

**MAP 97-04**  
**GEOLOGY OF THE ARCHEAN ASHUANIPI COMPLEX AND PALEOPROTEROZOIC**  
**KNOB LAKE GROUP, WESTERN LABRADOR (PARTS OF NTS MAP AREAS**  
**23G/2, G/3, 23B/14)**

**LEGEND**

**SYMBOLS**

**MESOPROTEROZOIC**

- 15 Shabogamo Gabbro

**PALEOPROTEROZOIC**

**KNOB LAKE GROUP (LABRADOR TROUGH)**

- 14 Menihok Formation
- 13 Sokoman Formation
- 12 Wishart Formation
- 11 Denault Formation
- 10 Atikamagan Formation

**ARCHEAN**

**ASHUANUPI COMPLEX (SUPERIOR PROVINCE)**

- 9 Ashuanipi Complex: 9a, unsubsided Ashuanipi Complex; 9b, variably strained, reworked and retrogressed (to greenschist facies) rocks from Units 1 to 8 that occur within Grenvillian thrust sheets bound by, and containing, Paleoproterozoic Knob Lake Group rocks
- 8 Walsh River pluton: 8a, white to locally pink granite containing biotite, and commonly, mauve-blue quartz; 8b, pink biotite granite; 8c, granite containing abundant gneissic inclusions. The Walsh River pluton is variably foliated, recrystallized and sheared. The most highly strained granite contains muscovite, which grows along the high-strain fabrics
- 7 Granite: variably foliated to isotropic, pink monzogranite and synogranite containing biotite and accessory magnetite
- 6 Diatexite: white to brown-weathering, medium- to coarse-grained and variably foliated granodiorite and monzogranite containing orthopyroxene and biotite. The unit contains common occurrences of variably recrystallized and deformed sheets and dykes of white and pink leucogranite. 4a, granitoid gneiss and migmatite; 4b, granitoid gneiss and migmatite containing abundant inclusions of metasedimentary migmatite (Unit 1)
- 5 Metaproxenite: black and dark-green metaproxenite dykes consisting of clinopyroxene, orthopyroxene and minor amounts of olivine
- 4 Granitoid gneiss: pink and grey granitoid gneiss and migmatite. The unit contains common occurrences of variably recrystallized and deformed sheets and dykes of white and pink leucogranite. 4a, granitoid gneiss and migmatite; 4b, granitoid gneiss and migmatite containing abundant inclusions of metasedimentary migmatite (Unit 1)
- 3 Metatonalite: foliated metatonalite commonly containing coarse-grained orthopyroxene, metatonalite migmatite, and minor amounts of metadiorite and gabbro
- 2 Mafic supracrustal gneiss: a typically well-layered, black-weathering mafic gneiss and migmatite that is interlayered with metasedimentary migmatite (Unit 1). Rocks consist of variable amounts of hornblende, pyroxene, biotite, plagioclase and minor amounts of quartz
- 1 Metasedimentary migmatite: Biotite metasedimentary migmatite that contains variable amounts of white, K-feldspar-bearing leucosome. The unit contains minor amounts of interlayered mafic supracrustal gneiss (Unit 2), amphibolite dykes, and metatonalite and granite dykes. 1a, biotite ± garnet migmatite; 1b, orthopyroxene-bearing migmatite; 1c, unsubsided metasedimentary migmatite and metatonalite (Unit 3)

