Natural Resources Canada / Ressources naturelle Canada

National Geochemical Reconnaissance

Multi-Element Lake Sediment Data Plot - Central Baffin Island Project

Cobalt, Chromium, Copper and Nickel in Lake Sediment

INTRODUCTION

Large areas of Canada have been covered by stream and lake surveys carried out under the National Geochemical Reconnaissance (NGR) program. The goal of this program is to establish and maintain a nationally consistent database of field and analytical data derived from drainage sediment and water samples. Toward this end, systematic surveys have been conducted since 1973. To date (1999), more than 200 surveys have been completed to NGR standards, representing over 190 000 sites covering 2.3 million km ^{2}throughout Canada (see Figure below). These were carried out mainly by the Geological Survey of Canada, either independently or in cooperation with provinces and territories, under various funding arrangements.

Consistent methods of sample collection, sample preparation and chemical analysis developed and employed at the GSC are the hallmark of NGR surveys (Friske and Hornbrook, 1991). Presently, data for each NGR survey are available in hard copy and digital form. However, to simplify access to such a substantial collection of diverse information, a digital database has been created using Microsoft® ACCESS® software. As entry of large contiguous blocks of data (e.g. all Labrador or Ontario lake sediment and water data) is completed, geochemical maps and reports are being produced that display and summarize the data (e.g. Friske et al. 1997a, 1997b, 1997c). The aim of this second generation of publications is to increase awareness of NGR data and enhance applications not only to mineral exploration but in other areas as well, such as public health and environmental studies.

SELECTED REFERENCES

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Friske, P.W.B., McCurdy, M.W. and Day, S.J.A.
1997a: National Geochemical Reconnaissance - Ontario compilation; distribution of nickel in 17 935 lake sediment samples. Geological Survey of Canada Open File 3379a. Scale 1:1 500 000.

Friske, P.W.B., McCurdy, M.W. and Day, S.J.A.
1997b: National Geochemical Reconnaissance - Labrador compilation: distribution of chromium in 18793 lake sediment samples and 1131 stream sediment samples. Newfoundland (Labrador). Geological Survey of Canada, Open File 3350i. Scale 1:1 000 000.

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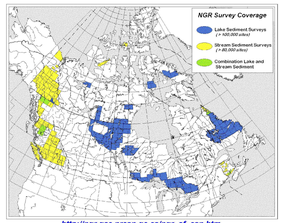
1997c: National Geochemical Reconnaissance - Ontario compilation, distribution of mercury in lake sediment. Geological Survey of Canada, Open File 3379c. Scale 1:1 500 000.

de Kemp, E.A. and Scott, D.J.
1998: Geoscience compilation of north Baffin Island and northern Melville Peninsula, Northwest Territories; Geological Survey of Canada Open File D3636, 2 CD-ROM, mapscale 1:500 000.

Morgan, W.C.
1983: Geology, Lake Gillian, District of Franklin (NTS 37O); Geological Survey of Canada Open File 1605A, Scale 1:250 000.

Tippett, C.R.
1964: Geology of a transect through the southern margin of the Foxe fold belt (mainly NTS 27B), central Baffin Island, District of Franklin; Geological Survey of Canada Open File 1110, 73 p.



http://ngr.gsc.nrcan.gc.ca/ngr_of_can.htm

DATA PRESENTATION - CENTRAL BAFFIN ISLAND PROJECT

For this report, relative concentrations of selected elements in sediments at sample sites are illustrated with two types of images: shaded contour plots and multi-element proportional spot plots ('beachball' plots).

Contour plots depict broad regional trends. From the irregular grid of sample sites, a regular grid is generated using the following parameters:

Inverse Distance Weighting (IDW) function
Exponent = 1.0
Cell size = 1000 metres
Search radius = 15000 metres
Display Radius = 7500 metres

The resulting grid is then coloured based on percentiles. A hill-shading effect is also added to enhance the surface of the regular grid. Maps are generated using the Vertical Mapper® module in Mapinfo™.

'Beachball' plots, a variation of proportional spot plots, represent multi-element anomalies at specific sites. Individual analytical values of selected elements are reassigned with integer 'scores' of between 0 and 4, depending on the value of each analytical result relative to the median value for each element. Specific scores assigned to element ranges for this map are shown in the table directly below.

The total score is used to establish the size of the individual spot, with the size of the spot proportional to the sum of the score, the value of which is shown at each site with a value ≥ 1.0. The proportion of the total value represented by one element (elements are assigned different colours) is indicated by the size of the wedge within the spot.

