

REGIONAL GEOCHEMICAL SURVEYS

by

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Newfoundland

Data from the lake sediment geochemical surveys in northwestern Newfoundland, for which the sampling was carried out in 1981, were released on open file on June 24th, 1982 for NTS area 12H and August 31st, 1982 for NTS areas 2L, 2M, 12I and the Newfoundland portion of 12P (Butler and Davenport, 1982a, b). Regional geochemical coverage is now complete for the entire island of Newfoundland outside the Terra Nova and Gros Morne National Parks, as illustrated in Figure 1.

Although the sampling phase of the regional surveys in Newfoundland is complete and the data are available in a preliminary format, work on this project continues on three topics:

1) Data verification. Extensive checking of the field data has been carried out, with particular attention being paid to the UTM coordinates. A 5% random subset of the samples from all survey areas covered since 1973 has been selected and will be reanalyzed for all the elements in the present suite.

2) Compilation of a geochemical atlas. To ensure that the data remain current and readily available they will be recompiled into two atlases. The first will be a 1:1,000,000 summary compilation to illustrate regional features, which could be used in conjunction with the other existing or planned geological and geophysical compilations at this scale. The proposed method of data summarization was described in Davenport (1982a), where some illustrations of the use of this type of compilation were given. A preliminary series of maps similar to that shown in Figure 1 will be available

early in 1983. In addition a series of maps at 1:250,000 scale showing all sample site data in relation to the drainage and geology will be produced to provide a permanent display of the data for mineral exploration and resource appraisal purposes.

3) Expansion of the element suite determined on lake sediments. Currently Cu, Pb, Zn, Co, Ni, Ag, Mo, U, F, Mn, Fe and L.O.I. (loss on ignition, a measure of organic carbon content) are determined routinely on lake sediments collected in Newfoundland. More recently Cd has been determined (by atomic absorption), and shows promise for yielding data useful in the search for sulphide deposits. Barium was determined in lake sediments collected over the Carboniferous Codroy - Bay St. George Basin (McArthur *et al.*, 1975). The distribution of Ba in lake sediments also yielded useful results, although only when determined by X.R.F.; atomic absorption was not sufficiently sensitive to yield good precision at the levels encountered in the lake sediments. More recently Sn and W have been determined on test sets of lake sediments over mineralized granites. Over the Sn-mineralized Ackley Granite no response was observed in the lake sediment (Davenport, 1981), but there is a strong response of high W values (greater than 30 g/t) in lake sediments over the W-bearing granites at Granite Lake, Central Newfoundland (Davenport, 1982b). Other areas where the lake sediments are anomalous in W over the Facheux Bay Batholith are shown in Fig. 2, and warrant further follow-up. Elements such as As and Hg in lake sediment have proven useful in other areas, and may be added to the element suite for the lake sediment from Newfoundland. In addition the potential

