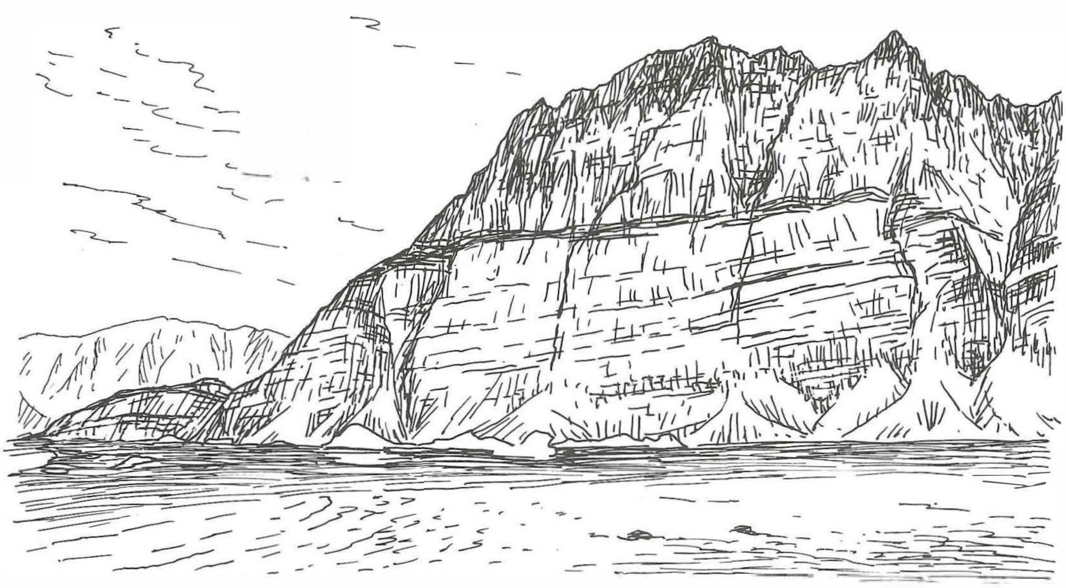
Open File Series No. 90/2

Prospecting for base and noble metals in the Íngia area, West Greenland: analytical results

Bjørn Thomassen



March 1990

GRØNLANDS GEOLOGISKE UNDERSØGELSE
The Geological Survey of Greenland
ØSTER VOLDGADE 10, 1350 KØBENHAVN K, DANMARK

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Prospecting for base and noble metals in the Íngia area, West Greenland: analytical results.

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ABSTRACT

The Íngia area of the northern Umanak district is underlain by Archaean gneiss and Lower Proterozoic supracrustals. The latter were deposited in an epicontinental back-arc basin. They comprise a thick basal unit of shallow marine quartzites overlain by a thin wedge of mafic metavolcanics and uppermost a thick sequence of metaturbidites.

Stratiform pyrrhotite mineralisation occurs at several levels in the supracrustal pile. An investigated pyrrhotite horizon associated with the metavolcanics contains base/noble metals in the order of 500 ppm Zn, 400 ppm Cu, 20 ppm Pb, 15 ppb Pd and 4 ppb Au. Such mineralisation offers in itself possibilities for economic metal concentrations, and also constitutes a potential source rock for epigenetic mineralisation.

Epigenetic quartz vein mineralisation is mainly known from boulder finds. It is dominated by pyrrhotite, but also chalcopyrite and rare arsenopyrite, galena and scheelite occur. Gold contents of up to 371 ppb have been encountered.

A geochemical survey using stream sediment samples and pan samples has outlined two areas with anomalous values for gold-arsenic-tungsten and gold-arsenic-cobalt respectively. The highest gold value is 2.6 ppm in a pan sample.

The Íngia area is considered to have a potential for gold/base metal deposits of vein or stratiform type.

Front cover: Sketch of the north coast of Puatdlarsîvik bay, Íngia Fjord. The thin, dark horizon in the middle of the 1700 m high mountain wall is the metavolcanic unit of the uppermost Qeqertarssuaq Formation. Drawn from a photography by Bodil Sikker Hansen.

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1. INTRODUCTION

The approaching closure of the Black Angel mine at Mârmorilik (13.5 mill. ton grading 4.0% Pb and 12.2% Zn) caused the Geological Survey of Greenland to initiate an assessment of the mineral potential of the Umanak district. In this context selected mineralised localities were reconnoitred in 1989 (Thomassen, 1989).

The Íngia area (map 1) was visited, because a persistent iron-sulphide horizon associated with metavolcanics and a geochemical gold-arsenic-tungsten anomaly had been recorded in this area during a regional reconnaissance survey carried out by Cominco Ltd. in 1979 (Allen and Harris, 1980). The purpose of the field work in 1989 was thus to investigate the metal contents of the iron-sulphide horizon, to reconfirme the geochemical anomaly and to test some of the numerous quartz veins in the area for gold. The present report contains the analytical results of samples collected during this work, together with an explanatory text and geochemical maps of selected elements.

The Íngia area is situated some 150 km NNW of Umanak at the border between Umanak and Upernavik municipalities. It is a mountainous region of alpine character with 1.5-2.0 km high peaks and glacier covered plateaus. The coast and the lower parts of the valleys are often accessible on foot, whereas access to much of the hinterland is difficult for non-alpinists.

The area was investigated from two tent camps during three weeks in July 1989. Transport to and from the camps was by chartered boat and local transport was by rubber dinghy. The field work comprised traversing and sampling of accessible costal areas. A more detailed account of the work is found in Thomassen (1989).

2. REGIONAL GEOLOGY

The Umanak district (Umanak municipality) is underlain by Precambrian rocks, which to the west are covered by Cretaceous-Tertiary sediments and volcanics. The Precambrian comprises an Archaean basement (Umanak gneiss) and a Lower Proterozoic cover sequence (Karrat Group) (Henderson and Pulvertaft, 1967; Henderson and Pulvertaft, 1987).

The up to 7 km thick Karrat Group is divided into three formations. The Mârmorilik Formation dominated by marbles occurs in the southern part of the district, whereas the quartzite-dominated Qeqertarssuaq Formation occurs in the northern part of the district. The two formations were deposited simultaneously in separate subbasins. They are overlain by flych-type metasediments of the Nûkavsak Formation. It has been suggested that the Karrat Group was deposited in an epicontinental back-arc basin (Grocott and Pulvertaft, in press). The depositional environment was first a stable shelf setting terminated by block faulting with associated volcanism (Mârmorilik and Qeqertarssuaq Formations) which shifted to a larger, deeper turbidite basin (Nûkavsak Formation).

The Precambrian underwent deformation during the Middle Proterozoic Rinkian (Hudsonian) orogenesis. The tectonic style is characterised by mantled gneiss domes and gneiss-cored fold nappes in the northern part of the district, whereas tectonic interleaving of cover and basement rocks is common in the southern part of the district. Metamorphic grades are mainly upper greenschist to amphibolite facies.

The district is transected by a major NNW-SSE orientated, c. 1,645 Ma old dolerite dyke swarm (Kalsbeek et al., 1986).

All the described geological units, except the Mârmorilik Formation, are exposed in the Íngia area (map 2).

The Mârmorilik Formation hosts the important Black Angel lead-zinc ore bodies (Pedersen, 1980) and similar, smaller sulphide deposits occur in the formation in the area between Mârmorilik and Nûgssuaq.

The Qeqertarssuaq Formation hosts a mafic volcanic unit at the top of the formation as well as pods of ultramafic rocks. The metavolcanics are often overlain by an iron-sulphide rich horizon (Allen and Harris, 1980). This mineralisation was investigated at Íngia Fjord.

The Nûkavsak Formation contains a number of cherty and/or graphitic iron-sulphide horizons. They were the main target for a regional exploration programme carried out by Cominco Ltd. in 1979 (Allen and Harris, 1980). This mineralisation was not investigated in 1989. The formation also hosts widespread segregational quartz veining. These veins were the main target for the work in the Uvkusigssat Fjord.

The Karrat Group has been correlated with the near identical supracrustals of the Foxe fold belt in NE Canada (Henderson and Pulvertaft, 1987), where beds of sulphide and rare oxide facies iron-formation occur in graphitic schist and amphibolite. A lake sediment geochemical survey of central Baffin

Island revealed strong arsenic anomalies, indicating the possibility of gold mineralisation in supracrustals corresponding to the Nûkavsak Formation (Cameron, 1986).

3. SAMPLING AND ANALYSIS

The following types of samples were collected: stream sediment samples (42), pan samples (44), chip samples (27) and rock samples (83). Sample lists (tables 2-5) and sample maps (maps 3-4) are attached.

Stream sediment samples are silt samples from active streams: composite gravel-sand-silt samples were collected at five localities in the stream bed with a plastic scoop. The filled sample bag of paper weighs 600-700 g. The samples were dry-sieved in the lab and 10 g of the -0.1 mm fractions have been analysed.

Pan samples are heavy mineral concentrates produced by panning of active stream sediments. The sample material, dominated by gravel, was collected behind 10-20 cm large boulders by a wooden spoon and filled into a 1.2 l large plastic/nylon sieve with 1 mm sized meshes. Three sieves of raw material corresponding to 6-7 kg sediment were collected and sieved. The -1 mm fraction was measured and panned, and the resulting preconcentrate was filled into a small plastic bottle. The preconcentrates were separated by heavy liquid (d=2.95) in the lab, and the heavy fractions were analysed.

Pan and stream sediment samples were collected in pairs, except in two cases (350812, 350830) representing pan samples collected by a spade.

Chip samples are unbiased surface samples representative of a geological unit, typically a few metres thick horizon. They were collected by pounding 1-5 cm large rock chips from the surface into a 12x20 cm sized polythelene bag until the bag was filled. The sample weight is c. 3 kg. The samples were crushed in the lab (except for a reference chip) and 100 g splits were shipped for analysis.

Rock samples are hand specimens of sulphide-bearing rocks (boulder or outcrop) collected for chemical analysis, or specimens of characteristic rock types. 56 of the samples have been analysed.

Multi-element analysis has been performed as outlined in table 1. The analytical results are listed in tables 2-5 and, for selected elements, plotted on maps 5-15.

4. MINERALISATION

4.1. Lower Qeqertarssuaq Formation

Several rusty weathering, pyrrhotite-bearing quartzite/chert horizons were observed near the base of the formation in the valley east of Puatdlarsîvik, where a c. 500 m thick section through the Qeqertarssuaq Formation is exposed, cf. the frontispiece. A grab sample of a cm-bedded pyrrhotite/siliceous schist (352353) with 28% Fe has raised contents of nickel (660 ppm), copper (216 ppm), arsenic (81 ppm) and palladium (14 ppb).

At the root of the small peninsula north of Puatdlarsîvik, faint malachite staining and traces of chalcopyrite were observed in tectonic breccia zones in whitish, mica-bearing quartzite. However, analysis of two grab samples (352348-49) shows only insignificant copper contents (max. 239 ppm).

Seven kilometres SSW of Puatdlarsîvik, a copper mineralisation exists in the lower part of the Qeqertarssuaq Formation (fig. 1). Malachite staining occurs over several m^2 at both sides of a near vertical, NW-SE trending fault zone 70 m a.s.l. However, the mineralisation is associated not with this fault zone, but with a system of quartz veins conformable to the foliation of the quartzitic country rocks. The mineralized horizon also contains few metres thick lenses of mafic rocks. It was followed over c. 150 m to the NE and c. 80 m to the SW of the fault, although significant malachite staining only occurs near the fault. The mineralised horizon is up to 15 m thick. It is open in both ends, and boulder finds (352358) indicate, that similar mineralisation exists higher up in the sequence.

Chalcopyrite and pyrrhotite are the main ore minerals. They occur disseminated and as blebs both in cm-thick quartz veins and in the wall rocks. The average copper content was visually estimated to be well below one per cent. This is confirmed by the chip samples (350922-24), which show 1500 ppm Cu in 5 m white quartzite, 336 ppm Cu over 4 m in the underlying massive amphibolite, and 748 ppm Cu in the lowermost 4 m amphibolite/quartzite unit. Gold reaches 7 ppb in the lowermost sample; the uppermost sample contains 1800 ppm Ba. Seven grab samples collected along the mineralised horizon show relatively high contents of copper (max. 2.27%), gold (max. 323 ppb), silver (max. 24 ppm) and barium (max. 0.32%).

The mineralised horizon might be a flat-laying thrust or shear zone. The vertical fault has only caused local remobilisation of the chalcopyrite and redeposition of the copper as malachite on joints.

On the north coast of Puatdlarsiîvik, the basal part of the formation hosts pots, lenses or layers of ultramafic rocks. Traces of sulphides (pyrrhotite and chalcopyrite) were observed in these rocks. A grab sample of serpentinised ultrabasic rock with c. 5% disseminated pyrrhotite (352351) assayed 6.4% Fe, 0.24% Cr, 0.12% Ni, 50 ppb Au and 8 ppb Pd. Furthermore, a 0.5-1.0 m thick horizon of semi-massive magnetite (17.0% Fe) was observed in a 4 m thick ultramafic layer (352347).

4.2. Metavolcanic unit

The metavolcanic unit was mainly sampled at the V1 locality in Íngia Fjord, where the c. 25 m thick unit crops out over 4 km along the coast at elevations from sea level to 50 m (map 2).

In general, the unit consists of 10-20 m of green, fragmental hornblende schist overlain by 5-15 m of green, black, grey or whitish, bedded/foliated hornblende schists (fig. 2). The fragmental unit may be missing (fig. 3). At the transitional contact into the overlying grey schists or metagreywackes of the Nûkavsak Formation, a 0.5-5.0 m thick, rusty weathering, pyrrhotite-bearing horizon is invariably present.

The pyrrhotite-rich horizon is typically cherty and graphitic. The pyrrhotite may occur disseminated in pelitic schists or in few centimetres thick cherty bands alternating with schistose bands. The horizon often contains one or two, 0.5-1.0 m thick layer(s) of semi-massive to massive pyrrhotite. This rock type is pinching and swelling along strike and is obviously strongly deformed. It consists of a breccia of pyrrhotite with traces of pyrite and chalcopyrite, and graphite and chert. Traces of arsenopyrite were observed in one sample (352324). These rocks strongly resemble the sulphide horizons which occur at higher levels in the Nûkavsak Formation.

At the locality V2 only fragmental hornblende schists are exposed, whereas foliated hornblende schists overlain by pyrrhotitic schists exist at locality V3.

The fragmental hornblende schist is believed to be a metamorphosed deposit of pillow/flow breccias and/or pyroclastics, whereas the bedded hornblende schists are believed to represent a mixture of water laid tuffs and epiclastic sediments. The pyrrhotite-rich horizon is believed to be a metamorphosed sulphide-bearing chert exhalite.

Faint disseminations of pyrrhotite and trace chalcopyrite are quite common in the hornblende schists, but malachite staining is rarely observed in the metavolcanics. A minor mineralisation (1-2 m^3) of disseminated chalcopyrite was observed at one locality (352342). A grab sample returned 0.743% Cu, 60-81 ppb Au and 34 ppb Pd.

Seven chip samples from the hornblende schists at V1, V2 and V3 show no conspicuous copper (median 91 ppm) or gold (<5 ppb) contents. Relatively high values of chromium (median 1300 ppm) and nickel (median 720 ppm) indicate that the hornblende schists origin from ultramafic (picritic/komatiitic) volcanic rocks.

Six chip samples from the pyrrhotite horizon of V1 show the following metal contents: iron ranges from 10.0 to 17.0% with a median value of 16.5%. Further: nickel (range 110-370 ppm, median 165 ppm), cobalt (range 33-170 ppm, median 43 ppm) and molybdenum (range 12-190 ppm, median 26 ppm).

Copper and zinc contents are of the same order of magnitude (Cu range 129-2648 ppm, median 357 ppm; Zn range 369-958 ppm, median 531 ppm) whereas lead contents are distinctly lower (Pb range 11-45 ppm, median 17 ppm). A single elevated copper value, 0.26% Cu in 350918, is noted.

Noble metals are present in modest amounts (Au range 2-15 ppb, median 4 ppb; Ag <5 ppm; Pd range 13-26 ppb; Pt range <5-10 ppb), as is arsenic (range 1-49 ppm, median 2 ppm).

No lateral chemical zonation is indicated in the pyrrhotite horizon. However, the number of sampled localities (4, representing a lateral distance of 4 km) is probably to small to determine, whether such a zonation exists.

4.3. Nûkavsak Formation

The Nûkavsak Formation consists of uniform, dark brown, interbedded layers of metamorphosed semipelite and pelite penetrated by numerous quartz veins. Subsidiary skarn lenses and pyrrhotite-bearing, black pelitic horizons occur at several levels in the succession.

The veins are of segregational character and both concordant and discordant to the host rock bedding/foliation. They are typically 1-10 cm thick lenses of a few metres' length, but up to 2 m thick and several 100 m long veins have also been observed. In addition to white quartz, they commonly contain calcite and mica. Minor amounts of chlorite, feldspar, red garnet, tourmaline and sulphides are common.

Granitic veining of the metasediments are common in the northwestern part of the area (i.e. UO).

The wholly dominant sulphide in the quartz veins is pyrrhotite, often accompanied by minor pyrite and traces of chalcopyrite. Traces of galena occur in two boulders (352314, 352377), and one boulder contains arsenopyrite (352305). The latter consists of brecciated metagreywacke cemented by quartz and hosts a few per cent arsenopyrite as 1 cm large crystals, often in the form of cruciform twins. It contains 2.13% As and 68 ppb Au. A boulder with minor scheelite (352321) contains 549 ppm W and 5 ppb Au.

23 boulders and one chip sample from the formation have been analysed. The highest gold content (371 ppb Au) occurs in a boulder of metagreywacke (352306) cut by a 5 cm thick quartz vein with traces of pyrrhotite, pyrite and chalcopyrite as joint coatings. In addition to gold, this sample contains 2.2% Fe, 274 ppm Cu and 89 ppm As. For a number of other elements, the analysed samples show the following maximum values: 21300 ppm As, 549 ppm W, 6.4% Fe, 220 ppm Ni, 66 ppm Co, 650 ppm Ba, 1970 ppm Cu, 940 (1150) ppm Zn and 380 ppm Pb.

Faint malachite-staining was observed in a few, 1-10 cm thick skarn horizons. However, analysis of five boulders and one chip sample from skarn-bearing rocks did not reveal significant copper contents (max. 70 ppm Cu). A boulder of skarn-bearing metagreywacke (352320) contains minor fine-grained, disseminated pyrrhotite and arsenopyrite. It contains 0.1% As and 5 ppb Au.

5. STREAM SEDIMENT GEOCHEMISTRY

The source rocks of the major part of the sediment samples (29 stream sediment samples and 31 pan samples) are the metaturbidites of the Nûkavsak Formation. Of the remaining samples 12 represent the Qeqertarssuaq Formation and one is from the Umanak gneiss.

Average and median values are shown in tables 2 and 3. The number of samples is too small to enable a proper statistical treatment of the analytical results. The evaluation of the results is therefore based on estimates of the significance of high values as compared to background levels indicated by the median values, and to geochemical levels reported from other parts of Greenland (Appel, 1989; Harpøth et al., 1986; Steenfelt, 1988). This approach is justified because the secondary geochemical dispersion is predominantly clastic (Steenfelt, 1987), and virtually no pollution exists in Greenland.

The distribution of high values for a number of important metals is illustrated on maps 5-15. For gold and arsenic rock/chip sample maps are included. The intervals on the maps were chosen arbitrarily. The geochemical pattern is the following (cf. map 1):

U0. Sediments: slightly raised cobalt and chromium.
Boulders: raised arsenic and tungsten.

U1. Sediments: raised lead and slightly raised arsenic, gold and chromium.

U2. Cominco anomaly: 100 ppb Au and 513 ppm Ni in heavy mineral concentrate.
Sediments: high gold (max. 658 ppb).
Boulders: raised gold and arsenic.

