Gold and base metal potential of the Íngia area, central West Greenland

Bjørn Thomassen

Open File Series 91/5

May 1991

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Kalaallit Nunaanni Ujarassiortut Misissuisoqarfiat
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ISSN 0903-7322

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ABSTRACT

The Íngia area in the northern Umanak district consists mainly of Archaean gneiss and Lower Proterozoic supracrustals, the Karrat Group. The latter was deposited in an epicontinental back-arc basin and comprises a thick basal unit of shallow marine quartzites overlain by a thin wedge of mafic metavolcanics followed by a thick sequence of metaturbidites. The rocks were folded and metamorphosed during the 1.8 Ga Rinkian orogenesis.

Stratiform mineralisation of exhalitic or sedimentary origin occurs at several levels in the supracrustal pile. It is typically developed as laterally consistent cherty pyrrhotite-graphite breccia with base/noble metal contents in the order of 2700 ppm Zn, 500 ppm Cu and 40 ppb Au. Additionally, disseminated arsenopyrite mineralisation with 100-1000 ppm As and 4-7 ppb Au is known from local boulders. The stratiform mineralisation offers in itself possibilities for economic metal concentrations, and also provides potential source rocks for epigenetic mineralisation.

Epigenetic quartz vein mineralisation is mainly known from boulder finds. It is dominated by pyrrhotite, but also chalcopyrite and occassional galena, sphalerite, scheelite, molybdenite and arsenopyrite occur. Metal contents of up to 1.4 ppm Au, 2.1% As, 1.3% Zn and 0.9% Cu have been encountered. An outcropping mineralisation of chalcopyrite-bearing quartz veins is probably controlled by a low-angle thrust zone, a characteristic structural element in the region.

A geochemical survey using stream sediment samples and pan samples has outlined three areas anomalous in gold and a number of other elements. The highest gold values are 33 ppb in stream sediment samples and 19 ppm in pan samples. The gold is probably hosted in arsenopyrite and other sulphides.

The Íngia area holds a potential for gold-bearing quartz veins. Outcropping mineralisation of this type can be expected in the anomalous areas pin-pointed by geochemistry. A potential for stratiform copper-zinc deposits also exists, but this type of mineralisation should be explored for on a regional scale. In general, the study indicates that the metaturbidites of the Karrat Group are highly arsenical and constitute a promising regional target for gold exploration.

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1. INTRODUCTION

The approaching closure of the Black Angel lead-zinc mine at Mârmorilik induced the Geological Survey of Greenland (GGU) 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 (Figs 1, 2) was visited because a persistent iron-sulphide horizon associated with metavolcanics and a gold-arsenic-tungsten geochemical anomaly had previously been recorded in the area (Allen & Harris, 1980). The field work in 1989 implied that the iron-sulphide horizon is only slightly enriched in zinc, copper and gold, but the geochemical anomaly was reconfirmed, a new gold-arsenic-cobalt anomaly was outlined, and higher than normal gold contents were revealed in quartz veins (Thomassen, 1990). As these results indicate a potential for gold mineralisation in a major supracrustal unit (the Karrat Group), additional field work was carried out in 1990 in order to complete the geochemical sampling, and to demarcate and try to explain the anomalies.

The present report summarises the results of both field seasons. The known mineralisation is described, the main results of the geochemical survey are presented, and an evaluation of the mineral potential of the area is attempted.

The Íngia area is situated some 150 km NNW of Umanak at the border between Umanak and Upernavik municipalities. As defined on Fig. 2, the area comprises parts of the three peninsulas Svartenhuk Halvø, Íngia and Akuliarusinguaq, separated by the Uvkusigssat and Íngia Fjords. The land area totals some 1100 km^2. 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 and from two camps during another three weeks in July-August 1990. The author was accompanied by Jan Lorentzen and Mogens Lind, respectively. During both seasons 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.

2. BACKGROUND

Mineral exploration in the Umanak district, i.e. the area between Nûgssuaq and Svartenhuk Halvø peninsulas, has concentrated on the Black Angel lead-zinc ores at Mârmorilik which were discovered in 1938 and mined by Greenex A/S in the period 1973-1990. The deposit comprised a total of 13.6 mill. tons ore grading 4.0% Pb and 12.3% Zn (Thomassen, 1991). Exploration activities north of Mârmorilik have been limited to a few reconnaissance programmes as described below.

In 1949 sedimentary pyrrhotite deposits in graphitic mica schists in the Umanak district were reconnoitret by GGU (Pauly, 1952).

In 1962-63 most of the district north of Mârmorilik, including the Íngia area, was mapped geologically at scale 1:100 000 by GGU (Henderson & Pulvertaft, 1987). These authors introduced the term Karrat Group for the Proterozoic metasediments of the area and subdivided the Group into Mârmorilik, Qeqertarssuaq and Nûkavsak Formations. The occurrence of horizons of graphite-pyrrhotite schist in the Nûkavsak Formation was noted.

In 1972 three weeks of mineral exploration in the Karrat Group north of Mârmorilik was carried out by Gemco A/S (Neale & Smith, 1973). Two horizons of graphite-pyrrhotite breccia in the basal part of the Nûkavsak Formation were investigated. A paragenesis dominated by pyrrhotite with minor pyrite and traces of chalcopyrite was reported along with maximum metal contents of 0.7% Zn, 0.4% Cu, 0.02% Pb and <0.1 ppm Au.

In the 1960's and 1970's extensive exploration in the district was carried out by Greenex A/S - Cominco Ltd. This work concentrated on the marble outcrops in the Mârmorilik area, but at the end of the period some of the activities were directed towards the north, the philosophy being that the clastic metasediments of this area might host massive base metal deposits of the same age as the Black Angel ores.

