Yukon Geological Survey

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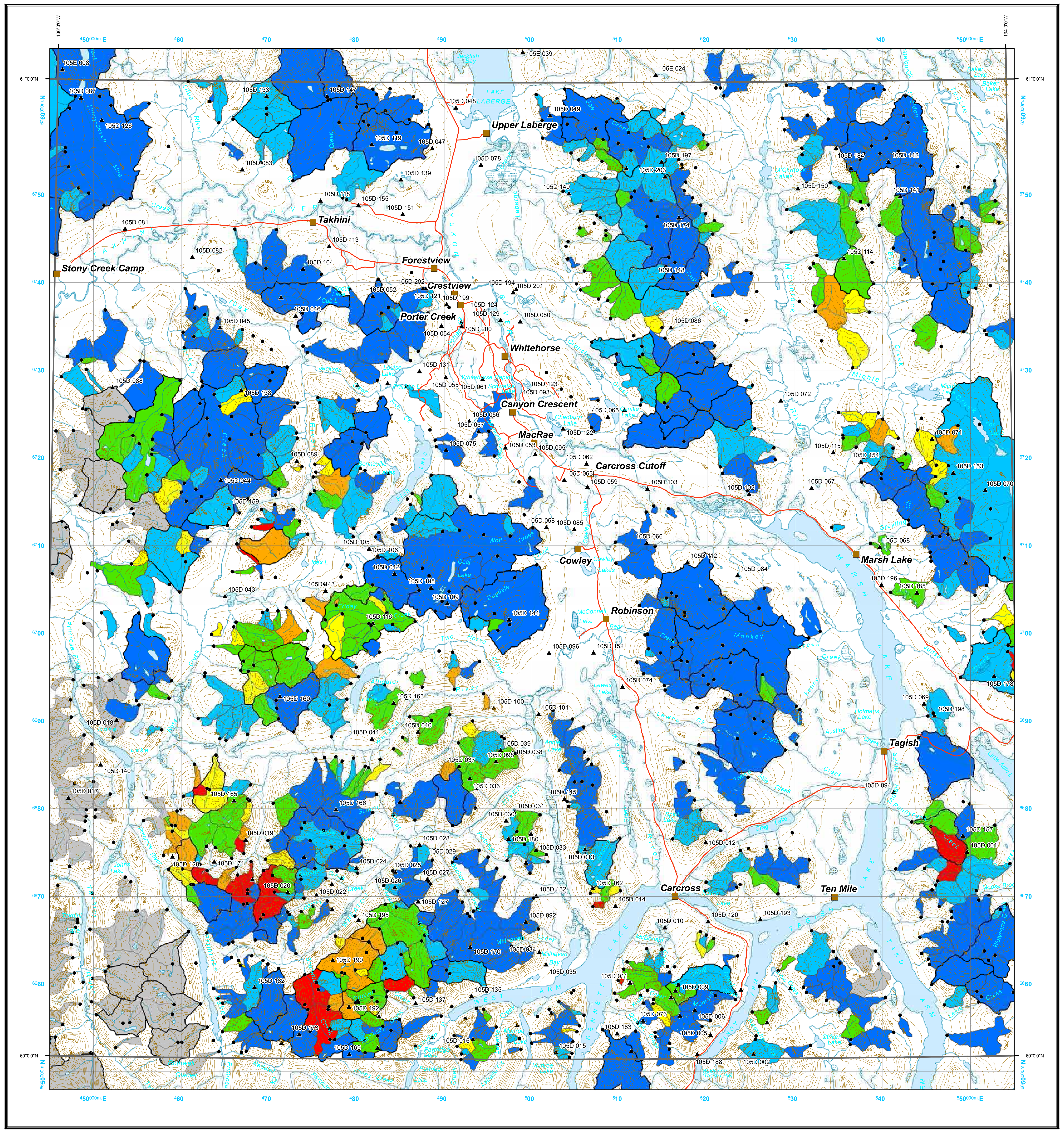
Energy, Mines and Resources



INTRODUCTION

New geochemical data from re-analysis of archived stream sediment samples have been assessed using weighted sums modeling and catchment basin analysis as described in the methodology report that accompanies this map (Mackie *et al.*, 2015). Both commodity and pathfinder element abundances are evaluated to highlight areas that show geochemical responses consistent with a variety of base and precious-metal mineral deposit types. The results of modeling, completed using two approaches, are presented as a series of catchment maps and associated data files. This release is part of a regional assessment of stream sediment geochemistry that covers a large part of Yukon.

