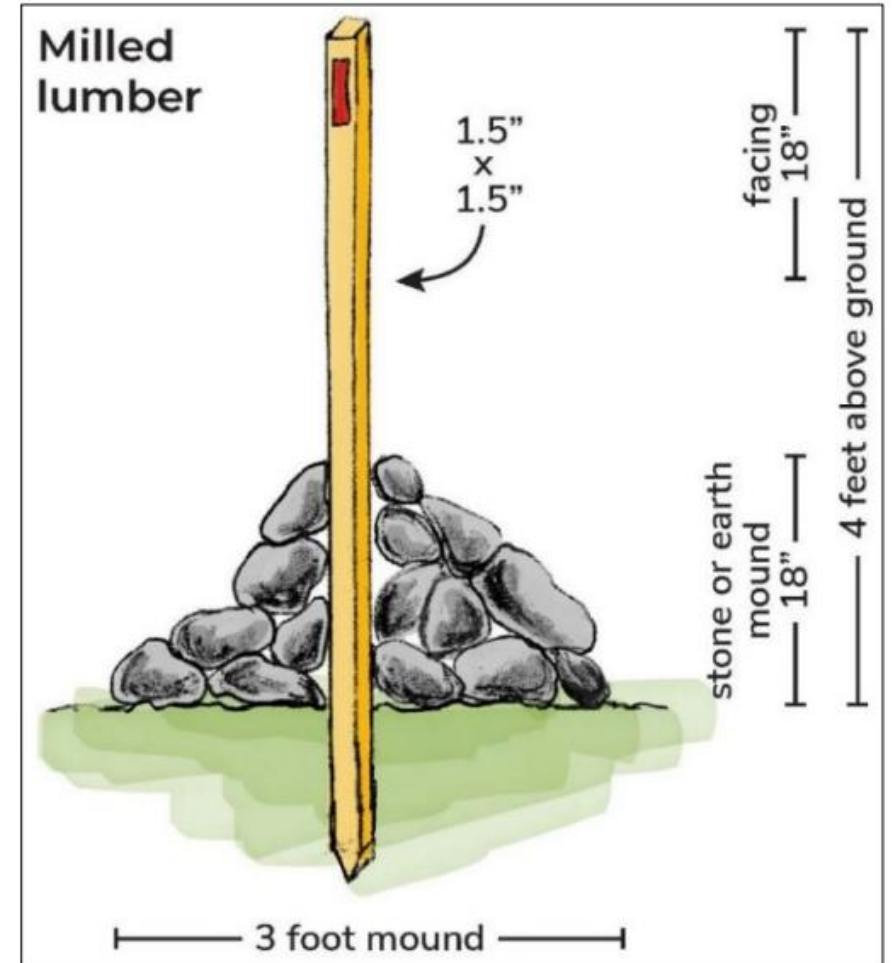
Roads:

Canada:	\$247M
Yukon:	\$113M
Industry:	<u>\$109M</u>
	\$469M

Access to deep water ports in Skagway, Haines and Stewart

Mineral claim staking

- Claims are marked by a series of posts on the ground
- Must travel to the area you intend to claim and put posts in the ground



Vision for new minerals legislation

New minerals legislation seeks to do many things. Over the course of the last year and half, the government-to-government steering committee has begun to set out a long-term vision for a new regime.

New legislation will provide a framework for mineral prospecting, exploration, development, production, reclamation and closure, while recognizing key differences between the quartz and placer sectors. New legislation should improve the management of the resources in a way that respects Indigenous rights, strengthens the Yukon as a competitive and responsible mining industry, protects the environment, integrates other land uses and values, and supports the modern-day

Below we detail draft principles that are intended to support this future

New legislation seeks to:

- Respect Aboriginal and treaty rights and to promote reconciliation
- Create conditions for a mining industry that is viable, competitive, and responsible
- Realize economic benefits for both present and future generations
- Contribute to individual and social well-being and healthy communities
- Ensure environmental protection and ecosystem health
- Set out how industry is responsible and liable for its activities and impacts
- Ensure collaboration with and involvement of Indigenous governments
- Regulate mineral development in a manner that is efficient, effective and transparent

Questions

1.1 Do you have any thoughts or concerns about the set of draft principles we're considering or additional things that you think we should consider?

New legislation is in the works

<https://yukon.ca/new-minerals-legislation>



Yukon Geological Survey



What we do



SCIENCE



**MAPS &
REPORTS**



ASSESSMENTS



FUNDING

Who we are

**Technical
Services**



**Bedrock
Geology**



**Surficial
Geology**



**Mineral
Services**





Our work supports



GOVERNMENT



INDUSTRY



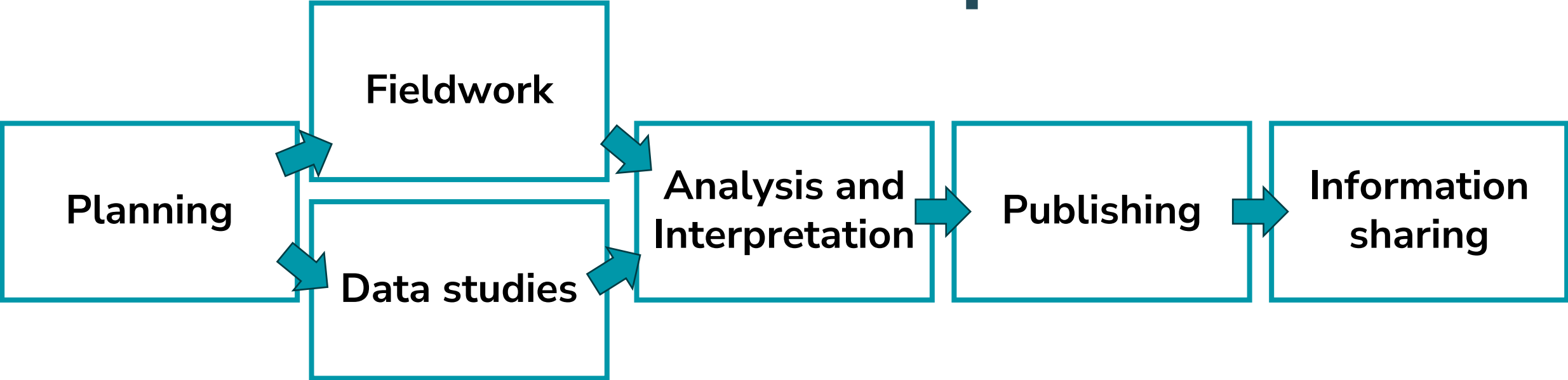
ACADEMIA



PUBLIC

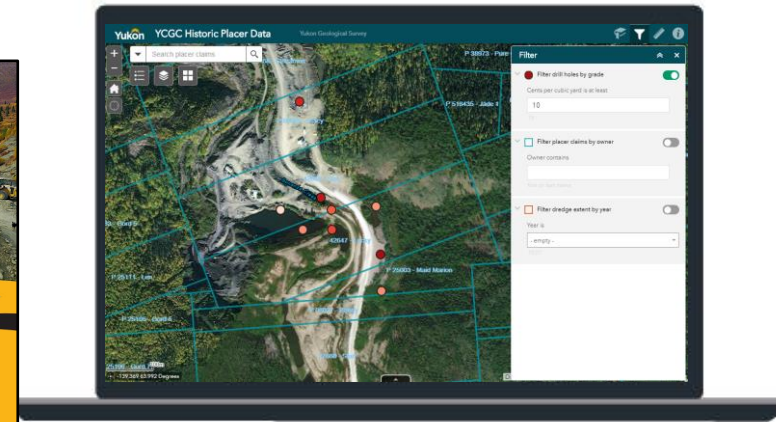
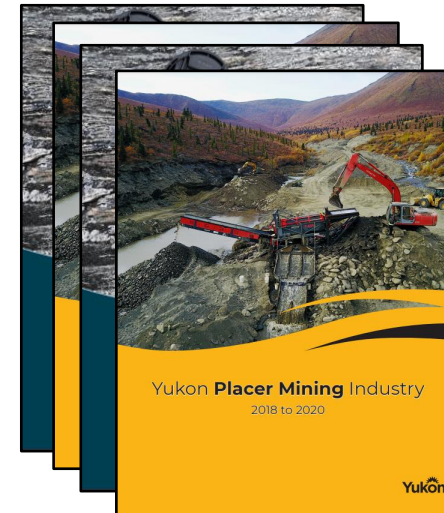
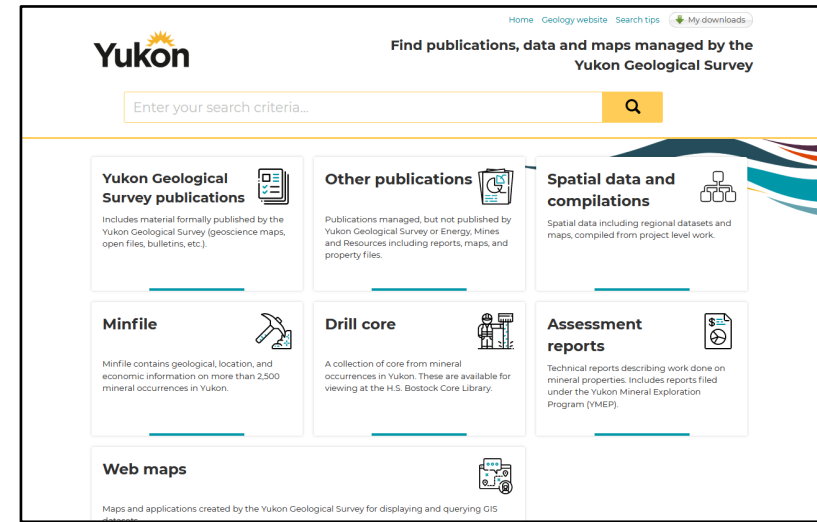