ELEMENTAL RANGES

Element		***Cobalt***	***Chromium***	***Copper***	
units		ppm	ppm	ppm	
median		15.5	310	74	
Score	0	<47	<330	<222	<120
	1	47 - 63	330 - 450	222 - 303	120 - 163
	2	64 - 94	451 - 670	304 - 451	164 - 243
	3	95 - 141	671 - 1001	452 - 673	244 - 364
	4	>141	>1001	>673	>384

Contribution to the Central Baffin Partnership Program, a cost shared initiative between the Qikiqtaaluk Corporation, the Government of the Northwest Territories Department of Resources, Wildlife and Economic Development, and the Geological Survey of Canada.

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INDEX MAP

Scale 1:300 000

0 10 20
Kilometres

Lambert Conformal Conic Projection
Standard Parallels 68°N and 70°N
Central Meridian 72°W
NAD83

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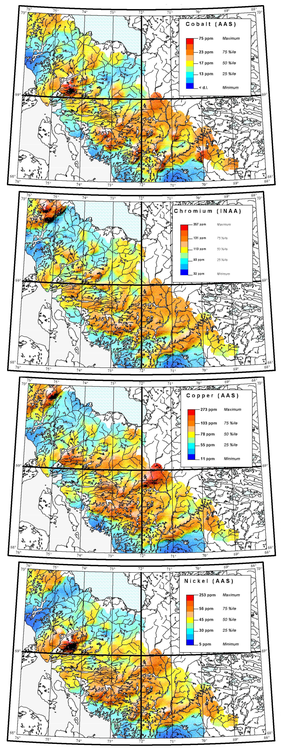