U3. Cominco anomaly: 487 ppm Ni and 40 ppm W in heavy mineral concentrate.
Sediments: high gold (max. 2630 ppb) and tungsten (max. 1300 ppm), raised arsenic, nickel, cobalt, chromium and lead. Scheelite is abundant in the pan samples.
Boulders: high gold (max. 371 ppb) and arsenic (max. 2.1%).
This valley constitutes a distinct gold-arsenic-tungsten anomaly.

U4. Cominco anomaly: 956 ppm As, 700 ppm Cu, 327 ppm Ni and 40 ppm W in heavy mineral concentrate.
Sediments: high arsenic (max. 3100 ppm), nickel (max. 2800 ppm), copper (max. 2110 ppm) and Zn (max. 590 ppm), raised cobalt, slightly raised gold and lead.

U5. Sediments: raised gold and copper, slightly raised arsenic and cobalt.

U6. Cominco anomaly: 160 ppb Au, 713 ppm Cu and 860 ppm Zn in heavy mineral concentrate.
Sediments: high copper (max. 605 ppm) and zinc (max. 620 ppm), raised gold (max. 80 ppb), arsenic and lead, slightly raised nickel.
Boulders: raised gold and lead.

V1. Sediments: raised nickel, cobalt, chromium, copper and zinc, slightly raised gold and arsenic.
Rocks: high copper (max. 7430 ppm), raised zinc and chromium, slightly raised gold and arsenic.

Puatdlarsîvik. Cominco anomaly: 82 ppm As in silt sample.
Sediments: high copper (max. 1105 ppm), raised nickel, chromium and zinc, slightly raised gold, arsenic, tungsten, cobalt and lead.
Rocks: raised gold, chromium and nickel, slightly raised arsenic.

Cu-showing. Sediments: high tungsten (max. 680 ppm) and chromium (max. 1500 ppm), raised nickel and cobalt.
Rocks: high copper (max. 2.27%) and gold (max. 323 ppb), raised barium.

Kugssinerssuaq. Cominco anomaly: 994 ppm As and 105 ppm Co in heavy mineral concentrate, 68 ppm As in silt sample.
Sediments: high gold (max. 2130 ppb), arsenic (max. 4500 ppm) and cobalt (max. 430 ppm), raised zinc and slightly raised copper and lead.
Boulders: raised arsenic, zinc and copper, slightly raised gold and lead.
The valley hosts a distinct gold-arsenic-cobalt anomaly.

6. METALLOGENETIC IMPLICATIONS

Syngenetic, pyrrhotite-dominated mineralisation of sedimentary or exhalative origin exists both in the lower part of the Qeqertarssuaq Formation, in the metavolcanic unit, and in the Nûkavsak Formation. It has been demonstrated that this type of mineralisation contains elevated trace element contents of copper and zinc and, at a more modest level gold and arsenic. The economic significance of the mineralisation is twofold: (1) Barren iron sulphides might shift laterally into base/noble metal sulphides and thus give rise to massive sulphide ore deposits. (2) The sulphide horizons might have acted as source rocks, from where trace amounts of base/noble metals have been remobilised and re-precipitated in epigenetic structures.

The encountered epigenetic mineralisation hosted in quartz veins is also dominated by pyrrhotite, but significant concentrations of especially copper but also gold, arsenic, zinc and lead exist. This type of mineralisation is mainly known from boulders, but one in situ mineralisation is associated with a shear zone, perhaps a thrust plane. The epigenetic mineralisation might have had the syngenetic mineralisation as source, the most probable process of formation being metamorphic remobilisation. However, remobilisation during the formation of the NNW-SSE orientated dyke intrusion, or remobilisation by the Tertiary magmatic event can not be excluded. Alternatively, the mineralisation could stem from the magmatic systems associated with these three episodes.

In conclusion: the metal potential of the Íngia area comprises stratiform base/noble metal deposits of the massive sulphide type and epigenetic gold deposits in quartz veins with associated copper, arsenic and tungsten. The first type is best prospected for by systematic along-strike sampling of iron-sulphide horizons in order to reveal zonational patterns. The second type should be located in situ (U3 and Kugssinerssuaq valleys are obvious targets for follow-up work), and then the structural control should be established. A continued stream sampling programme would help to pinpoint target areas.

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Fig. 1. The Cu-showing 7 km SSW of Puatdlarsîvik, Íngia Fjord. Sketch map with sample sites.

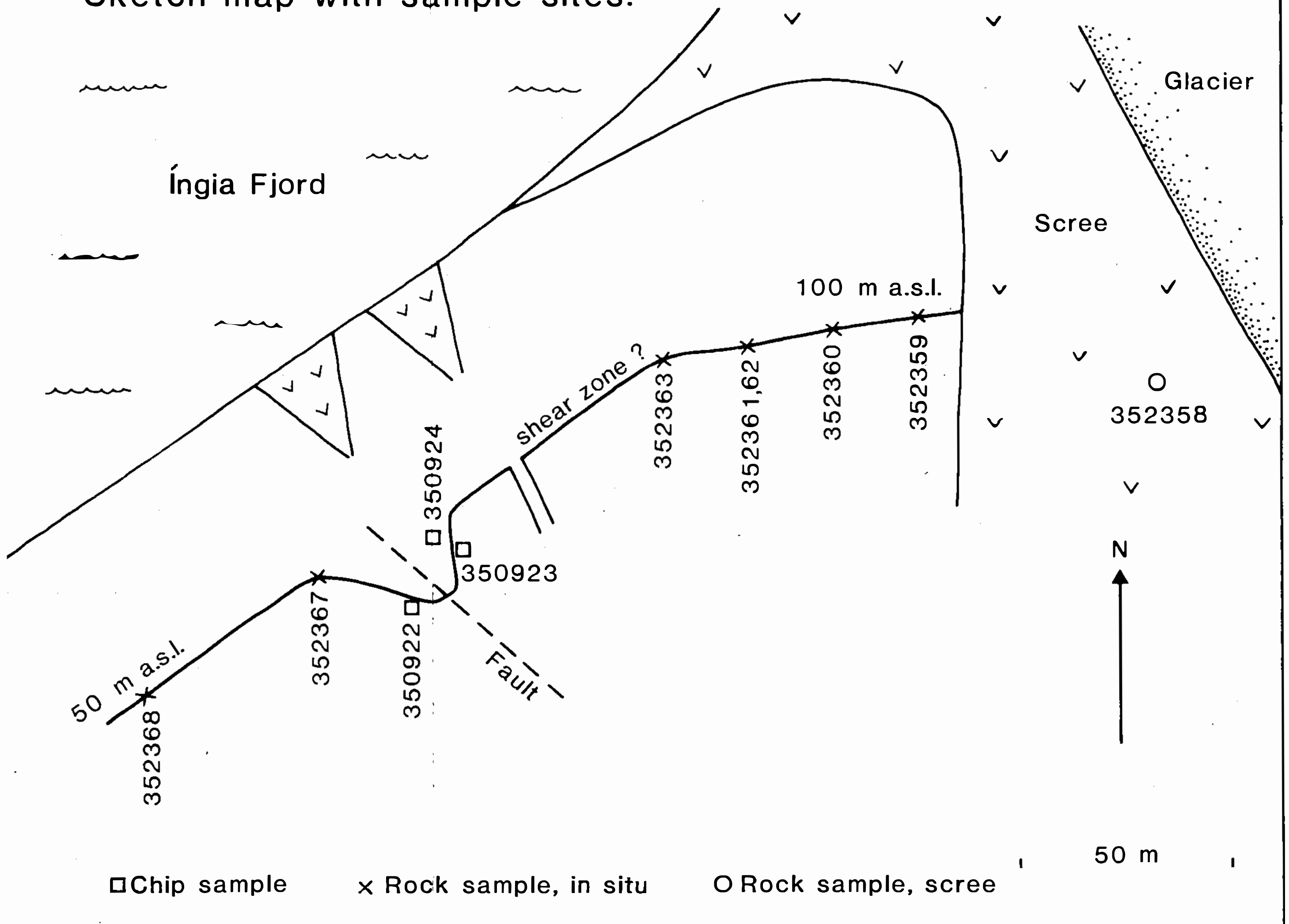


Fig. 2. Chip sampled section, central V1, Íngia Fjord.

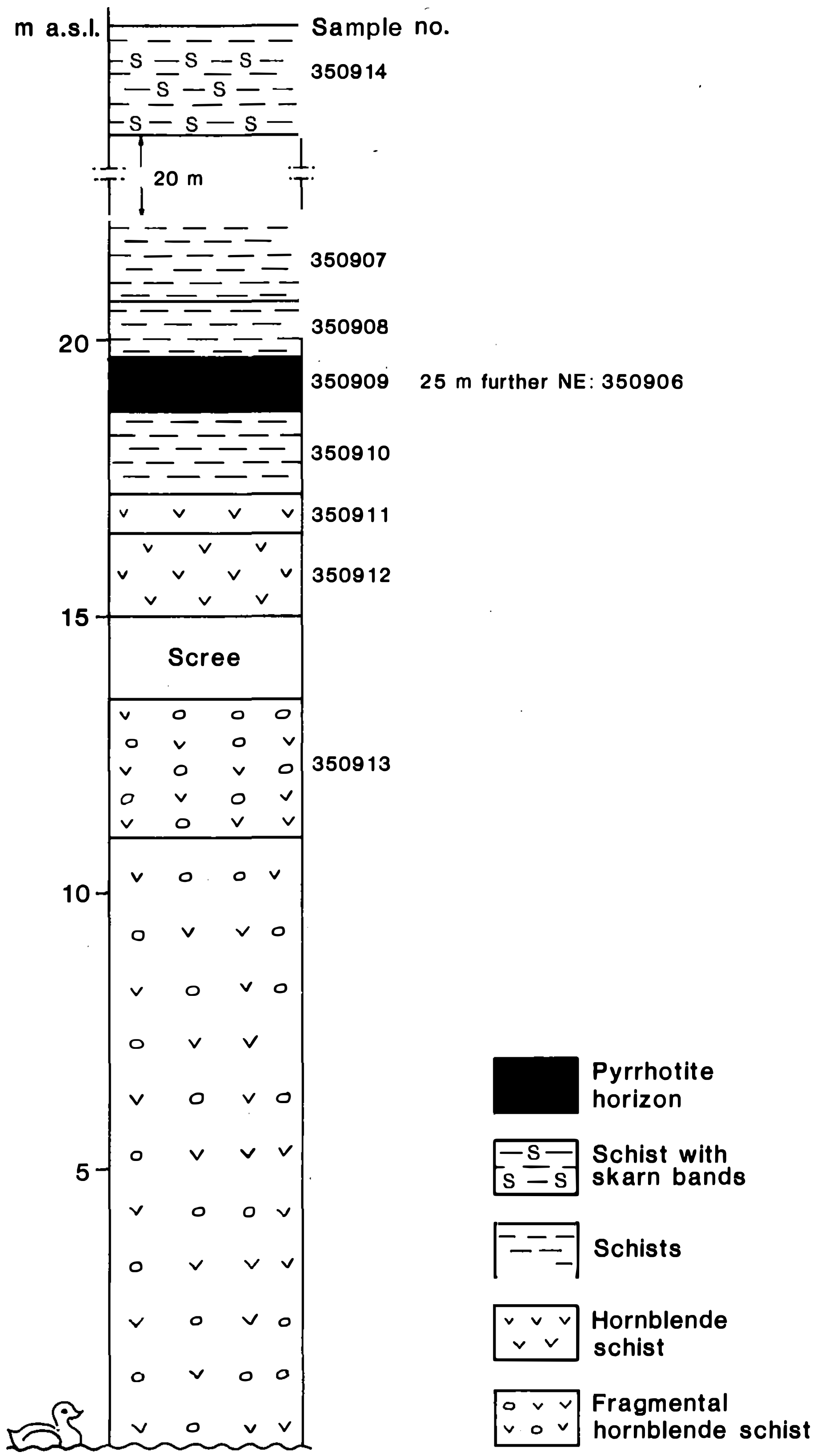
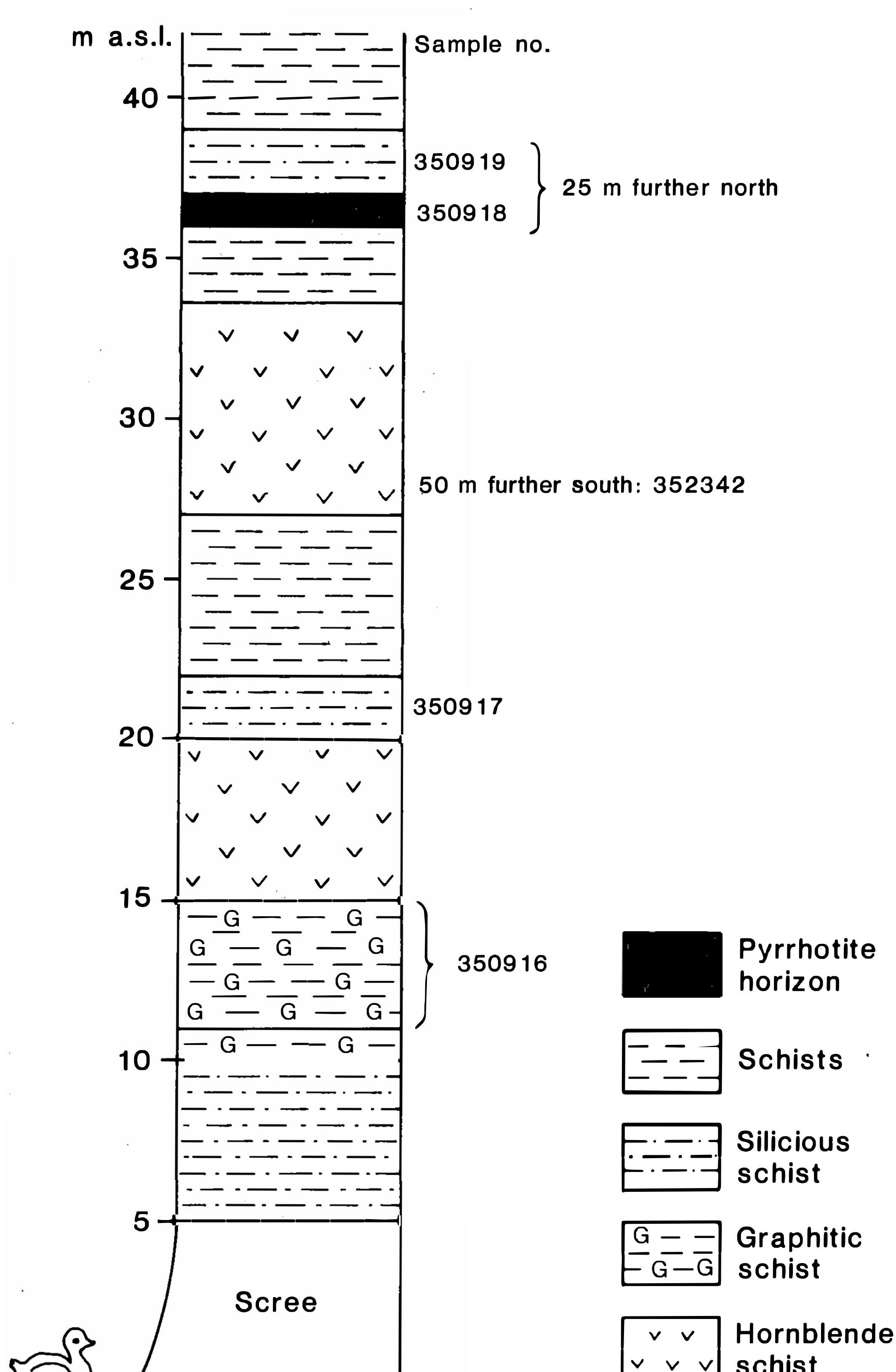
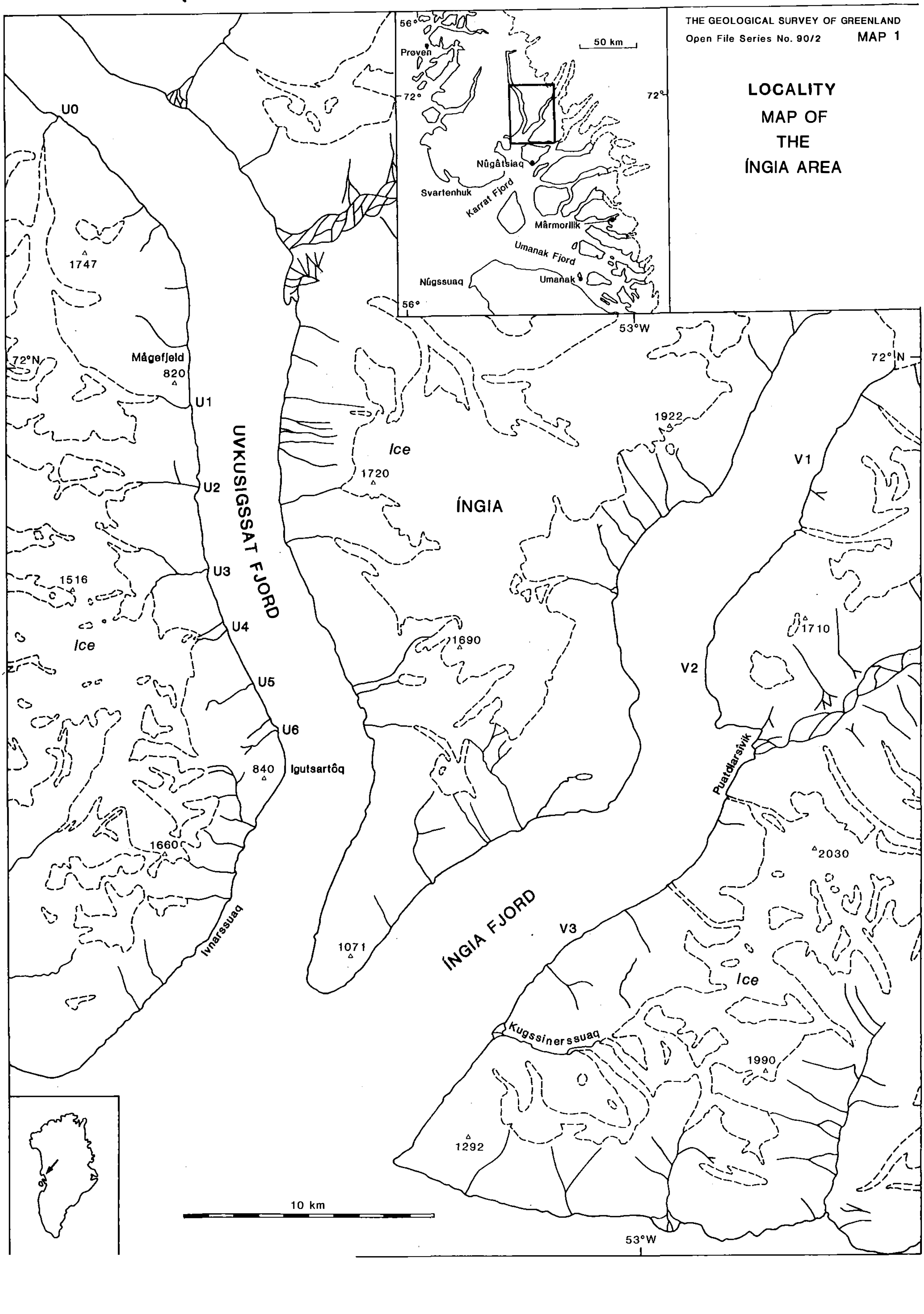


Fig. 3. Chip sampled section, southern V1, Íngia Fjord.