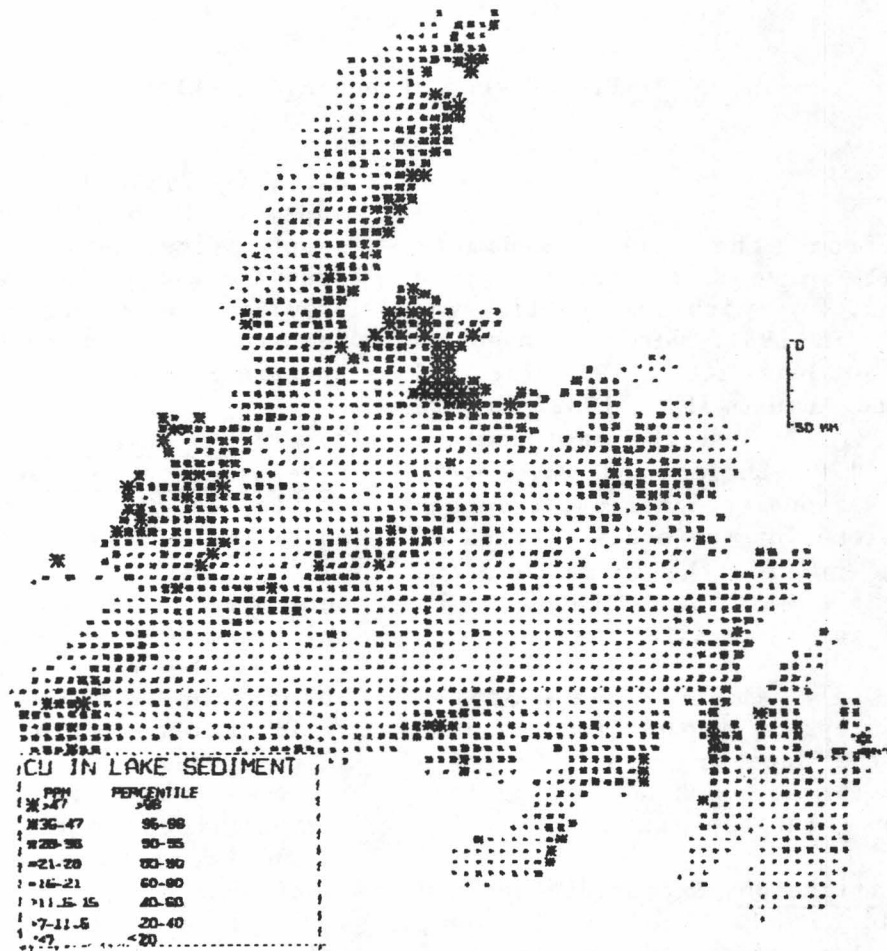


Fig. 1: Compilation map showing the distribution of Cu in lake sediment on the island of Newfoundland.