Our process



Information Sharing

- Online Databases and Portals
- Interactive Maps and GIS Tools
- Publications and Reports
- Conferences and Workshops
- Outreach and Education
- Social Media & Newsletters





Where to find our data?

- Search Google for ‘Yukon Geological Survey’
- yukon.ca
- <https://data.geology.gov.yk.ca/>
- <https://service.yukon.ca/permafrost/>
- Facebook / Instagram
- GeoYukon

Search google for 'Yukon Geological Survey'

- yukon.ca
- data.geology
- Facebook

The screenshot shows a Google search for "yukon geological survey". The search bar at the top contains the text "yukon geological survey" and the Google logo. Below the search bar, there are navigation options: "All", "Images", "News", "Maps", "Videos", and "More". The search results are displayed below, showing approximately 2,210,000 results in 0.43 seconds. Three arrows from the text on the left point to specific search results:

- The first arrow points to the first result: "Geology | Government of Yukon". The snippet below the title reads: "Find geology publications and data · Yukon Geological Survey · Core library: Yukon Geological Survey · Apply for mineral exploration funding · Find the latest Yukon ...".
- The second arrow points to the second result: "Yukon Geological Survey - Government of Yukon". The snippet below the title reads: "Minfile contains geological, location, and economic information on more than 2,500 mineral occurrences in Yukon. Drill core. A collection of core from mineral ...".
- The third arrow points to the fourth result: "Yukon Geological Survey | Whitehorse YT - Facebook". The snippet below the title reads: "Yukon Geological Survey, Whitehorse, Yukon. 2770 likes · 3 talking about this · 1 was here."

data.geology.gov.yk.ca


- Publications / reports
- Regional data
- Minfile
- Drill core
- Assessment reports
- Web maps

The screenshot shows the homepage of the Yukon Geological Survey data portal. At the top, there is a navigation bar with links for 'Home', 'Geology website', 'Search tips', and 'My downloads'. The main header features the 'Yukon' logo and the text 'Find publications, data and maps managed by the Yukon Geological Survey'. Below this is a search bar with the placeholder text 'Enter your search criteria...' and a magnifying glass icon. The main content area is organized into a grid of seven categories, each with an icon and a brief description:

- Yukon Geological Survey publications**: Includes material formally published by the Yukon Geological Survey (geoscience maps, open files, bulletins, etc.).
- Other publications**: Publications managed, but not published by Yukon Geological Survey or Energy, Mines and Resources including reports, maps, and property files.
- Spatial data and compilations**: Spatial data including regional datasets and maps, compiled from project level work.
- Minfile**: Minfile contains geological, location, and economic information on more than 2,500 mineral occurrences in Yukon.
- Drill core**: A collection of core from mineral occurrences in Yukon. These are available for viewing at the H.S. Bostock Core Library.
- Assessment reports**: Technical reports describing work done on mineral properties. Includes reports filed under the Yukon Mineral Exploration Program (YMEP).
- Web maps**: Maps and applications created by the Yukon Geological Survey for displaying and querying GIS datasets.




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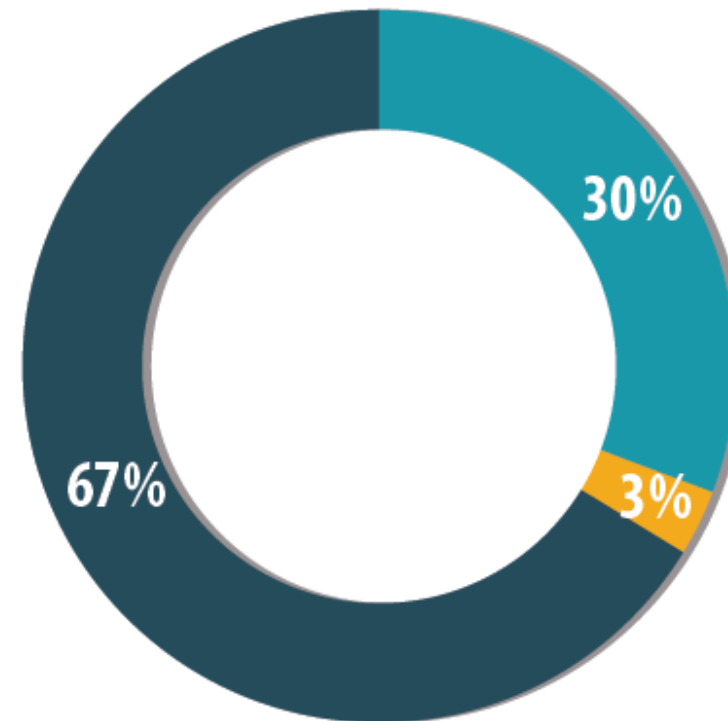
Maps and applications created by the Yukon Geological Survey for displaying and querying GIS datasets.

Types of Publications

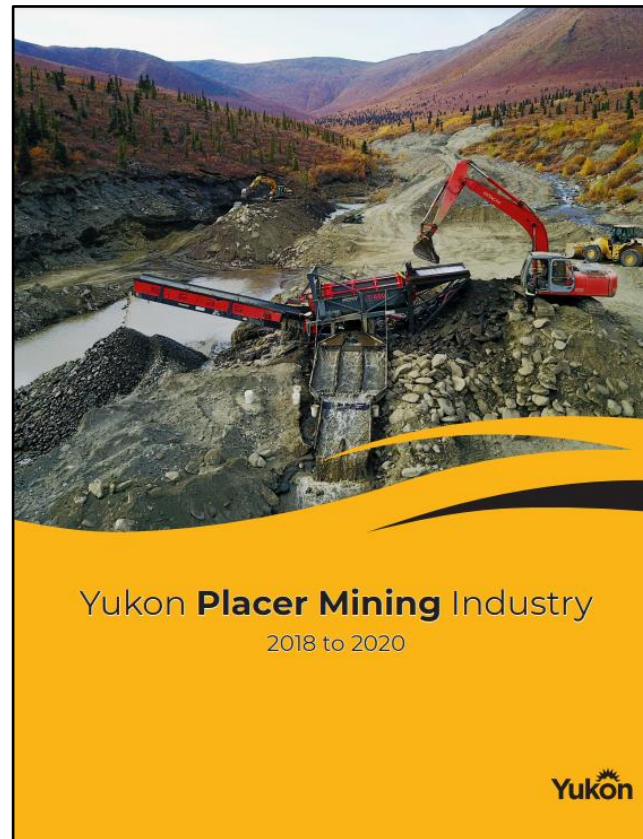
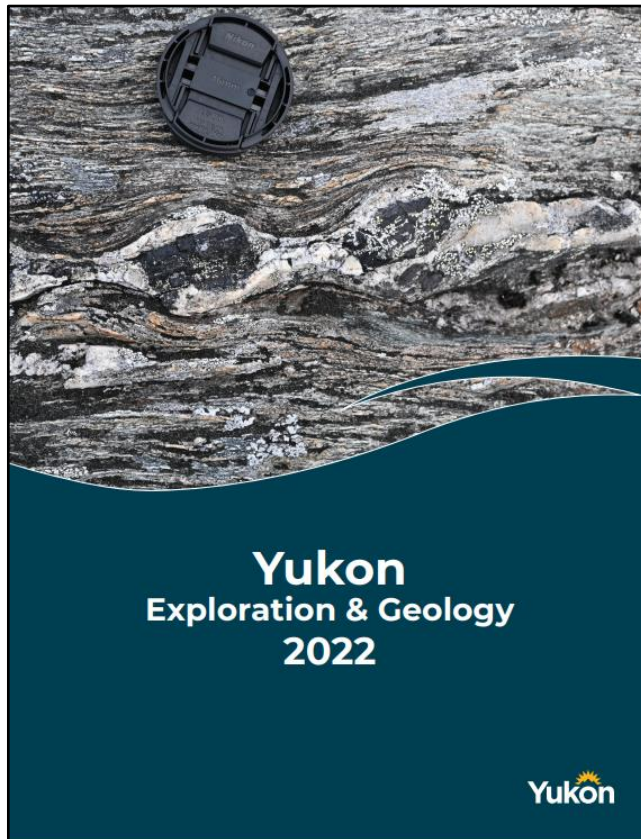
35,000

reports, maps, and publications in
data.geology.gov.yk.ca

Property File Collections	22,000
Yukon Mining Assessment Reports	10,000
YGS Reports	1,000