THE GEOLOGICAL SURVEY OF GREENLAND
Open File Series No. 90/2
MAP 1
LOCALITY
MAP OF
THE
ÍNGIA AREA
56°
Prøven
72°
50 km
Nûgâtsiaq
Svartenhuk
Karrat Fjord
Mârmorilik
Umanak Fjord
Nûgssuaq
Umanak
53°W
U0
U1
U2
U3
U4
U5
U6
1747
72°N
Mågefjeld
820
UVKUSIGSSAT FJORD
1516
Ice
840
Igutsartôq
1660
Ivnarssuaq
1720
ÍNGIA
1922
1690
V1
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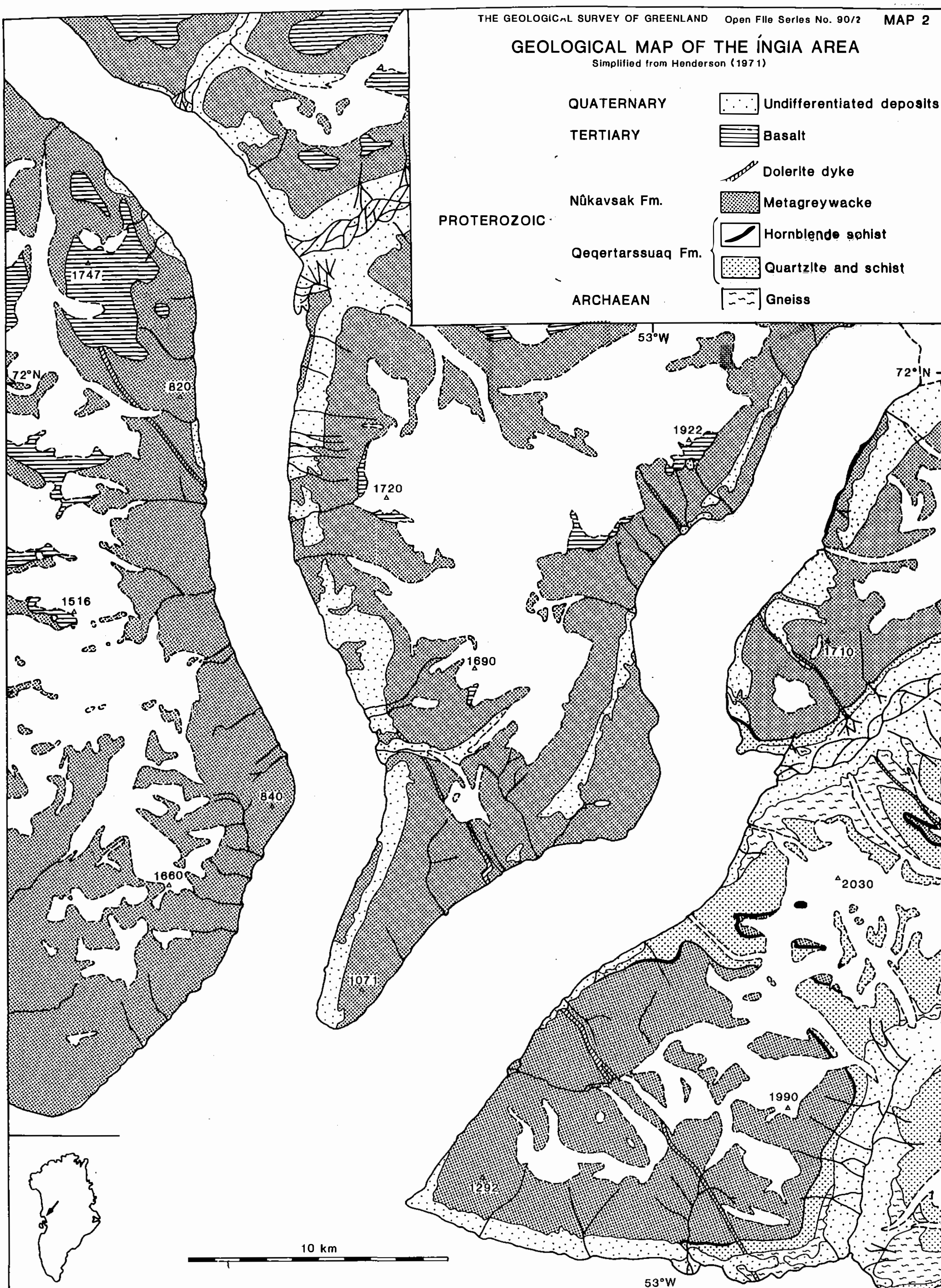
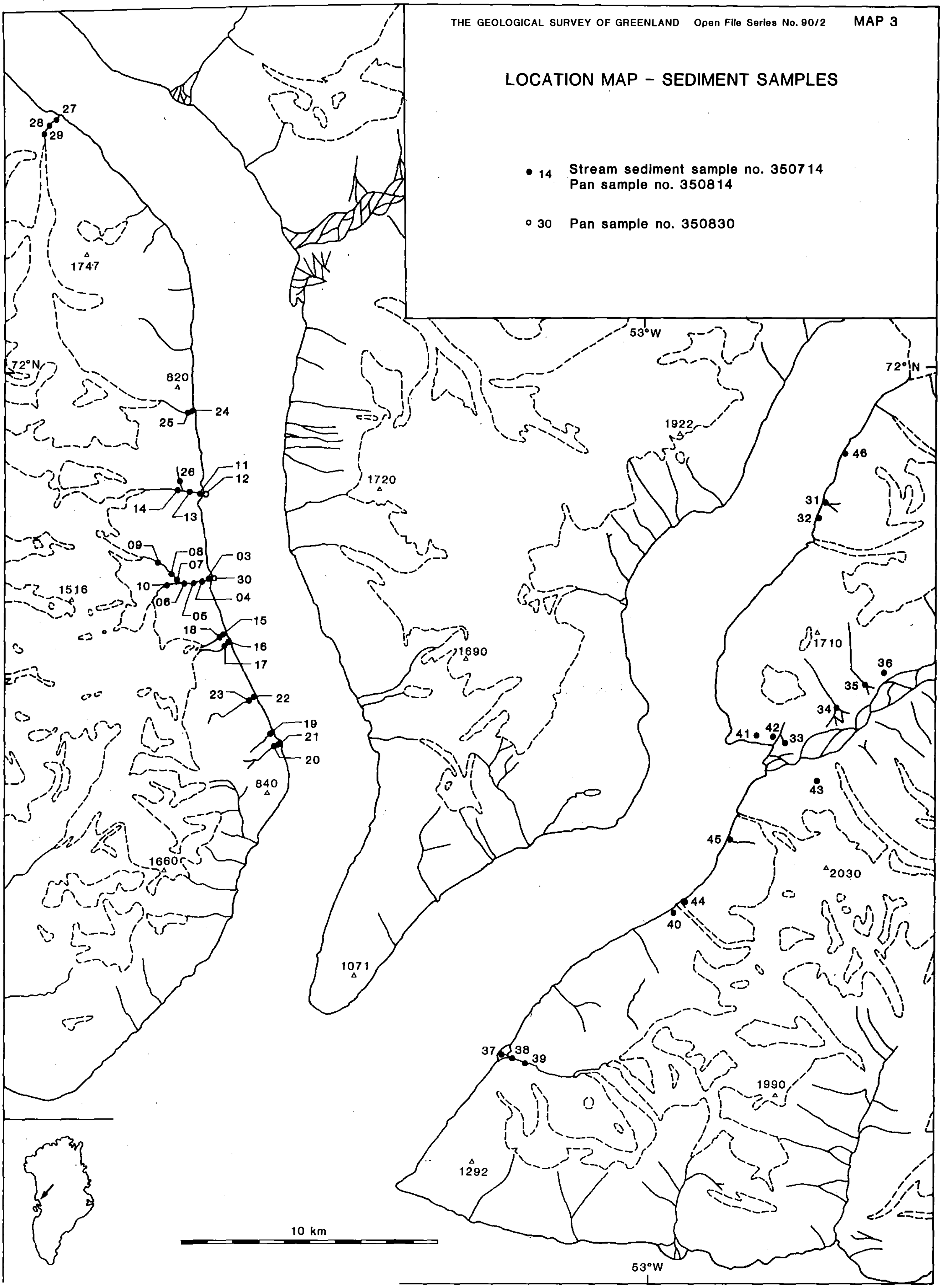
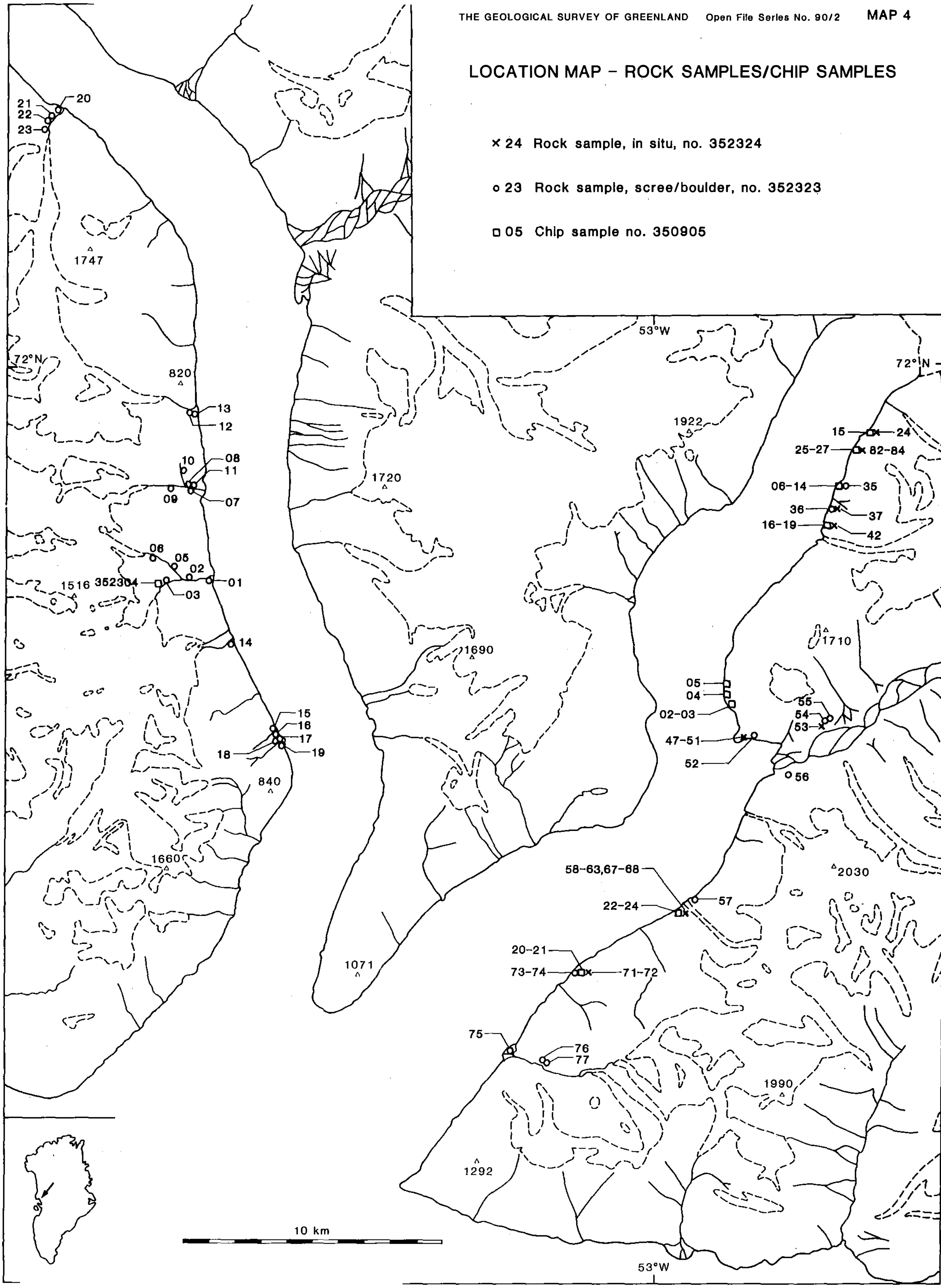
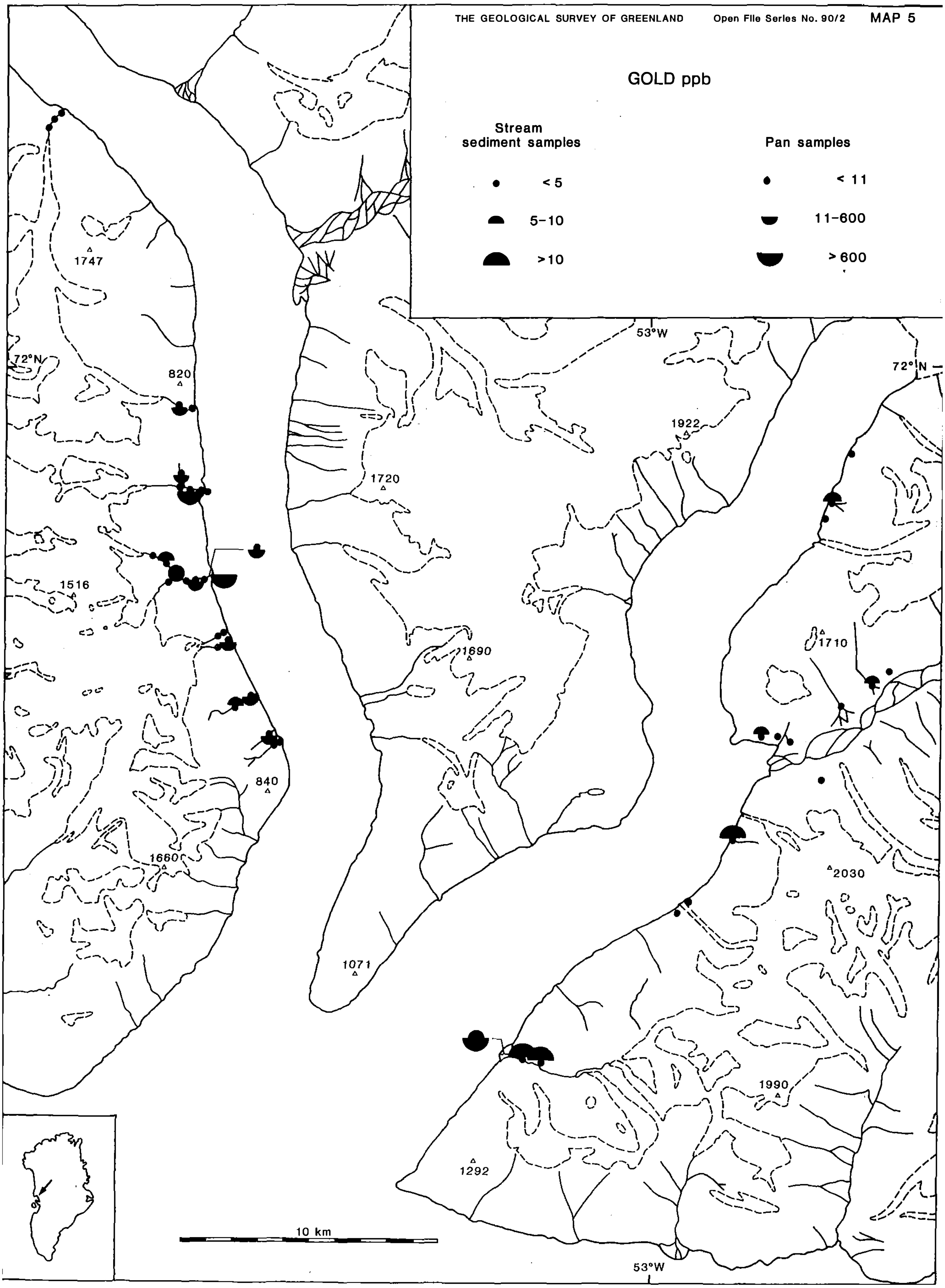
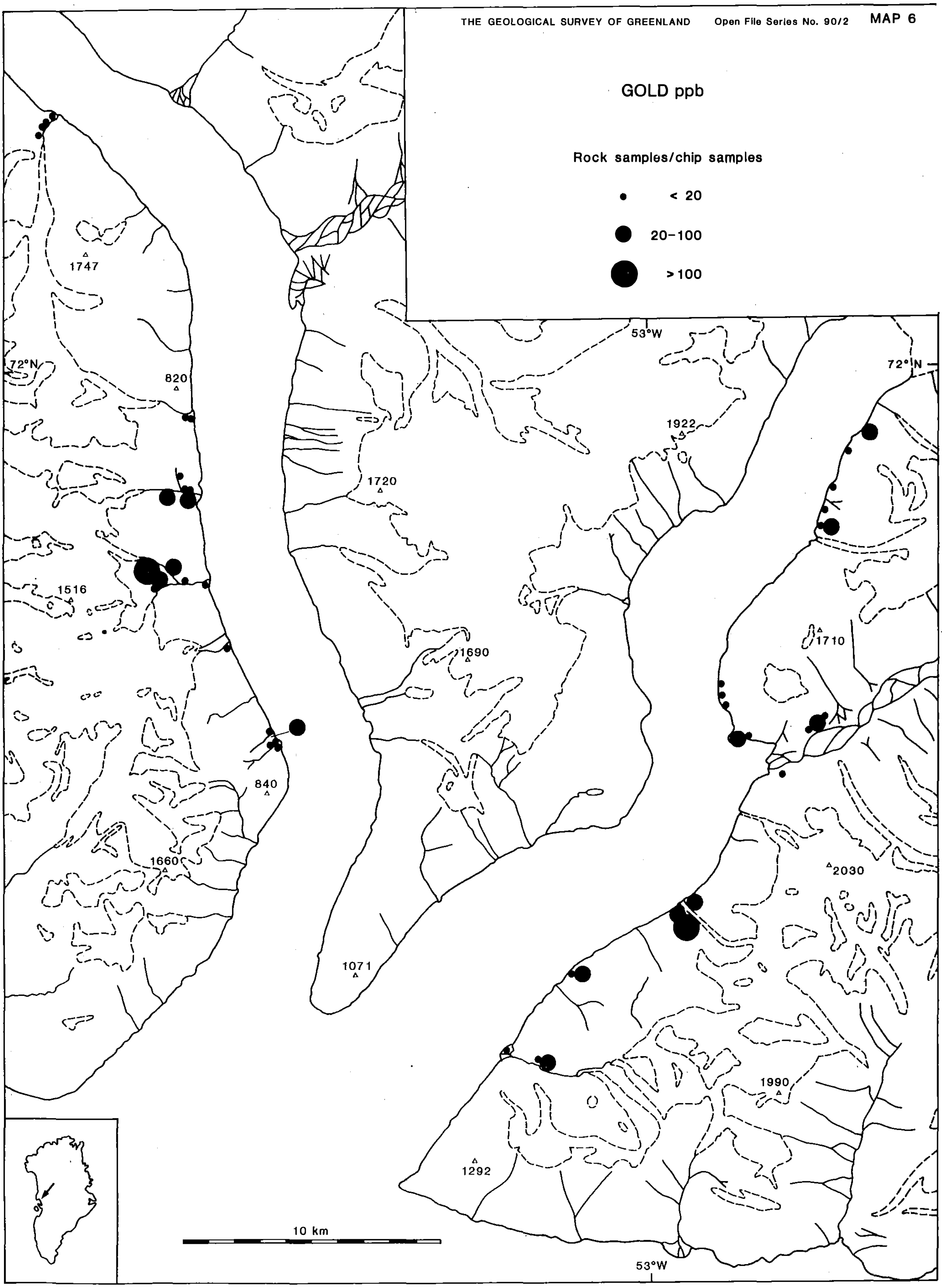
1710
Puatdlarsivik
2030
ÍNGIA FJORD
1071
Kugssinerssuaq
1990
1292
10 km

