

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 Stewart River area (NTS 1150 and part of 115N) were collected at a reconnaissance scale in 1986 as part of the Canada-Yukon Mineral Development Agreement (Friske et al., 2001). Field descriptions and initial geochemical data for 1392 sites were released in Geological Survey of Canada (GSC) Open File 1364 and Indian and Northern Affairs Canada, Exploration / Geological Services Division Open File 2001-13D. New geochemical data from the re-analysis of archive sample material were released in Yukon Geological Survey (YGS) Open File 2016-4 (Jackman, 2016). 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 have been identified in the Stewart River Area as listed in Table 1 (Yukon MINFILE, 2015). The most significant deposits are classed as orogenic Au (Golden Saddle deposit and O.V. prospect), polymetallic Ag-Pb-Zn (Connaught and Lerner deposits), intrusion-related Au (Moosehorn deposit and Flume prospect), quartz-vein hosted Au (Lone Star and Violet deposits, and Eureka prospect) and Cu-Zn-Pb volcanogenic massive sulphide (Toulary prospect). The Casino Cu-Mo-Au porphyry deposit and Coffee orogenic Au deposit occur in the adjacent map area to the south supporting the prospectivity of the region for these deposit types.

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.

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

Target Deposit Type*	Other Deposit Type*	Mn	Fe	Co	Ni	Cu	Mo	Zn	Pb	Ag	Au	As	Ba	Cd	Sr	Te	Hg	Tl	Bi	V		
Porphyry Cu-Mo (Cu skarn; Porphyry Mo; VMS Clastics)						-2	5	3		2	1									2	1	
Polymetallic Ag-Pb-Zn	VMS-SEDEX; Pb-Zn skarn					1	3	4	1	2	-1		1									
Epithermal Au-Ag	Intrusion-related and orogenic Au; Polymetallic Ag-Pb-Zn				1					3	4	1				2	1	2				
Orogenic Au	Intrusion-related Au;				1					3	4	2				2					1	
Intrusion-related Au	Orogenic Au; Epithermal Au-Ag									3	4	-1				1						
W skarn	W porphyry; Intrusion-related Au				1					2						-2				1	2	4

*Polymetallic Ag-Pb-Zn type includes vein and matrix styles; SEDEX = sedimentary exhalative; VMS = volcanic-hosted/associated massive sulphide deposits
*For heavily censored elements raw data are used following a log₁₀ transformation.

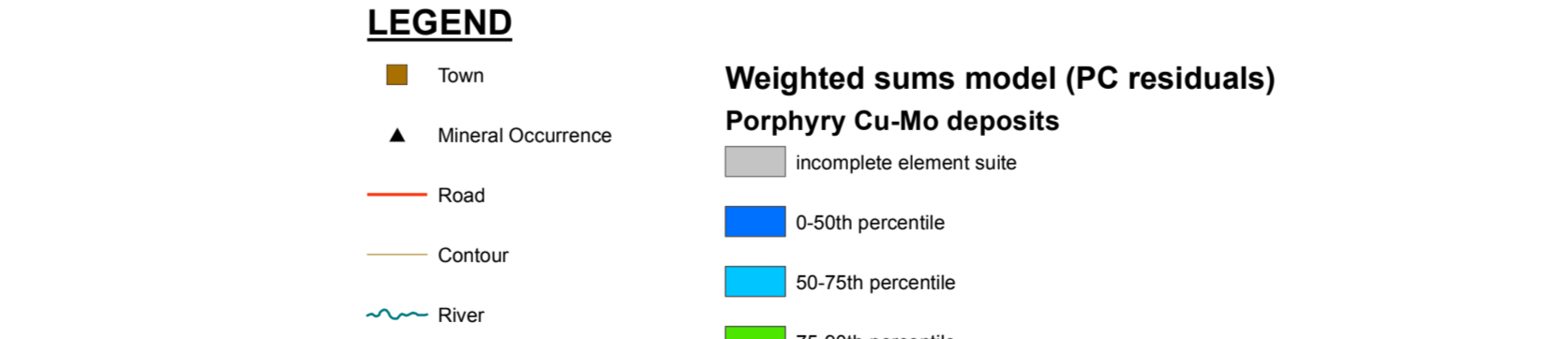
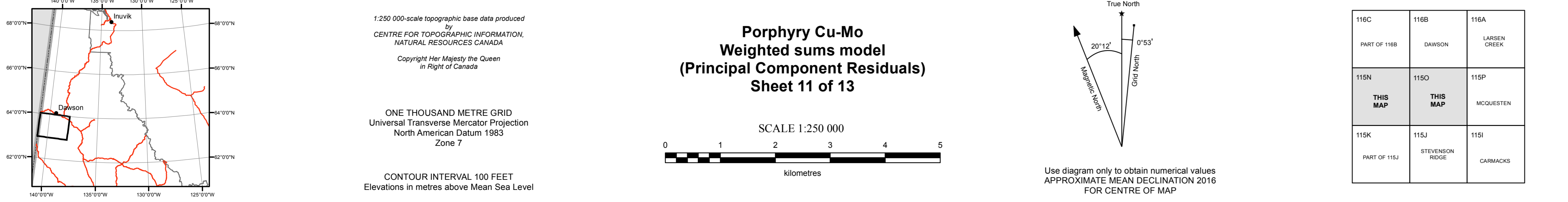