Scientific papers and reports by YGS



The Sunnydale landslide, current understanding and research, Dawson (NTS 116B/3)

Jackson Bodtker* and Dan Shugar
Water, Sediment, Hazards, and Earth-surface Dynamics (waterSHED) Lab, Department of Geoscience,
University of Calgary

Derek C. Cronmiller and Jeffrey D. Bond
Yukon Geological Survey

Bodtker, J., Cronmiller, D.C., Bond, J.D. and Shugar, D., 2023. The Sunnydale landslide, current understanding and research, Dawson (NTS 116B/3). In: Yukon Exploration and Geology 2022, K.E. MacFartane (ed.), Yukon Geological Survey, p. 19-33.

Abstract

The Sunnydale landslide is a slow-moving rock-slope deformation on the western bank of the Yukon River directly across from Dawson, Yukon. While recent data suggest acceleration of the slide, which could pose a potential hazard to Dawson if the acceleration continues to the point of rapid failure, limited data precludes certainty on probability and timing of this occurrence. Field mapping allowed for documentation of road subsidence, expanding tension cracks, recent and ongoing rockfall and production of detailed geomorphological and surficial geology maps of the slide. Differencing from 2014, 2018, 2019, 2020 and 2022 aerial lidar data, and data from physical monitoring stations indicate current movement rates of up to 11 cm/yr across the slide area. Ongoing work including terrestrial lidar change analysis and installation of a near-real-time monitoring system in early 2023 will increase our understanding of current movement trends. Additionally, in-progress geologic dating of deformation features will further our understanding of the history and context of this feature on a geologic timescale.

* Jackson.Bodtker@ucalgary.ca

Yukon Exploration and Geology 2022 19

Find publications, data and maps managed by the Yukon Geological Survey

Enter your search criteria...



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Other publications



Publications managed, but not published by Yukon Geological Survey or Energy, Mines and Resources including reports, maps, and property files.

Spatial data and compilations



Spatial data including regional datasets and maps, compiled from project level work.

Minfile



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Assessment reports



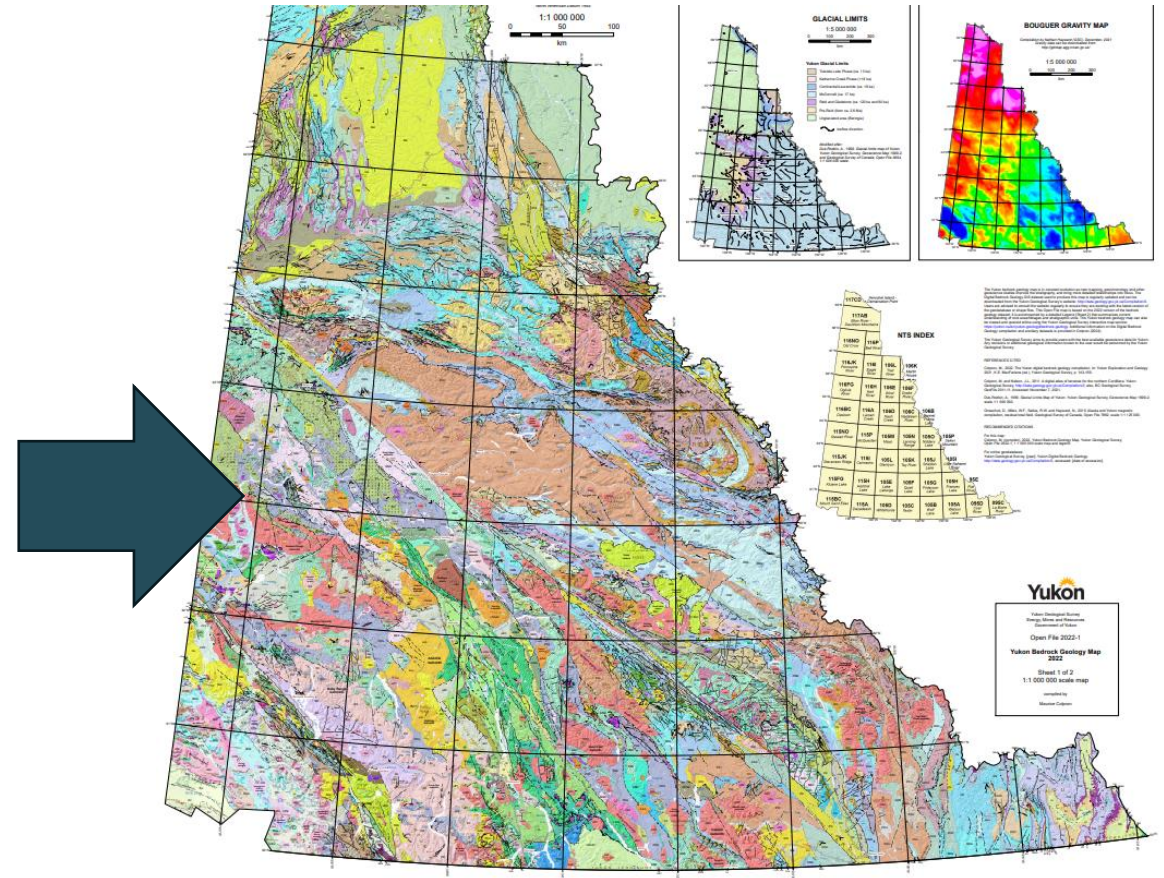
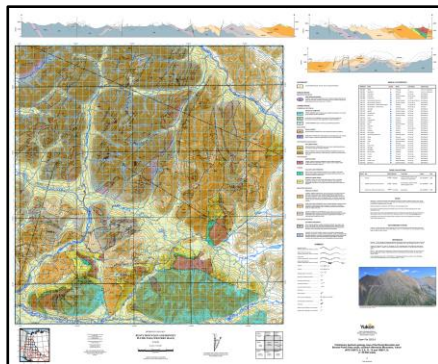
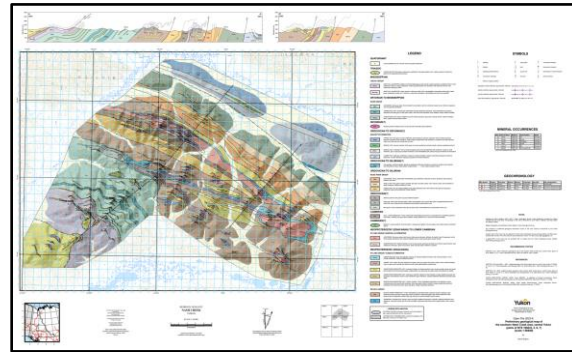
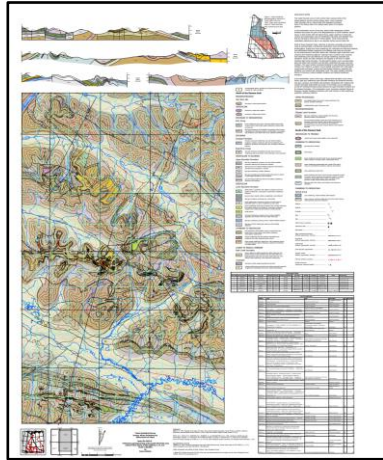
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Web maps