SAMPLING AND ANALYSIS PROGRAMS

Stream sediment and water samples from the Whitehorse Area (NTS 105D) were collected at a reconnaissance scale in 1985 as part of the Canada-Yukon Mineral Development Agreement (Geological Survey of Canada, 1986). Field descriptions and initial geochemical data for 1003 sites were released in Geological Survey of Canada (GSC) Open File 1218. New geochemical data from the re-analysis of archive sample material were released in Yukon Geological Survey (YGS) Open File 2015-12 (Jackaman, 2015). Samples from sites located within currently protected areas were excluded from re-analysis. The current assessment examines only data for the 913 sites that are located outside of these protected areas and have been re-analyzed. The reader is referred to these reports for detailed descriptions of sampling techniques, analytical procedures, and quality control measures.

MINERAL OCCURRENCES

A variety of types of base and precious-metal mineralization has been identified in the Whitehorse area as listed in Table 1 (Yukon MINFILE, 2015). The most significant deposits are classed as Cu skarn (Past Producing Whitehorse Cu deposit), Epithermal Au-Ag (Past Producing Tally-Ho and Mount Skukum deposits), Polymetallic Ag-Pb-Zn±Au (Past Producing Union Mines, Venus and Big Thing deposits) and unclassified quartz-vein related Au (Rose, Charleson, Gold Hill, Arscott and Joe Creek prospects). Many of the unclassified Au prospects contain elevated abundances of various other metals including Ag, Cu, Pb and Zn. Other deposit types within the area include porphyry Cu-Mo (Carcross prospect), porphyry Mo (Lime prospect), magmatic Ni-Cu-PGE (Lavalee and Marsh showings) and Pb-Zn skarn (Deb and Kreft prospects). The Red Mountain porphyry Mo deposit occurs in the adjacent NTS map area to the east supporting the prospectivity of the region for this deposit type.

WEIGHTED SUMS MODELING

As described in the methodology report (Mackie *et al.*, 2015), two approaches have been used to subdue the influence of background lithological variation and secondary absorption on the composition of stream sediments. One uses data levelled by the dominant geology mapped within each catchment, while the other uses residuals calculated from regression against selected principal components. Weighted sums models (WSM) have been generated using the processed data. The importance rankings used in WSMs are summarized in Table 2. Each model is optimized for a target deposit type however other deposit types may be represented in a given model due to similarities in elemental abundances and associations. Importantly, the area of Cu skarn mineralization in the vicinity of Whitehorse, given the low topographic relief, has not been effectively sampled which limits the ability to validate the model presented for this deposit type.

Exploratory data analysis using both raw element data and principal components indicate that lithological variation and secondary scavenging influence the distribution of certain commodity and pathfinder elements. However for this map area, signals related to mineralization are also prevalent. The first principal component, accounting for ~30% of the total geochemical variation, has high positive loadings in Cr, Ni, Co, Mg, V, Cu and Sc; and high negative loadings in Y, La, Ce, U, Bi, Pb, Th , Mo, Rb and Ag. Spatially, these groupings match the mapped distribution of mafic and felsic rocks respectively. The second component with high positive loadings for As, Cd, Ag and Sb accounts for ~15% of the variation shows a spatial match with epithermal Au-Ag and polymetallic Ag-Pb-Zn occurrences indicating it represents a mineralization signal. The third component shows high loadings in loss-on-ignition (LOI), Hg, Ca and Sr. Using LOI as a proxy for organic carbon it is interpreted that this component reflects predominantly scavenging by organic material. This interpretation is supported by the fact that this response corresponds to low-lying regions where it is likely that organic material would accumulate.

Regression analysis of selected metals against the relevant principal component(s) effectively filters the scavenging and lithological controls while preserving responses related to known occurrences. Levelling by mapped geology has a more subdued effect on filtering the interpreted lithological control on the distribution of certain pathfinder elements. In order to reduce the impact of this the WSMs, certain elements were given low importance rankings for certain deposit types. Negative rankings are used to help distinguish between deposit types with similar metal associations.