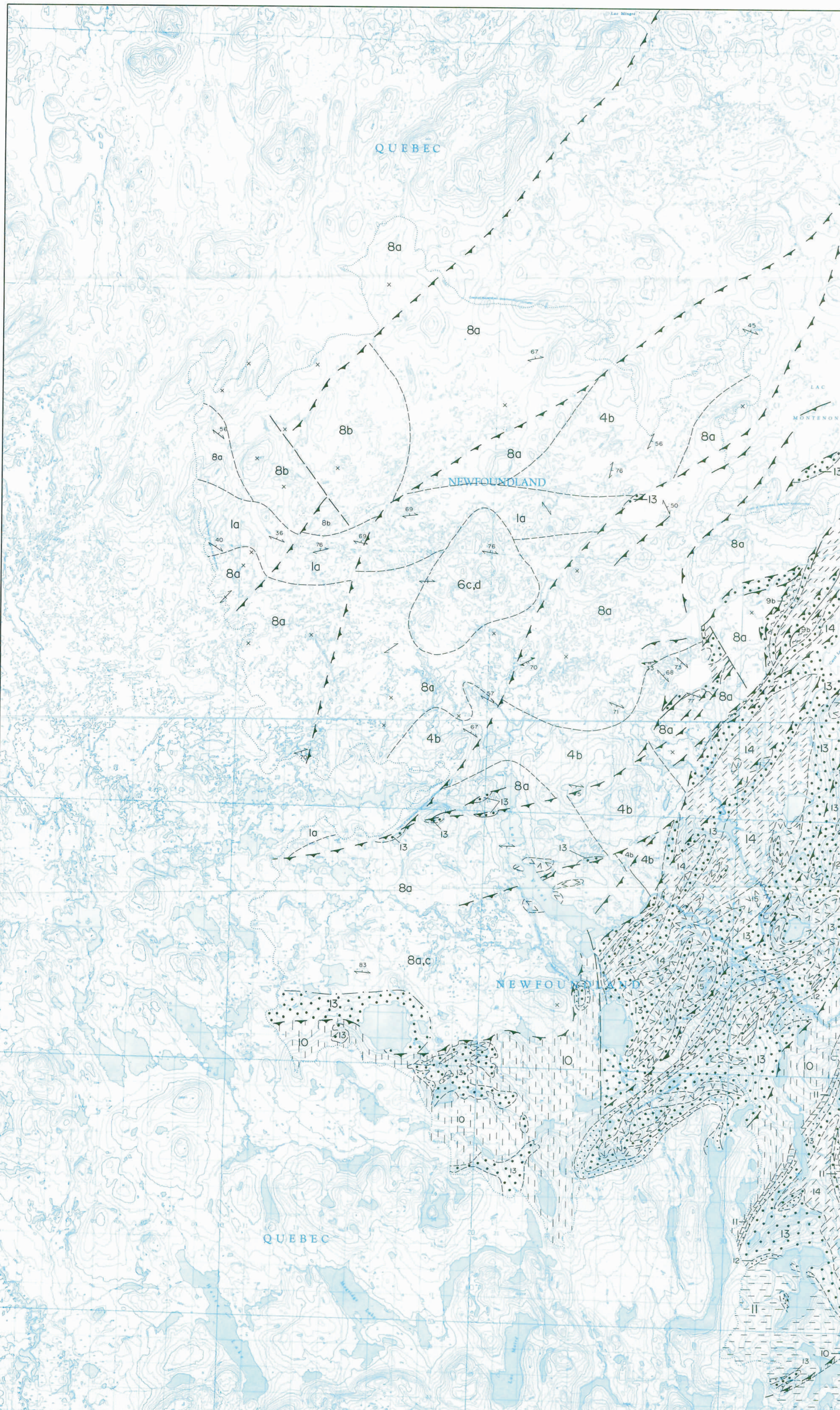
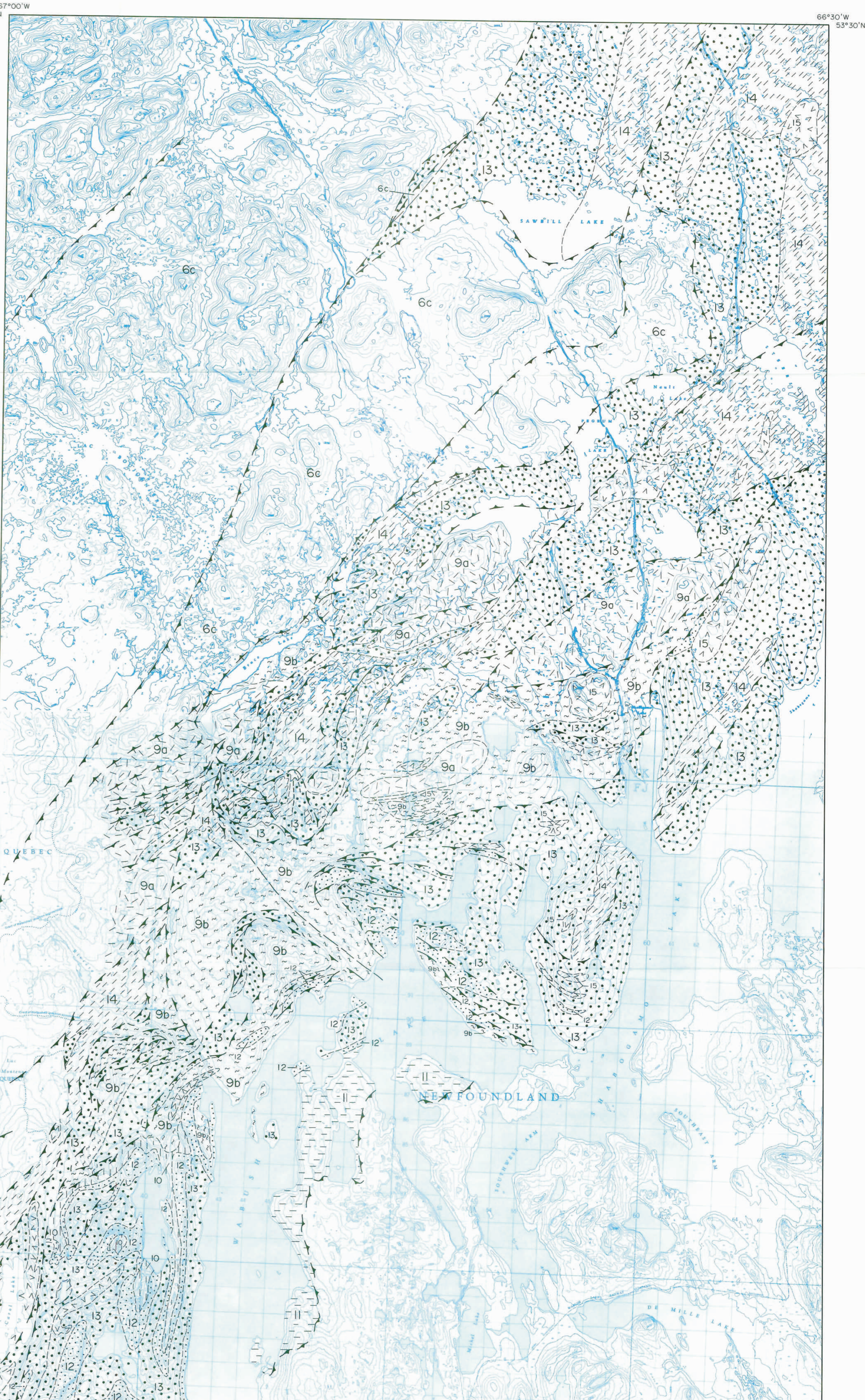
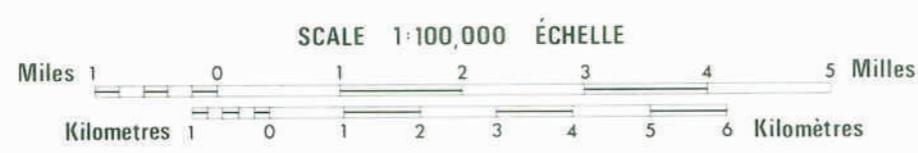
Note: The legend for the Paleoproterozoic Knob Lake Group is incomplete and includes only the formations that occur in the areas shown in maps 97-03 and 97-04. A complete legend for the Knob Lake Group is shown on maps by Rivers (1985a, b, c).