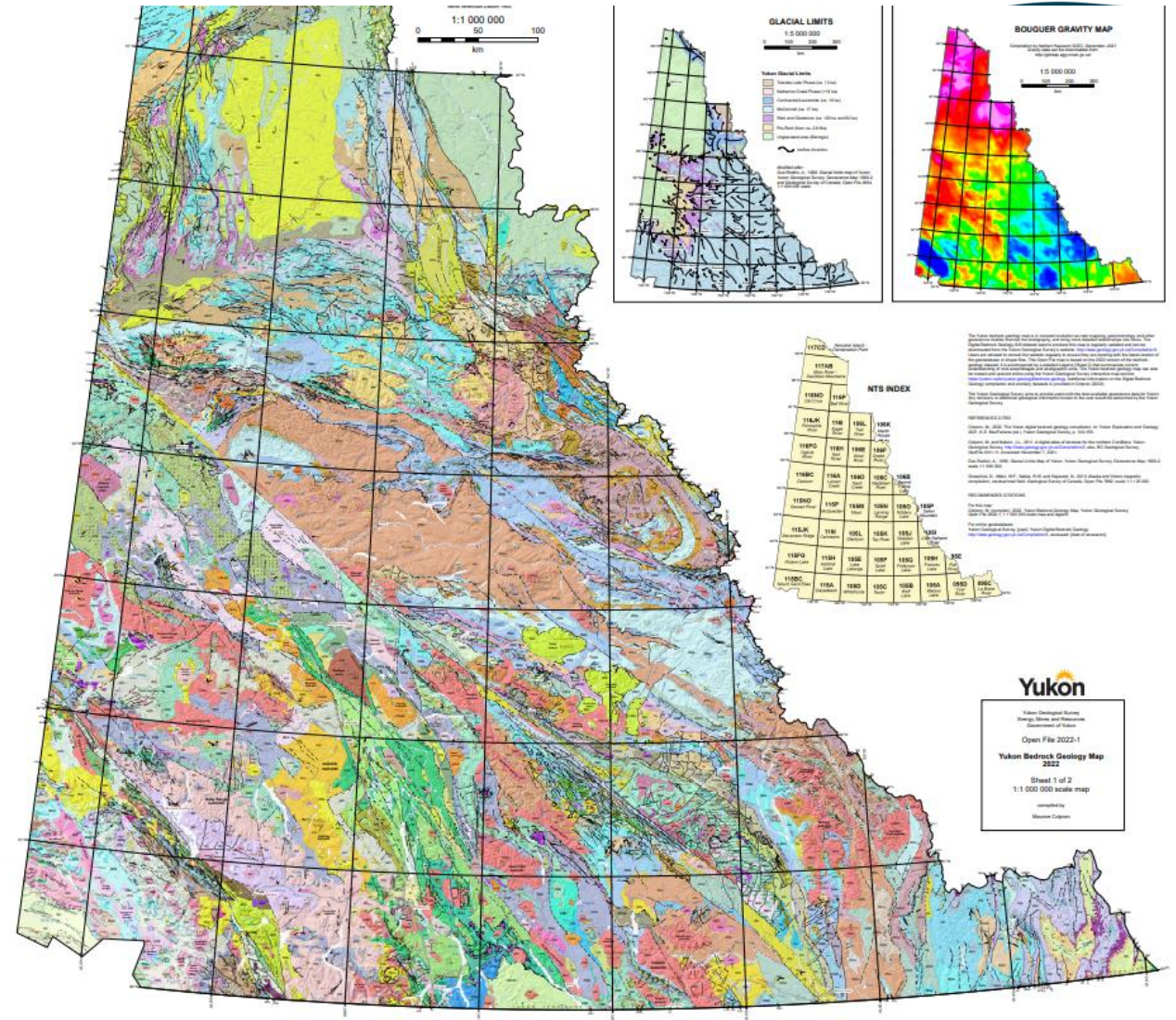
Maps and applications created by the Yukon Geological Survey for displaying and querying GIS datasets.

Project level data is compiled into regional datasets



Types of Compilations

- Bedrock Geology
- Surficial Geology
- Geochronology
- Geochemistry
- Geophysics
- Mineral Occurrences
- Permafrost



Bedrock Geology Compilation



Easily available for download

Downloads

Name	Type	Comment	
Shapefile	Shapefile	<1MB	Download ZIP
File Geodatabase	File Geodatabase	<1MB	Download ZIP
KMZ	KMZ	<1MB	Download ZIP

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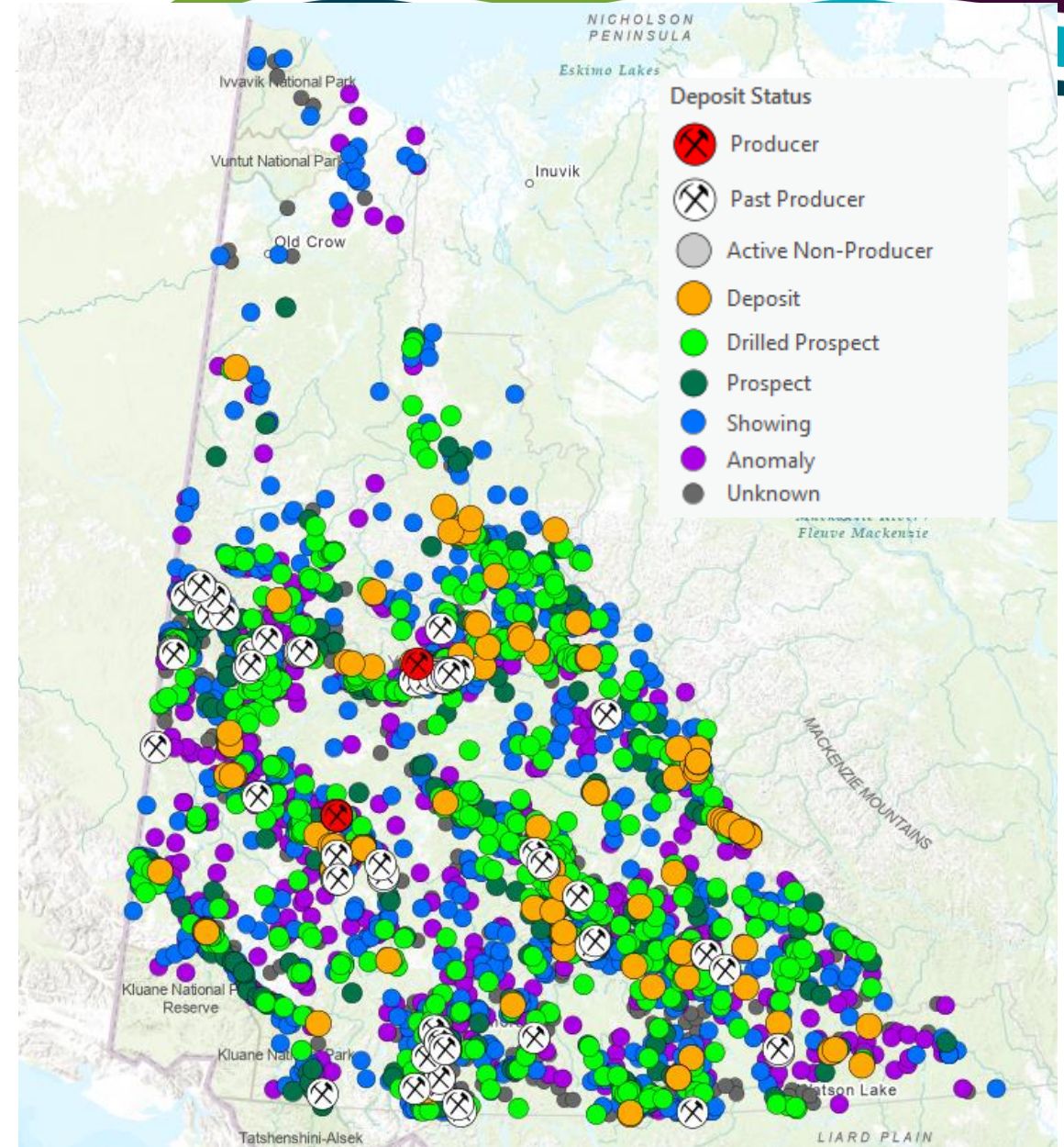
Web maps



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~3,200 Mineral Occurrences (MINFILE)

- Past Mines
- Significant mineral deposits
- Potential mineral deposits



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Drill core at our Core Library

142,000
METRES OF CORE

28,000 **250** **1,872**
BOXES PROJECTS DRILL HOLES



75 Drill holes are available for viewing on Geologic AI's Digital Core Table



- Alteration
- Mineralization
- Vein
- Logger Tracks
 - Majors
 - Minors
 - Lithology
- Hide Logger Tracks