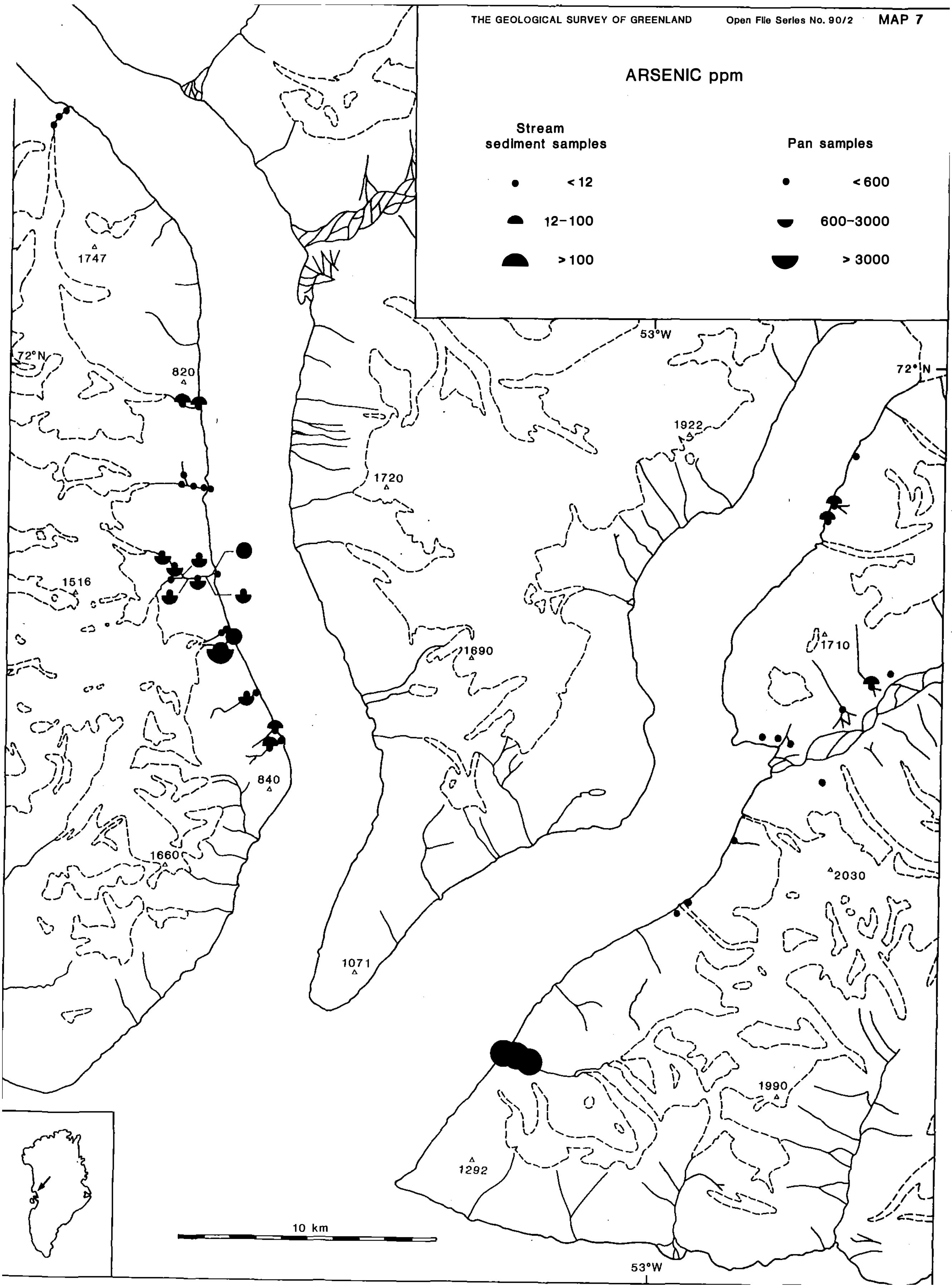

THE GEOLOGICAL SURVEY OF GREENLAND Open File Series No. 90/2
MAP 2
GEOLOGICAL MAP OF THE ÍNGIA AREA
Simplified from Henderson (1971)
QUATERNARY
Undifferentiated deposits
TERTIARY
Basalt
Dolerite dyke
PROTEROZOIC
Nûkavsak Fm.
Metagreywacke
Qeqertarssuaq Fm.
Hornblende schist
Quartzite and schist
ARCHAEAN
Gneiss
53°W
72°N
1747
820
1720
1922
1516
1690
1710
840
1660
2030
1071
1990
1292
10 km

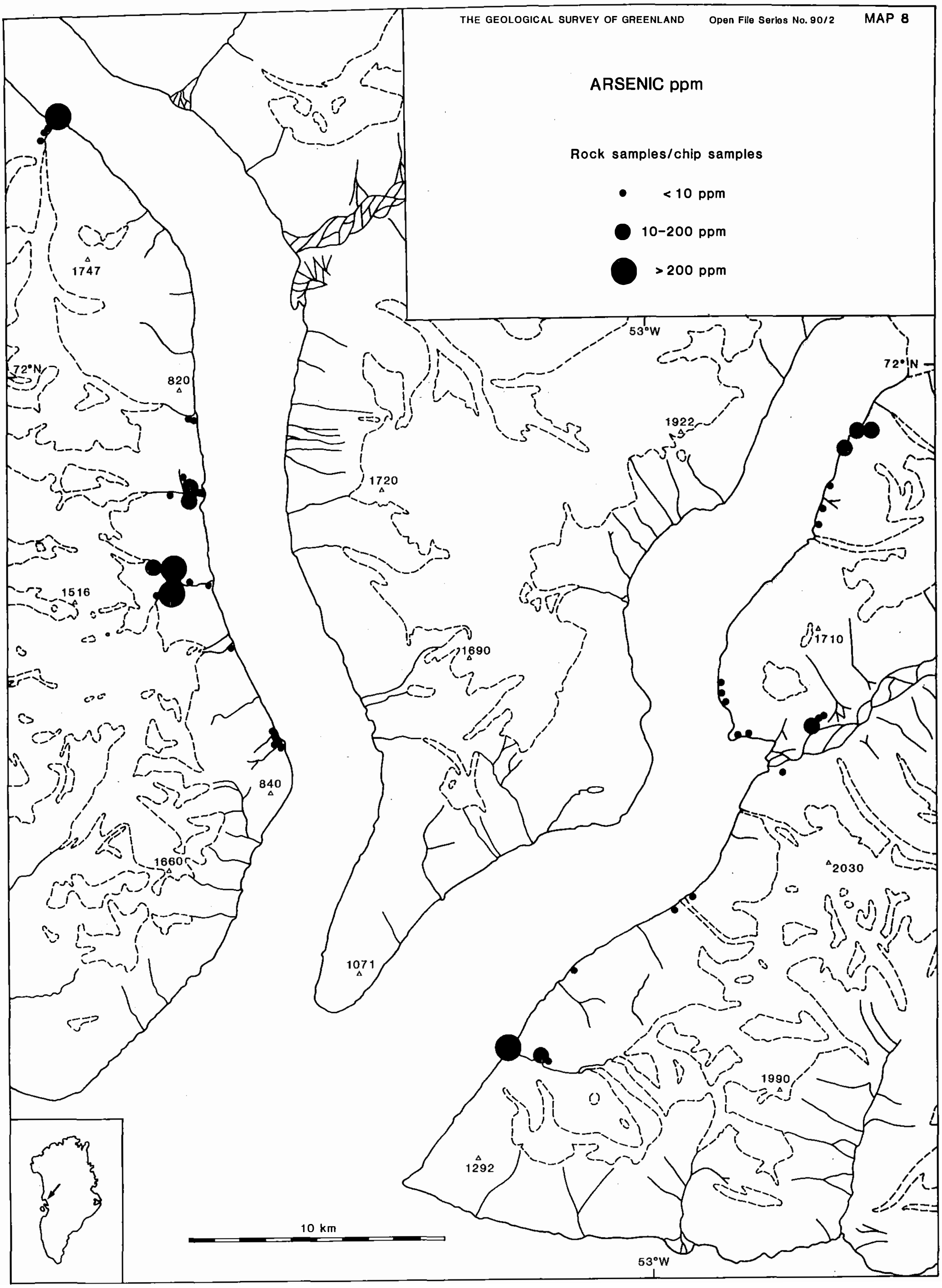

THE GEOLOGICAL SURVEY OF GREENLAND Open File Series No. 90/2
MAP 3
LOCATION MAP - SEDIMENT SAMPLES
● 14 Stream sediment sample no. 350714
Pan sample no. 350814
○ 30 Pan sample no. 350830
53°W
72°N
10 km
1747
820
1516
1720
1922
1690
1710
2030
840
1660
1071
1990
1292
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46

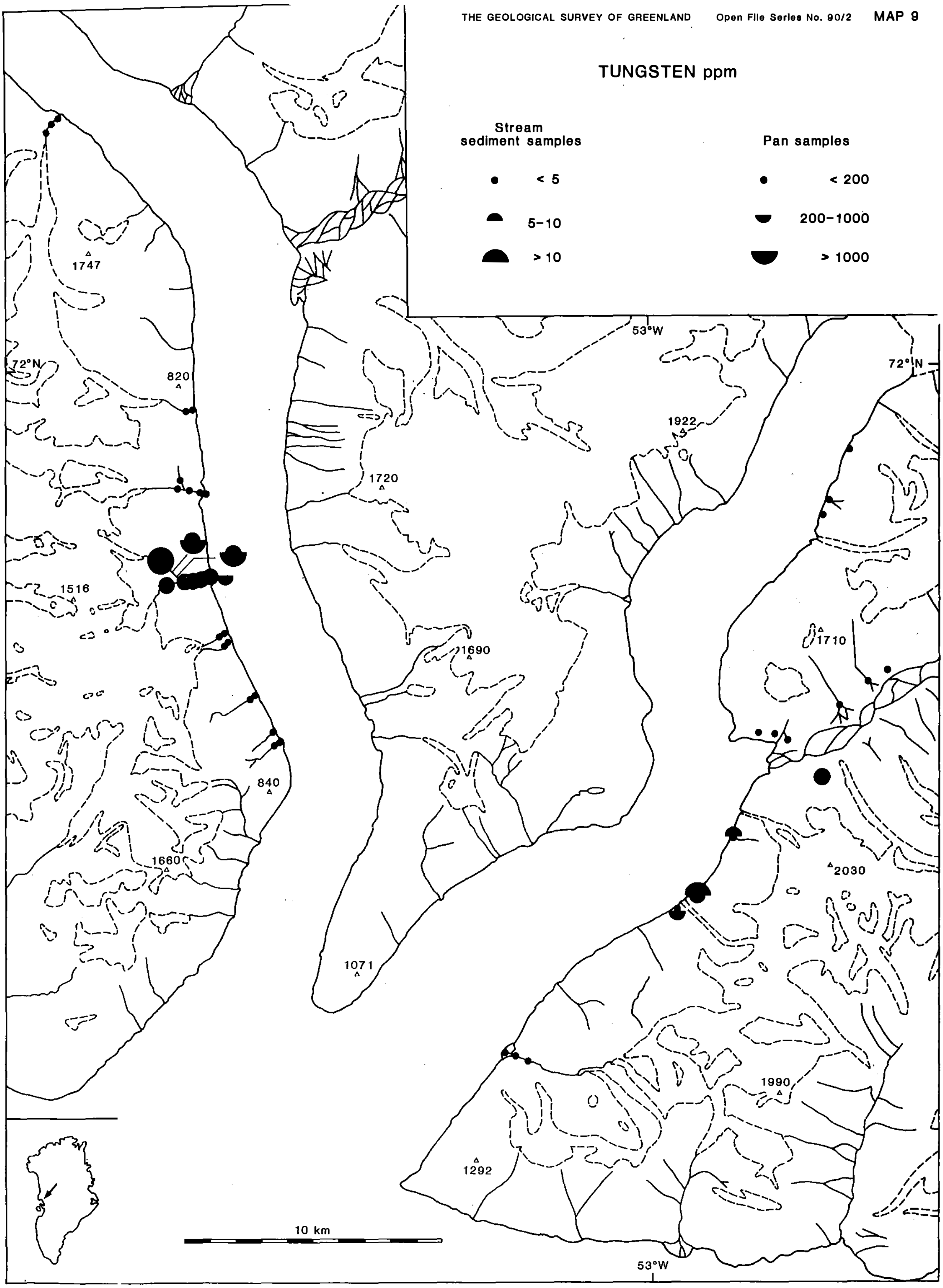

THE GEOLOGICAL SURVEY OF GREENLAND Open File Series No. 90/2
MAP 4
LOCATION MAP – ROCK SAMPLES/CHIP SAMPLES
× 24 Rock sample, in situ, no. 352324
o 23 Rock sample, scree/boulder, no. 352323
□ 05 Chip sample no. 350905
72°N
72°N
53°W
53°W
10 km
1747
820
1516
1660
840
1720
1690
1071
1922
1710
2030
1990
1292
352304
20
21
22
23
13
12
10
08
11
09
07
06
05
02
01
03
14
15
16
17
18
19
15
24
25-27
82-84
06-14
35
36
37
16-19
42
05
04
02-03
47-51
52
55
54
53
56
58-63,67-68
57
22-24
20-21
73-74
71-72
75
76
77

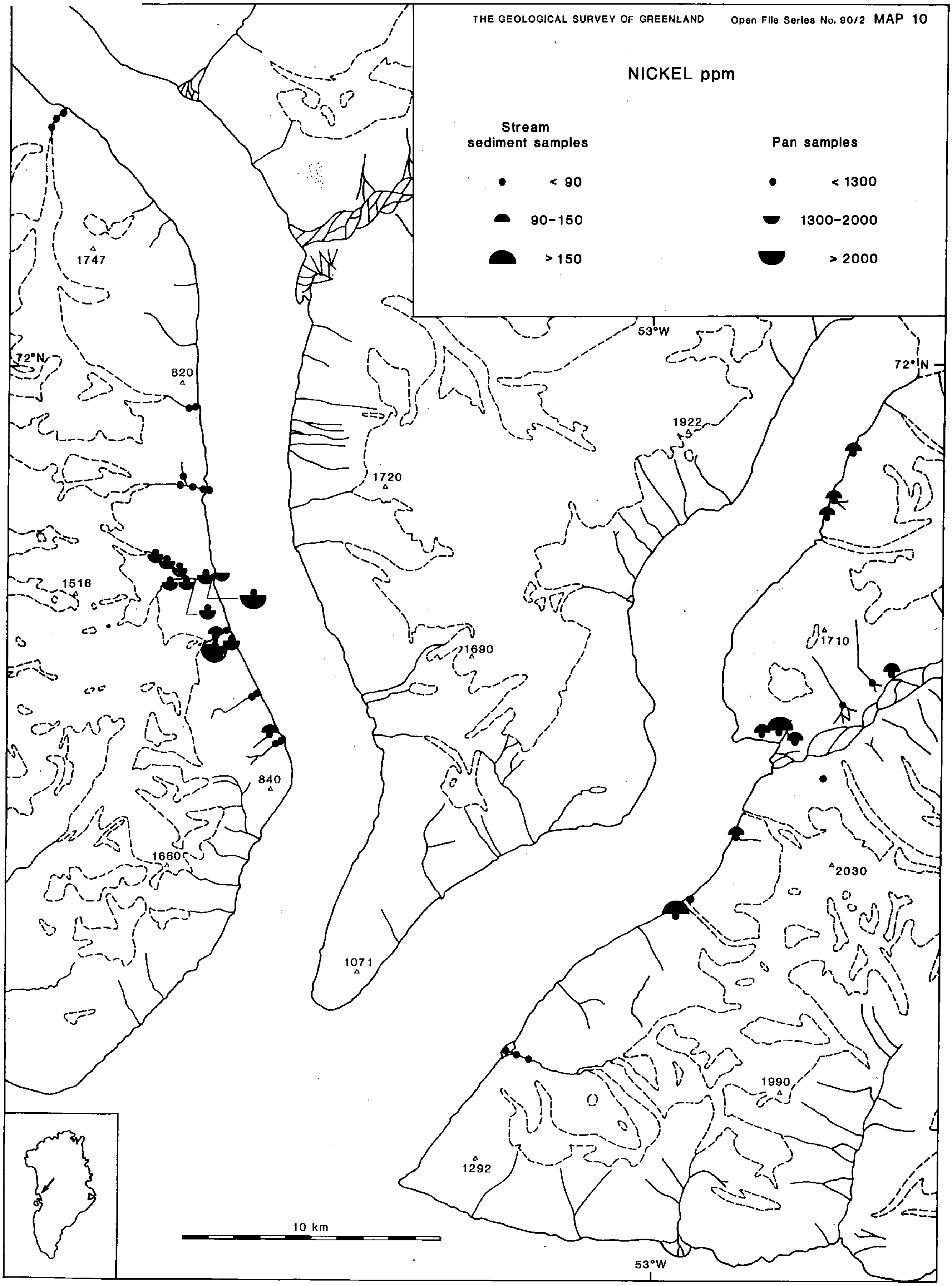

THE GEOLOGICAL SURVEY OF GREENLAND
Open File Series No. 90/2
MAP 5
GOLD ppb
Stream sediment samples
< 5
5-10
>10
Pan samples
< 11
11-600
> 600
53°W
72°N
1747
820
1516
1720
1922
1690
1710
840
1660
2030
1071
1990
1292
10 km
53°W

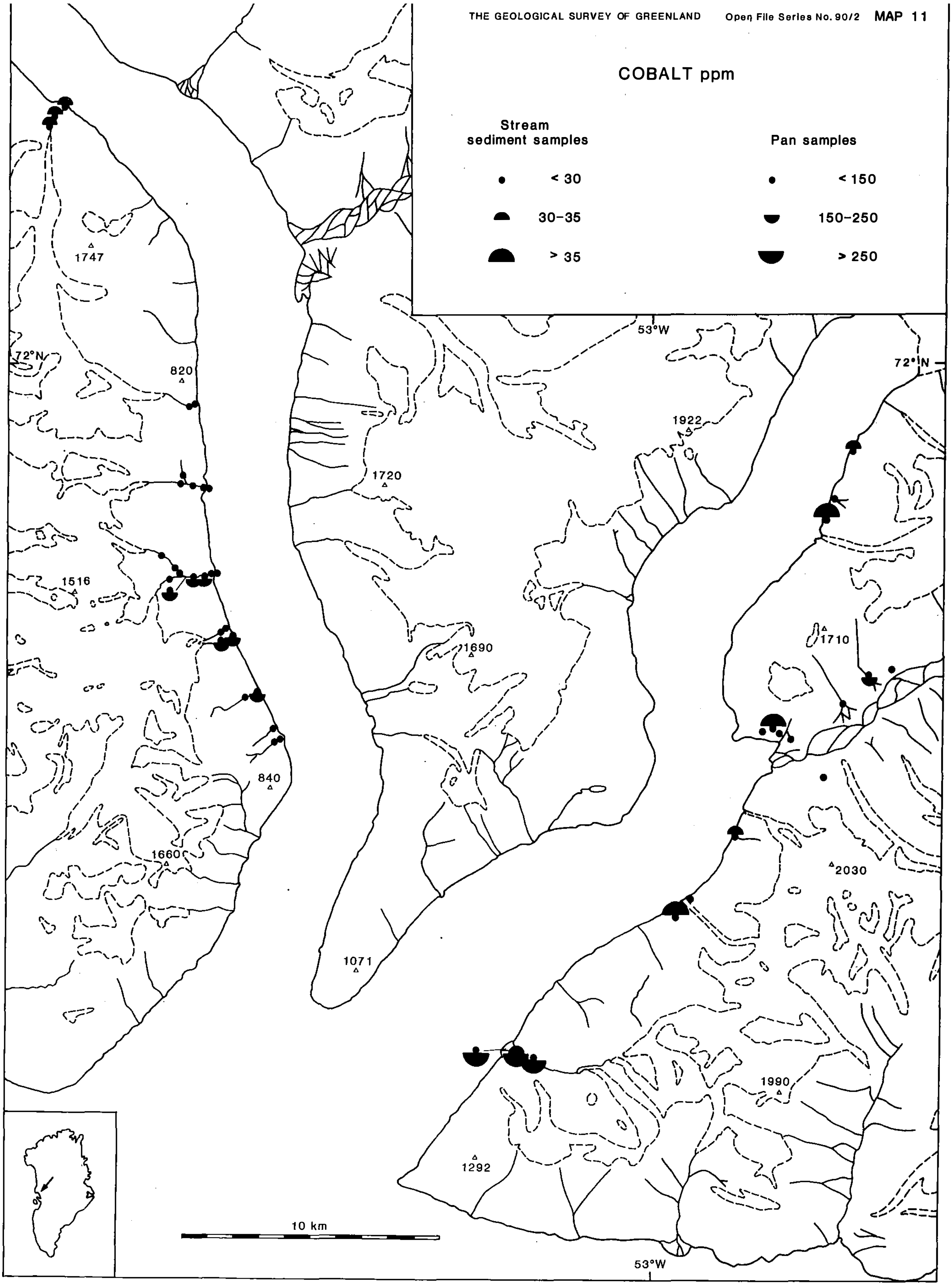

THE GEOLOGICAL SURVEY OF GREENLAND
Open File Series No. 90/2
MAP 6
GOLD ppb
Rock samples/chip samples
< 20
20–100
> 100
53°W
72°N
72°N
1747
820
1516
1720
1922
1690
1710
840
1660
1071
2030
1990
1292
10 km
53°W