In 1978 reconnaissance exploration of the Karrat Group metasediments north of Mârmorilik was carried out by Cominco Ltd. during two weeks (Gannicott, 1979). Sulphide-bearing samples returned up to 0.45% Zn and 0.14% Cu.

In 1979 the most comprehensive exploration effort to date of the Karrat Group between Mârmorilik and Svartenhuk Halvø was accomplished by Cominco Ltd. (Allen & Harris, 1980). This programme, carried out by two geologists and two assistants from boat and helicopter during two months, was aimed at the base metal potential of the pyrrhotite horizons in a nearly 7000 km^2 large area. The programme comprised extensive rock sampling of the sulphidic units and a stream sediment survey.

Cherty and/or graphitic sulphide iron formations were found in the Nûkavsak Formation and sporadically in the Qeqertarssuaq Formation. The sulphides occur as several strata-bound horizons, often 5-10 m thick and with strike lengths of 5-10 km or more. They are best developed in the lowermost 500-600 m of the Nûkavsak Formation. The paragenesis is dominated by pyrrhotite, often brecciated, with subordinate pyrite and traces of chalcopyrite. The highest base metal contents of rock samples range between 0.1-1.0% zinc and copper, with lower lead contents (max. 0.03% Pb). The rock samples were not analysed for gold or arsenic.

The stream sediment survey outlined a number of base metal anomalies and a few elevated gold values. The two highest gold values occur in heavy mineral concentrates from the west coast of Uvkusigssat Fjord (160 ppb Au at U6 and 100 ppb Au at U2, cf. Fig. 2).

In 1980 limited follow-up work was carried out on some of the geochemical anomalies outlined in 1979, but no new evidence was put forward (King, 1981).

In 1986 a field trip to the Karrat Group 30 km north of Mârmorilik was carried out by Greenex A/S (Thomassen & Lind, 1987). A few samples of pyrrhotite breccia returned up to 0.3% Zn, 0.05% Cu, 0.1% Pb, 0.01% As and 0.2 ppm Au.

In 1990 three weeks of follow-up exploration was carried out by Intergeo-Exploration in the Íngia area on the anomalies outlined by GGU the previous year (Della Valle, in prep.).

In 1978 a geochemical survey using lake sediments was carried out over a part of Baffin Island (Fig. 1) where the bedrocks are similar to the Karrat Group (Cameron, 1986). It was found that metaturbidites from this area cause intense lake sediment anomalies for arsenic (median value = 4 ppm As, 95% percentile = 90 ppm As). The samples were not analysed for gold, but because of the gold-arsenic-turbidite association it was considered that this area holds a potential for gold. A local sample of sulphide facies iron formation contains 0.34% Zn, 0.06% Cu, 26 ppm Pb, 85 ppm As and 60 ppb Au.

3. SAMPLING AND CHEMICAL ANALYSIS

The following samples were collected: stream sediment samples (100), pan samples (102), chip samples (27) and rock samples (133). The sample sites are shown on Figs 4-6 and 14-16. Multi-element analysis has been performed as outlined in Table 1, and all analytical results are listed in Tables 2-5.

Stream sediment samples are silt samples from active streams. At each sample locality, composite gravel-sand-silt samples were collected at five nearby sites 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 laboratory, and 10 g were selected from the -0.1 mm fractions (median weight = 44 g) for trace element analysis (Table 2).

Stream sediment samples and pan samples were always collected in pairs, except in two cases (350812, 350830).

Pan samples are heavy mineral concentrates produced by panning of active stream sediments. In 1989 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 sieve loads 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. This procedure was time consuming (approximately 1 hour per preconcentrate) and the resulting concentrates are small (median weight = 6.9 g). Thus, in 1990 samples were collected with a spade and filled into a 10 l plastic bucket corresponding to c. 20 kg raw sample. The material was gravel collected from 4-5 nearby sites in the river bed. However, neither sampling time nor amount of concentrate (median weight = 6.3 g) were improved by this sampling procedure.

The preconcentrates were separated by heavy liquid (d=2.95) in the laboratory, and 2 g or 20 g of the heavy fraction were analysed for trace elements (Table 3).

Chip samples are unbiased surface samples representative of a rock 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 polyethylene bag until the bag was filled. The sample weight is c. 3 kg. Except for a reference chip, all sample material was pulverized and analysed for major and trace elements (Table 4).

Rock samples are hand specimens of sulphide-bearing rocks (boulder or outcrop) collected for chemical analysis, or samples of characteristic rock types. 20 of the samples were analysed for major elements and 106 for trace elements (Table 5).

4. GEOLOGICAL FRAMEWORK

The Umanak district is built up of 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 & Pulvertaft, 1967; Henderson & Pulvertaft, 1987). The older Precambrian rocks are intersected by a major NNW-SSE orientated, c. 1645 Ma old dolerite dyke swarm (Kalsbeek & Taylor, 1986). The geological units exposed in the Íngia area are shown on Fig. 3.

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 Umanak district, whereas the quartzite-dominated Qeqertarssuaq Formation occurs in the northern part of the district. The two formations were deposited simultaneously in separate subbasins. The up to 1600 m thick Mârmorilik Formation consists of calcitic and dolomitic marbles with a thin basal clastic unit, intercalations of pelitic and cherty schists, and locally evaporites. The Black Angel lead-zinc ores and similar smaller sulphide showings in the area between Mârmorilik and Nûgssuaq are hosted in these marbles (Pedersen, 1980). The up to 3000 m thick Qeqertarssuaq Formation consists of uniform quartzite with intercalations of pelitic schists and rare marbles. The formation hosts pods of ultramafic rocks and, at the very top, a mafic unit of hornblende schist and amphibolite of volcanic origin. The latter reaches a maximum thicknes of c. 600 m some 30 km south-east of the Íngia area. The metavolcanics are often overlain by an iron-sulphide-rich horizon (Allen & Harris, 1980).