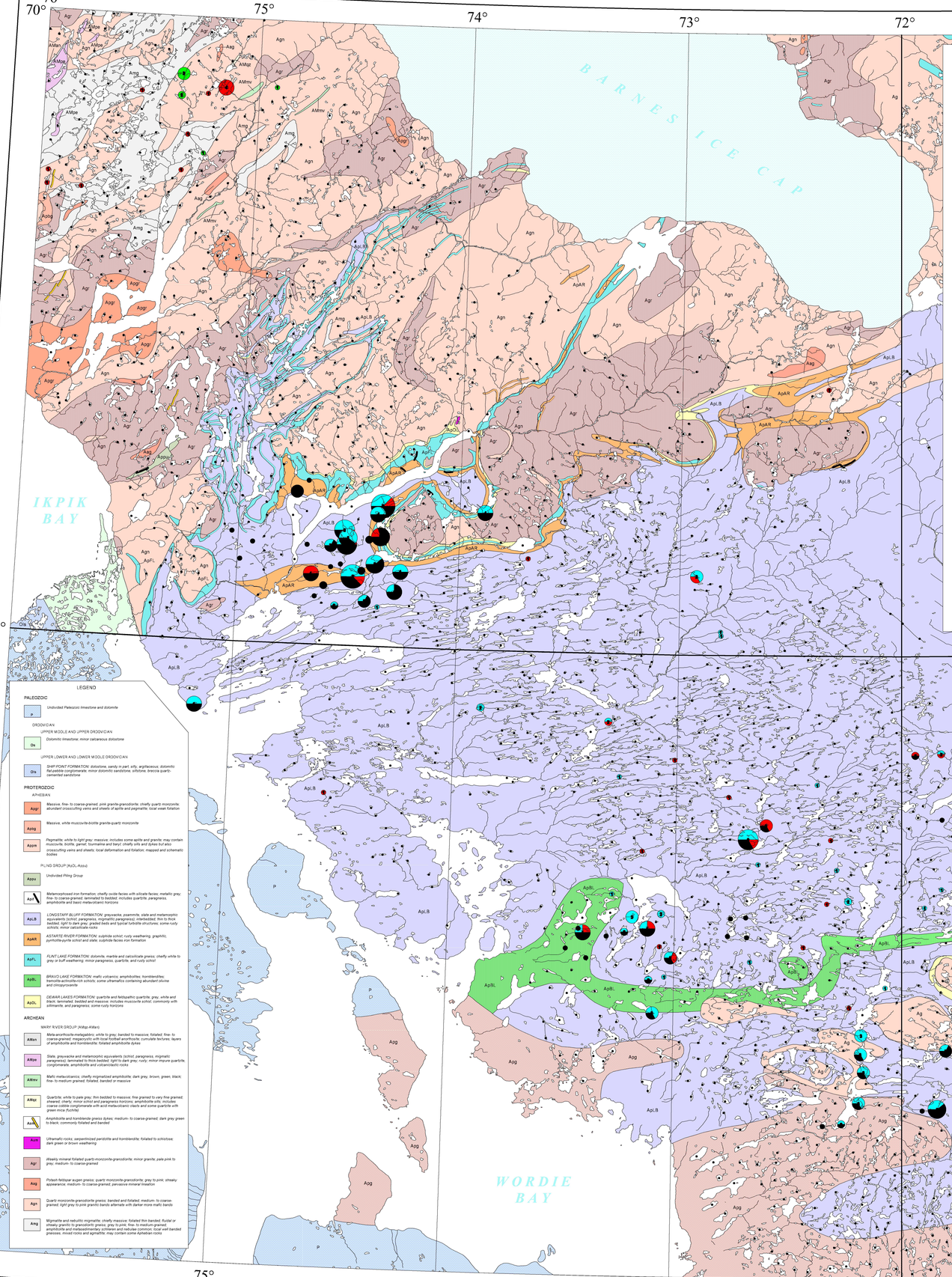

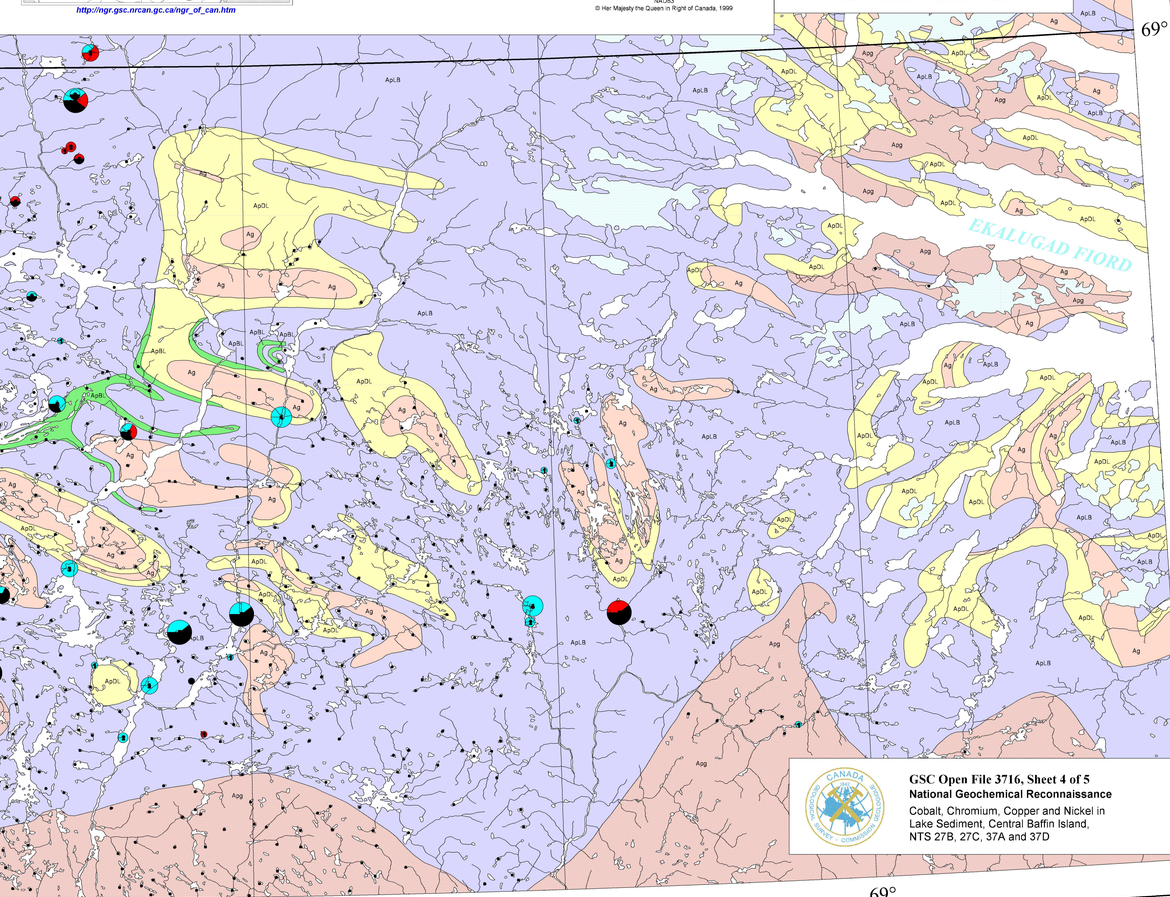

GSC Open File 3716, Sheet 4 of 5
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1998: Reanalysis of 1775 lake sediments from surveys on central Baffin Island, Nunavut (Northwest Territories), parts of NTS 27B, 27C, 37A and 37D; Geological Survey of Canada, Open File 3716, scale 1:300 000.

Canada