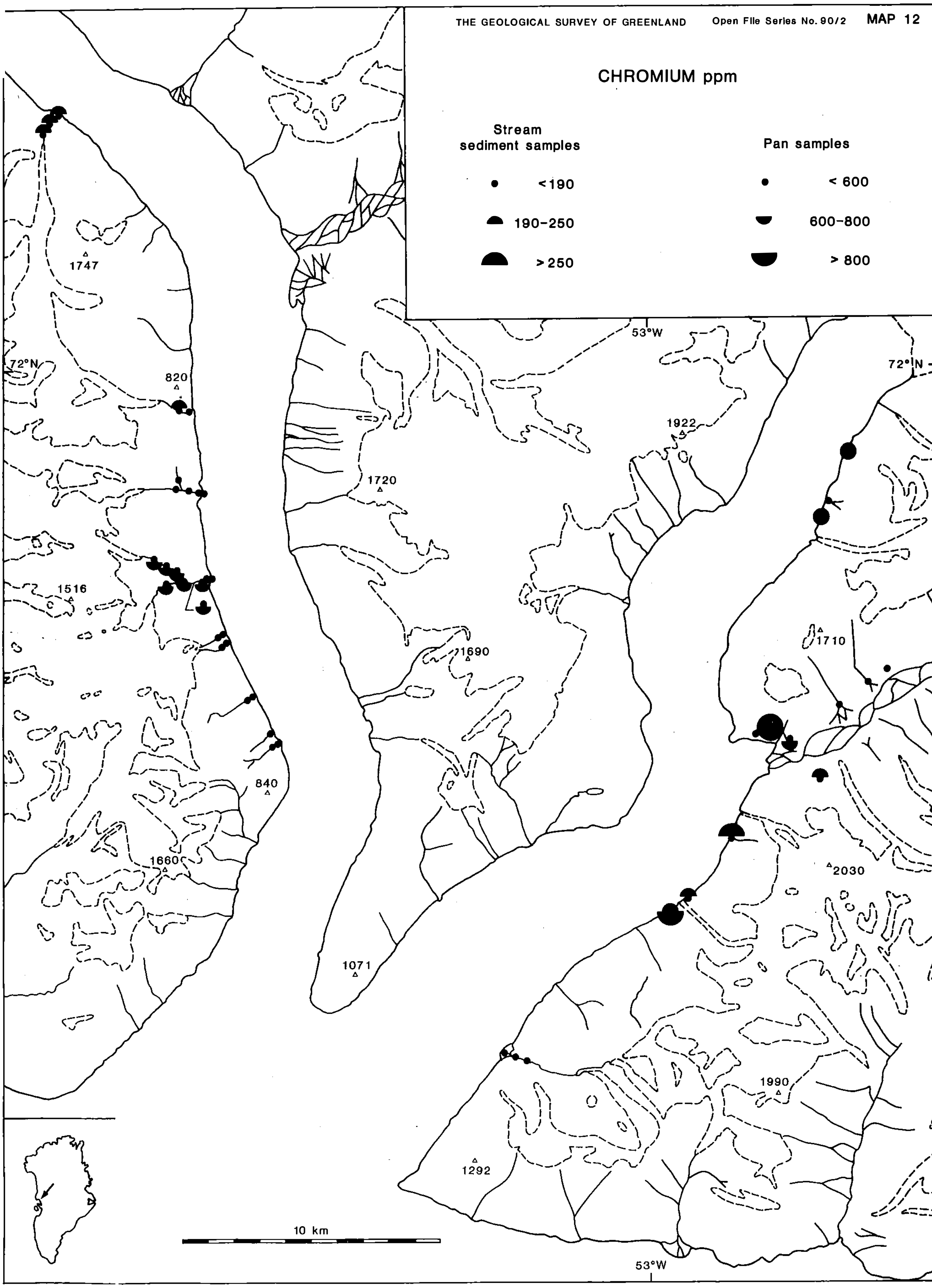

THE GEOLOGICAL SURVEY OF GREENLAND
Open File Series No. 90/2
MAP 7
ARSENIC ppm
Stream sediment samples
< 12
12-100
> 100
Pan samples
< 600
600-3000
> 3000
1747
72°N
820
1516
1720
1922
53°W
72°N
1690
1710
840
1660
2030
1071
1990
1292
10 km
53°W

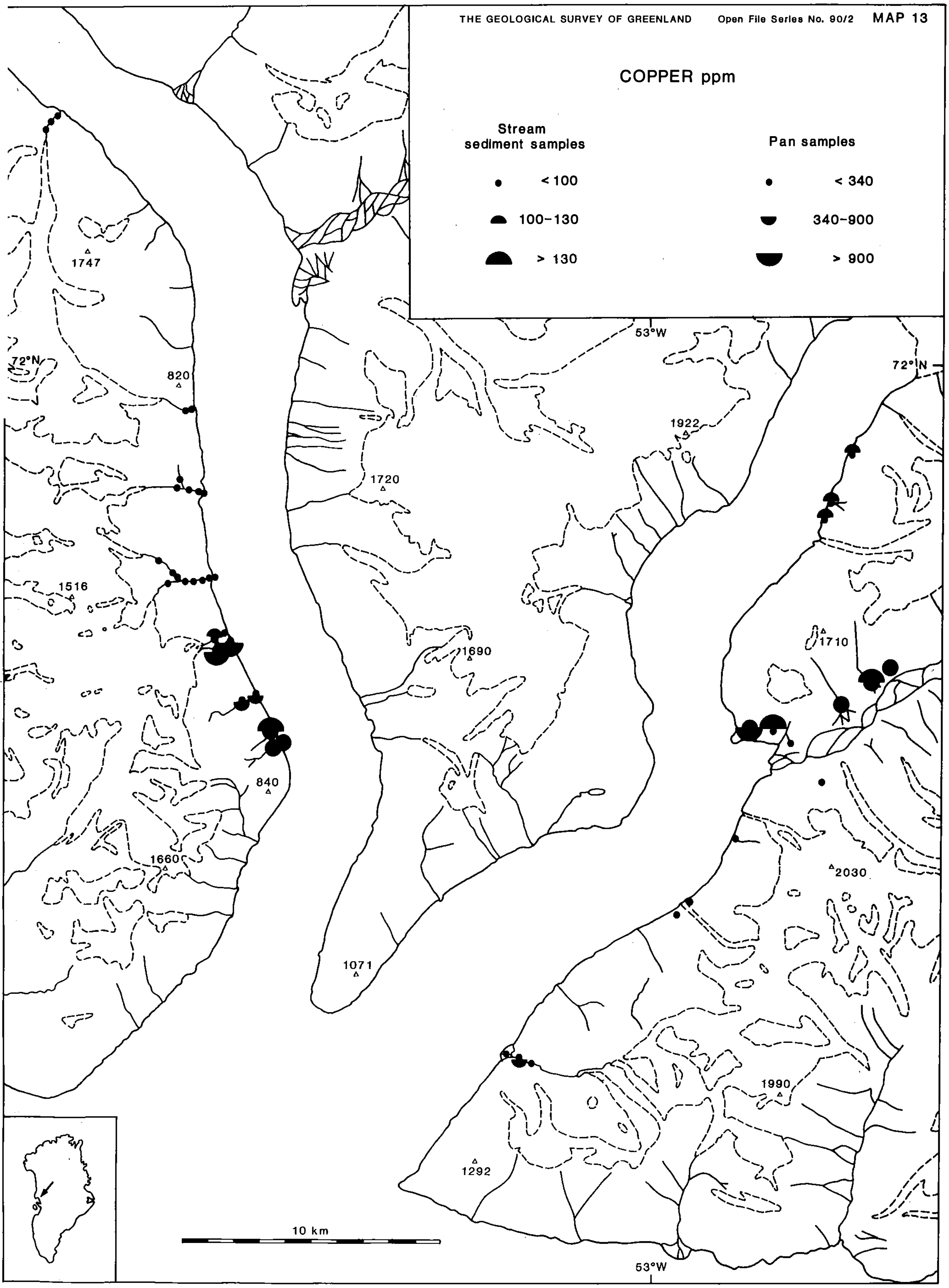

THE GEOLOGICAL SURVEY OF GREENLAND
Open File Series No. 90/2
MAP 8
ARSENIC ppm
Rock samples/chip samples
< 10 ppm
10-200 ppm
> 200 ppm
10 km
53°W
72°N
1747
820
1516
840
1660
1720
1690
1071
1922
1710
2030
1990
1292

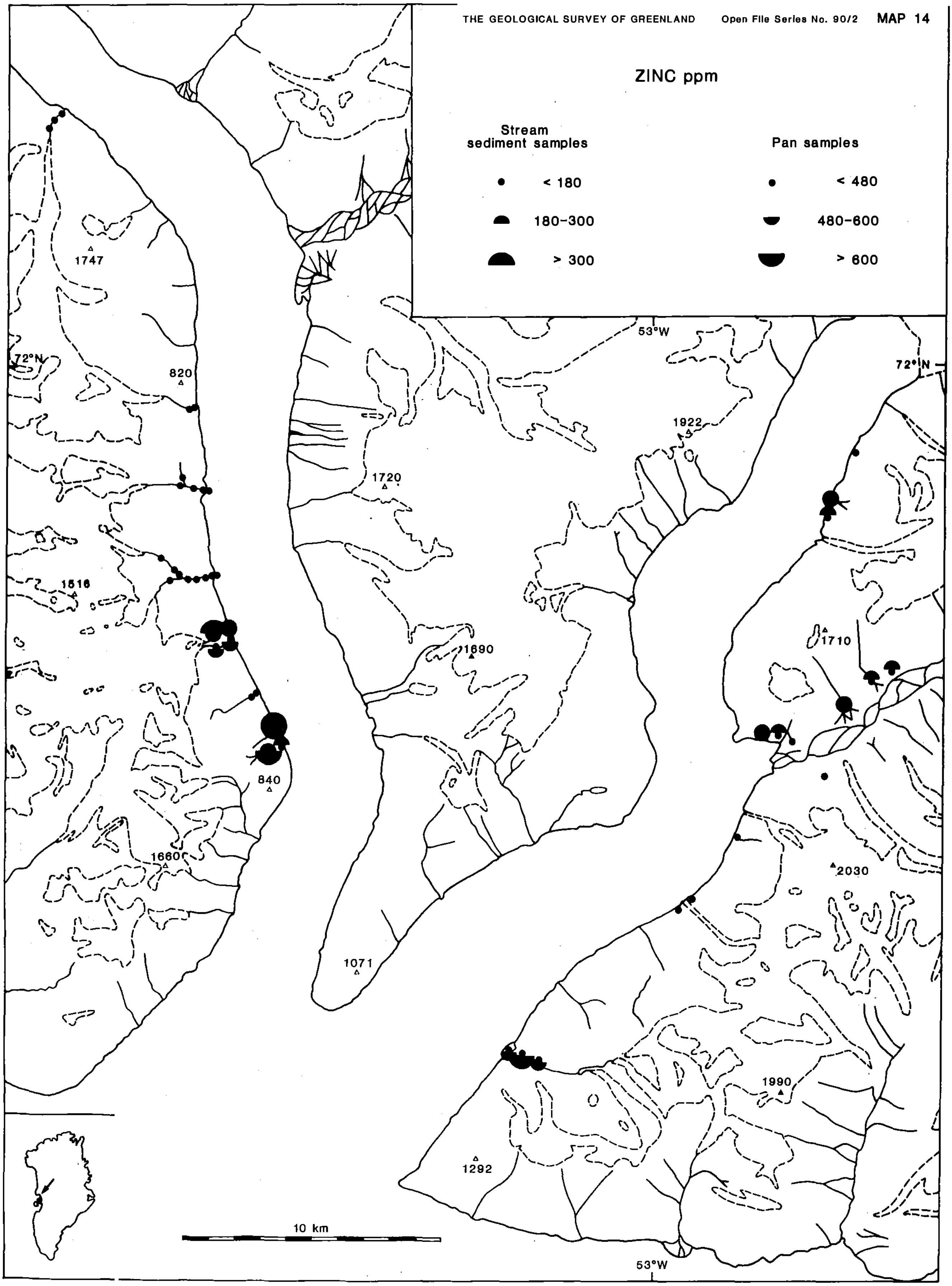

THE GEOLOGICAL SURVEY OF GREENLAND
Open File Series No. 90/2
MAP 9
TUNGSTEN ppm
Stream sediment samples
< 5
5–10
> 10
Pan samples
< 200
200–1000
> 1000
53°W
72°N
1747
820
1922
1720
1516
1710
1690
840
2030
1660
1071
1990
1292
10 km


THE GEOLOGICAL SURVEY OF GREENLAND
Open File Series No. 90/2
MAP 10
NICKEL ppm
Stream sediment samples
< 90
90–150
> 150
Pan samples
< 1300
1300–2000
> 2000
72°N
53°W
1747
820
1516
840
1660
1720
1690
1071
1922
1710
2030
1990
1292
10 km


THE GEOLOGICAL SURVEY OF GREENLAND
Open File Series No. 90/2
MAP 11
COBALT ppm
Stream sediment samples
< 30
30-35
> 35
Pan samples
< 150
150-250
> 250
1747
72°N
820
1516
1660
840
1720
1690
1071
53°W
1922
72°N
1710
2030
1990
1292
10 km
53°W


THE GEOLOGICAL SURVEY OF GREENLAND
Open File Series No. 90/2
MAP 12
CHROMIUM ppm
Stream sediment samples
<190
190-250
>250
Pan samples
< 600
600-800
> 800
53°W
72°N
1747
820
1516
840
1660
1720
1690
1071
1922
1710
2030
1990
1292
10 km


THE GEOLOGICAL SURVEY OF GREENLAND
Open File Series No. 90/2
MAP 13
COPPER ppm
Stream sediment samples
< 100
100–130
> 130
Pan samples
< 340
340–900
> 900
72°N
53°W
1747
820
1516
1660
840
1071
1720
1690
1922
1710
2030
1990
1292
10 km


THE GEOLOGICAL SURVEY OF GREENLAND
Open File Series No. 90/2
MAP 14
ZINC ppm
Stream sediment samples
< 180
180-300
> 300
Pan samples
< 480
480-600
> 600
53°W
72°N
1747
820
1516
840
1660
1720
1690
1071
1922
1710
2030
1990
1292
10 km

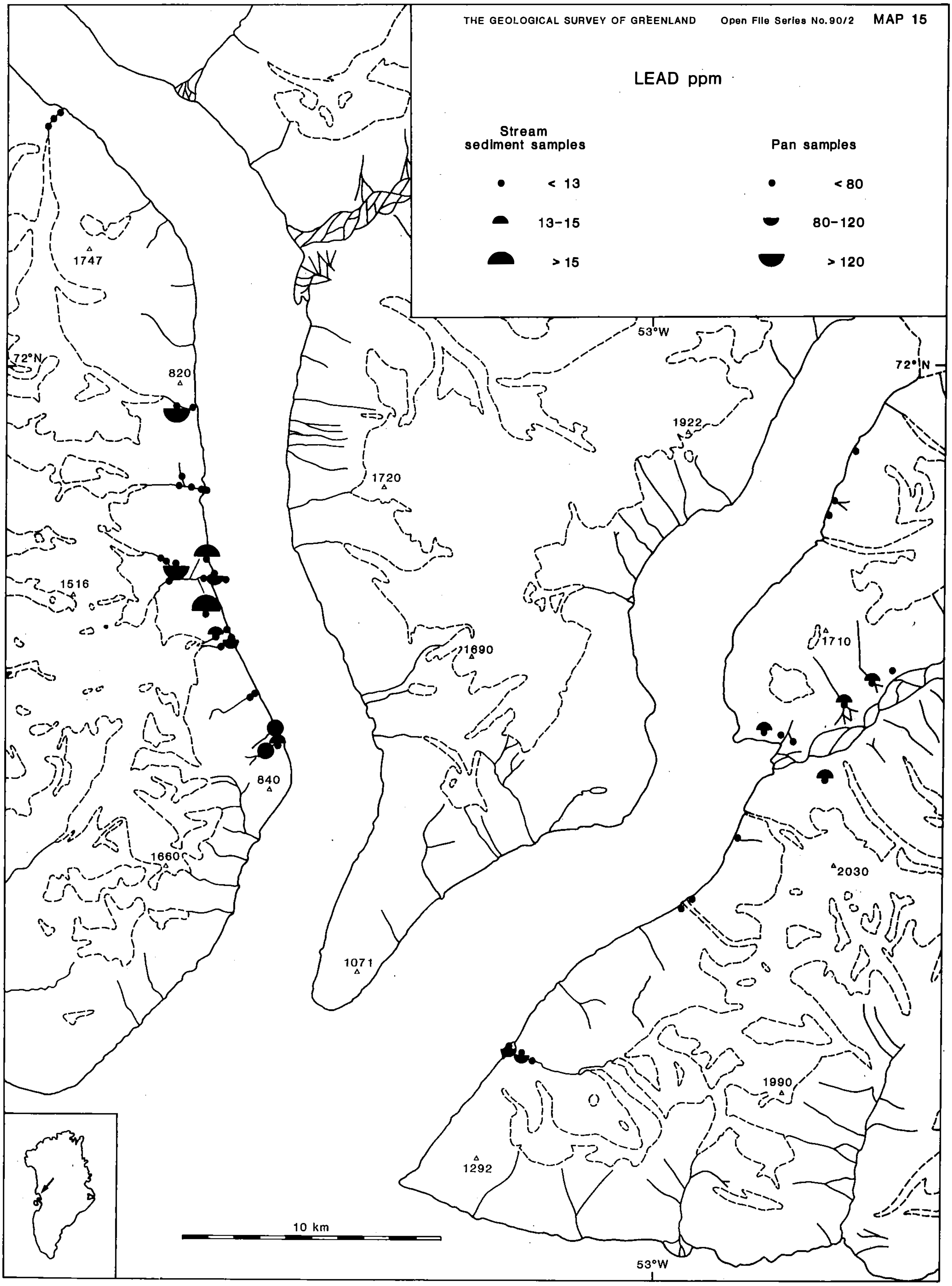

THE GEOLOGICAL SURVEY OF GREENLAND
Open File Series No.90/2
MAP 15
LEAD ppm
Stream sediment samples
< 13
13-15
> 15
Pan samples
< 80
80-120
> 120
53°W
72°N
1747
820
1516
1720
1922
1690
1710
840
1660
1071
2030
1990
1292
10 km

TABLE 1. ANALYTICAL METHODS AND DETECTION LIMITS.

(1) Neutron activation analysis by Bondar-Clegg & Co. Ltd., Ontario.

Stream sediment samples, chip samples, rock samples.

Element	Detection limit	Element	Detection limit
Na	0.05 PCT	Cs	1 PPM
Cr	50 PPM	Ba	100 PPM
Fe	0.5 PCT	La	5 PPM
Co	10 PPM	Ce	10 PPM
Ni	20 PPM	Sm	0.2 PPM
Zn	200 PPM	Eu	2 PPM
As	1 PPM	Tb	1 PPM
Se	10 PPM	Yb	5 PPM
Br	1 PPM	Lu	0.5 PPM
Rb	10 PPM	Hf	2 PPM
Zr	500 PPM	Ta	1 PPM
Mo	2 PPM	W	2 PPM
Ag	5 PPM	Ir	100 PPB
Cd	10 PPM	Au	5 PPB
Sn	200 PPM	Th	0.5 PPM
Sb	0.2 PPM	U	0.5 PPM
Te	20 PPM	Sc	0.5 PPM

(2) Neutron activation analysis by Activation Laboratories Ltd., Ontario.