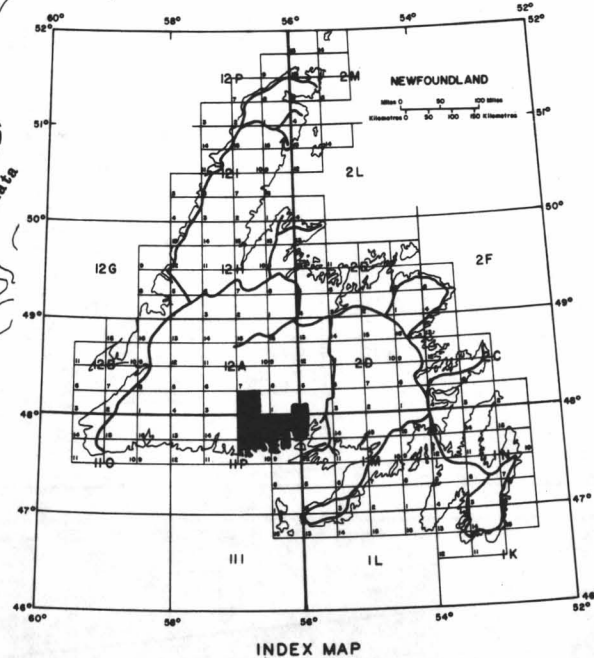
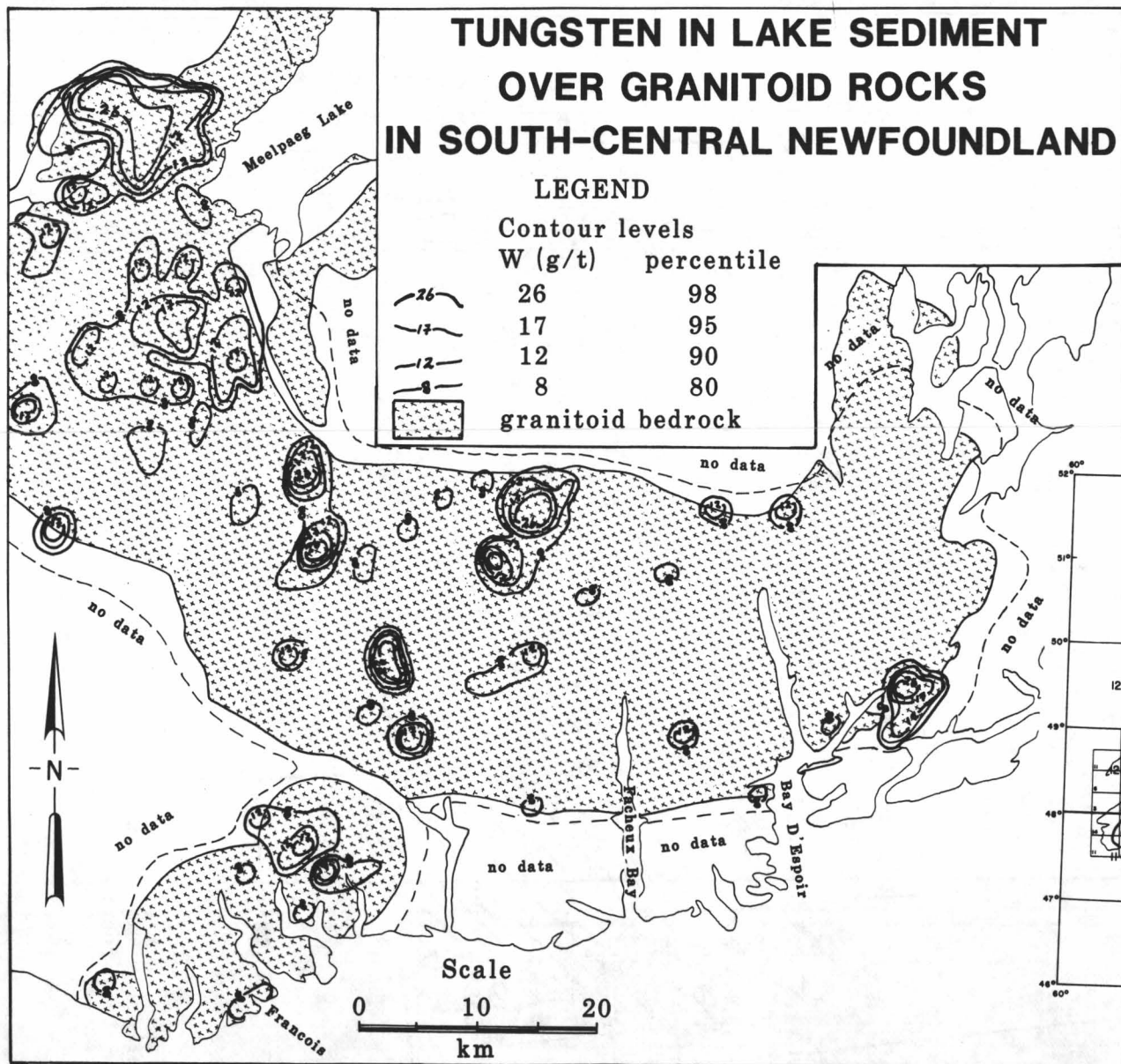


Figure 2. Distribution of W in lake sediment from over granitoid terrain in south-central Newfoundland.