The Mârmorilik and Qeqertarssuaq Formations are overlain by a blanket of flysch-type metasediments, the Nûkavsak Formation. This formation continues for another c. 300 km north of the district. It is a 4-5 km thick sequence wholly dominated by interbedded pelitic and semipelitic rocks, often displaying graded bedding. These rocks are metamorphosed shales and greywackes. The Nûkavsak Formation contains a number of cherty and/or graphitic iron-sulphide horizons which were the main target for previous exploration in the northern part of the district as outlined in section 2. The formation also hosts widespread segregational quartz veining.

It has been suggested that the Karrat Group was deposited in an epicontinental back-arc basin (Grocott & Pulvertaft, 1990). The depositional environment was first a stable shelf setting; this was terminated by block faulting with associated volcanism (Mârmorilik and Qeqertarssuaq Formations). Thereafter, the environment changed to a larger, deeper turbidite basin (Nûkavsak Formation).

The Precambrian rocks 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. However, a number of major low-angle ductile shear zones involving both basement and cover have also been identified by Grocott & Pulvertaft (1990) in the northern part of the district, e.g. in the central reaches of Uvkusigssat Fjord. Tight zig-zag folds and large overfolds are common within the Nûkavsak Formation. Metamorphic grades are mainly upper greenschist to amphibolite facies.

A major syn-tectonic granite/charnockite body - the 1860 Ma Prøven granite (Kalsbeek, 1981) - occurs some 20 km north of the Íngia area, and microgranite veins probably associated with this intrusive event reach into the northern part of the area.

The Karrat Group has been correlated with the near identical supracrustals of the Foxe fold belt in NE Canada (Fig. 1), (Henderson & Pulvertaft, 1987), where beds of sulphide and rare oxide facies iron formation occur in graphitic schist and amphibolite.

5. MINERALISATION

Prior to the present study the only mineralisation known in the Íngia area was disseminated and massive iron-sulphide horizons with traces of copper and zinc. The field work comprised mainly the search for mineralised boulders in deltas, river beds, scree cones and terminal moraines, whereas inspection and sampling of outcropping rocks was only performed in a few cases. Sample locations are shown on Figs 4-6, and all analytical values are listed in Tables 4 and 5 together with a short sample description. The distribution of elevated gold and arsenic in the rock samples are illustrated on Figs 7 and 8.

5.1. 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. They might represent sulphide facies iron formations. A grab sample of 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). Further, a c. 1 m thick horizon of cm-banded magnetite/quartz-rich metasediment (352347) might represent an oxide facies iron formation.

On the north coast of Puatdlarsiîvik, the basal part of the formation hosts pods, 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) returned 6.4% Fe, 0.24% Cr, 0.12% Ni, 50 ppb Au and 8 ppb Pd.

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. 9). 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.

5.2. Metavolcanic unit

The metavolcanic unit was sampled mainly at the V1 locality in Íngia Fjord, where the c. 25 m thick unit crops out over a distance of 4 km along the coast at elevations from sea level to 50 m (Figs 2,3). 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. 10). The fragmental unit may be missing. A pyrrhotite-rich horizon, 0.5-5.0 m thick and rusty weathering, is invariably present at the contact into the overlying grey mica schists of the Nûkavsak Formation.

The fragmental unit consists of a matrix of soft, easily weathering, bright green, hornblende schist in which harder, more weathering-resistant dark fragments are "swimming". The fragments are of variable size, up to 1 m across, and more or less flattened and/or stretched. Both rounded and angular fragments occur, but they are all dark and fine-grained rocks of ultramafic composition. 10-20 per cent of the larger fragments show a distinct vesicular texture. The rocks are strongly carbonatised.

The pyrrhotite-rich horizon is generally 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. Trace amounts 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 represent a deposit of pillow/flow breccias originating from a picritic melt and embedded in pyroclastics, whereas the bedded hornblende schists are believed to represent a mixture of water-lain tuffs and epiclastic sediments. The pyrrhotite-rich horizon might be a metamorphosed sulphide-bearing chert exhalite.

Faint disseminations of pyrrhotite and subordinate chalcopyrite are quite common in the hornblende schists, but malachite staining is rare. A minor mineralisation (1-2 m^3) of disseminated chalcopyrite was observed at one locality (352342). A grab sample returned 0.74% Cu, 60-81 ppb Au and 34 ppb Pd.

Analytical results from chip samples collected across the contact between the Qeqertarssuaq and Nûkavsak Formations are summarized in Table 6. It appears that neither the hornblende schists nor the mica schists contain unusual amounts of noble or base metals. The pyrrhotite horizon exhibits somewhat elevated zinc and copper contents, but is low in gold and lead. A single anomalous high copper value, 0.26% Cu over 2 metres (350918), is noted.

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.

5.3. Nûkavsak Formation

The Nûkavsak Formation consists of uniform, grey to dark brown, interbedded layers of metamorphosed semipelite (greywacke) and pelite (black shale) with subsidiary skarn lenses. The lithologies are believed to represent a turbidite sequence. They are penetrated by numerous quartz veins, and intense zig-zag folding is common. Recognised mineralisation is of stratiform type and vein type.

Rusty-weathering horizons containing a few per cent disseminated pyrrhotite are very common in the turbidite sequence (366303, 366313, 366317). Furthermore, boulders with fine-grained, disseminated arsenopyrite have been found at three different localities - U0, U3 and Kugssinerssuaq - and this type of mineralisation, which is easily overlooked, might also be quite common in the sequence (352320, 366314, 366340). The boulders contain 100-1000 ppm As and 4-7 ppb Au.