Pan samples.

Element	Detection limit	Element	Detection limit
Au	5 PPB	Sb	0.2 PPM
Ag	5 PPM	Sc	0.1 PPM
As	2 PPM	Se	20 PPM
Ba	200 PPM	Sr	0.2 PCT
Br	5 PPM	Ta	1 PPM
Ca	1 PCT	Th	0.5 PPM
Co	5 PPM	U	0.5 PPM
Cr	10 PPM	W	4 PPM
Cs	2 PPM	Zn	100 PPM
Fe	0.02 PCT	La	1 PPM
Hf	1 PPM	Ce	3 PPM
Hg	5 PPM	Nd	10 PPM
Ir	40 PPB	Sm	0.1 PPM
Mo	20 PPM	Eu	0.2 PPM
Na	500 PPM	Tb	2 PPM
Ni	200 PPM	Yb	0.2 PPM
Rb	50 PPM	Lu	0.1 PPM

Table 1. Analytical methods and detection limits.

(3) Atomic absorption analysis (a.a.) by Bondar-Clegg & Co. Ltd., Ontario.

Stream sediment samples, chip samples, rock samples.

Element	Detection limit
Cu	1 PPM
Zn	1 PPM
Pb	2 PPM

(4) Atomic absorption analysis (a.a.) by the Geological Survey of Greenland.

Pan samples.

Element	Detection limit
Cu	20 PPM
Zn	20 PPM
Pb	20 PPM

(5) Fire assay/DC plasma analysis (f.a.) by Bondar-Clegg & Co. Ltd., Ontario.

Chip samples, rock samples.

Element	Detection limit
Pd	1 PPB
Pt	5 PPB
Au	1 PPB

Note. 0 or 0.0 in the analytical results indicate a value below the detection limit. At the calculation of averages, the half of this value is used.

TABLE 2. STREAM SEDIMENT SAMPLES

GGU no	Altitude metre	-0.1 mm fraction gramme
350703	20	11
350704	70	20
350705	120	37
350706	160	22
350707	225	35
350708	330	44
350709	440	58
350710	270	31
350711	20	41
350713	80	42
350714	240	89
350715	80	42
350716	110	49
350717	250	68
350718	170	25
350719	110	27
350720	35	48
350721	20	62
350722	20	82
350723	100	39
350724	20	99
350725	80	142
350726	360	26
350727	60	100
350728	200	181
350729	360	120
350731	40	52
350732	40	91
350733	20	104
350734	110	70
350735	170	67
350736	130	71
350737	15	47
350738	40	47
350739	60	71
350740	80	29
350741	140	38
350742	160	56
350743	350	47
350744	10	60
350745	15	33
350746	5	88

Table 2. Stream sediment samples

GGU no	Au ppb	As ppm	W ppm	Mo ppm	Sn ppm	Ni ppm	Co ppm	Ir ppb	Cr ppm	Fe %
350703	0	9	7	0	0	30	18	0	77	3.2
350704	0	12	8	0	0	49	15	0	100	3.5
350705	0	7	5	0	0	37	16	0	110	3.3
350706	0	10	6	0	0	50	14	0	120	3.4
350707	5	9	5	0	0	30	17	0	99	3.3
350708	5	11	6	0	0	38	19	0	110	3.3
350709	0	10	11	0	0	38	15	0	120	3.1
350710	0	10	5	0	0	45	16	0	120	3.4
350711	0	7	3	0	0	67	23	0	170	4.3
350713	0	6	0	0	0	55	24	0	180	4.4
350714	0	5	0	0	0	50	19	0	170	4.1
350715	0	10	3	0	0	72	19	0	90	3.7
350716	0	16	3	0	0	48	15	0	86	3.5
350717	0	13	2	0	0	35	14	0	110	3.4
350718	0	6	3	0	0	100	29	0	95	4.7
350719	0	12	4	3	0	110	24	0	130	4.6
350720	0	14	0	0	0	86	29	0	150	5.1
350721	0	11	0	0	0	87	28	0	150	5.1
350722	0	8	0	0	0	65	18	0	120	4.4
350723	5	7	4	0	0	80	23	0	140	4.4
350724	0	13	3	0	0	72	22	0	170	4.0
350725	0	16	2	0	0	67	21	0	190	4.1
350726	0	2	4	0	0	55	27	0	150	4.5
350727	0	10	0	0	0	58	30	0	200	6.0
350728	0	10	0	0	0	50	35	0	220	5.8
350729	0	7	0	0	0	67	32	0	190	5.8
350731	6	12	0	3	0	110	29	0	110	4.6
350732	0	17	3	2	0	130	37	0	190	5.3
350733	0	5	3	0	0	90	24	0	180	4.8
350734	0	7	3	4	0	73	24	0	150	5.0
350735	5	21	0	7	0	87	29	0	150	5.7
350736	0	7	3	2	0	120	26	0	180	5.2
350737	9	170	4	0	0	62	29	0	72	4.0
350738	12	239	3	0	0	75	35	0	57	4.3
350739	22	141	2	0	0	73	27	0	69	3.6
350740	0	0	0	0	0	160	36	0	250	4.9
350741	6	6	4	0	0	98	25	0	130	3.9
350742	0	9	2	3	0	180	39	0	290	4.9
350743	0	1	10	0	0	77	24	0	200	4.7
350744	0	0	22	0	0	76	23	0	190	4.7
350745	12	0	6	0	0	92	30	0	260	5.9
350746	0	8	0	0	0	91	32	0	190	5.4
Samples	42	42	42	42	42	42	42	42	42	42
Minimum	0	0	0	0	0	30	14	0	57	3.1
Maximum	22	239	22	7	0	180	39	0	290	6.0
Average	–	21	4	–	–	75	25	–	148	4.4
Median	–	9	3	–	–	72	24	–	150	4.4

Table 2. Stream sediment samples

GGU no	Cu ppm	Zn ppm	Zn ppm (a.a.)	Cd ppm	Pb ppm	Ag ppm	Sb ppm	Se ppm	Te ppm
350703	53	0	84	0	7	0	0.0	0	0
350704	55	0	86	0	7	0	0.0	0	0
350705	49	0	86	0	16	0	0.0	0	0
350706	50	0	78	0	16	0	0.0	0	0
350707	44	0	79	0	8	0	0.0	0	0
350708	48	0	85	0	9	0	0.0	0	0
350709	48	0	86	0	8	0	0.0	0	0
350710	51	0	76	0	7	0	0.0	0	0
350711	56	0	79	0	5	0	0.0	0	0
350713	65	0	87	0	6	0	0.0	0	0
350714	56	0	72	0	5	0	0.0	0	0
350715	86	200	208	0	10	0	0.0	0	0
350716	63	210	102	0	10	0	0.0	0	0
350717	66	0	104	0	9	0	0.0	0	0
350718	107	0	303	0	13	0	0.0	0	0
350719	169	350	309	0	14	0	0.0	0	0
350720	130	380	234	0	15	0	0.0	0	0
350721	120	220	213	0	14	0	0.0	0	0
350722	69	0	136	0	12	0	0.0	0	0
350723	71	0	137	0	12	0	0.0	0	0
350724	63	220	62	0	4	0	0.0	0	0
350725	65	0	66	0	5	0	0.0	0	0
350726	78	0	103	0	10	0	0.0	0	0
350727	79	0	60	0	3	0	0.0	0	0
350728	80	0	59	0	4	0	0.0	0	0
350729	79	0	64	0	6	0	0.0	0	0
350731	129	290	242	0	11	0	0.4	0	0
350732	130	210	185	0	10	0	0.4	0	0
350733	97	230	159	0	11	0	0.2	0	0
350734	128	0	206	0	13	0	0.6	0	0
350735	140	320	198	0	14	0	0.8	0	0
350736	130	290	200	0	11	0	0.2	0	0
350737	85	210	109	0	11	0	0.4	0	0
350738	88	220	104	0	12	0	0.5	0	0
350739	79	0	108	0	10	0	0.3	0	0
350740	82	0	59	0	11	0	0.0	0	0
350741	115	270	188	0	15	0	0.0	0	0
350742	139	320	186	0	12	0	0.0	0	0
350743	52	0	56	0	13	0	0.0	0	0
350744	41	0	18	0	4	0	0.0	0	0
350745	66	0	34	0	8	0	0.0	0	0
350746	102	210	122	0	12	0	0.3	0	0
Samples	42	42	42	42	42	42	42	42	42
Minimum	41	0	18	0	3	0	0.0	0	0
Maximum	169	380	309	0	16	0	0.8	0	0
Average	83	–	125	–	10	–	–	–	–
Median	78	–	102	–	10	–	–	–	–

Table 2. Stream sediment samples

GGU no	Na %	Ba ppm	Br ppm	Sc ppm	Rb ppm	Cs ppm	Zr ppm	Hf ppm	Ta ppm
350703	1.7	620	0	10.0	140	6	0	6	0
350704	1.7	580	0	10.0	100	6	0	7	1
350705	1.8	620	0	10.0	120	6	0	6	1
350706	1.8	500	0	10.0	120	6	0	6	1
350707	1.9	570	0	10.0	100	6	0	5	1
350708	1.8	570	0	10.0	120	6	0	4	1
350709	1.9	530	0	11.0	120	7	610	6	1
350710	1.7	510	0	10.0	100	5	0	6	1
350711	1.7	420	0	15.0	92	5	560	7	0
350713	1.8	550	0	15.0	100	5	0	5	0
350714	1.8	430	0	14.0	100	5	0	4	0
350715	1.6	600	0	9.4	130	7	0	6	2
350716	1.7	650	0	9.1	130	8	0	6	1
350717	1.6	610	0	9.1	140	8	0	6	1
350718	1.6	510	1	11.0	110	8	720	5	1
350719	1.5	600	1	12.0	160	8	0	5	2
350720	1.3	600	0	14.0	170	8	0	4	1
350721	1.1	570	0	14.0	150	8	0	4	1
350722	1.6	690	0	12.0	200	9	0	4	2
350723	1.6	640	0	13.0	170	9	0	5	2
350724	1.8	350	0	14.0	48	3	500	7	1
350725	1.8	370	0	15.0	71	3	0	6	0
350726	1.7	430	0	16.0	100	7	0	5	1
350727	1.7	300	0	23.0	44	2	0	5	1
350728	1.7	320	0	24.0	55	2	0	5	1
350729	1.7	270	0	23.0	58	3	0	5	0
350731	1.5	370	0	12.0	91	6	0	5	1
350732	1.6	390	0	16.0	98	6	0	4	2
350733	1.5	550	0	14.0	160	8	0	5	2
350734	1.5	530	0	13.0	130	7	0	4	2
350735	1.4	420	0	14.0	110	7	0	6	1
350736	1.5	500	0	16.0	120	8	560	3	1
350737	1.5	430	0	9.0	94	6	0	11	1
350738	1.5	460	0	10.0	110	6	750	11	1
350739	1.4	410	0	9.2	110	6	0	9	2
350740	1.8	460	5	15.0	90	5	0	5	2
350741	1.3	620	0	10.0	160	8	0	6	1
350742	1.3	550	0	14.0	140	7	0	6	2
350743	2.0	230	0	15.0	160	5	520	8	4
350744	1.9	310	0	15.0	43	1	0	10	2
350745	1.4	380	0	19.0	74	3	850	18	3
350746	1.3	370	0	17.0	97	6	0	5	2
Samples	42	42	42	42	42	42	42	42	42
Minimum	1.1	230	0	9.0	43	1	0	3	0
Maximum	2.0	690	5	24.0	200	9	850	18	4
Average	1.6	485	-	13.4	113	6	-	6	1
Median	1.6	500	-	13.0	110	6	-	5	1

Table 2. Stream sediment samples

GGU no	U ppm	Th ppm	La ppm	Ce ppm	Sm ppm	Eu ppm	Tb ppm	Yb ppm	Lu ppm
350703	3.4	8.2	24	49	3.7	0	0	0	0
350704	3.6	8.4	24	43	3.9	0	0	0	0
350705	3.3	8.3	24	46	3.9	0	0	0	0
350706	3.5	8.4	23	40	3.8	0	0	0	0
350707	3.5	8.1	27	49	4.2	0	0	0	0
350708	3.9	8.8	29	50	4.5	0	0	0	0
350709	4.0	9.0	30	50	4.8	0	0	0	0
350710	3.6	8.3	25	41	3.8	0	0	0	0
350711	2.9	7.4	21	35	3.9	0	0	0	0
350713	3.1	7.6	24	45	4.1	0	0	0	0
350714	3.1	6.9	20	45	3.7	0	0	0	0
350715	5.9	12.0	46	89	7.7	0	1	0	0
350716	4.8	11.0	38	64	5.8	0	0	0	0
350717	4.6	10.0	38	62	5.7	0	0	0	0
350718	5.8	15.0	53	81	8.2	0	1	0	0
350719	7.8	14.0	70	120	11.0	0	2	0	0
350720	6.9	13.0	61	110	10.0	0	2	0	0
350721	5.8	12.0	61	100	10.0	0	1	0	0
350722	5.8	14.0	51	88	7.8	0	0	0	0
350723	5.7	14.0	54	83	8.0	0	1	0	0
350724	2.5	6.3	20	39	3.8	0	0	0	0
350725	2.6	7.0	23	43	4.2	0	0	0	0
350726	4.0	10.0	39	62	5.7	0	1	0	0
350727	2.0	5.2	19	34	4.1	0	0	0	0
350728	2.1	5.8	19	33	4.1	0	0	0	0
350729	2.2	5.7	20	37	4.1	0	0	0	0
350731	5.4	12.0	53	93	8.0	0	1	0	0
350732	4.7	10.0	48	89	7.4	0	1	0	0
350733	6.3	13.0	42	75	7.0	0	1	0	0
350734	6.9	11.0	43	81	7.1	0	1	0	0
350735	5.8	12.0	40	75	6.0	0	1	0	0
350736	5.1	10.0	36	63	5.9	0	1	0	0
350737	4.6	10.0	32	48	5.2	0	0	0	0
350738	4.9	11.0	35	59	5.3	0	0	0	0
350739	4.2	10.0	30	54	4.9	0	0	0	0
350740	5.2	11.0	30	57	5.2	0	0	0	0
350741	8.5	16.0	48	76	8.4	0	1	0	0
350742	8.0	15.0	50	83	8.3	0	1	0	0
350743	26.0	14.0	31	48	6.0	0	1	6	0
350744	4.0	18.0	58	100	9.0	0	1	0	0
350745	9.4	47.0	140	230	20.2	0	2	0	0
350746	4.1	9.3	37	67	6.2	0	1	0	0
Samples	42	42	42	42	42	42	42	42	42
Minimum	2.0	5.2	19	33	3.7	0	0	0	0
Maximum	26.0	47.0	140	230	20.2	0	2	6	0
Average	5.2	11.3	39	68	6.3	-	-	-	-
Median	4.6	10.0	35	59	5.7	-	-	-	-

TABLE 3. PAN SAMPLES

GGU no	Altitude metre	-1.0 mm fract. litre	Preconc. gramme	Conc. gramme	Analysis gramme
350803	20	0.18	30.3	2.5	2.00
350804	70	0.34	45.3	4.9	2.11
350805	120	0.36	38.7	5.2	2.10
350806	160	0.36	29.8	4.9	2.02
350807	225	0.32	34.7	2.5	2.00
350808	330	0.36	32.8	1.3	0.96
350809	440	0.27	49.6	2.9	2.00
350810	270	0.30	93.9	7.5	2.04
350811	20	0.43	69.9	24.5	20.28
350812	20	0.30	57.0	18.3	2.07
350813	80	0.20	83.7	25.8	20.09
350814	240	0.20	91.4	26.7	20.18
350815	80	0.35	47.1	4.8	2.06
350816	110	0.34	47.3	1.6	1.04
350817	250	0.23	70.9	2.2	1.64
350818	170	0.21	41.0	6.3	2.07
350819	110	0.22	63.9	2.7	2.06
350820	35	0.24	63.7	4.4	2.06
350821	20	0.16	45.9	4.2	2.02
350822	20	0.53	40.6	0.9	0.70
350823	100	0.13	52.9	1.0	0.79
350824	20	0.30	85.0	31.3	20.53
350825	80	0.35	84.0	31.6	20.24
350826	360	0.22	54.0	5.6	2.10
350827	60	0.46	55.5	32.6	20.16
350828	200	0.36	55.1	29.2	20.11
350829	360	0.32	69.1	36.0	19.99
350830	20	0.17	56.7	3.3	2.07
350831	40	0.20	43.6	2.6	1.97
350832	40	0.18	65.5	11.9	1.96
350833	20	0.39	75.7	10.3	2.08
350834	110	0.45	68.7	4.0	2.07
350835	170	0.22	115.4	13.0	2.03
350836	130	0.12	36.8	2.9	2.00
350837	15	0.36	71.3	11.9	2.01
350838	40	0.42	79.5	17.5	2.02
350839	65	0.29	62.1	12.2	2.06
350840	80	0.80	7.8	5.4	1.86
350841	140	0.35	93.0	9.4	2.05
350842	160	0.38	75.4	28.6	20.34
350843	350	0.27	48.6	23.9	20.22
350844	10	0.38	77.7	65.7	20.40
350845	10	0.45	197.2	119.0	19.98
350846	15	0.25	47.4	14.7	1.98

Table 3. Pan samples

GGU no	Au ppb	As ppm	W ppm	Mo ppm	Ni ppm	Co ppm	Ir ppb	Cr ppm	Fe %
350803	17	710	210	0	2000	140	0	590	17.8
350804	0	600	230	0	2100	150	0	660	17.9
350805	23	750	560	0	1800	150	0	680	18.6
350806	0	930	550	0	1800	150	0	640	19.4
350807	40	1100	1300	0	1800	130	0	680	18.1
350808	0	1100	1200	0	1700	130	0	630	21.5
350809	0	1200	1300	0	1300	120	0	750	21.4
350810	9	380	300	0	1800	130	0	680	16.8
350811	0	110	18	0	440	79	0	560	17.7
350812	0	85	57	0	1200	94	0	550	14.6
350813	658	93	19	0	410	75	0	550	16.6
350814	0	91	14	0	520	76	0	570	16.7
350815	0	310	57	0	0	94	0	320	29.9
350816	11	1700	49	0	1700	200	0	79	37.9
350817	0	3100	86	0	2800	230	0	49	39.1
350818	0	14	0	0	0	78	0	240	24.7
350819	80	140	0	0	0	100	0	140	24.8
350820	0	350	30	0	0	100	0	150	28.5
350821	0	140	0	0	0	78	0	190	21.8
350822	27	360	92	24	0	150	0	150	30.5
350823	0	620	20	0	980	110	0	140	29.1
350824	0	110	0	0	540	75	0	530	13.9
350825	11	230	46	0	580	81	0	530	14.9
350826	12	0	50	0	0	80	0	300	16.8
350827	0	48	8	0	0	72	0	380	18.9
350828	0	62	0	0	0	74	0	390	18.5
350829	0	57	14	0	0	70	0	350	18.5
350830	2630	540	330	0	2000	130	0	570	17.3
350831	0	49	21	0	0	51	0	240	16.4
350832	0	70	0	0	0	71	0	660	15.3
350833	5	18	13	0	720	59	0	680	15.0
350834	0	65	0	0	0	72	0	350	22.4
350835	6	410	0	0	0	160	0	300	20.4
350836	0	13	10	0	530	43	0	480	16.7
350837	2130	3300	20	0	1000	350	0	330	33.8
350838	0	3900	21	0	980	400	0	210	35.0
350839	0	4500	0	0	1200	430	0	220	34.5
350840	9	4	680	0	0	110	0	1500	32.4
350841	0	240	83	0	0	84	0	450	20.7
350842	0	150	25	0	350	64	0	900	20.1
350843	0	0	270	0	0	45	0	390	16.9
350844	0	6	220	0	0	54	0	480	16.1
350845	0	0	7	0	0	43	0	440	13.7
350846	9	3	0	0	0	57	0	640	13.9
Samples	44	44	44	44	44	44	44	44	44
Minimum	0	0	0	0	0	43	0	49	13.7
Maximum	2630	4500	1300	24	2800	430	0	1500	39.1
Average	-	629	180	-	732	119	-	462	21.5
Median	-	140	21	-	410	84	-	450	18.5