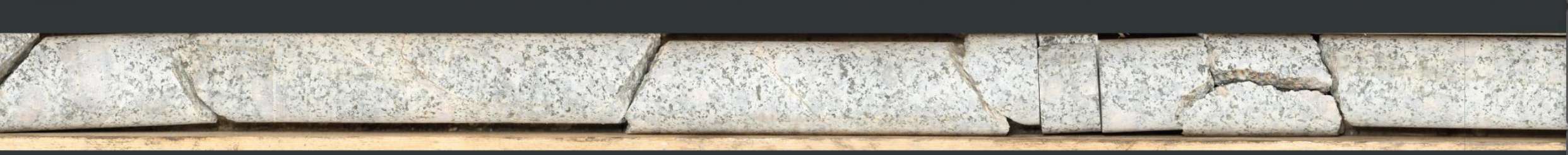
62.00m




63.00m





66.00m




- 01-Default
- 02-Description
- 03-XRF Ore Elements
- 04-XRF Rock Forming
- 05-XRF Elements
- 06-Alteration
- 07-XRF Trace Elements


2200nmDEPTH 


Alteration 


Mineralization 

Vein 

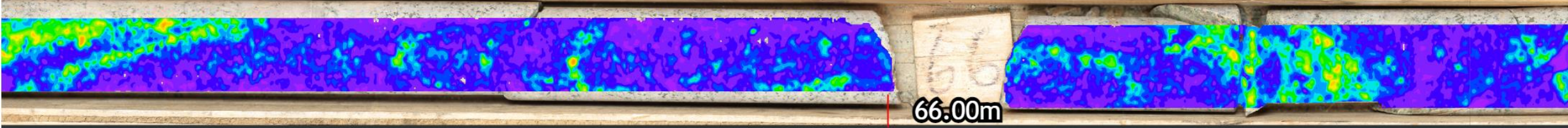
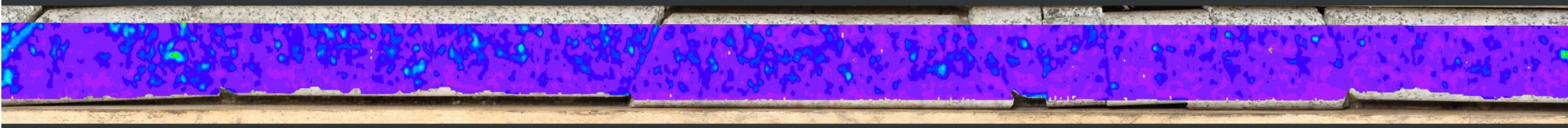
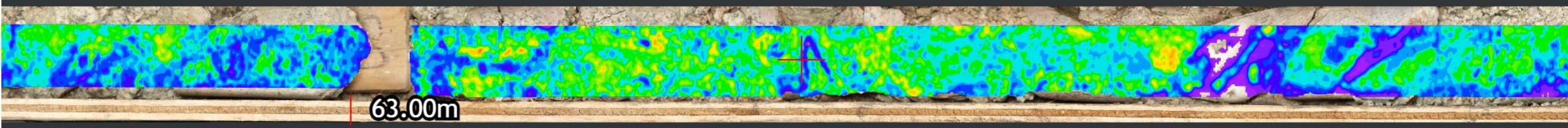
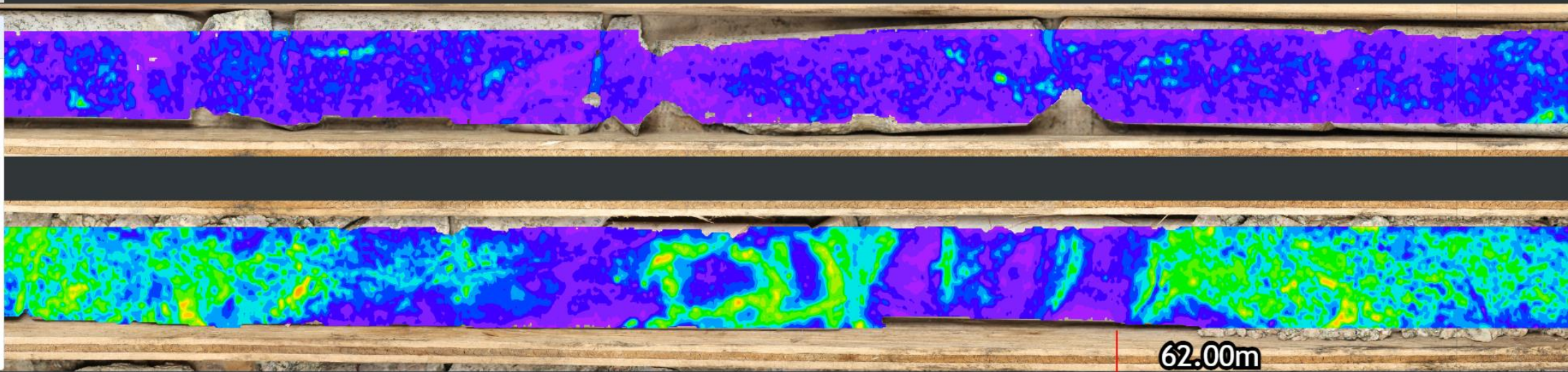
Logger Tracks

Majors 

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Hide Logger Tracks



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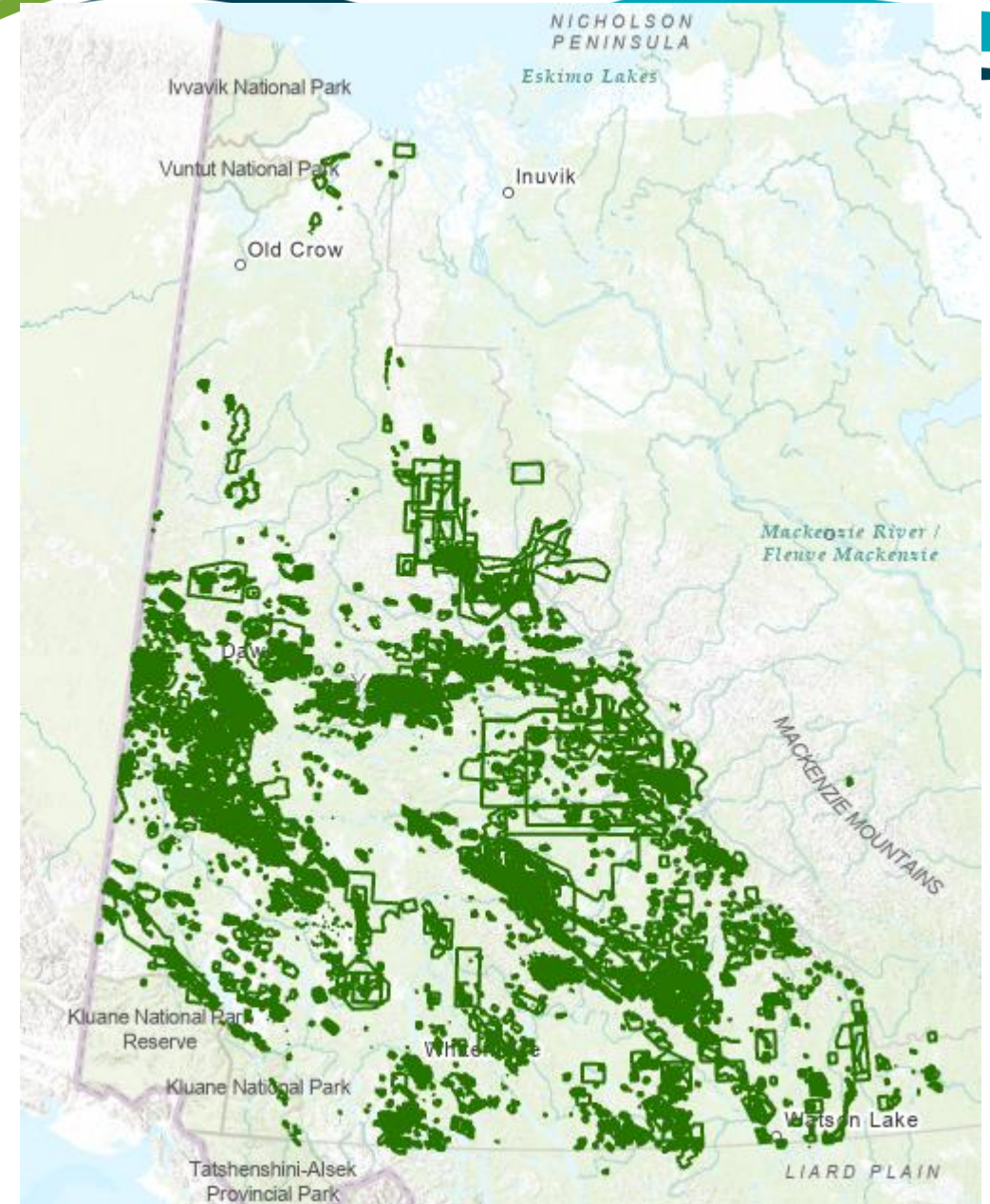
Web maps



Maps and applications created by the Yukon Geological Survey for displaying and querying GIS datasets.