Cherty layers of semi-massive pyrrhotite-graphite breccias comparable to the horizon at the top of the metavolcanic unit exist at one or more levels in the formation, but they were not studied in outcrop. However, as boulders of this mineralisation are found in most river beds, it must be widely distributed in the area. The sulphide minerals are invariably dominated by pyrrhotite with minor pyrite and trace amounts of chalcopyrite and occasionally arsenopyrite (366343). The metal contents of a few samples from this mineralisation are summarized in Table 6. It appears that noble and base metals as well as arsenic and molybdenum are higher here than in the similar mineralisation associated with the metavolcanics.

Most veins in the Nûkavsak Formation 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 hundred metres long veins have also been observed. Various sets of structurally controlled vein systems exist, but they have not been studied in detail. Wall-rock alteration has not been observed. In addition to white quartz, the veins often contain calcite and mica. Minor amounts of chlorite, feldspar, red garnet, tourmaline and sulphides are common.

At the head of Íngia Fjord a NNW-striking system of near vertical, up to 1 m thick, discordant quartz veins is exposed over a vertical distance of several hundred metres. Floats from these veins display rare malachite-staining and minor blebs of chalcopyrite and galena, but only low metal contents (max. 0.09% Cu and 0.01% Pb), (366332-33).

Granitic veining of the metasediments is common on both sides of Uvkusigssat Fjord in the northwestern part of the area. Only traces of pyrrhotite and chalcopyrite were observed in floats of this type (366309-366311).

The wholly dominant sulphide in the quartz veins from Nûkavsak Formation is pyrrhotite, often accompanied by minor pyrite and traces of chalcopyrite. A few other ore minerals were observed in quartz-veined boulders in the field: galena (6 samples), sphalerite (2 samples), scheelite (3 samples), molybdenite (1 sample) and arsenopyrite (1 sample). The highest values for some selected elements from the boulders are shown in Table 7. The corresponding samples are briefly described below.

Sample no. 366315 with 1.4 ppm Au consists of metagreywacke cut by a 5-10 cm thick quartz vein with 1-2% irregularly distributed sulphides. The latter consist of pyrrhotite and pyrite with traces of chalcopyrite. Under the microscope native bismuth and bismuthinite were observed as frequent inclusions in the other sulphides. This observation has been confirmed by microprobe investigation (H. K. Schönwandt, pers. comm., 1991). No free gold was observed.

Sample no. 352306 with 0.37 ppm Au is a metagreywacke cut by a 5 cm thick quartz vein with traces of pyrrhotite, pyrite and chalcopyrite as joint coatings. No free gold was observed under the microscope.

Sample no. 352305 consists of brecciated metagreywacke cemented by quartz with a few per cent arsenopyrite as 1 cm large crystals, often as cruciform twins. It contains 2.13% As and 68 ppb Au.

Sample no. 352321 with 0.055% W is a quartz vein in metagreywacke containing 1-2 % pyrrhotite and a few specs of scheelite.

Sample no. 366318 with 0.075% Mo is vein quartz with blebs of intergrown pyrrhotite, molybdenite and trace chalcopyrite.

Sample no. 366336 with 0.87% Cu is brecciated metagreywacke with vein quartz and calcite, and blebs of chalcopyrite and pyrrhotite.

Sample no. 366323 with 1.27% Zn, 0.35% Cu and 0.03% Pb is brecciated and quartz-veined metagreywacke with one few centimetres large bleb of intergrown dark brown sphalerite, chalcopyrite, pyrrhotite and galena.

Sample no. 366344 with 0.58% Zn, 0.18% Cu and 0.07% Pb is brecciated and silicified metagreywacke with blebs and stringers of sphalerite, chalcopyrite, pyrrhotite and galena.

6. GEOCHEMICAL SURVEY

The geochemical data set comprises 100 stream sediment samples and 102 pan samples which were analysed for 36 elements (Tables 2,3). The samples were collected in pairs (except for two) i.e. at each sample locality both a stream sediment sample and a pan sample were collected and numbered so that the two last digits in the sample numbers are identical. The sample localities are mainly deltas or lower reaches of fast flowing first or second order streams with gravel beds rich in cobbles and boulders. Vegetation is virtually absent in the streams, and the secondary geochemical dispersion is, as in most parts of Greenland, predominantly clastic (Steenfelt, 1987). About a third of the samples are collected relatively close (c. 200 m) to each other in the two anomalous areas (U3 and Kugssinerssuaq valleys), whereas the remaining samples stem from a semi-regional survey of the Íngia area with a spacing of some 5 km (Figs 14-16). In total, the samples represent a drainage area of c. 1000 km^2 corresponding to an average sample density of c. 1 sample pair per 10 km^2.

The source rocks are mainly Nûkavsak Formation (79%), but other sources exist (Table 2). In the present study all samples have been treated as one population, mainly expressing the geochemistry of the Nûkavsak Formation.

6.1. Mineralogical investigations

In the field, the preconcentrates were inspected in the pan with a hand lens. Iron sulphides were recognised in most samples and arsenopyrite in a few, but gold was not observed.

A microscopic examination of the heavy mineral concentrates is being conducted by M. Lind. Preliminary results indicate that no visible gold occurs in the concentrates. It is believed that the gold is hosted in sulphide minerals, first and foremost in arsenopyrite. Arsenopyrite is abundant in samples from U3 and Kugssinerssuaq valleys, scheelite in samples from U3.

6.2. Statistical interpretation

Due to the uneven and biased sampling, the geochemical data do not form an ideal data set from which regional statistical parametres can automatically be deduced. It is nevertheless hoped that this section will be of some help to establish threshold values between background and anomalous values in future exploration programmes in the region.

Range, average and median values for all elements are shown in Tables 2 and 3. The 14 elements believed to be significant for exploration were investigated further. These elements are shown in Table 8 together with some statistical parametres and, for comparison, values from other parts of Greenland. It can be seen that relatively high values occur for elements such as gold, arsenic, tungsten, and zinc, whereas the values for lead, barium and cerium are relatively low. A comparison between values from stream sediment/pan sample pairs by means of regression analysis reveals a poor correlation for most elements, i.e. the two sample types can be expected to yield supplementary informations.