Table 3. Pan samples

GGU no	Cu ppm	Zn ppm	Zn ppm (a.a.)	Pb ppm	Ag ppm	Sb ppm	Se ppm	Hg ppm
350803	190	0	180	120	0	0.0	0	0
350804	305	0	160	20	0	0.0	0	0
350805	170	0	140	20	0	0.0	0	0
350806	335	0	160	60	0	0.0	0	0
350807	220	0	210	140	0	0.0	0	0
350808	200	0	280	20	0	0.0	0	0
350809	220	210	270	0	0	0.0	0	0
350810	280	0	160	60	0	0.0	0	0
350811	115	0	210	20	0	0.5	0	0
350812	125	0	200	20	0	0.0	0	0
350813	145	0	200	20	0	0.0	0	0
350814	125	0	190	40	0	0.0	0	0
350815	200	490	590	40	0	1.1	0	0
350816	930	430	490	80	0	0.0	0	0
350817	2110	380	540	60	0	0.0	0	0
350818	225	390	540	20	0	0.4	0	0
350819	605	500	620	100	0	0.0	0	0
350820	590	370	660	80	0	1.5	0	0
350821	370	310	450	40	0	0.0	0	0
350822	535	410	440	40	0	0.0	0	0
350823	395	340	450	40	0	0.0	0	0
350824	125	0	150	40	0	0.3	0	9
350825	260	0	140	140	0	0.0	0	0
350826	190	260	230	20	0	1.1	0	0
350827	190	200	260	20	0	0.0	0	0
350828	155	0	240	20	0	0.0	0	0
350829	170	0	250	40	0	0.0	0	0
350830	270	0	140	20	0	0.0	0	0
350831	285	680	480	20	0	0.7	0	0
350832	320	210	280	20	0	0.7	0	0
350833	265	290	240	20	0	0.5	0	0
350834	405	350	490	60	0	1.5	0	0
350835	460	400	390	40	0	2.4	0	0
350836	345	300	390	40	0	0.9	0	0
350837	295	370	480	120	0	0.0	0	0
350838	515	310	670	100	0	0.0	0	0
350839	335	430	570	60	0	0.0	0	0
350840	195	200	120	60	0	0.0	0	0
350841	1105	340	480	60	0	0.0	0	0
350842	225	300	260	0	0	0.5	0	0
350843	215	220	130	20	0	0.0	0	0
350844	40	420	120	40	0	0.0	0	0
350845	55	490	100	20	0	0.0	0	0
350846	260	200	190	20	0	0.0	0	0
Samples	44	44	44	44	44	44	44	44
Minimum	40	0	100	0	0	0.0	0	0
Maximum	2110	680	670	140	0	2.4	0	9
Average	343	240	317	46	-	-	-	-
Median	260	220	250	40	-	-	-	-

Table 3. Pan samples

GGU no	Na %	Ca %	Ba ppm	Sr %	Br ppm	Sc ppm	Rb ppm	Cs ppm	Hf ppm	Ta ppm
350803	0.608	2	0	0	650	24.0	0	0	6	2
350804	0.560	2	0	0	740	23.0	0	0	6	2
350805	0.502	0	310	0	830	21.0	0	0	5	0
350806	0.499	0	500	0	600	20.0	0	0	6	3
350807	0.541	3	300	0	970	30.0	0	0	0	9
350808	0.537	0	0	0	1000	31.0	0	0	13	6
350809	0.607	0	0	0	1200	36.0	0	0	7	7
350810	0.629	0	400	0	800	25.0	0	0	4	0
350811	1.030	6	760	0	550	36.0	0	4	4	0
350812	0.771	6	0	0	410	41.0	0	0	4	0
350813	1.070	5	0	0	1200	36.0	0	0	6	0
350814	1.120	4	0	0	720	37.0	0	0	4	0
350815	0.518	0	400	0	810	46.0	0	0	2	0
350816	0.289	0	0	0	2400	10.0	0	15	7	0
350817	0.244	0	0	0	2800	9.3	0	0	8	0
350818	0.734	0	600	0	800	48.0	0	0	4	0
350819	0.924	0	0	0	6100	37.0	0	0	2	0
350820	0.542	0	0	0	5300	36.0	0	0	6	0
350821	0.582	0	0	0	1700	42.0	0	0	4	0
350822	0.357	0	0	0	2500	22.0	0	0	9	5
350823	0.448	0	300	0	1500	28.0	0	0	0	0
350824	1.290	5	400	0	1600	31.0	0	0	0	0
350825	1.110	6	0	0	1000	32.0	0	0	0	0
350826	0.836	5	0	0	1700	52.0	0	0	8	0
350827	1.100	6	0	0	1200	41.0	0	0	0	0
350828	1.280	5	0	0	1100	44.0	0	0	5	0
350829	1.250	4	0	0	890	42.0	0	0	6	2
350830	0.620	3	0	0	800	23.0	50	4	4	0
350831	0.465	0	570	0	340	39.0	80	7	4	4
350832	0.750	4	0	0	470	45.0	0	5	3	0
350833	0.499	6	0	0	680	31.0	0	5	5	2
350834	0.574	0	400	0	1000	37.0	50	0	5	6
350835	0.363	0	300	0	550	32.0	0	0	5	0
350836	0.502	0	200	0	290	32.0	50	0	6	0
350837	0.188	0	400	0	70	34.0	0	0	10	6
350838	0.183	0	400	0	480	29.0	0	0	6	3
350839	0.185	0	0	0	470	32.0	0	0	5	3
350840	0.273	2	300	0	92	37.0	0	0	30	120
350841	0.334	0	0	0	1100	29.0	100	3	7	5
350842	0.382	0	0	0	860	29.0	0	0	8	7
350843	0.501	4	300	0	61	54.0	0	0	22	23
350844	0.250	2	200	0	39	20.0	0	0	7	5
350845	0.318	3	0	0	350	21.0	0	0	6	0
350846	0.698	4	0	0	370	46.0	0	0	3	4
Samples	44	44	44	44	44	44	44	44	44	44
Minimum	0.183	0	0	0	39	9.3	0	0	0	0
Maximum	1.290	6	760	0	6100	54.0	100	15	30	120
Average	0.615	–	–	–	1116	33.0	–	–	6	–
Median	0.541	–	–	–	800	32.0	–	–	5	–

Table 3. Pan samples

GGU no	U ppm	Th ppm	La ppm	Ce ppm	Sm ppm	Nd ppm	Eu ppm	Tb ppm	Yb ppm	Lu ppm
350803	7.7	6.7	52	78	9.4	32	1.8	0	6.9	1.0
350804	5.8	7.0	44	54	8.5	25	2.0	0	8.5	1.1
350805	6.7	6.4	41	65	7.7	30	1.8	0	8.6	1.0
350806	6.8	6.1	39	55	7.9	20	1.9	3	6.9	0.8
350807	9.5	15.0	89	140	16.0	84	3.5	4	17.8	1.7
350808	15.0	10.0	76	130	16.0	110	4.0	5	19.2	2.2
350809	8.7	13.0	87	110	15.0	72	3.0	5	14.4	1.0
350810	6.0	4.9	41	65	8.1	30	1.7	2	7.4	0.4
350811	0.0	1.4	16	28	3.5	10	1.0	0	2.9	0.3
350812	1.8	1.7	15	28	4.4	15	1.7	0	2.8	0.3
350813	0.0	0.0	16	31	3.4	15	1.2	0	3.0	0.4
350814	0.0	2.9	17	32	3.6	20	1.1	0	2.6	0.0
350815	9.8	11.0	68	96	13.0	51	2.5	2	6.7	1.0
350816	23.0	24.0	150	250	28.0	170	3.9	0	18.0	2.7
350817	23.0	19.0	140	200	22.0	150	5.2	6	22.3	2.5
350818	5.2	7.2	52	67	9.9	35	2.4	2	6.7	0.8
350819	11.0	14.0	110	130	17.0	80	3.0	8	12.6	1.7
350820	19.0	20.0	81	120	15.0	60	4.1	6	12.6	1.4
350821	9.2	12.0	61	97	13.0	50	3.1	42	11.7	1.4
350822	29.0	35.0	160	260	31.0	230	5.0	5	29.2	3.1
350823	20.0	29.0	130	230	25.0	110	4.0	0	22.8	2.0
350824	0.0	0.0	13	27	3.1	15	1.2	0	2.1	0.0
350825	0.0	0.0	12	19	3.0	10	1.0	0	2.5	0.2
350826	4.0	7.7	41	61	9.4	30	1.9	0	9.6	0.9
350827	0.0	0.0	13	25	3.1	10	1.0	0	1.9	0.1
350828	0.0	1.4	17	22	3.5	11	0.0	0	3.1	0.2
350829	0.0	1.4	16	25	3.2	10	1.1	0	3.2	0.4
350830	7.0	5.9	42	59	8.3	30	1.7	0	7.5	0.6
350831	6.7	14.0	60	99	12.0	41	2.4	3	11.6	1.1
350832	3.7	7.1	46	72	9.6	47	2.0	3	5.8	0.6
350833	8.7	10.0	53	88	9.9	50	2.0	2	8.5	1.1
350834	16.0	19.0	82	120	15.0	70	2.7	4	13.7	1.8
350835	7.4	10.0	42	68	8.5	53	1.7	3	6.4	0.7
350836	9.2	16.0	73	110	12.0	56	2.2	2	6.9	0.8
350837	6.1	8.5	47	66	8.4	37	1.3	3	6.1	0.7
350838	8.4	6.6	51	73	8.5	35	2.1	0	5.5	0.9
350839	6.7	7.2	39	51	7.2	20	1.5	0	4.6	0.5
350840	9.2	32.0	54	95	14.0	36	1.8	0	7.7	0.1
350841	18.0	18.0	90	130	15.0	60	3.3	5	19.7	2.2
350842	6.1	9.7	51	85	6.0	58	1.6	3	12.6	1.3
350843	47.0	46.0	49	110	10.0	41	1.5	5	54.2	5.8
350844	2.0	7.6	33	52	3.6	22	0.7	0	6.5	0.8
350845	0.0	9.1	36	58	3.9	30	0.7	0	4.9	0.5
350846	4.4	7.7	90	150	15.0	80	3.7	3	4.1	0.6
Samples	44	44	44	44	44	44	44	44	44	44
Minimum	0.0	0.0	12	19	3.0	10	0.0	0	1.9	0.0
Maximum	47.0	46.0	160	260	31.0	230	5.2	42	54.2	5.8
Average	8.9	11.2	58	89	10.7	51	2.2	3	10.3	1.1
Median	6.7	7.7	49	72	9.4	36	1.9	2	6.9	0.8

TABLE 4. CHIP SAMPLES

GGU no	Altitude metre	Length metre	Description
350902	3	1.5	Mica schist.
350903	3	3.0	Fragmental hornblende schist.
350904	3	4.0	Fragmental hornblende schist.
350905	3	3.0	Fragmental hornblende schist.
350906	20	1.0	Pyrrhotite horizon.
350907	21	1.5	Greenish schists.
350908	20	1.0	Greenish-violet schists.
350909	19	1.0	Pyrrhotite horizon.
350910	18	1.5	Greenish schists.
350911	17	0.7	Black, hornblende-calcite schist.
350912	16	1.5	Greenish hornblende schist.
350913	15	2.5	Fragmental hornblende schist.
350914	40	2.0	Grey schists with skarn horizons.
350915	40	5.0	Pyrrhotite horizon.
350916	14	4.0	Graphitic, pyrrhotitic schist.
350917	21	2.0	Graphitic, silicious schist.
350918	40	2.0	Pyrrhotite horizon.
350919	41	1.0	Pyrrhotitic chert and schist.
350920	201	1.5	Pyrrhotitic, silicious schist.
350921	200	1.5	Hornblende schist.
350922	72	5.0	Chalcopyrite-bearing quartzite.
350923	71	4.0	Chalcopyrite-bearing amphibolite.
350924	70	4.0	Chalcopyrite-bearing amphibolite.
350925	60	1.0	Pyrrhotite horizon.
350926	55	1.0	Graphitic schist.
350927	56	1.0	Pyrrhotite horizon.
352304	380	1.0	Quartz-veined schist.

Table 4. Chip samples

GGU no	Na %	Ba ppm	Br ppm	Sc ppm	Rb ppm	Cs ppm	Zr ppm	Hf ppm	Ta ppm
350902	5.00	530	0	13.0	90	6	0	4	0
350903	0.76	0	0	25.0	0	0	0	3	2
350904	1.10	190	0	27.0	23	4	670	3	2
350905	1.00	270	0	23.0	0	4	0	3	2
350906	1.20	200	0	18.0	45	2	0	3	0
350907	1.70	570	0	18.0	150	8	0	3	1
350908	1.80	420	0	12.0	91	4	0	3	1
350909	2.50	230	0	18.0	27	0	0	4	2
350910	0.33	0	0	25.0	0	0	0	4	3
350911	1.70	710	0	22.0	35	0	0	8	7
350912	0.36	190	0	18.0	0	0	0	5	4
350913	0.69	0	0	25.0	0	0	0	0	2
350914	1.90	710	0	18.0	130	6	0	3	1
350915	0.48	0	0	14.0	56	3	0	2	0
350916	0.38	170	0	13.0	52	3	0	0	1
350917	0.73	230	0	16.0	52	3	0	4	2
350918	2.20	0	0	18.0	25	0	0	0	2
350919	1.70	490	0	12.0	120	3	0	5	0
350920	0.57	380	0	15.0	74	4	650	3	1
350921	0.74	130	0	32.0	34	2	0	0	0
350922	1.90	1800	0	1.0	170	1	0	0	0
350923	0.49	0	0	19.0	18	1	0	0	0
350924	0.49	270	0	9.4	65	4	0	0	0
350925	0.47	200	0	14.0	60	3	0	2	0
350926	1.70	330	0	16.0	150	7	0	4	0
350927	0.85	180	0	16.0	63	4	0	3	0
352304	0.91	360	0	11.0	120	8	0	3	1
Samples	27	27	27	27	27	27	27	27	27
Minimum	0.33	0	0	1.0	0	0	0	0	0
Maximum	5.00	1800	0	32.0	170	8	670	8	7

Table 4. Chip samples

GGU no	U ppm	Th ppm	La ppm	Ce ppm	Sm ppm	Eu ppm	Tb ppm	Yb ppm	Lu ppm
350902	2.3	10.0	25	50	3.3	0	0	0	0
350903	0.6	1.9	20	40	4.5	0	0	0	0
350904	0.0	1.8	16	45	4.7	0	0	0	0
350905	0.0	1.6	16	40	4.1	0	0	0	0
350906	5.2	6.1	20	55	4.1	0	0	0	0
350907	3.7	10.0	10	15	1.6	0	0	0	0
350908	3.6	7.1	11	25	2.1	0	0	0	0
350909	7.4	5.3	12	13	2.8	0	0	0	0
350910	1.2	2.8	21	41	5.7	0	1	0	0
350911	2.4	9.3	82	160	15.0	3	2	0	0
350912	1.4	4.2	46	85	8.6	0	1	0	0
350913	1.6	1.4	33	60	8.6	0	2	0	0
350914	2.3	9.3	28	49	4.6	0	0	0	0
350915	3.7	5.0	21	38	3.6	0	0	0	0
350916	6.7	6.0	22	35	4.4	0	1	0	0
350917	10.0	6.2	27	40	5.2	0	1	0	0
350918	20.0	5.0	17	0	5.2	0	2	0	0
350919	6.8	9.1	20	36	4.1	0	0	0	0
350920	5.2	8.4	27	42	4.3	0	0	0	0
350921	0.5	1.3	9	21	2.8	0	0	0	0
350922	2.3	1.1	9	17	1.3	0	0	0	0
350923	1.4	1.4	12	21	3.4	0	0	0	0
350924	0.9	1.0	6	0	1.6	0	0	0	0
350925	11.0	3.7	8	0	2.2	0	0	0	0
350926	3.8	10.0	23	39	3.7	0	0	0	0
350927	8.5	6.0	18	38	4.3	0	1	0	0
352304	3.6	10.0	23	50	4.6	0	0	0	0
Samples	27	27	27	27	27	27	27	27	27
Minimum	0.0	1.0	6	0	1.3	0	0	0	0
Maximum	20.0	10.0	82	160	15.0	3	2	0	0

TABLE 5. ROCK SAMPLES

GGU no	Altitude metre	In situ	Description
352301	40	–	Vein quartz, pyrrhotite, chalcopyrite.
352302	150	–	Vein quartz, pyrrhotite, chalcopyrite.
352303	360	–	Vein quartz, pyrrhotite.
352305	300	–	Vein quartz, arsenopyrite.
352306	450	–	Vein quartz, pyrrhotite, pyrite, chalcopy.
352307	220	–	Vein quartz, pyrrhotite.
352308	220	–	Vein calcite, chalcopyrite.
352309	305	–	Vein quartz, pyrrhotite, chalcopyrite.
352310	350	–	Skarn, pyrrhotite.
352311	180	–	Vein quartz, pyrrhotite.
352312	80	–	Skarn, pyrrhotite.
352313	10	–	Vein quartz-calcite, pyrrhotite.
352314	60	–	Vein quartz, pyrrhotite, galena.
352315	35	–	Vein quartz, pyrrhotite.
352316	10	–	Vein quartz, pyrrhotite.
352317	10	–	Vein quartz, pyrrhotite.
352318	40	–	Vein quartz, pyrrhotite.
352319	10	–	Vein quartz, pyrrhotite.
352320	60	–	Metagreywacke, arsenopyrite, pyrrhotite.
352321	130	–	Vein quartz, pyrrhotite, scheelite.
352322	180	–	Metagreywacke, pyrrhotite.
352323	250	–	Vein quartz, pyrrhotite.
352324	40	+	Pyrrhotite horizon (cf. 350915).
352335	50	–	Malachite-stained skarn.
352336	55	–	Amphibolite, pyrrhotite, chalcopyrite.
352337	50	+	Malachite-stained skarn.
352342	35	+	Chalcopyrite-bearing hornblende schist.
352347	70	+	Ultrabasite, magnetite, pyrrhotite.
352348	45	+	Malachite-stained breccia.
352349	40	+	Malachite-stained breccia.
352350	25	+	Quartzite, pyrrhotite.
352351	10	+	Ultrabasite, pyrrhotite.
352352	30	–	Quartz-tourmaline vein.
352353	130	+	Pyrrhotitic chert.
352354	160	–	Vein quartz, chalcopyrite.
352355	110	–	Malachite-stained metagreywacke.
352356	40	–	Gneiss, pyrrhotite, chalcopyrite.
352357	10	–	Quartzite, chalcopyrite, pyrrhotite.
352358	130	–	Quartzite, chalcopyrite, pyrrhotite.
352359	100	+	Quartzite, chalcopyrite, pyrrhotite.
352360	90	+	Quartzite, chalcopyrite, pyrrhotite.
352361	80	+	Quartzite, chalcopyrite.
352362	80	+	Quartzite, chalcopyrite, pyrrhotite.
352363	80	+	Quartzite, chalcopyrite.
352367	60	+	Quartzitic schist, chalcopyrite.
352368	50	+	Quartzite, chalcopyrite, pyrrhotite.

TABLE 5. ROCK SAMPLES

GGU no	Altitude metre	In situ	Description
352371	190	+	Hornblende schist, chalcopyrite.
352372	150	+	Carbonate-bearing hornblende schist.
352373	80	-	Hornblende schist, chalcopyrite.
352374	80	-	Quartzite, pyrrhotite, chalcopyrite.
352375	20	-	Vein quartz, pyrrhotite, chalcopyrite.
352376	150	-	Graphite schist, pyrrhotite, chalcopyrite.
352377	160	-	Vein qtz., pyrrhotite, chalcopy., galena.
352382	45	+	Hornblende schist, chalcopyrite.
352383	45	+	Fragmental hornblende schist.
352384	50	+	Hornblende schist, chalcopyrite.

