Compilation Details

Layer Name: Regional Geochemical Surveys (RGS)
Layer Type: Minerals Geology
Feature Type: Point

General Information

Release Date: 2024-03-20
Released By: Yukon Geological Survey
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Summary

This product contains stream sediment geochemical data from regional geochemical surveys (RGS) in Yukon.

Description

Last Updated: Mar 20, 2024

November 2020

Release notes

The regional stream sediment geochemical data compilation comprises data for more than 30 000 samples across Yukon. This compilation updates the work of Héon (2003). This new compilation includes results from the reanalysis of more than 24 000 samples; inductively coupled plasma mass spectrometry (ICPMS) analysis provides upgraded detection limits and a broader range of elements relative to previous analytical data. In addition to analytical data, efforts have been made to improve sample location accuracy. The data in this release are organized by analytical method with the geodatabase having six feature classes:

RGS_SITE_WATER – site specific physiography and water quality data. These data are unchanged from the original releases.

RGS_HEON – the same data as released in Héon (2003) with minor updates to sample location.

RGS_AAS – all samples analyzed by atomic absorption spectrometry. Most of these data are superseded by INAA and ICPMS data.

RGS_INAA – all samples analyzed by instrumental neutron activation analysis (INAA) and fire assay-neutron activation (FA-NA) analysis.

RGS_ICPMS – all samples analyzed by inductively coupled plasma mass spectrometry (ICPMS).

RGS_All – includes all AAS, INAA and ICPMS data.

Collection of stream sediment samples in Yukon began in 1976 and ended in 2006. Three analytical methods have been used to analyze the minus 0.177 mm fraction (-80 mesh) of these samples: AAS, INNA (and FA-NA) and ICPMS. A simple description of each method is given below.

For atomic absorption spectrometry(AAS) a 1 g aliquot is 'partially digested' using Lefort aqua regia or concentrated hot nitric acid. The digestion product is analyzed using an atomic absorption spectrometer. Oxide and silicate minerals are partially digested while some sulphide minerals are erratically volatilized. This means that AAS cannot be used to obtain accurate REE, Ta, Nb, As, Sb, Sn, Hg, Cr, or Au determinations.

For instrumental neutron activation analysis (INAA), aliquots of sieved sediment (the minus 0.177 mm fraction) or milled rock ranging from 5 to 40 g are encapsulated and irradiated in a nuclear reactor before counting the primary gamma radiation induced by the neutron irradiation with a high resolution germanium gamma ray detector. Fire assay-neutron activation (FA-NA) analysis is similar but includes a pre-concentration fire assay step prior to irradiation and analysis. Results for both INAA and FA-NA are similar to those for samples analyses by fusion or other total digestion techniques. Neutron activation detection limits are typically higher than those by acid digestion – ICPMS. Commodity and pathfinder elements such as Au, As, Sb and W have reasonable detection limits by INAA and the data generated are relatively precise.

For ICPMS analysis, aliquots of sieved sediment (the minus 0.177 mm fraction) ranging from 0.5 to 1 g are prepared using a partial digestion technique, typically aqua regia, followed by analysis of dissolution product by ICPMS. Sulphide minerals are completely oxidized and dissolved whereas most oxide and silicate minerals are only partially digested. This means that results produced by partial digestion methods are acceptable for elements such as Ag, As, Mo, Ni, Pb, Sb, Tl, and Zn but values for elements such as Al, Ba, Cr, Fe, P, Sn, Ti, Y, and Zr are likely to not reflect the actual element concentration in a sample. The sample size used for routine RGS sample analysis is too small be representative of Au in the original sample and thus Au by aqua regia digestion – ICPMS has poor precision.

Further upgrades to this database are not anticipated. All samples that could be found in the GSC-Ottawa warehouse have been reanalyzed using ICPMS. Any errors or omissions in this database should be reported to the Yukon Geological Survey. Your feedback contributes to improving the accuracy of the geoscience databases for Yukon.