Cumulative frequency distributions on probability paper are presented in Figs 11-13. Only the values above the detection limits have been used in the plots, which show that most elements comprise at least two populations.

The correlation matrices for the 14 elements are shown in Tables 9 and 10, where both non-transformed and log-transformed values are used. In the non-transformed data high analytical values dominate the calculated correlation coefficients, whereas these high values are subdued in the log-transformed data. The resulting correlation matrices are rather different and might reflect different mineralisation. It appears that gold correlates well with arsenic and tungsten in the non-transformed data only, whereas arsenic is correlated with cobalt in pan samples (but not in stream sediments) in both cases. It is believed that most gold and cobalt is hosted by arsenopyrite. Further: zinc correlates well with copper and lead except in non-transformed pan samples.

By means of factor analysis it is attempted to separate the elements into groups which account for the variability of the analyses. The correlations between the factors and the individual elements are illustrated in Tables 11, 12. It appears that gold is correlated with arsenic, except perhaps in log-transformed pan samples. Copper-zinc-lead are highly correlated in the log-transformed data.

6.3. Geochemical maps

Geochemical maps have been prepared for ten elements (Figs 17-32). The class intervals approximate the 80% and 95% percentiles. Detailed geochemical maps over central Uvkusigssat Fjord and/or Kugssinerssuaq valley have been prepared for five of these elements. Here the class intervals were chosen arbitrarily.

The geochemical maps indicate the existence of three gold-anomalous sub areas: 1) SW Uvkusigssat Fjord, 2) the SW tip of Akuliarusinguaq peninsula and 3) Kugssinerssûp auvfâ valley (Fig. 33). These areas are multi-element anomalies as they host most of the anomalous samples from a number of other elements as well.

1) The SW coast of Uvkusigssat Fjord shows scattered high gold values over a distance of c. 20 km from U2 to U12, corresponding to a drainage area of some 80 km^2. Parts of this area are also anomalous in arsenic, tungsten, nickel, copper, zinc and antimony. The U3 valley is the only part of the anomaly where the hinterland has been traversed. This valley exhibits ordinary, moderately W-dipping metasediments from the Nûkavsak Formation cut by a NNW-trending dolerite dyke. In addition to anomalous gold, arsenic, tungsten and nickel contents in sediment samples, boulders with disseminated arsenopyrite and with auriferous chalcopyrite, arsenopyrite and bismuth in quartz veins have been found. Outcropping mineralisation is not known, but probably exists in the triangular area bordered by the two main streams and the local ice cap (Fig. 18). The eastern cliffs of this area are so steep that they are only traversible for mountaineers.

2) SW Akuliarusinguaq hosts a gold-anomalous area of some 40 km^2 between Kugssinerssuaq valley and the south coast of the peninsula. In addition to gold, anomalous arsenic, cobalt, copper, zinc, lead and antimony values exist in the sediment samples. The anomalous samples are derived from the westernmost side-glacier in the valley (Fig. 19). However, as drainage of the eastern parts of the valley is mainly below dead ice, sampling here was unsatisfactory, and the area has not been completely eliminated anomaly-wise.

The anomalous area comprises S and W-dipping Nûkavsak Formation sediments cut by NNW-trending dolerite dykes. However, the frequency of exotic boulders indicates the existence of a thrust slice of Qeqertarssuaq Formation and basement rocks in the hinterland. Only restricted traversing of the bottom of the Kugssinerssuaq valley has been carried out. The most interesting boulder finds comprise a pelitic schist with disseminated arsenopyrite, and a brecciated metagreywacke with copper-zinc-lead sulphides. Both samples probably originate from the westernmost side-glacier in the valley. Outcropping mineralisation can be expected in the upper reaches of this glacier, which seems to be traversible also for non-alpinists.

3) The Kugssinerssûp auvfâ anomaly is only based on two pan samples from the main river, as the valley was only visited during half a day. In addition to gold, the samples are anomalous in chromium. The samples are rich in garnet

and magnetite, but contain only minor amounts of iron-sulphides. As arsenic contents are low (max. 10 ppm), gold mineralisation of a type different from that of the two other anomalous areas is indicated.

The sampled river is 5-10 m wide and drains c. 100 km^2. The catchment area is dominated by basement and Qeqertarssuaq Formation rocks. The lower reaches of the valley are easily traversible, whereas the upper reaches are dominated by dead ice.

7. METALLOGENETIC IMPLICATIONS

The conceptual model for this investigation involves source rocks from which trace metals migrated and were concentrated in epigenetic structures elsewhere in the rock pile. Considering the geological setting, the expected economic mineral occurrences are gold-bearing quartz veins of the Bendigo type, also termed "turbidite-hosted gold deposits" (Keppie et al., 1986).

Another imaginable type of ore deposit, strata-bound massive base metal sulphides as known from the Black Angel deposits, was the main target for previous exploration in the district. In view of the restricted character of this work, the possibility that economic metal concentrations of this type may still exist has by no means been eliminated. In what follows the mineral potential of the Íngia area will be assessed in a source-migration-trap concept.

7.1. Syngenetic and epigenetic mineralisation

Pyrrhotite-rich horizons are widespread in the Karrat Group supracrustals. They might be of exhalitic or sedimentary black shale origin and are often tectonically milled out. This study has indicated high trace element contents of gold, copper, zinc, arsenic and molybdenum in some of these rocks, especially in the Nûkavsak Formation. Whether these elements reach economic concentrations in the primary, stratiform setting is far from settled, but no ore-grade material has been found to date. However, the pyrrhotite-rich horizons are regarded as excellent source rocks for epigenetic mineralisation. The widespread occurrence of stratiform, disseminated arsenopyrite, as indicated by boulder finds, points towards other interesting source rocks for epigenetic mineralisation.