- Geological contact (defined, approximate, inferred)
- Archean-Proterozoic unconformity
- Outcrop
- Igneous layering
- Main penetrative foliation
- Gneissosity (vertical)
- Protomylonite, mylonite and ultramylonite
- Mineral elongation lineation
- Mineral elongation lineation in shear zone
- Minor fold axis
- Minor fold axis and sense of asymmetry (S-fold, Z-fold)
- Fold axis in high-grade shear zone
- Grenvillian high-strain zone (reverse fault)
- Overtuned back thrust (lick on down-dip side)
- Shear zone or fault
- Archean structures are decorated with one dip or plunge indicator. The inferred Grenvillian structures are decorated with two dip or plunge indicators, e.g.,
- Archean foliation
- Grenvillian foliation

Geology of the Ashuanipi Complex by D.T. James and D.M. Stephenson in 1991 (James and Stephenson, 1992), and by D.T. James in 1992 (James and Mahoney, 1993). Geology of the Knob Lake Group is taken from a compilation by van Gool (1992) and based on geology by Rivers (1985a, b, c) and van Gool (1992), and from interpretation of magnetic anomaly maps by D.T. James.

**Recommended citation:**

James, D.T. and van Gool, J.  
1997. Geology of the Archean Ashuanipi Complex and Paleoproterozoic Knob Lake Group, western Labrador (parts of NTS map areas 23G/2, G/3, 23B/14). Newfoundland Department of Mines and Energy, Geological Survey, Map 97-04, scale 1:100 000.



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1966. Subdivisions of the Superior Province of the Canadian Shield. *Geoscience Canada, Volume 13*, pages 5-13.
- James, D.T. and Stephenson, D.T.  
1992. Geology of the southern part of the Archean Ashuanipi Complex, Shabogamo Lake map sheet (NTS 23G), western Labrador. In *Current Research, Newfoundland Department of Mines and Energy, Geological Survey Branch, Report 92-1*, pages 367-379.
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1993. Geology of the Archean Ashuanipi Complex, west of Labrador City, Labrador. In *Current Research, Newfoundland Department of Mines and Energy, Geological Survey Branch, Report 93-1*, pages 51-60.
- Rivers, T.  
1985a. Geology of the Wightman Lake area, Labrador-Quebec, 23G (SE). Newfoundland Department of Mines and Energy, Mineral Development Division, Map 85-28.  
1985b. Geology of the Evening Lake area, Labrador (23G NE). Newfoundland Department of Mines and Energy, Mineral Development Division, Map 85-27.  
1985c. Geology of the Lac Virot area, Labrador-Quebec (parts of 23G and 23B). Newfoundland Department of Mines and Energy Map 85-25.
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1992. The Grenville Front foreland fold-and-thrust belt in southwestern Labrador: mid-crustal structural and metamorphic configuration of a Proterozoic orogenic thrust wedge. Unpublished Ph.D. Thesis, Memorial University of Newfoundland, St. John's, Newfoundland.

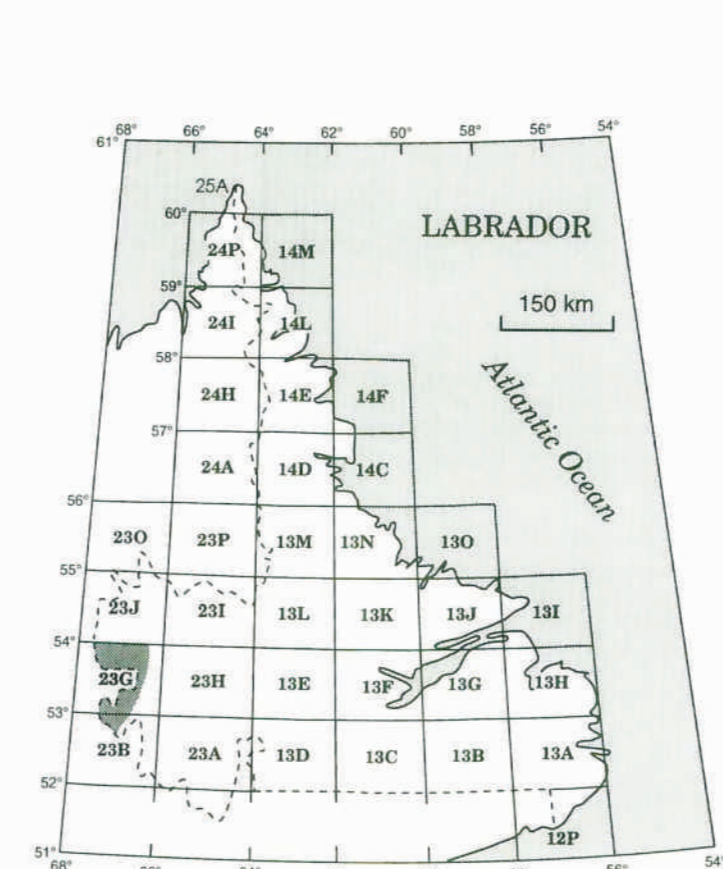


Figure 1. Index map of Labrador. The study area is located in NTS map areas 23G and 23B (shaded areas).

