



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).

SAMPLING AND ANALYSIS PROGRAMS

Regional stream sediment and water samples from the Finlayson Lake map area (105G) were collected at a reconnaissance scale in 1987 as part of the National Geochemical Reconnaissance program.

MINERAL OCCURRENCES

A variety of types of base and precious-metal mineralization have been documented in the map sheet as summarized in Table 1 (Yukon MINFILE, 2015).

WEIGHTED SUMS MODELING

As described in the report accompanying this map (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.

Each catchment. The other uses residuals calculated from regression against selected principal components. Weighted sums models (WSM) have been generated using the processed data. Importance rankings used in the WSM for a variety of deposit types are summarized in Table 2.

Exploratory data analysis of both raw element data and principal components indicates that the distribution of many commodity and pathfinder elements is strongly controlled by lithological variation. The first principal component, accounting for ~30% of the total variation, shows high positive loadings for Cd, Se, Sb, Hg, Ba, Ag, Mo and Zn, and forms a coherent spatial trend that follows stratigraphy (i.e., Earn, Askin and Jones Lake groups).

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 (10 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 anomalies.

Table 2: Importance rankings for weighted sums models using data levelled by dominant mapped geology.

Table with 16 columns (Target Deposit Type, Other Deposit Types, Mn, Fe, Co, Ni, Cu, Mo, Zn, Pb, Ag, Au, As, Ba, Cd, Sn, Sb, Te, Hg, Tl, Bi, W) and rows for various deposit types like VMS (Zn-rich), VMS (Cu-rich), Epithermal Au-Ag, etc.

\*Polymetallic Ag-Pb-Zn type includes vein and mantle styles; SEDEX = sedimentary exhalative; VMS = volcanic-hosted/associated massive sulphide deposits

† Au data are not levelled by dominant geology, instead log10 transformed raw data are used.

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

Table with 3 columns (Number, Name, Type) listing various mineral occurrences such as 105G 001 MONT, 105G 003 BLUEBERRY, 105G 005 ISLAND, etc.

RECOMMENDED CITATION

MACKIE, R., ARNE, D. AND PENNIMPEDE, C., 2015. Weighted sums model for W Skarn deposits levelled by geology. In: Enhanced interpretation of stream sediment geochemical data for NTS-105G. Yukon Geological Survey, Open File 2015-26, scale 1:250 000, sheet 8 of 17.

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

Paper copies of this map and the accompanying report may be purchased 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.

Yukon Geological Survey, Energy, Mines and Resources Government of Yukon. Open File 2015-26. Weighted sums model for W Skarn deposits levelled by geology (NTS 105G) Sheet 8 of 17 by Rob Mackie, Dennis Arne, and Chris Pennimpede.