The effectiveness of historical sampling coverage has been assessed empirically using graphs of WSMs plotted against catchment surface area to determine the ideal maximum catchment size (14 km²). Catchments that cover larger areas (shown on the map with bold outlines) are interpreted to have been under-sampled and thus require further sampling to properly evaluate the area for geochemical anomalism. Given the likelihood that a mineralization signal would be progressively diluted with increasing catchment size, marginally high WSM scores in large catchments may also be of interest.

Table 2: Importance rankings for weighted sums models using residuals on principal components.

Target Deposit Type[a]	Other Deposit Types[a]	Mn	Fe	Co	Ni	Cu	Mo	Zn	Pb	Ag	Au[1]	As[1]	Ba	Cd	Sn	Sb	Te[1]	Hg	Tl	Bi	W[1]
Porphyry Mo	Cu skarn; Porphyry Cu					2	4									-2		-2		1	1
Cu skarn	Porphyry Cu; Porphyry Mo					5	2			2								-3		1	1
Polymetallic Ag-Pb-Zn	SEDEX, VMS, Pb-Zn skarn; Epithermal Au-Ag					1		3	2	4		1	-2	1		1					
Epithermal Au-Ag	Orogenic Au; Intrusion-related Au; Polymetallic Ag-Pb-Zn									3	3	1	1			1		2			
Orogenic Au	Intrusion-related Au, Epithermal Au-Ag									1	4	2				1	1				2
Magmatic Ni-Cu-PGE	Cu skarn			1	4	3		-2								-2		-2			

[a]Polymetallic Ag-Pb-Zn type includes vein and manto styles; SEDEX = sedimentary exhalative Pb-Zn-(Ag); VMS = volcanic-hosted/associated massive sulphide deposits

[1]Raw data following a log_{10} transformation

LEGEND

- Town
- Mineral Occurrence
- Road
- Contour
- River
- NTS map sheet
- Water Body
- Wetland
- Catchment > 14 km²
- Catchment
- Sample Location

Weighted sums model (PC residuals)

Magmatic Ni-Cu deposits

- incomplete element suite
- 0-50th percentile
- 50-75th percentile
- 75-90th percentile
- 90-95th percentile
- 95-98th percentile
- 98-100th percentile

REFERENCES

Geological Survey of Canada, 1986. Regional Stream Sediment and Water Geochemical Reconnaissance Data, Yukon (105D). Geological Survey of Canada, Open File 1218.

Jackaman, W., 2015. Regional Stream Sediment Geochemical Data, Whitehorse area, southern Yukon (NTS 105D). Yukon Geological Survey, Open File 2015-12.

Mackie, R., Arne, D. and Brown, O., 2015. Enhanced interpretation of regional stream sediment geochemistry from Yukon: catchment basin analysis and weighted sums modeling. Yukon Geological Survey, Open File Report 2015-10.

Yukon MINFILE, 2015. Yukon MINFILE – A database of mineral occurrences. Yukon Geological Survey, www.data.geology.gov.yk.ca, accessed May 2015.

RECOMMENDED CITATION

MACKIE, R., ARNE, D. AND PENNIMPEDE, C., 2016. Weighted sums model for Magmatic Ni-Cu deposits using principal component residuals. In: Enhanced interpretation of stream sediment geochemical data for NTS map sheet 105D. Yukon Geological Survey, Open File 2016-26, scale 1:250 000, sheet 9 of 13.

Catchment basin polygons generated by the Yukon Geological Survey (J. O. Bruce).

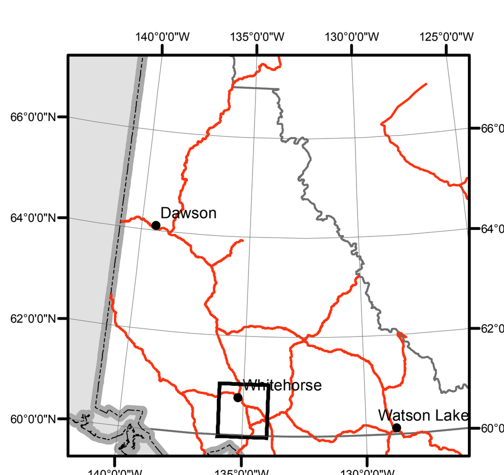
Any revisions or additional geological information known to the user would be welcomed by the Yukon Geological Survey.