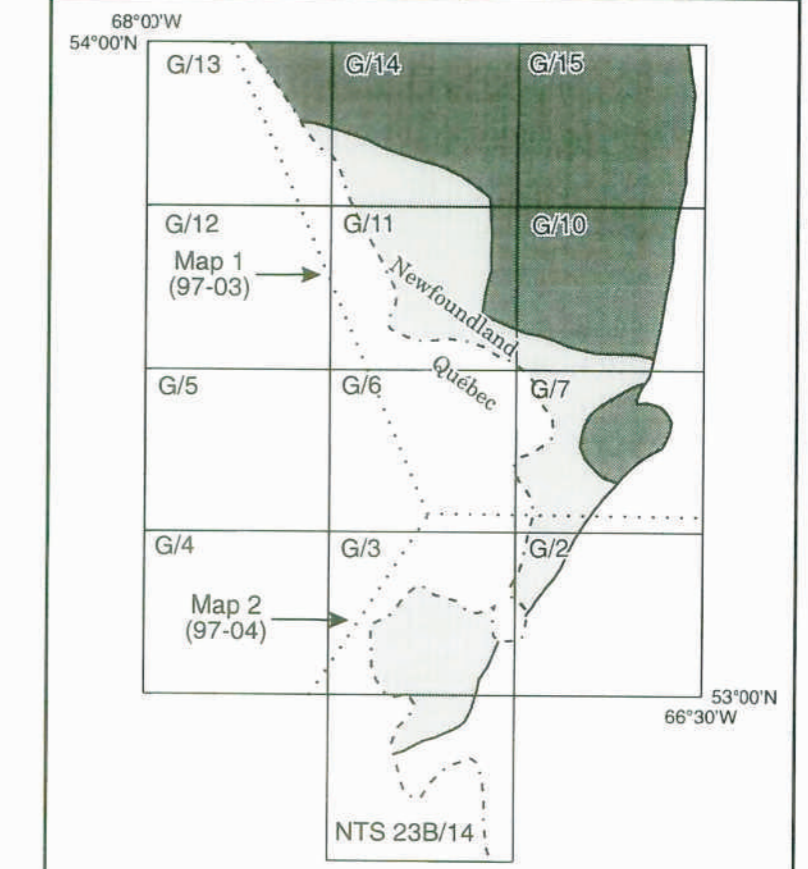


Figure 2. Index and reliability map for NTS map area 23G. The Ashuanipi Complex study area was covered by both ground traverses and a few helicopter traverses (dark-shaded areas), however the light-shaded areas were mostly covered by helicopter traverses.

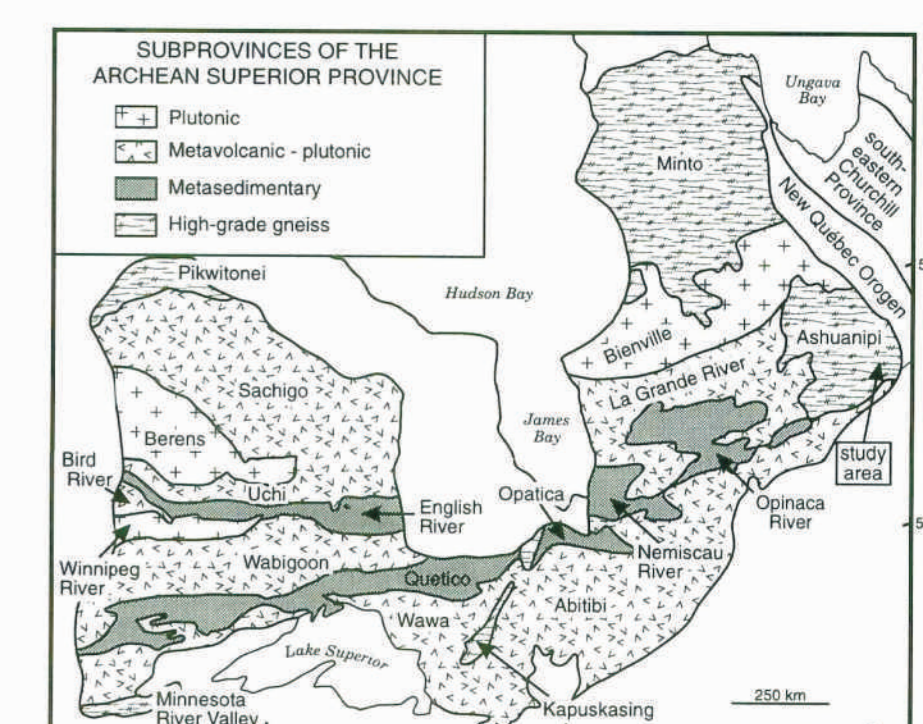


Figure 3. Generalized geological map of the Superior Province showing the principal tectonic elements (modified after Card and Cieselski, 1966). The study area is located in the southeastern part of the Ashuanipi Complex.