The most likely process for mobilisation of metals was the Rinkian metamorphosis, but mobilisation during the formation of the NNW-SSE orientated dyke intrusion or mobilisation by the Tertiary magmatic event is also possible. Purely magmatic mineralisation associated with these three episodes is theoretically possible, but has not been observed.

The obvious channelways for mineralising solutions are the low-angle thrusts which cut from the basement up through the supracrustal pile. Such thrust-controlled shear zones might also be the loci for precipitation, and indeed the copper showing in Íngia Fjord might be a shear-zone mineralisation hosted in a thrust plane. Other possible epigenetic traps for migrating solutions are the zig-zag folds and other fold noses with saddle-reef-like structures suitable for mineral deposition.

The epigenetic mineralisation hosted in quartz veins is mainly known from boulders. It is dominated by iron sulphides, but concentrations of copper, lead, zinc, gold, arsenic, tungsten and molybdenum also exist.

7.2. The mineral potential of the Íngia area

Epigenetic gold-bearing quartz veins with associated copper, arsenic and locally tungsten constitute the most likely economic mineralisation in the Íngia area. Such mineralisation is believed to exist in the SW Uvkusigssat Fjord and SW Akuliarusinguaq anomalous sub areas. Follow-up work in the two areas using alpinist personnel should aim at the location and sampling of outcropping mineralisation. In view of the small areas involved, such preliminary investigations could be covered by a low-budget programme.

Stratiform copper-zinc-gold mineralisation might occur in the Íngia area, but the existence of economic concentrations of this type has not been evidenced during the present study. The search for this type of mineralisation is best accomplished within the frames of a major regional programme aimed at the study of zonation patterns in potentially ore-bearing stratigraphical levels, such as the horizons rich in pyrrhotite and arsenopyrite.

7.3. Regional aspects

The Lower Proterozoic Karrat Group supracrustals cover some 10 000 km^2 in the Umanak district, and the unit continues north of Svartenhuk Halvø and in eastern Canada. The Íngia area corresponds to c. 10% of the areal extent of the supracrustals in the Umanak district. The present study and the geochemical lake sediment survey carried out in Canada indicate that the metaturbiditic part of the sequence has a high background in arsenic, a feature thought to be favourable for gold mineralisation. Furthermore, scattered gold values in the ppm range have been revealed in pan samples from the Íngia area. Therefore, the Karrat Group supracrustals in general hold a potential for gold mineralisation.

The occurrence of an economic base metal deposit, the Black Angel, in the Karrat Group supracrustals is another favourable parameter in the assessment of the mineral potential of the region. The existence of additional carbonate hosted lead-zinc deposits or of shale hosted copper-zinc deposits in the Umanak district seems possible.

Further exploration of the Karrat Group should include a systematical geochemical survey. It is hoped that the data presented in this report will help define threshold values for target elements such as gold, copper and zinc, and for parthfinder elements such as arsenic, antimony and tungsten. Stratiform mineralisation often displays vertical and lateral metal zonation, and the exploration for this type should therefore comprise extensive lithogeochemical sampling. A structural study might help to pin-point favourable sites for vein-type mineralisation.

8. ACKNOWLEDGEMENTS

The author thanks Greenex A/S for logistical support; J. Lorentzen and M. Lind for companionship during the field work; F. v. d. Stijl and T. Grønlund for sail with m/k "Villiaumit"; R. Jensen for hospitality in Nûgâtsiaq and H. T. Holm for hospitality in Igdlorssuit; I. Rytved and P. Venslev for laboratory work; L. M. Larsen and A. Steenfelt for comments on the report, and J. Halskov for drawing.

9. REFERENCES

Allen, C. R. & Harris, C. J. 1980: Karrat Group reconnaissance programme, Marmorilik area, West Greenland. Year end report 1979. Internal report, Cominco A/S, 33 pp.

Cameron, E. M. 1986: An introduction to the interpretation of data from central Baffin Island, District of Franklin. *Pap. geol. Surv. Can.* 86-10, 22 pp.

Della Valle, G. in prep.: Geological report on the 1990 gold exploration program in the Karrat Group, West Greenland. Internal report, Intergeo-Exploration.

Gannicott, R. A. 1979: Summary of Cominco Ltd. exploration activity on their non-exclusive exploration permit on the west coast of Greenland. Internal report, Cominco Ltd., 1 p.

Grocott, J. & Pulvertaft, T. C. R. 1990: The Early Proterozoic Rinkian belt of central West Greenland. *In* Lewry, J. F. & Stauffer, M. R. (ed.) The Early Proterozoic Trans-Hudson Orogen of North America: *Spec. Pap. geol. Ass. Can.* 37, 443-463.

Harpøth, O., Pedersen, J. L., Schønwandt, H. K. & Thomassen, B. 1986: The mineral occurrences of central East Greenland. *Meddr Grønland, Geosci.* 17, 139 pp.

Henderson, G. 1971: Geological map of Greenland 1:100 000. 71 V.2 Nord Nûgâtsiaq. *Copenhagen: Grønlands Geologiske Undersøgelse.*

Henderson, G. & Pulvertaft, T. C. R. 1967: The stratigraphy and structure of the Precambrian rocks of the Umanak area, West Greenland. *Meddr dansk geol. Foren.* 17, 1-20.

Henderson, G. & Pulvertaft, T. C. R. 1987: The lithostratigraphy and structure of a Lower Proterozoic dome and nappe complex. Descriptive text to 1:100 000 sheets Mârmorilik 71 V.2 Syd, Nûgâtsiaq 71 V.2 Nord and Pangnertôq 72 V.2 Syd. *Copenhagen: Grønlands Geologiske Undersøgelse,* 72 pp.