Assessment Reports

- ~10,000 reports dating back to the 1940s
- Show mineral exploration history of the Yukon



A Geochemical Report on the KRYPTOS Property
submitted as Technical Report for YMEP Grant 20-003
on the MEGA Target Evaluation Module, Hardrock Type
and an Assessment Report for filing work on the KRYPTOS claims

Work performed on:
KRYPTOS 37, 39, 47-50
YE90243, YE90245, YE90253-YE90256

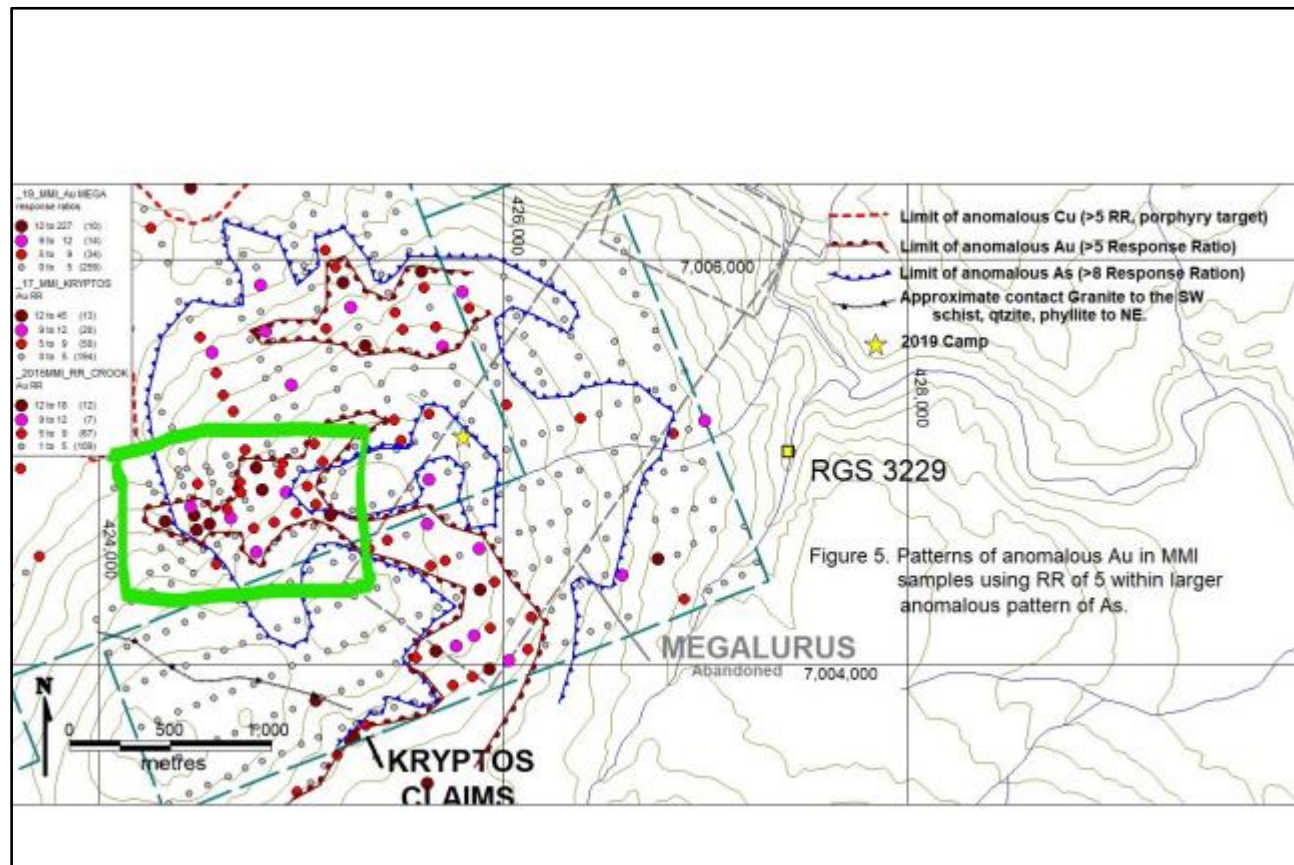
Work applied to:
KRYPTOS 15-80
YE90221-YE90266, YE93631-650
Mayo Mining District

Owner: Gordon Richards

Location
115P/01 & 02
Camp on claims at
UTM 427,700E, 7,005,135N, Elev 945 m
NAD 83, UTM Zone 8

Field work performed by
Gordon Richards & Aaron Holway
During the period August 4-10, 2020

Report written by Gordon Richards
November 1, 2020

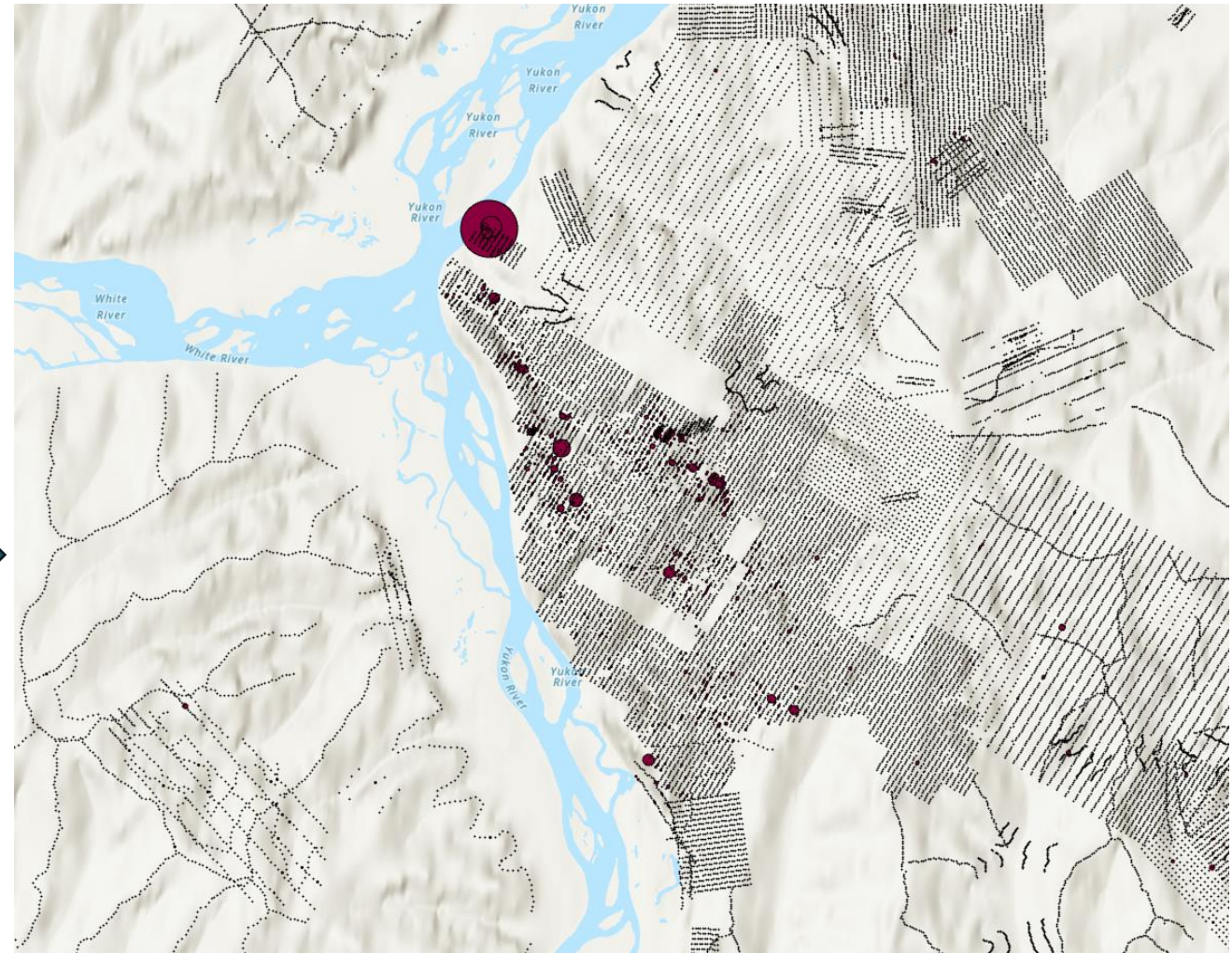
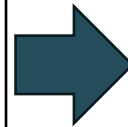