Paper copies of this map and the accompanying report may be obtained from the Yukon Geological Survey, Energy, Mines and Resources, Government of Yukon, Room 102-300 Main St., Whitehorse, Yukon, Y1A 2B5. Ph. 867-667-3201, Email geology@gov.yk.ca.

A digital PDF (Portable Document File) file of this map may be downloaded free of charge from the Yukon Geological Survey website: http://www.geology.gov.yk.ca.

Table 1: List of Mineral Occurrences for NTS map sheet 105D (Yukon MINFILE, 2015)

Number	Name	Type	Status	Commodities
105D 062	LEWES RIVER	Skarn Cu	Drilled Prospect	Copper
105D 064	GALCONDA	Vein Cu±Ag Quartz	Prospect	Copper, Gold, Silver, Lead
105D 065	GRONK	Skarn Cu	Showing	Copper
105D 067	MCCLINTOCK	Vein Cu±Ag Quartz	Drilled Prospect	Copper, Silver, Gold
105D 069	MARSH	Ultramafic Mafic Gabbroid Cu-Ni-PGE	Drilled Prospect	Asbestos, Tungsten, Nickel, Cobalt, Gold, Copper
105D 070	LAVALEE	Ultramafic-hosted asbestos	Showing	Asbestos, Cobalt, Chromium, Nickel
105D 071	MICHIE	Ultramafic Mafic Podiform Chromite	Showing	Chromium, Iron
105D 073	RAILROAD	Unknown	Anomaly	Silver
105D 076	JACKSON	Skarn Cu	Drilled Prospect	Bismuth, Silver, Molybdenum, Copper, Lead, Gold
105D 080	IMP	Porphyry Cu-Mo-Au	Anomaly	Copper
105D 081	STONY	Porphyry Mo (Low F-Type)	Showing	Molybdenum
105D 082	FARM	Skarn Pb-Zn	Showing	Bismuth, Iron, Zinc
105D 089	NAHARNIAK	Vein Cu±Ag Quartz	Showing	Copper, Silver, Gold
105D 090	ADASTRAL	Vein Au-Quartz	Drilled Prospect	Copper, Fluorite, Zinc, Silver, Lead, Gold
105D 092	OPULENCE	Vein & Disseminations Stibnite	Showing	Antimony, Gold
105D 098	DONKEY	Vein Polymetallic Ag-Pb-Zn±Au	Prospect	Copper, Zinc, Silver, Gold, Lead, Molybdenum
105D 099	DAWN	Skarn Cu	Showing	Copper
105D 100	INCO	Porphyry Cu-Mo-Au	Showing	Copper, Silver, Gold
105D 102	RESORT	Vein Polymetallic Ag-Pb-Zn±Au	Drilled Prospect	Gold, Lead, Silver
105D 104	SUITS	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Gold, Molybdenum
105D 105	FISH LAKE	Coal	Showing	Coal
105D 106	LUSCAR	Coal	Prospect	Coal
105D 107	PTARMIGAN	Coal	Prospect	Coal
105D 108	COAL RIDGE	Coal	Anomaly	Coal
105D 109	BERESFORD	Coal	Showing	Coal
105D 111	BOUDETTE	Vein Polymetallic Ag-Pb-Zn±Au	Showing	Silver
105D 112	COMBS	Vein Au-Quartz	Showing	Gold
105D 113	MIDGETT	Vein Cu±Ag Quartz	Showing	Copper
105D 114	TEXEL	Vein Polymetallic Ag-Pb-Zn±Au	Prospect	Lead, Zinc, Silver
105D 115	WORBETTS	Vein Polymetallic Ag-Pb-Zn±Au	Prospect	Gold, Silver
105D 116	RUG	Volcanogenic Sulphide - type not determined	Showing	Copper
105D 119	KALI	Skarn Cu	Showing	Copper, Gold, Silver
105D 121	TENNEY	Vein Polymetallic Ag-Pb-Zn±Au	Drilled Prospect	Gold, Zinc, Lead, Silver
105D 122	STYBA	Skarn Cu	Unknown	Copper
105D 125	FOOT	Skarn Cu	Drilled Prospect	Copper, Gold, Molybdenum
105D 127	CUTLER	Vein Au-Quartz	Showing	Gold, Silver
105D 128	KREFT	Skarn Pb-Zn	Drilled Prospect	Cadmium, Zinc, Tungsten, Copper, Lead, Silver
105D 135	WEST ARM	Porphyry Mo (Low F-Type)	Anomaly	Molybdenum, Uranium
105D 136	CLEFT	Vein Au-Quartz	Drilled Prospect	Gold, Silver