Note. + = sample from outcrop.
- = boulder or scree sample.

Table 5. Rock samples

GGU no	Au ppb	Au ppb (f.a.)	As ppm	W ppm	Ni ppm	Co ppm	Pt ppb	Pd ppb	Ir ppb	Cr ppm	Fe %
352301	12		1	0	39	11			0	0	2.0
352302	0		0	0	42	17			0	0	1.5
352303	47		206	0	55	34			0	0	3.2
352305	38	68	21300	0	80	19	0	0	0	0	3.2
352306	380	371	89	0	36	12	0	2	0	120	2.2
352307	26	21	32	3	220	66	0	0	0	0	6.4
352308	0		13	10	30	16			0	92	3.1
352309	41	35	3	0	53	64	0	0	0	0	6.1
352310	0		9	2	41	17			0	75	3.0
352311	7		2	0	49	25			0	86	3.6
352312	0		2	0	60	21			0	95	3.7
352313	6		9	0	0	0			0	50	1.7
352314	0		0	0	0	0			0	55	0.0
352315	0		2	0	29	0			0	0	1.5
352316	56		3	0	61	20			0	0	2.4
352317	0		2	0	0	0			0	0	0.0
352318	0		4	0	0	0			0	0	0.0
352319	0		1	0	0	0			0	71	1.1
352320	0	5	1030	0	42	23	0	0	0	93	3.6
352321	0	5	4	549	0	0	0	0	0	0	1.0
352322	0	0	2	120	72	32	0	2	0	160	5.4
352323	0		0	0	49	31			0	140	4.8
352324	20	8	14	0	280	56	0	12	0	67	32.0
352335	0		0	2	55	21			0	150	3.4
352336	0		8	6	130	81			0	500	12.0
352337	0		1	0	56	28			0	170	3.9
352342	81	60	0	0	65	72	0	34	0	0	10.0
352347	6	2	0	0	120	75	0	0	0	0	17.0
352348	0		1	0	46	26			0	220	4.2
352349	0		0	2	0	20			0	72	4.3
352350	16	12	3	3	87	46	0	1	0	360	8.6
352351	0	50	0	0	1200	110	0	8	0	2400	6.4
352352	0		0	0	0	0			0	300	1.5
352353	0	0	81	0	660	14	0	14	0	0	28.0
352354	32		2	0	30	12			0	58	2.0
352355	0		4	0	35	17			0	76	2.4
352356	0		0	0	0	0			0	0	0.8
352357	34		0	0	0	0			0	0	0.6
352358	68		0	0	39	22			0	73	1.9
352359	7		0	0	0	0			0	0	1.0
352360	0		0	0	0	36			0	91	5.6
352361	14		0	0	0	0			0	0	0.0
352362	170	264	0	0	120	380	0	0	0	0	7.7
352363	54		0	0	0	13			0	0	2.7
352367	250	323	0	0	23	24	0	9	0	0	4.1
352368	64		0	0	0	45			0	0	3.3

Table 5. Rock samples

GGU no	Au ppb	Au ppb (f.a.)	As ppm	W ppm	Ni ppm	Co ppm	Pt ppb	Pd ppb	Ir ppb	Cr ppm	Fe %
352371	0		0	0	270	86			0	690	11.0
352372	0	26	0	0	450	100	0	1	0	1000	8.9
352373	0	17	6	0	230	84	0	3	0	920	10.0
352374	0		1	2	55	16			0	110	3.8
352375	0		300	0	58	18			0	82	2.1
352376	13		12	3	79	23			0	150	5.0
352377	29		3	0	89	12			0	0	4.0
352382	0	11	1	0	320	96	0	0	0	750	11.0
352383	0	8	0	0	560	110	0	1	0	1400	9.1
352384	19		2	0	160	63			0	370	8.5
Samples	56	19	56	56	56	56	19	19	56	56	56
Minimum	0	0	0	0	0	0	0	0	0	0	0.0
Maximum	380	371	21300	549	1200	380	0	34	0	2400	32.0

Table 5. Rock samples

GGU no	Cu ppm	Zn ppm	Zn ppm (a.a.)	Cd ppm	Pb ppm	Ag ppm	Sb ppm	Se ppm	Te ppm	Mo ppm	Sn ppm
352301	66	0	131	0	17	0	0.0	0	0	0	0
352302	54	0	43	0	5	0	0.0	0	0	0	0
352303	125	0	23	0	5	0	0.0	0	0	0	0
352305	3	0	70	0	10	0	12.0	0	0	0	0
352306	274	0	80	0	4	0	0.0	0	0	0	0
352307	75	0	44	0	12	0	0.0	0	0	0	0
352308	827	0	78	0	4	0	0.0	0	0	0	0
352309	432	0	25	0	4	0	0.0	0	0	57	0
352310	28	0	46	0	14	0	0.0	0	0	0	0
352311	153	0	63	0	9	0	0.0	0	0	18	0
352312	30	0	73	0	9	0	0.0	0	0	0	0
352313	31	0	32	0	8	0	0.0	0	0	0	0
352314	11	0	11	0	380	0	0.0	0	0	0	0
352315	28	0	33	0	8	0	0.0	0	0	0	0
352316	69	0	42	0	10	0	0.0	0	0	0	0
352317	1	0	3	0	0	0	0.0	0	0	0	0
352318	4	0	3	0	0	0	0.0	0	0	0	0
352319	29	0	27	0	8	0	0.0	0	0	0	0
352320	50	0	78	0	11	0	0.0	0	0	4	0
352321	28	0	10	0	2	0	0.0	0	0	0	0
352322	43	250	191	0	23	0	0.3	0	0	0	0
352323	136	0	98	0	9	0	0.0	0	0	0	0
352324	796	1900	1950	0	17	0	2.5	14	0	41	0
352335	33	0	38	0	6	0	0.0	0	0	0	0
352336	89	260	111	0	3	0	0.0	0	0	0	0
352337	70	0	79	0	11	0	0.0	0	0	0	0
352342	7430	0	80	0	0	10	0.0	0	0	0	0
352347	183	200	94	0	7	0	0.0	0	0	0	0
352348	205	0	47	0	75	0	1.1	0	0	0	0
352349	239	0	59	0	13	0	0.3	0	0	0	0
352350	142	250	59	0	7	0	0.0	0	0	0	0
352351	51	0	24	0	2	0	0.0	0	0	0	0
352352	45	0	6	0	4	0	0.0	0	0	0	0
352353	216	0	210	0	8	0	1.9	0	0	16	0
352354	139	0	37	0	6	0	0.0	0	0	0	0
352355	90	0	115	0	9	0	0.2	0	0	0	0
352356	231	0	15	0	6	0	0.0	0	0	0	0
352357	2350	0	41	0	0	0	0.0	0	0	0	0
352358	2630	0	53	0	3	0	0.0	0	0	4	0
352359	2580	0	37	0	3	0	0.0	0	0	16	0
352360	1760	0	122	0	9	0	0.0	0	0	0	0
352361	1490	0	24	0	6	0	0.0	0	0	0	0
352362	22700	300	394	0	3	24	0.0	0	0	0	0
352363	18100	0	70	0	2	22	0.0	0	0	0	0
352367	18600	0	101	0	10	13	0.0	0	0	0	0
352368	10420	0	100	0	8	8	0.0	0	0	0	0

Table 5. Rock samples

GGU no	Cu ppm	Zn ppm	Zn ppm (a.a.)	Cd ppm	Pb ppm	Ag ppm	Sb ppm	Se ppm	Te ppm	Mo ppm	Sn ppm
352371	200	0	42	0	3	0	0.0	0	0	0	0
352372	148	0	15	0	2	0	0.0	0	0	0	0
352373	355	0	21	0	0	0	0.0	0	0	0	0
352374	70	0	61	0	7	0	0.0	0	0	0	0
352375	114	0	84	0	37	0	0.4	0	0	0	0
352376	349	0	157	0	44	0	1.7	0	0	16	0
352377	1970	940	1150	12	278	0	0.6	0	0	11	0
352382	207	0	27	0	5	0	0.0	0	0	0	0
352383	144	0	45	0	2	0	0.0	0	0	0	0
352384	596	0	59	0	2	0	0.2	0	0	0	0
Samples	56	56	56	56	56	56	56	56	56	56	56
Minimum	1	0	3	0	0	0	0.0	0	0	0	0
Maximum	22700	1900	1950	12	380	24	12.0	14	0	57	0

Table 5. Rock samples

GGU no	Na %	Ba ppm	Br ppm	Sc ppm	Rb ppm	Cs ppm	Zr ppm	Hf ppm	Ta ppm
352301	0.83	140	0	4.5	34	3	0	0	0
352302	0.66	0	0	3.4	20	2	0	0	0
352303	0.37	0	0	2.4	15	2	0	0	0
352305	1.70	650	29	8.0	66	4	0	0	0
352306	0.68	170	0	5.7	32	3	0	4	0
352307	0.29	250	0	4.2	37	3	0	0	0
352308	0.10	260	0	8.9	110	0	0	3	0
352309	0.57	0	0	4.1	17	2	0	0	0
352310	0.80	420	0	12.0	63	14	0	3	0
352311	0.29	180	0	13.0	61	5	0	3	0
352312	1.30	590	0	15.0	120	10	0	3	1
352313	0.27	200	0	6.9	22	2	0	3	0
352314	0.13	0	0	1.1	0	0	0	0	0
352315	0.53	0	0	3.0	33	3	0	0	0
352316	0.84	240	0	4.4	51	5	0	0	0
352317	0.00	0	0	0.0	0	0	0	0	0
352318	0.06	0	2	0.6	0	0	0	0	0
352319	0.17	0	1	5.9	37	1	0	0	0
352320	0.73	570	3	15.0	110	5	0	0	0
352321	0.09	320	0	1.8	40	2	0	0	0
352322	2.60	460	0	26.0	240	31	0	3	1
352323	0.66	230	0	18.0	110	6	0	2	0
352324	0.55	0	2	20.0	45	3	0	0	0
352335	0.22	0	0	14.0	34	1	0	3	0
352336	1.60	0	0	37.0	0	0	0	6	5
352337	0.30	110	0	16.0	17	2	0	5	0
352342	4.00	0	0	34.0	0	0	0	6	4
352347	1.70	650	0	41.0	78	9	0	2	0
352348	1.00	260	0	24.0	32	2	0	0	0
352349	1.80	510	2	14.0	45	1	0	5	0
352350	0.68	180	0	42.0	23	2	0	0	0
352351	0.20	0	0	22.0	0	0	0	0	0
352352	2.70	0	0	11.0	11	0	0	0	0
352353	0.14	0	0	1.4	0	0	0	0	0
352354	0.17	110	0	8.0	36	2	0	0	0
352355	1.70	310	0	9.2	91	5	0	3	1
352356	4.90	0	0	1.7	44	0	0	3	2
352357	2.50	450	0	0.8	36	1	0	0	0
352358	0.36	0	0	2.7	0	0	0	0	0
352359	1.50	1600	0	0.0	110	0	0	0	0
352360	0.44	570	0	11.0	220	6	0	5	0
352361	3.90	1500	0	1.3	110	2	0	0	0
352362	1.70	1600	0	0.0	82	0	0	0	0
352363	2.10	760	0	1.0	61	1	0	0	0
352367	2.50	880	0	6.9	99	2	0	0	0
352368	2.10	3200	0	1.5	210	2	0	0	0

Table 5. Rock samples

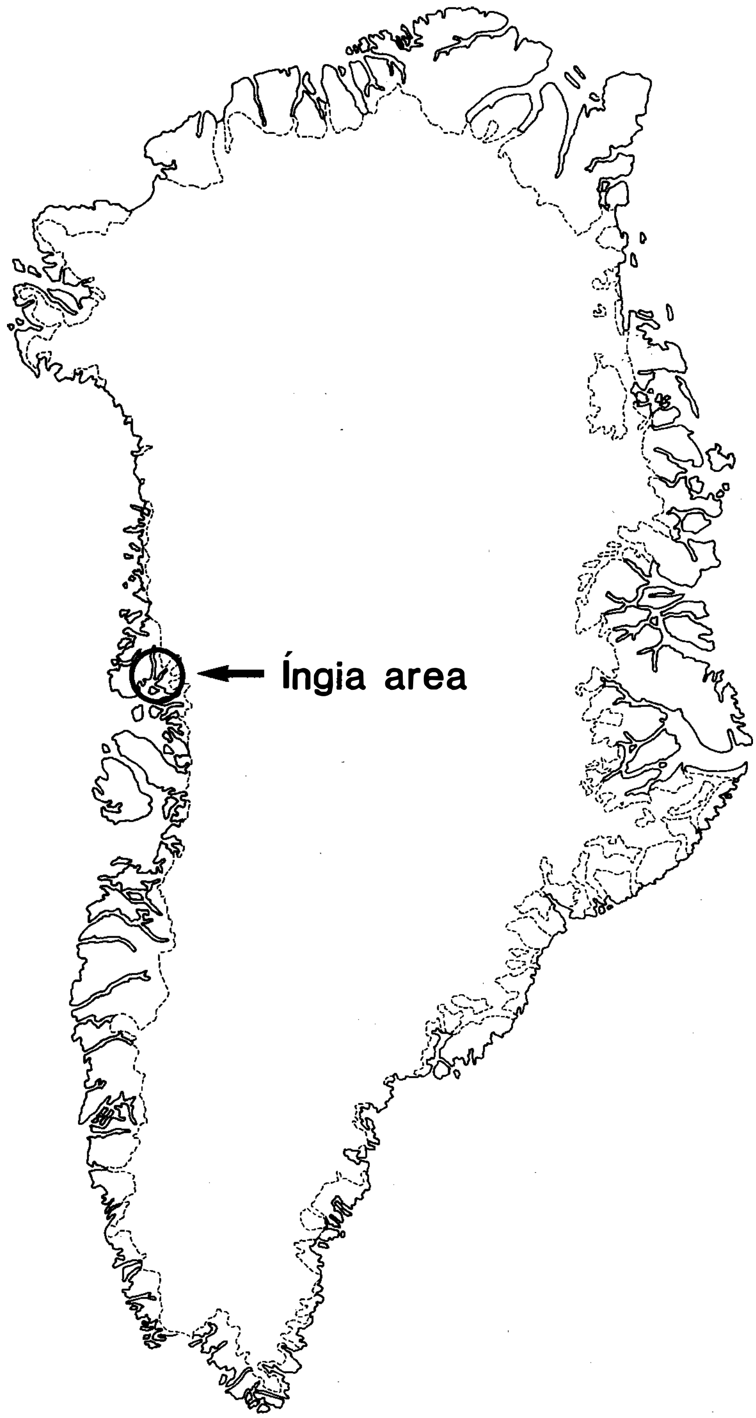
GGU no	Na %	Ba ppm	Br ppm	Sc ppm	Rb ppm	Cs ppm	Zr ppm	Hf ppm	Ta ppm
352371	1.60	510	0	33.0	47	2	0	5	3
352372	1.10	120	0	25.0	0	0	0	3	2
352373	1.80	170	0	36.0	0	0	0	4	2
352374	1.40	520	0	15.0	150	5	0	3	1
352375	1.10	150	0	4.6	32	3	0	0	0
352376	2.70	700	0	22.0	160	12	0	4	2
352377	0.32	0	0	3.1	21	2	0	0	0
352382	2.20	0	0	39.0	0	0	0	5	3
352383	1.30	680	0	25.0	48	1	0	4	2
352384	0.49	0	0	23.0	13	1	0	4	3
Samples	56	56	56	56	56	56	56	56	56
Minimum	0.00	0	0	0.0	0	0	0	0	0
Maximum	4.90	3200	29	42.0	240	31	0	6	5

Table 5. Rock samples

GGU no	U ppm	Th ppm	La ppm	Ce ppm	Sm ppm	Eu ppm	Tb ppm	Yb ppm	Lu ppm
352301	1.0	3.6	12	14	1.6	0	0	0	0
352302	0.9	3.6	9	16	1.3	0	0	0	0
352303	0.0	1.8	0	0	0.6	0	0	0	0
352305	0.0	4.5	14	0	2.4	0	0	17	0
352306	1.9	8.3	13	22	2.0	0	0	0	0
352307	1.0	3.6	10	16	1.4	0	0	0	0
352308	5.1	22.0	16	32	2.3	0	0	0	0
352309	0.8	2.2	6	13	0.9	0	0	0	0
352310	3.2	10.0	34	58	5.5	0	0	0	0
352311	3.5	7.6	23	39	3.3	0	0	0	0
352312	3.8	10.0	34	57	5.0	0	0	0	0
352313	1.4	5.5	18	38	4.1	0	0	0	0
352314	0.0	0.6	0	0	0.3	0	0	0	0
352315	0.6	1.9	5	0	0.8	0	0	0	0
352316	1.0	5.1	15	22	2.1	0	0	0	0
352317	0.0	0.0	0	0	0.0	0	0	0	0
352318	0.0	1.7	0	0	0.2	0	0	0	0
352319	0.9	1.9	12	18	2.7	0	0	0	0
352320	3.3	8.4	26	40	4.1	0	0	0	0
352321	1.2	0.0	6	0	1.6	0	0	0	0
352322	7.1	19.0	46	75	5.8	0	0	0	0
352323	3.5	9.4	33	54	4.6	0	0	0	0
352324	8.5	1.1	11	20	2.3	0	0	0	0
352335	2.4	6.0	30	52	5.7	0	1	0	0
352336	2.4	5.8	56	110	11.0	3	2	0	0
352337	2.7	6.9	47	97	7.5	0	1	0	0
352342	1.6	3.9	35	65	8.0	3	1	0	0
352347	2.2	3.8	29	44	5.9	0	1	0	0
352348	2.2	3.5	13	20	2.1	0	0	0	0
352349	2.3	10.0	22	46	3.4	0	0	0	0
352350	0.6	1.9	8	18	2.2	0	0	0	0
352351	0.0	0.6	0	0	0.6	0	0	0	0
352352	0.0	2.1	0	0	0.7	0	0	0	0
352353	8.8	1.8	0	0	0.0	0	0	0	0
352354	3.3	2.3	11	12	1.5	0	0	0	0
352355	3.4	10.0	36	60	5.4	0	1	0	0
352356	8.9	3.6	0	0	0.7	0	0	0	0
352357	1.3	0.0	0	0	0.3	0	0	0	0
352358	1.5	0.0	0	0	0.3	0	0	0	0
352359	1.0	0.0	0	0	0.3	0	0	0	0
352360	20.0	7.1	96	180	9.5	3	0	0	0
352361	0.9	1.0	0	11	0.7	0	0	0	0
352362	1.3	0.0	0	0	0.3	0	0	0	0
352363	0.8	0.0	0	0	0.0	0	0	0	0
352367	3.1	3.4	13	29	2.5	0	0	0	0
352368	0.6	0.7	0	0	0.4	0	0	0	0

Table 5. Rock samples

GGU no	U ppm	Th ppm	La ppm	Ce ppm	Sm ppm	Eu ppm	Tb ppm	Yb ppm	Lu ppm
352371	1.1	3.4	36	69	8.0	0	0	0	0
352372	0.5	2.0	23	37	4.9	0	0	0	0
352373	0.7	2.7	30	51	6.5	2	1	0	0
352374	3.1	10.0	32	52	4.8	0	1	0	0
352375	1.3	5.0	15	33	2.4	0	0	0	0
352376	8.8	16.0	39	68	5.8	0	1	0	0
352377	3.0	2.3	8	13	1.1	0	0	0	0
352382	0.9	3.0	36	57	7.7	3	0	0	0
352383	1.2	1.9	23	49	4.7	0	0	0	0
352384	1.7	3.0	37	70	9.1	2	2	0	0
Samples	56	56	56	56	56	56	56	56	56
Minimum	0.0	0.0	0	0	0.0	0	0	0	0
Maximum	20.0	22.0	96	180	11.0	3	2	17	0



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