Kalsbeek, F. 1981: The northward extend of the Archaean basement of Greenland - a review of Rb-Sr whole rock ages. *Precambrian Research,* 14, 203-219.

Kalsbeek, F. & Taylor, P. N. 1986: Chemical and isotopic homogeneity of a 400 km long basic dyke in central West Greenland. *Contr. Miner. Petrol.,* 93, 439-448.

Keppie, D., Boyle, R. W. & Haynes, S. J. (ed.) 1986: Turbidite-Hosted Gold Deposits. *Spec. Pap. geol. Ass. Can.* 32, 186 pp.

King, A. R. 1981: Report on Karrat Group follow-up prospecting and geochemistry 1980, West Greenland. Internal report, A/S Cominco - Greenex A/S, 14 pp.

Neale, K. F. & Smith, J. H. S. 1973: Report on the geology and the mineral potential of the GEMCO licence area, West Greenland, 1972 field season. Internal report, Pondary Exploration Company Ltd., 26 pp.

Pauly, H. 1952: En undersøgelse af "Sorte Engel" ved Marmorilik, samt nogle bemærkninger om magnetkisforekomsterne i Umanak distrikt i Nordgrønland. *Meddr dansk geol. Foren.* 12, 191-192.

Pedersen, F. D. 1980: Remobilization of the massive sulphide ore of the Black Angel Mine, central West Greenland. *Econ. Geol.* 75, 1022-1041.

Steenfelt, A. 1987: Geochemical Mapping and Prospecting in Greenland - A review of Results and Experience. *J. Geochem. Explor.* 29, 183-205.

Steenfelt, A. 1988: Progress in geochemical mapping of West Greenland. *Rapp. Grønlands geol. Unders.* 140, 17-24.

Thomassen, B. 1989: Reconnaissance of mineral occurrences in the Umanak district. Field report 1989. Unpublished report Grønlands geol. Unders., 43 pp.

Thomassen, B. 1990: Prospecting for base and noble metals in the Íngia area, West Greenland: analytical results. *Open File Ser. Grønlands geol. Unders.* 90/2, 61 pp.

Thomassen, B. 1991: The Black Angel lead-zinc mine 1973-90. *Rapp. Grønlands geol. Unders.* 152,

Thomassen, B. & Lind, M. 1987: Report on reconnaissance prospecting in the Karrat Group and at West Gossan, summer 1986. Internal report, Greenex A/S, 17 pp.

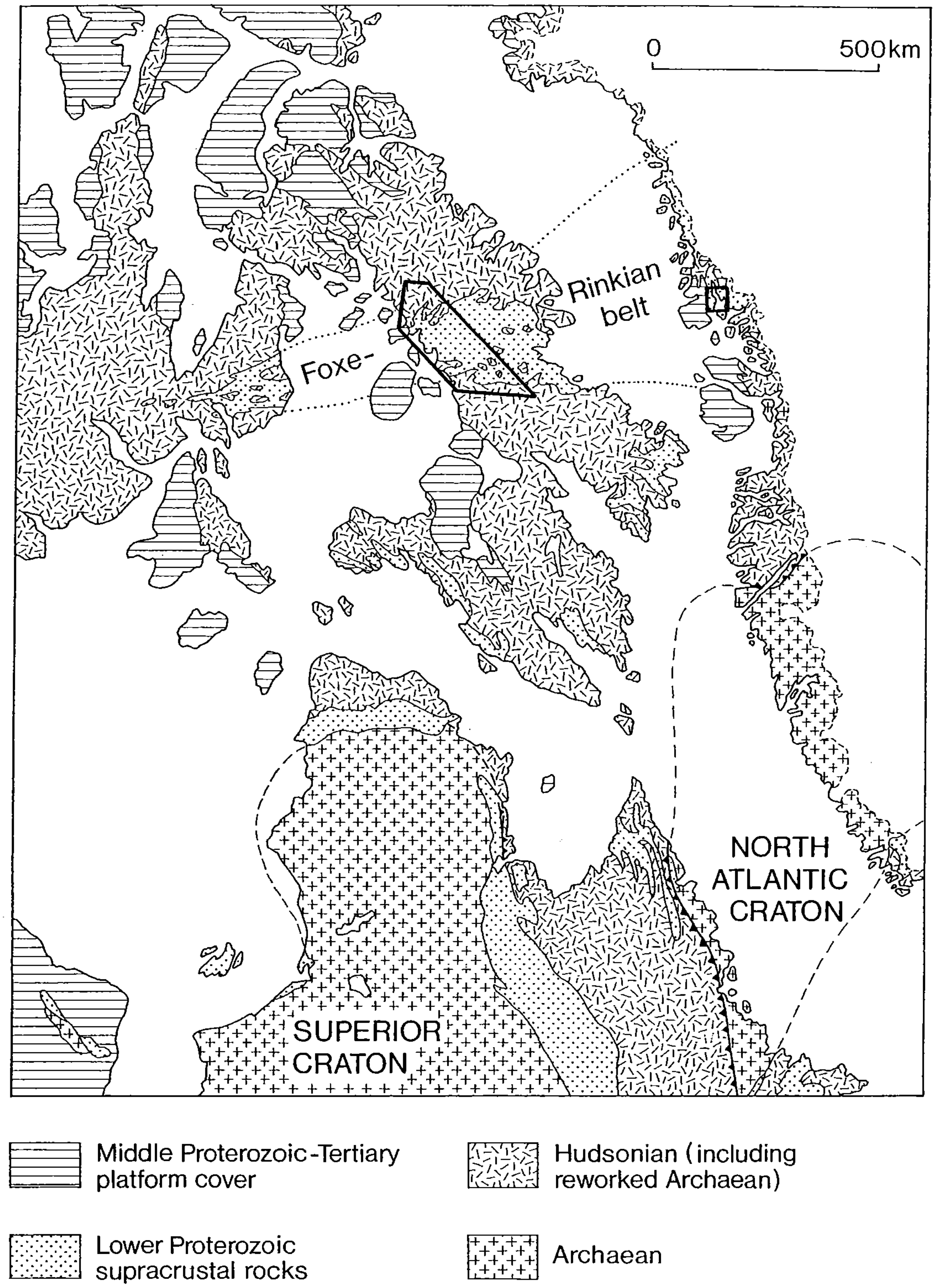


Fig. 1. Pre-drift map of West Greenland and NE Canada, modified from Grocott & Pulvertaft (1990). The Foxe-Rinkian mobile belt is outlined and the Íngia area and an area surveyed in Baffin Island (Cameron, 1987) are framed.