105D 137	MACCAULEY	Vein Au-Quartz	Anomaly	Gold, Silver
105D 138	E & B	Unknown	Anomaly	Uranium
105D 140	DEB	Skarn Pb-Zn	Prospect	Lead, Silver, Zinc
105D 141	GAMMON	Unknown	Anomaly	Gold
105D 143	DAYIR	Skarn Cu	Showing	Copper
105D 144	EVIEW	Vein Polymetallic Ag-Pb-Zn±Au	Prospect	Copper, Silver, Zinc, Lead
105D 151	DUST	Vein Polymetallic Ag-Pb-Zn±Au	Showing	Copper, Silver, Gold
105D 156	ROOTS	Vein Polymetallic Ag-Pb-Zn±Au	Drilled Prospect	Gold, Silver
105D 001	JUBILEE	Skarn Cu	Showing	Copper, Gold, Silver, Molybdenum
105D 002	LULU	Vein Polymetallic Ag-Pb-Zn±Au	Prospect	Copper, Gold, Nickel, Silver, Zinc, Lead
105D 003	MILLET	Vein Cu±Ag Quartz	Showing	Copper
105D 004	LIME	Porphyry Mo (Low F-Type)	Drilled Prospect	Copper, Molybdenum
105D 005	VENUS	Vein Polymetallic Ag-Pb-Zn±Au	Past Producer	Gold, Silver, Lead, Zinc, Cadmium
105D 007	THISTLE	Vein Polymetallic Ag-Pb-Zn±Au	Showing	Copper, Lead, Gold, Silver, Zinc
105D 008	JEAN	Vein Au-Quartz	Drilled Prospect	Gold, Lead, Zinc, Silver
105D 009	BIG THING	Vein Polymetallic Ag-Pb-Zn±Au	Past Producer	Gold, Silver
105D 010	CARCROSS	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Molybdenum
105D 011	KNOB HILL	Vein Cu±Ag Quartz	Drilled Prospect	Copper
105D 013	WABONA	Vein Polymetallic Ag-Pb-Zn±Au	Showing	Zinc
105D 014	COLLEGE GREEN	Vein Cu±Ag Quartz	Showing	Copper, Silver, Gold
105D 015	FINGER	Porphyry Cu-Mo-Au	Showing	Copper, Zinc, Gold, Silver, Lead
105D 016	LATREILLE	Porphyry Cu-Mo-Au	Showing	Arsenic, Molybdenum, Silver, Copper, Gold
105D 017	PRIMROSE	Vein Polymetallic Ag-Pb-Zn±Au	Showing	Zinc
105D 018	[illegible]	Vein Au-Quartz	Showing	Gold, Lead, Silver
105D 019	BOSTOCK	Vein Au-Quartz	Showing	Arsenic, Silver, Copper, Lead, Gold
105D 020	CHARLESTON	Vein Au-Quartz	Drilled Prospect	Gold, Lead, Silver
105D 021	BERNEY	Vein & Disseminations Stibnite	Anomaly	Antimony, Gold
105D 022	RAINBOW CREEK	Epithermal Au-Ag: Low Sulphidation	Deposit	Silver, Gold, Zinc, Antimony, Lead
105D 023	FINNEY	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Gold, Silver
105D 024	MORNING	Vein & Disseminations Stibnite	Drilled Prospect	Gold, Silver
105D 025	GOODELL	Epithermal Au-Ag: Low Sulphidation	Deposit	Gold, Silver, Antimony
105D 026	PORTER	Vein Polymetallic Ag-Pb-Zn±Au	Drilled Prospect	Antimony, Gold, Silver
105D 027	BECKER-COCHRAN	Vein & Disseminations Stibnite	Deposit	Antimony, Gold, Zinc, Nickel, Silver, Copper, Lead
105D 028	FLEMING	Skarn Cu	Drilled Prospect	Copper, Lead, Zinc
105D 029	MT. ANDERSON	Vein Au-Quartz	Drilled Prospect	Gold, Silver, Zinc, Lead
105D 030	TALLY-HO	Epithermal Au-Ag: High Sulphidation	Past Producer	Copper, Lead, Silver, Gold
105D 031	WHEATON MOUNTAIN	Epithermal Au-Ag: High Sulphidation	Deposit	Gold, Silver, Lead, Copper
105D 032	BUFFALO HUMP	Vein Au-Quartz	Drilled Prospect	Gold, Lead, Silver
105D 033	MT. STEVENS	Vein Au-Quartz	Drilled Prospect	Copper, Zinc, Gold, Silver, Lead
105D 035	MILLHAVEN	Vein & Disseminations Stibnite	Showing	Antimony, Gold, Mercury, Silver, Lead, Arsenic, Copper
105D 036	GOLDON	Vein Au-Quartz	Drilled Prospect	Gold