Contact: YGSMinerals@yukon.ca; geology@yukon.ca

Downloads

Name	Location	Public	Comment
Regional Geochemical Surveys (RGS) - Metadata	https://ygsftp.gov.yk.ca/YGSIDS/compilations/RGS_Reanalysis/Regional_Geochemical_Surveys_250k.zip	Yes	This zip contains the .csv and associated metadata related to the RGSs. (24 mb)
Regional Geochemical Surveys (RGS) - Data	https://map-data.service.yukon.ca/GeoYukon/Geological/Regional_Geochemical_Surveys_RGS_All_250k/	Yes	Regional Geochemical Surveys (RGS) - Spatial Data (GDB, SHP, KMZ)
Regional Geochemical Surveys - GeoYukon	https://mapservices.gov.yk.ca/GeoYukon/?scale=640000&center=380201.8723245942%2C674515.8746579753&layers=1UQ3ku3r6%2B2J0R7Ui618eoz93BmEII18eqUI2K1I3B	Yes	GeoYukon web map for viewing Regional Geochemical Surveys layers.

Revision History

Finished Date	Comment
Nov 19, 2020	Updated / Replaced with November 2020 Compilation.
Mar 20, 2024	Corrected a number of incorrectly transcribed aluminum values. No new data added.

Related References

Number	Reference Type	Document Type	Title	Year	Page(s)
2003Heon	Yukon Geological Survey	Database	Yukon Regional Geochemical Database - Stream sediment analyses	2003	
2011-28	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data Stevenson Ridge, Yukon (NTS 115J & K)	2011	
2015-11	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, Teslin area, southern Yukon (NTS 105C)	2015	
2015-13	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, Aishihik Lake area, southern Yukon (NTS 115H)	2015	

2016-5	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, Dezadeash Range area, southwestern Yukon (NTS 115A and 115B)	2016	
2015-6	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, Wolf Lake, Yukon (NTS 105B)	2015	
2011-29	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data Tay River, Yukon (NTS 105K east)	2011	
2012-10	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, Watson Lake area, southeastern Yukon (NTS 095D & 105A)	2012	
2016-7	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, Watson Lake area, southeastern Yukon (NTS 095D and 105A)	2016	
2011-30	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data Niddery Lake, Yukon (105O & P)	2011	
2015-14	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, Carmacks area, southern Yukon (NTS 115I)	2015	
2012-6	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, Dawson, Yukon (NTS 116B & C)	2012	
2015-9	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, Glenlyon area, central Yukon (NTS 105K & L)	2015	
2012-7	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, Glenlyon area, central Yukon (NTS 105K west & 105L)	2012	
2012-9	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, McQuesten area, central Yukon (NTS 115P)	2012	
2015-12	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, Whitehorse area, southern Yukon (NTS 105D)	2015	
2016-4	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, Stewart River area, western Yukon (NTS 115N east & 115O)	2016	
2016-6	Yukon Geological Survey	Open File (Geochemical)	Regional lake sediment geochemical data, Watson Lake area, southeastern Yukon (NTS 105A)	2016	
2015-7	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, Lake Laberge area, southern Yukon (NTS 105E)	2015	
2012-8	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, Mayo area, central Yukon (NTS 105M)	2012	
2015-8	Yukon Geological Survey	Open File (Geochemical)	Regional stream sediment geochemical data, Quiet Lake area, southern Yukon (NTS 105F)	2015	
2015-15	Yukon Geological	Open File (Geochemical)	Regional stream sediment geochemical data, Kluane Lake area, southwest Yukon (NTS 115F & G)	2015	

	Survey	(Geochemical)	(NTS 115F & G)		
2015-27	Yukon Geological Survey	Open File (Geochemical)	Enhanced interpretation of stream sediment geochemical data for NTS 105H	2015	
2015-26	Yukon Geological Survey	Open File (Geochemical)	Enhanced interpretation of stream sediment geochemical data for NTS 105G	2015	
2015-31	Yukon Geological Survey	Open File (Geochemical)	Enhanced interpretation of stream sediment geochemical data for NTS 105I and 105J	2016	
2015-29	Yukon Geological Survey	Open File (Geochemical)	Enhanced interpretation of stream sediment geochemical data for NTS 105N	2015	
2020-6	Yukon Geological Survey	Open File (Geochemical)	Regional Stream Sediment Geochemical Data, Nash Creek and Larson Creek survey areas, Yukon (parts of NTS 106C, 106D & 116A)	2020	
2017-4	Yukon Geological Survey	Open File (Geochemical)	Assessment of Yukon regional stream sediment catchment basin and geochemical data quality	2017	
2015-10	Yukon Geological Survey	Open File (Geochemical)	Enhanced interpretation of regional geochemical stream sediment data from Yukon: catchment basin analysis and weighted sums modeling	2015	
MR-1	Yukon Geological Survey	Miscellaneous Report	Yukon NGR Stream Sediment Database Assessment Project	2010	