Extracting data from Assessment Reports

SGS

Order Number: PO: **ANALYSIS REPORT BBM20-03991**
 Project: Mega
 Submission Number: *BBY* MEGA/ 17 (MMI)
 Number of Samples: 17

Element	Cs	Cu	Dy	Er	Eu	Fe
Method	GE_MMIM	GE_MMIM	GE_MMIM	GE_MMIM	GE_MMIM	GE_MMIM
Lower Limit	0.2	10	0.5	0.2	0.2	1
Upper Limit	--	--	--	--	--	--
Unit	ppb	ppb	ppb	ppb	ppb	ppm m / m
W5	0.5	1140	15.0	9.0	4.0	21
W6	2.1	580	27.8	15.9	6.5	47
W7	0.6	900	14.6	8.4	3.7	27
W8	0.7	490	7.8	4.5	2.0	53
W9	1.2	270	7.0	3.6	3.1	13
W10	4.1	290	83.3	45.5	21.7	119
W11	5.1	730	114	58.4	30.6	121
W12	8.2	370	44.6	25.1	11.2	267
W13	1.2	800	179	109	21.4	117
W14	2.8	550	53.4	30.6	14.8	114
W15	7.2	700	45.7	26.2	11.6	174
W17	0.7	860	169	103	27.8	182
W18	3.4	430	69.0	34.4	13.8	195
*Rep W8	0.6	480	7.2	4.2	1.9	55
*Rep W18	2.8	440	68.3	35.2	13.5	181
*Std AMISO189	7.0	2950	22.3	10.0	8.5	35
*Std BLANK	<0.2	<10	<0.5	<0.2	<0.2	<1



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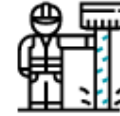
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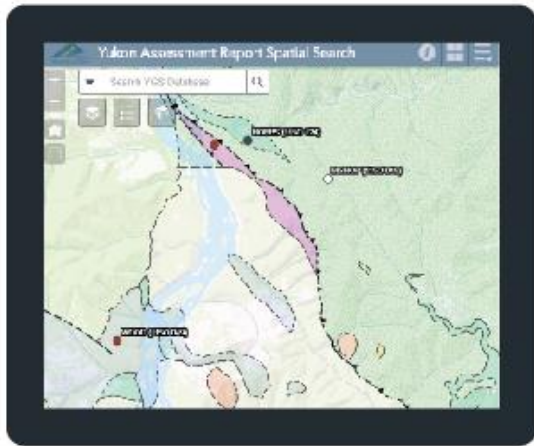
Web maps



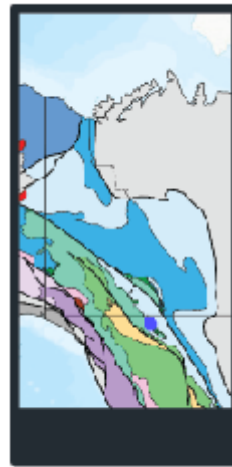
Maps and applications created by the Yukon Geological Survey for displaying and querying GIS datasets.