105D 037	GOLD REEF	Vein Polymetallic Ag-Pb-Zn±Au	Drilled Prospect	Copper, Silver, Gold, Lead
105D 038	UNION MINES	Vein Polymetallic Ag-Pb-Zn±Au	Past Producer	Gold, Zinc, Silver, Lead
105D 039	MT. BUSH	Coal	Showing	Coal, Fixed Carbon
105D 040	LEGAL TENDER	Vein Au-Quartz	Prospect	Copper, Gold, Silver, Zinc, Lead
105D 041	ALLIGATOR	Porphyry Cu-Mo-Au	Showing	Copper, Molybdenum
105D 042	WHITEHORSE COAL	Coal	Past Producer	Fixed Carbon, Coal
105D 043	MUD	Ultramafic Mafic Gabbroid Cu-Ni-PGE	Drilled Prospect	Copper
105D 044	ARK	Porphyry Mo (Low F-Type)	Showing	Copper, Molybdenum
105D 045	INGRAM	Vein Polymetallic Ag-Pb-Zn±Au	Showing	Gold, Zinc, Lead, Silver
105D 047	CUTOFF	Vein Au-Quartz	Drilled Prospect	Gold, Silver
105D 048	STYE	Porphyry Cu-Mo-Au	Showing	Copper, Molybdenum
105D 049	[illegible]	Ultramafic-hosted asbestos	Showing	Asbestos
105D 050	POW	Skarn Pb-Zn	Showing	Copper, Molybdenum, Tungsten, Silver, Gold, Lead
105D 051	ACE	Vein Polymetallic Ag-Pb-Zn±Au	Prospect	Copper, Zinc, Gold, Silver, Lead
105D 052	HAECKEL	Vein Polymetallic Ag-Pb-Zn±Au	Unknown	Gold, Zinc, Lead, Silver
105D 053	WHITEHORSE COPPER	Skarn Cu	Past Producer	Copper, Gold, Silver, Molybdenum, Magnetite
105D 054	TREMAR	Skarn Cu	Drilled Prospect	Copper, Gold
105D 055	WING	Skarn Cu	Drilled Prospect	Copper, Gold
105D 056	[illegible]	Skarn Cu	Drilled Prospect	Copper
105D 057	POLAR	Skarn Cu	Drilled Prospect	Copper, Molybdenum, Copper
105D 058	KOOKATSOON	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Molybdenum
105D 059	DUGDALE	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Gold, Molybdenum
105D 157	PENNYCOOK	Vein Au-Quartz	Drilled Prospect	Copper, Gold, Silver
105D 158	MOUNT SKUKUM	Epithermal Au-Ag: Low Sulphidation	Past Producer	Silver, Gold
105D 160	LATER	Vein Polymetallic Ag-Pb-Zn±Au	Drilled Prospect	Copper, Lead, Zinc, Silver, Gold
105D 161	MUSSELS	Vein Au-Quartz	Drilled Prospect	Gold, Mercury
105D 162	SCAR	Vein Polymetallic Ag-Pb-Zn±Au	Drilled Prospect	Copper, Zinc, Silver, Lead, Gold
105D 165	NORA	Unknown	Anomaly	Copper, Lead, Molybdenum, Zinc, Gold
105D 166	ARSCOTT	Vein Au-Quartz	Drilled Prospect	Gold, Silver
105D 168	DICKSON HILL	Epithermal Au-Ag: High Sulphidation	Drilled Prospect	Gold, Silver
105D 169	MATT	Vein Polymetallic Ag-Pb-Zn±Au	Showing	Cerium, Lanthanum, Gold, Lead, Silver, Titanium, Uranium
105D 170	[illegible]	Vein Polymetallic Ag-Pb-Zn±Au	Showing	Copper, Zinc, Silver, Molybdenum, Lead
105D 173	MAZ	Vein Polymetallic Ag-Pb-Zn±Au	Showing	Copper, Lead, Silver, Zinc, Gold
105D 177	[illegible]	Vein Au-Quartz	Prospect	Gold, Silver, Uranium, Lead
105D 180	SILVER QUEEN	Porphyry Cu-Mo-Au	Drilled Prospect	Copper, Gold, Silver, Lead
105D 182	RADELET	Vein Cu±Ag Quartz	Showing	Copper, Tungsten, Lead, Silver
105D 184	MOVEMENT	Vein Au-Quartz	Showing	Copper, Silver, Gold
105D 186	MIC-MAC	Vein Au-Quartz	Showing	Gold, Silver
105D 189	MT. BYNG	Vein Au-Quartz	Showing	Copper, Silver, Gold
105D 190	WARD	Porphyry Cu-Mo-Au	Showing	Copper, Lead, Silver, Zinc, Gold