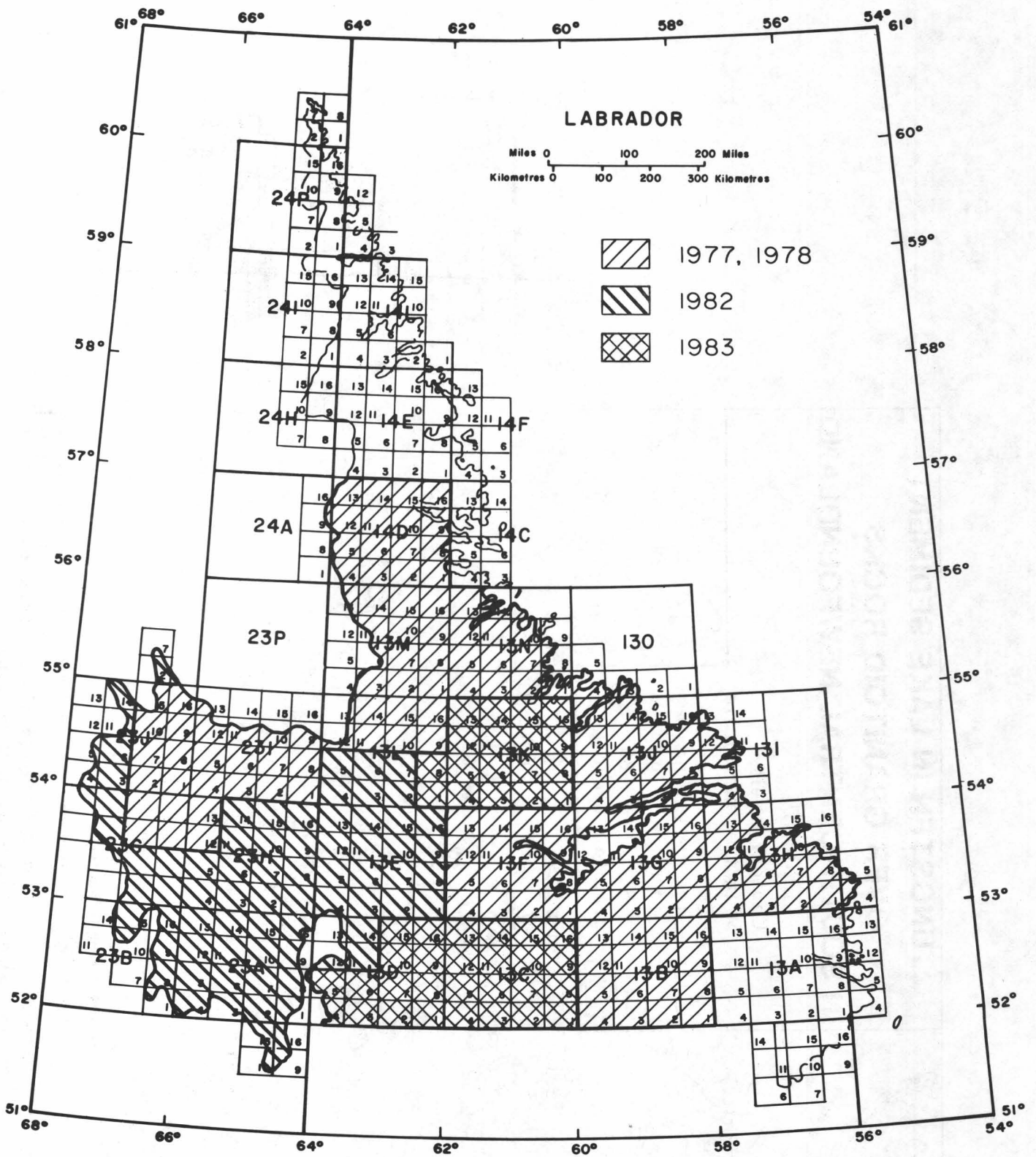


Figure 3. Index map showing the extent of regional geochemical coverage in Labrador.

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of lake sediments to reflect bedrock geochemical variations in Li, Be, B, Mg, Ca, Cr, Se, Rb, Sb, Te, Cs, Au, Bi and Th will be investigated over selected geologic targets where significant bedrock variations would be anticipated.

Labrador

The status of regional geochemical coverage of Labrador is shown in Figure 3. The surveys in 1977 and 1978 were carried out under the Canada - Newfoundland Uranium Reconnaissance Programme. This year the Resource Geochemistry Subdivision of the Geological Survey of Canada started to complete the coverage for southwestern Labrador. In July and August, 1982, waters and sediments from lakes over an area of about 50,000 km² (Figure 3) were sampled at an average density of 1 sample per 13 km², and next year sampling will be completed in 13K, 13C, 13D and 13L. Lake sediment samples from this year's work are currently being prepared and will be analyzed for U, Cu, Pb, Zn, Co, Ni, Ag, Mo, Mn, Fe, F, As, Hg and L.O.I. In addition U, F and pH will be determined on the water samples.

Data from the completed NTS sheets sampled in 1982 will be released on open file next year. All remaining data will be released in 1984, following the preparation and analysis of samples to be collected in 1983.

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