**Yukon**

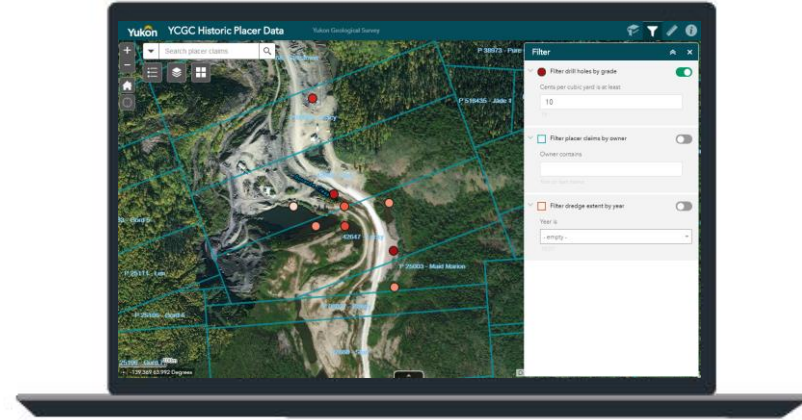
Maps and Apps



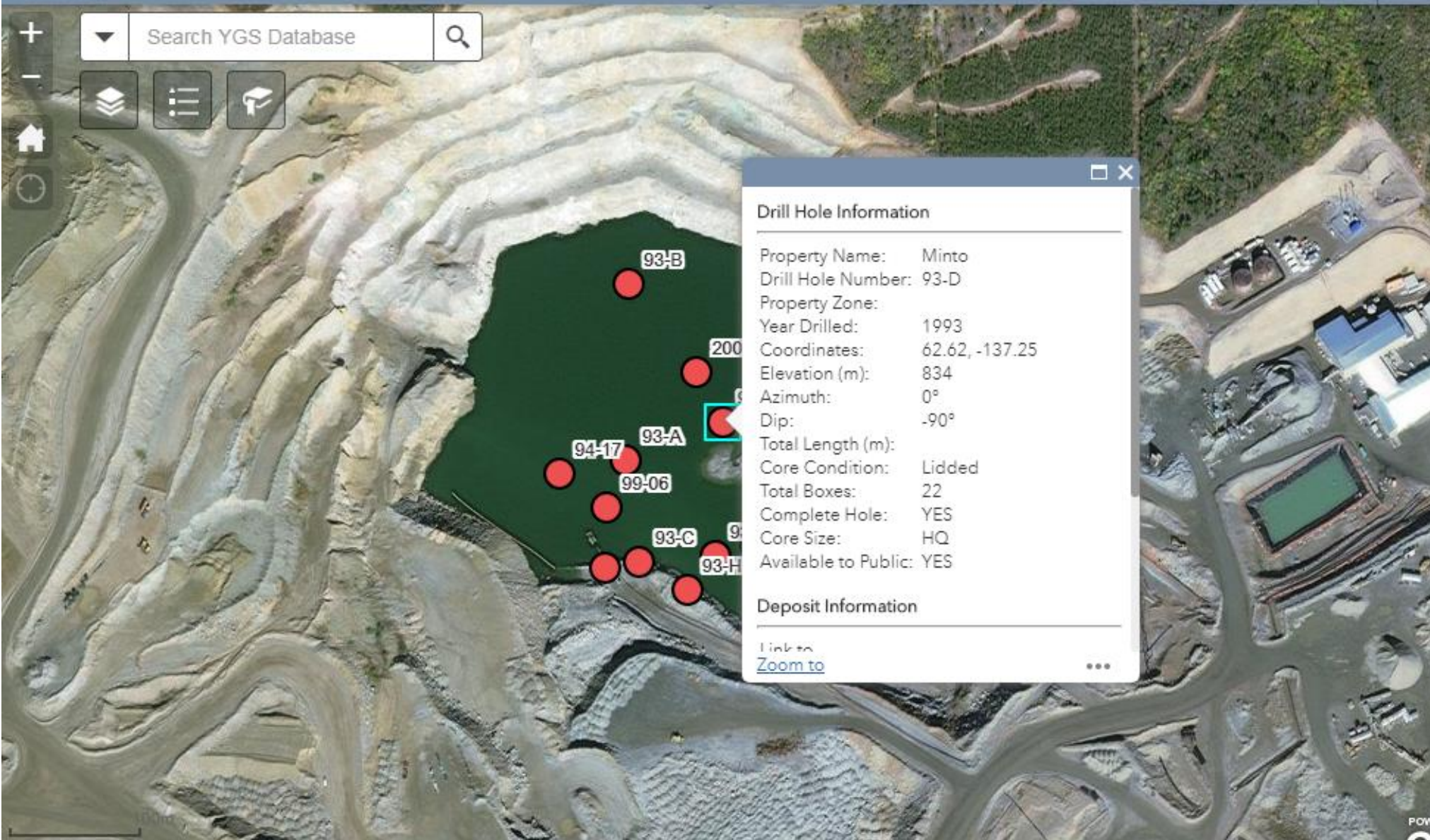
Bedrock Geology



Terranes



YCGC Historic Data



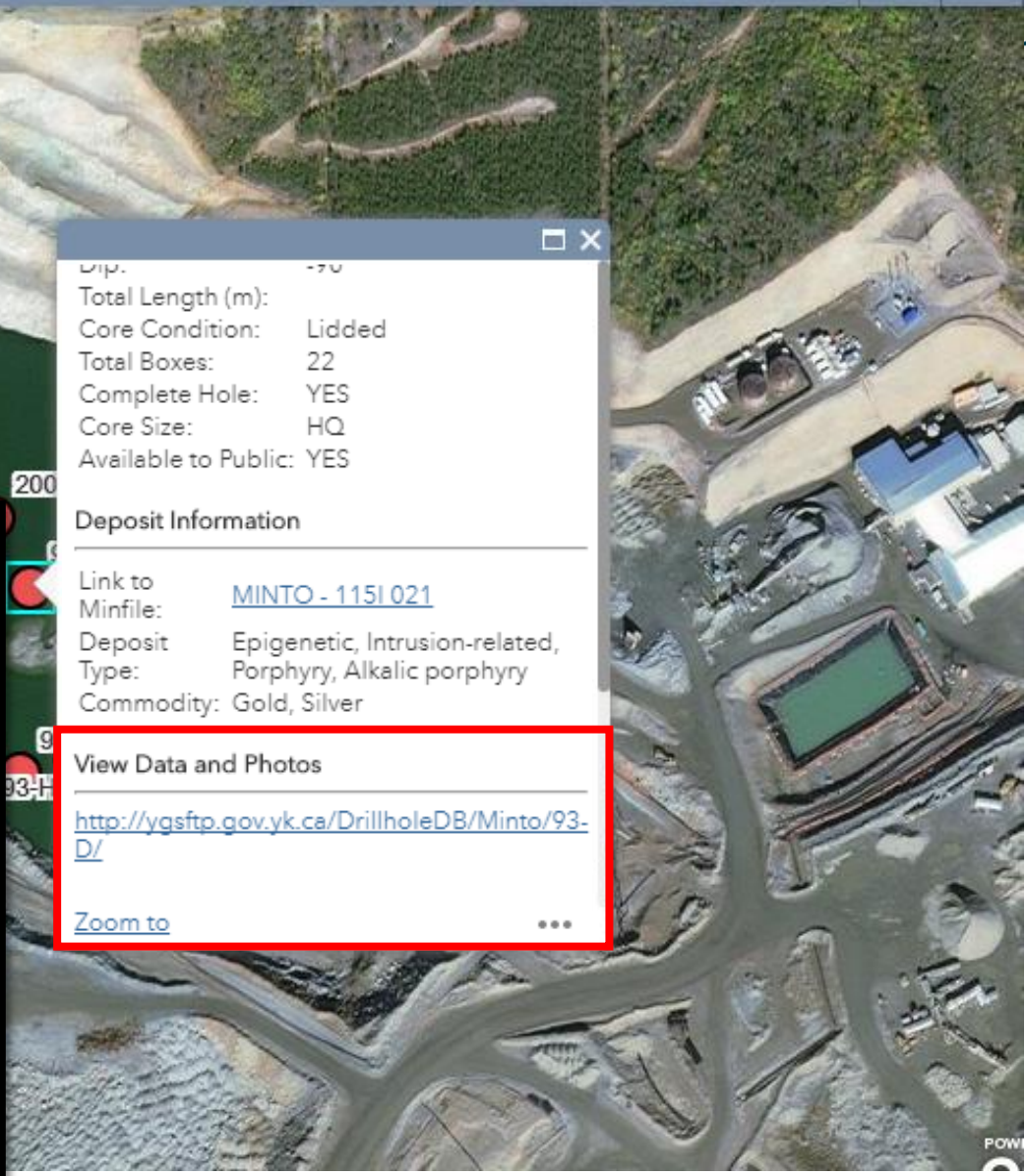
Minto deposit (Yukon MINFILE 1151 021, 022)
Drill Hole: 09SWC477, Minto North deposit

Area	Hole No.	Azimuth	Dip	Length (m)	Collar coordinates (NAD83, Zn 8)
Minto North	09SWC477	0	-90	174.0	384191mE, 6945979mN

Plan view image of Minto North deposit area. Collar location of 09SWC477 shown by yellow star, red circles show collar locations of other drill holes.

Simplified strip log of 09SWC477 with selected assays.

December 7, 2016



Dip: -90
 Total Length (m): 174
 Core Condition: Lidded
 Total Boxes: 22
 Complete Hole: YES
 Core Size: HQ
 Available to Public: YES

Deposit Information

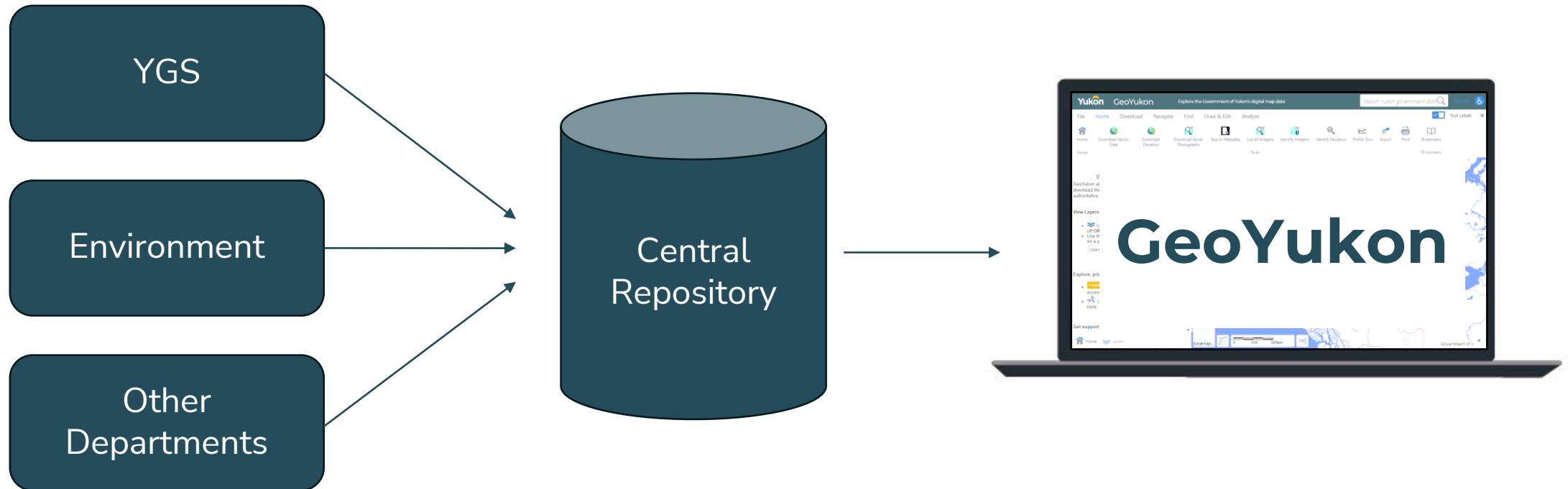
Link to Minfile: [MINTO - 1151 021](#)
 Deposit Type: Epigenetic, Intrusion-related, Porphyry, Alkalic porphyry
 Commodity: Gold, Silver

View Data and Photos

<http://ygsftp.gov.yk.ca/DrillholeDB/Minto/93-D/>

[Zoom to](#) ...

Yukon Government Data Sharing



Home Download Vector Data Download Elevation Download Aerial Photographs Search Metadata List All Imagery Identify Imagery Identify Elevation Profile Tool Export Print Bookmarks

Home

Welcome to GeoYukon
GeoYukon allows you to search, display, print, and download the Government of Yukon's most authoritative and current digital map data.

View Layers on a map

- Use the Layer List to toggle layers on and off OR
- Use the Layer Collections drop-down to turn on a predefined set of layers by subject

Click here to view Layer Collections

Explore, print and download layers

- I want to...** Use the "I want to..." drop-down to access commonly used tools
- Use the Toolbar to access a full set of tools

Get support



Mapservices.gov.yk.ca/GeoYukon

Facebook / Instagram

- 3.3K followers on FB
- News and Information
- Release of publications
- Conferences & events

Yukon Geological Survey
Published by Brett Elliot · May 26, 2022 ·

What caused the Robert Service Way Landslide

Our geologists explain what caused the April 30th, 2022 Robert Service Way landslide.

123 · 3 · 5.8K

12.5K People reached · 399 Reactions, comments, and shares

5.8K 3-Second Video Views · Retention curve

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3:35

What caused the May 1st, 2017 Earthquakes?
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WHAT DOES THE EPICENTER OF THE MAY 1ST EARTHQUAKES LOOK LIKE?

1:02

What does the epicenter of the May 1st earthquakes look like?
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Outreach

- 2 Full time staff dedicated to community outreach