105D 191	GLENLIVET	Epithermal Au-Ag: High Sulphidation	Showing	Fluorine, Lead, Gold, Silver
105D 195	MK	Vein Cu±Ag Quartz	Showing	Antimony, Zinc, Copper, Gold, Silver
105D 196	MIKE	Vein Cu±Ag Quartz	Showing	Copper, Gold
105D 199	CJ	Skarn Cu	Showing	Copper, Gold
105D 200	ANACONDA	Skarn Cu	Prospect	Gold, Copper, Silver
105D 202	BEE	Vein Polymetallic Ag-Pb-Zn±Au	Drilled Prospect	Copper, Gold, Zinc, Silver
105D 203	GRUMPY	Vein Au-Quartz	Showing	Gold
105D 006	MONTANA	Vein Au-Quartz	Drilled Prospect	Gold, Silver
105D 197	JOE CREEK	Vein Au-Quartz	Showing	Gold
105D 132	BULL MOOSE	Unknown	Unknown	
105D 134	[illegible]	Unknown	Unknown	
105D 171	ELSE	Unknown	Unknown	
105D 060	[illegible]	Unknown	Unknown	
105D 034	CROMWELL	Vein Cu±Ag Quartz	Showing	Copper, Lead, Silver, Gold
105D 163	DUNDALK	Unknown	Anomaly	
105D 074	BLISTER	Unknown	Unknown	
105D 085	BUCHANAN	Unknown	Unknown	
105D 152	NELSON	Porphyry Subvolcanic Cu-Au-Ag (As-Sb)	Unknown	
105D 159	ARKELL	Unknown	Anomaly	
105D 068	OAK	Unknown	Anomaly	
105D 164	CAMEO	Unknown	Drilled Prospect	
105D 149	[illegible]	Unknown	Anomaly	
105D 075	MCINTYRE	Unknown	Unknown	
105D 185	BRONCO	Unknown	Anomaly	
105D 181	[illegible]	Unknown	Anomaly	
105D 139	DRYBONE	Unknown	Anomaly	
105D 148	[illegible]	Unknown	Anomaly	
105D 155	TAKHINI	Unknown	Anomaly	
105D 103	DURHAM	Unknown	Anomaly	
105D 172	PLUTONIC	Unknown	Anomaly	
105D 096	MOSQUITO	Unknown	Anomaly	
105D 145	HYDE	Unknown	Anomaly	
105D 126	THIRTY SEVEN	Unknown	Anomaly	
105D 192	SIRIUS	Epithermal Au-Ag: High Sulphidation	Prospect	
105D 117	[illegible]	Unknown	Unknown	
105D 077	LARSON	Unknown	Unknown	
105D 066	NIP	Skarn Cu	Showing	
105D 012	NARES	Unknown	Unknown	
105D 134	MUNROE	Unknown	Unknown	
105D 183	SPECULATION	Unknown	Unknown	
105D 154	INTO	Vein Polymetallic Ag-Pb-Zn±Au	Unknown	
105D 084	SEWAGE	Unknown	Unknown	
105D 063	WALCOTT	Skarn Cu	Drilled Prospect	
105D 111	NEEDLE	Unknown	Unknown	
105D 093	BOBO	Unknown	Unknown	
105D 124	GARBAGE DUMP	Skarn Cu	Unknown	
105D 198	NLC	Vein Au-Quartz	Showing	
105D 088	PENDANT	Unknown	Unknown	
105D 094	CHARLIE	Unknown	Unknown	
105D 201	RIP-RAP	Limestone	Showing	
105D 118	ELLIS	Unknown	Anomaly	
105D 072	HAWK	Unknown	Anomaly	
105D 150	[illegible]	Unknown	Anomaly	
105D 174	CAP CREEK	Unknown	Unknown	
105D 086	WHEELER	Unknown	Unknown	
105D 123	SCHWATKA	Unknown	Drilled Prospect	
105D 176	MT. MICHIE	Unknown	Unknown	
105D 153	[illegible]	Unknown	Unknown	
105D 046	IBEX	Unknown	Unknown	
105D 061	TOPAZOS	Unknown	Drilled Prospect	
105D 079	LOUISE	Limestone	Drilled Prospect	
105D 095	PATNODE	Unknown	Unknown	
105D 049	[illegible]	Unknown	Unknown	
105D 163	MULE	Unknown	Unknown	
105D 130	SUBURBIA	Unknown	Unknown	
105D 091	ALLISON	Unknown	Drilled Prospect	
105D 078	ESPO	Unknown	Unknown	
105D 083	MONKEY	Unknown	Unknown	
105D 097	CONRAD	Unknown	Unknown	
105D 162	WHEAT	Unknown	Anomaly	
105D 094	TAGISH	Unknown	Anomaly	
105D 179	MILITARY	Unknown	Anomaly	
105D 087	CALVIN	Unknown	Anomaly	
105D 142	BYNG	Unknown	Anomaly	
105D 131	LID	Unknown	Drilled Prospect	
105D 147	DUPONT	Unknown	Anomaly	