Table 1: List of Mineral Occurrences for NTS map sheet 115N and 1150 (Yukon MINFILE, 2015)

Number	Name	Type	Status	Commodities
115N 119	BAR	Unknown	Anomaly	Gold
115N 121	BEDROCK	Vein Au-Quartz	Showing	Copper, Gold, Silver
115N 152	BOXY MILE	Cool	Showing	Cool
115N 153	CLAY	Stannic Ore	Showing	Copper
115N 014	BLACK FOX	Vein Polymetallic Ag-Pb-Zn	Anomaly	Ag, Cu, Pb, Zn
115N 015	BURNED	Porphyry Cu-Mo-Au	Anomaly	Copper, Molybdenum
115N 016	CAPE	Porphyry Cu-Mo-Au	Anomaly	Copper, Molybdenum
115N 017	CHERRY	Vein Au-Quartz	Anomaly	Copper, Silver, Lead
115N 018	DUMBLE	Vein Au-Quartz	Prospect	Copper, Gold, Lead
115N 019	EUREKA	Vein Au-Quartz	Anomaly	Copper, Silver, Lead
115N 020	FRANK	Vein Au-Quartz	Anomaly	Gold
115N 021	GRAND	Vein Au-Quartz	Anomaly	Gold
115N 022	HARDY	Vein Au-Quartz	Anomaly	Gold
115N 023	HONEY	Vein Au-Quartz	Anomaly	Gold
115N 024	JACK	Vein Au-Quartz	Anomaly	Gold
115N 025	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 026	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 027	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 028	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 029	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 030	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 031	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 032	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 033	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 034	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 035	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 036	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 037	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 038	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 039	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 040	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 041	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 042	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 043	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 044	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 045	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 046	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 047	JACKSON	Vein Au-Quartz	Anomaly	Gold
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115N 070	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 071	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 072	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 073	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 074	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 075	JACKSON	Vein Au-Quartz	Anomaly	Gold
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115N 080	JACKSON	Vein Au-Quartz	Anomaly	Gold
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115N 082	JACKSON	Vein Au-Quartz	Anomaly	Gold
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115N 103	JACKSON	Vein Au-Quartz	Anomaly	Gold
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115N 108	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 109	JACKSON	Vein Au-Quartz	Anomaly	Gold
115N 110	JACKSON	Vein Au-Quartz	Anomaly	Gold

Table 1: List of Mineral Occurrences for NTS map sheet 115N and 1150 (Yukon MINFILE, 2015)

Number	Name	Type	Status	Commodities
115N 042	BUFLER	Porphyry Cu-Mo-Au	Undeveloped	Copper, Lead, Silver, Molybdenum
115N 043	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 044	PROSPECT	Unknown	Anomaly	Copper
115N 045	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 046	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 047	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 048	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 049	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 050	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 051	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 052	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 053	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 054	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 055	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 056	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 057	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 058	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
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115N 060	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 061	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 062	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 063	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 064	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 065	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 066	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 067	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 068	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 069	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 070	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 071	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 072	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 073	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 074	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 075	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 076	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 077	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 078	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 079	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 080	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 081	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
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115N 084	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
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115N 105	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 106	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 107	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 108	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 109	BY-FINCH	Unknown	Showing	Gold, Lead, Silver
115N 110	BY-FINCH	Unknown	Showing	Gold, Lead, Silver



REFERENCES

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RECOMMENDED CITATION

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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. 867-867-3201. Email geology@gov.yk.ca.

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Yukon Geological Survey
Energy, Mines and Resources
Government of Yukon

Open File 2016-30

**Weighted sums model for Porphyry Cu-Mo deposits
using principal component residuals (NTS 115N & 1150)**
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