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EXPLORATION GEOCHEMICAL STUDIES OF LABRADOR GRANITOIDS

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INTRODUCTION

Field work during 1985 involved the collection of a variety of sample materials for geochemical analyses from granitoid terranes in Labrador. Work was done in five areas (Figure 1) which are considered to have high potential for hosting granite-related mineralization, such as Sn, W, REE, Nb, Be and Zr. Sample media include rock, soil, stream sediment/water, and lake sediment/water. The quantity and type of samples collected in each area are summarized in Table 1. Surficial samples will be analyzed for some, or all, of the following elements and variables: Ag, Ba, Be, Ce, Co, Cu, F, Fe, La, Li, Mo, Mn, Nb, Ni, Pb, Rb, Sn, Sr, Ta, Th, U, W, Y, Zn, Zr, loss-on-ignition and pH. Rocks will also be analyzed for major and minor elements.

Table 1: Location, type and quantity of samples collected during 1985.

Area	Rock	Lake Sediment and Water	Stream Sediment and Water	Soil
Letitia	4	203		209
Flowers River	347			239
Michikamats	10	123		
13L/13	7	23	14	
Anaktalik	5	67	3	

AREA DESCRIPTIONS

Letitia Lake Anomaly

The area is underlain by peralkaline gneisses and volcanic rocks. Previously known mineralization includes occurrences of Be, Nb, Th, Zr and REE. Results of a recent reconnaissance lake sediment and water survey from this area indicated high concentrations of Pb, F and Zn (Geological Survey of Canada, 1983). Analyses of F and Zn in samples of lake water collected this summer during a detailed lake survey revealed three highly anomalous areas within the broader regional anomaly. Two of these contain previously known mineralized outcrops and boulders. Soil samples (B horizon) were collected from a 9 x 11 km grid in the third area, in the course of which several boulders of radioactive gneiss were found.

Flowers River Area

The Flowers River Igneous Suite, consisting of felsic volcanic rocks intruded by peralkaline granite, is one of three known peralkaline complexes in Labrador. As such, it represents a possible host for various types of mineral deposits. Previous geological mapping (Hill, 1982) and geochemical studies (McConnell, 1984) located occurrences of Be, F, Zr, Nb, Y, Pb, and Zn. A systematic, high density (1 sample per 4 km^2) rock and soil-sampling survey of the intrusive phases was made during the 1985 field season, based on Hill's 1:100,000 mapping. Geochemical and lithological studies of these samples will be made, in an effort to recognize areas of geochemical zoning and/or alteration on which mineral exploration could focus.

Michikamats Lake Anomaly

This area is distinguished in the reconnaissance lake data by very high levels of fluoride in water and moderately high levels of molybdenum in sediment (Geological Survey of Canada, 1978b). The area is underlain by Paleohelikian granite and syenite and is without known mineralization. Lake sediment/water samples and some representative rock samples were collected from an area of 280 km^2.

13L/13 Anomaly

This small area (65 km^2) is distinguished in the reconnaissance lake data by very high F and U concentrations in both water and sediment (Geological Survey of Canada, 1983). The bedrock is granite and typically has 1.5 to 3 times higher than average total count scintillometer readings. Lake sediment/water, stream sediment/water and rock samples were collected.

Anaktalik Brook Anomaly

This anomaly is reflected in the reconnaissance lake water data (Geological Survey of Canada, 1978a) by very high fluoride concentrations, similar to values associated with the Strange Lake Alkaline Complex 100 km to the west, which hosts a large tonnage deposit of Y, Nb, Zr, Be and REE. Lake sediment and water samples and a few stream sediment and rock samples were collected from an area of 140 km^2. Fluorite was observed in some outcrops of granite. Unfortunately, the lake sediment samples from this anomaly were destroyed by fire before any analyses were done.