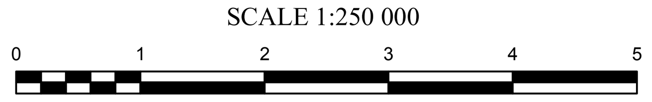


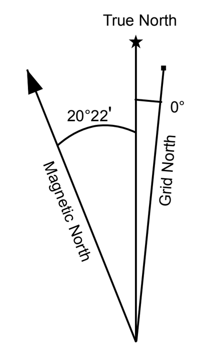
ONE THOUSAND METRE GRID
Universal Transverse Mercator Projection
North American Datum 1983
Zone 8

CONTOUR INTERVAL 100 FEET
Elevations in metres above Mean Sea Level

Magmatic Ni-Cu Weighted sums model (Principal Component Residuals) Sheet 9 of 13

SCALE 1:250 000





Use diagram only to obtain numerical values
APPROXIMATE MEAN DECLINATION 2015
FOR CENTRE OF MAP

115H AISHIHIK LAKE	105E LAKE LABERGE	105F QUIET LAKE
115A DEZADEASH RANGE	105D THIS MAP	105C TESLIN
114P TATSHENSHINI RIVER	104M SKAGWAY	104N ATLIN

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Open File 2016-26

Weighted sums model for Magmatic Ni-Cu deposits using principal component residuals (NTS 105D) Sheet 9 of 13

by

Rob Mackie, Dennis Arne, and Chris Pennimpede