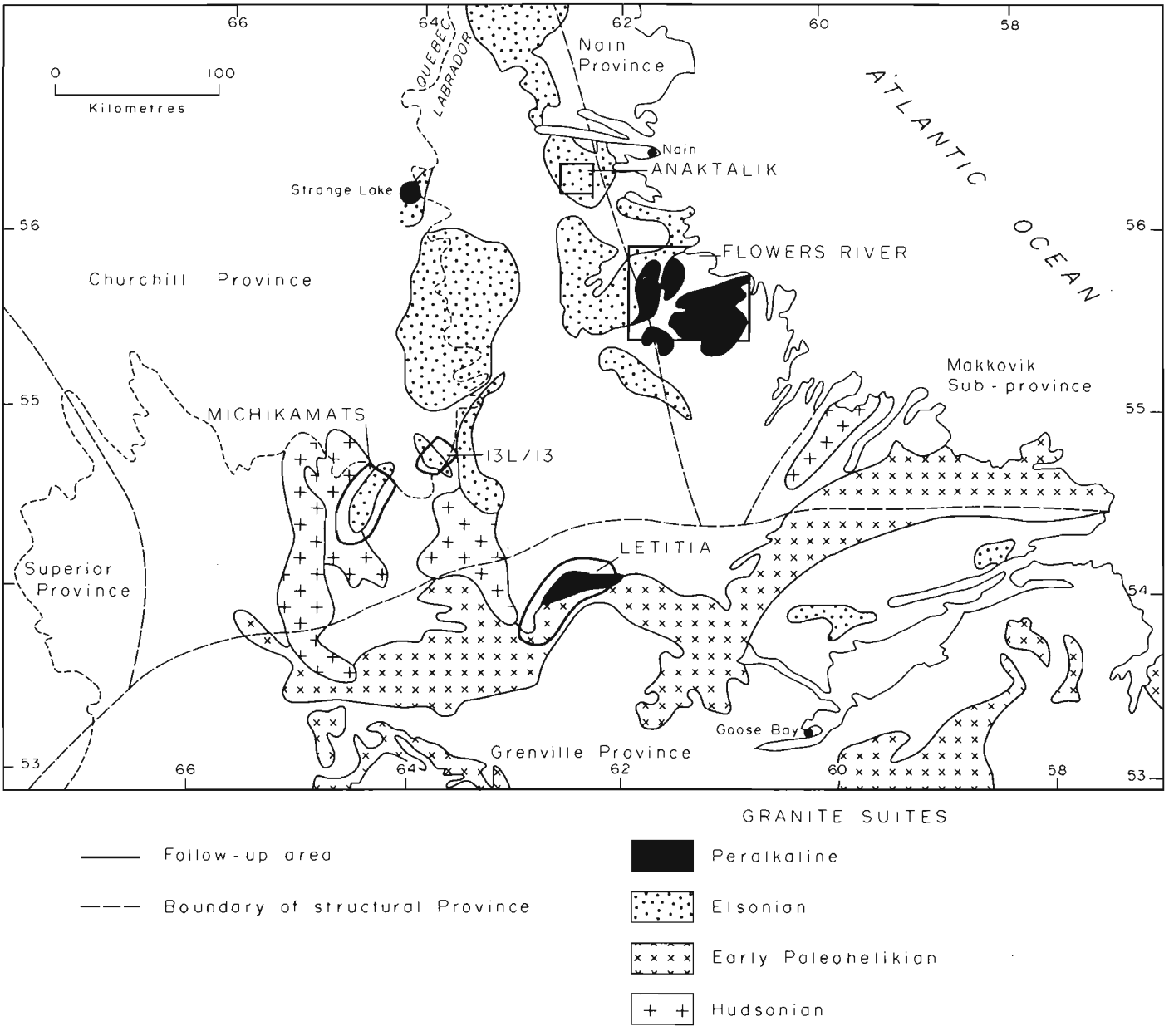

Figure 1: *Location of follow-up areas and granitoid geology of central Labrador.*

REFERENCES

Geological Survey of Canada
1978a: Regional lake sediment and water geochemical reconnaissance data, Labrador. Open File 559.

1978b: Regional lake sediment and water geochemical reconnaissance data, Labrador. Open File 560.

1983: Regional lake sediment and water geochemical reconnaissance data, Labrador. Open File 998.

Hill, J.D.
1982: Geology of the Flowers River - Notakwanon River area, Labrador. Newfoundland Department of Mines and Energy, Mineral Development Division, Report 82-6, 140 pages.

McConnell, J.W.
1984: Reconnaissance and detailed geochemical surveys of base metals in Labrador. Newfoundland Department of Mines and Energy, Mineral Development Division, Report 84-2, 114 pages.