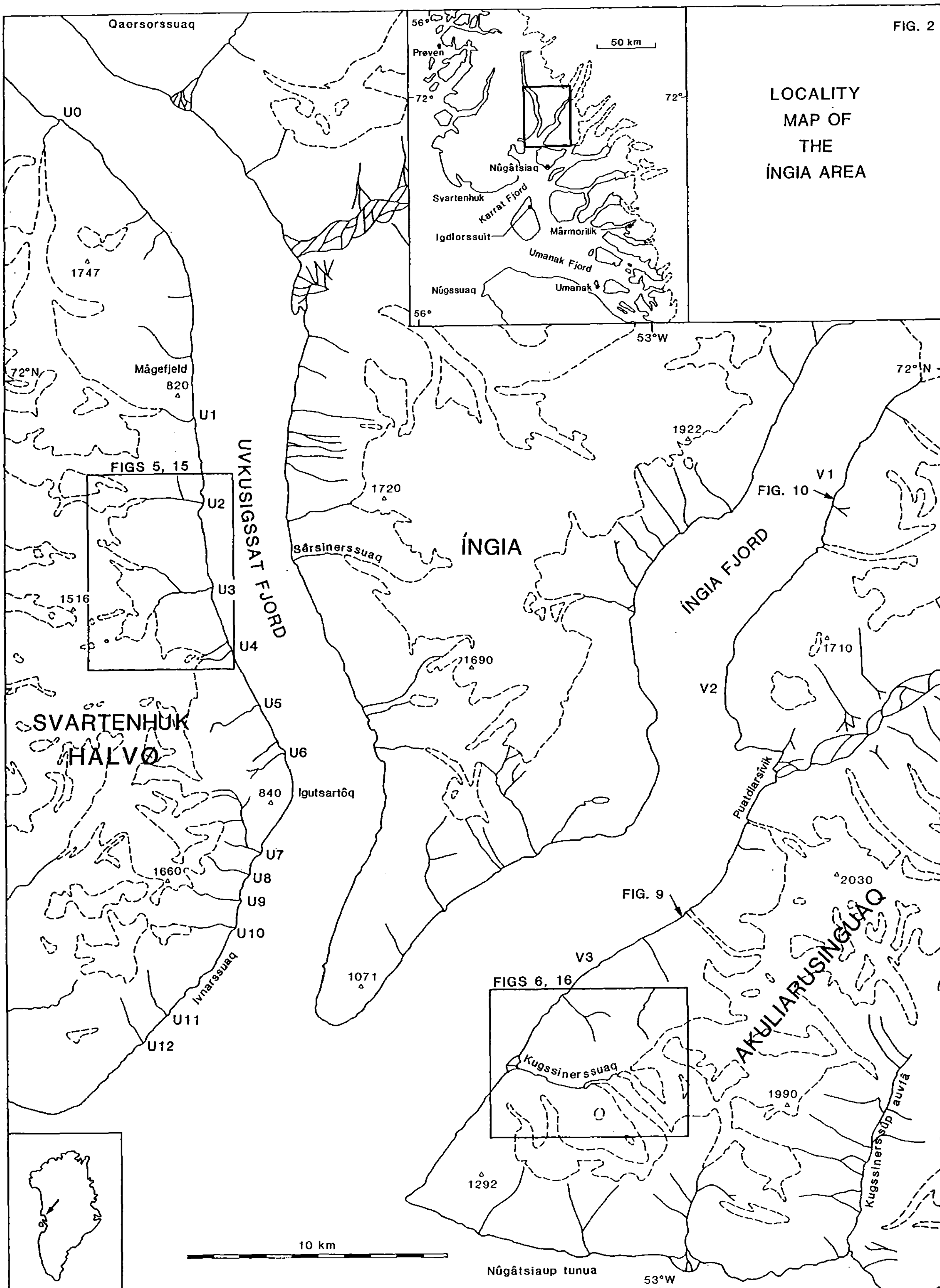


FIG. 2
LOCALITY MAP OF THE ÍNGIA AREA
Qaersorssuaq
U0
1747
Mågefjeld
820
72°N
U1
FIGS 5, 15
U2
U3
U4
1516
UVKUSIGSSAT FJORD
SVARTENHUK HALVØ
U5
U6
840
Igutsartôq
U7
1660
U8
U9
U10
Ivnarssuaq
U11
U12
1720
Sârsinerssuaq
ÍNGIA
1690
1071
1922
ÍNGIA FJORD
FIG. 10
V1
V2
1710
Puatdlarsivik
FIG. 9
V3
2030
AKULIARUSINGUAQ
FIGS 6, 16
Kugssinerssuaq
1990
Kugssinerssup auvfâ
1292
10 km
Nûgâtsiaup tunua
53°W
72°N
56°
Prøven
50 km
72°
Nûgâtsiaq
Svartenhuk
Karrat Fjord
Igdlorssuit
Mârmorilik
Umanak Fjord
Umanak
Nûgssuaq

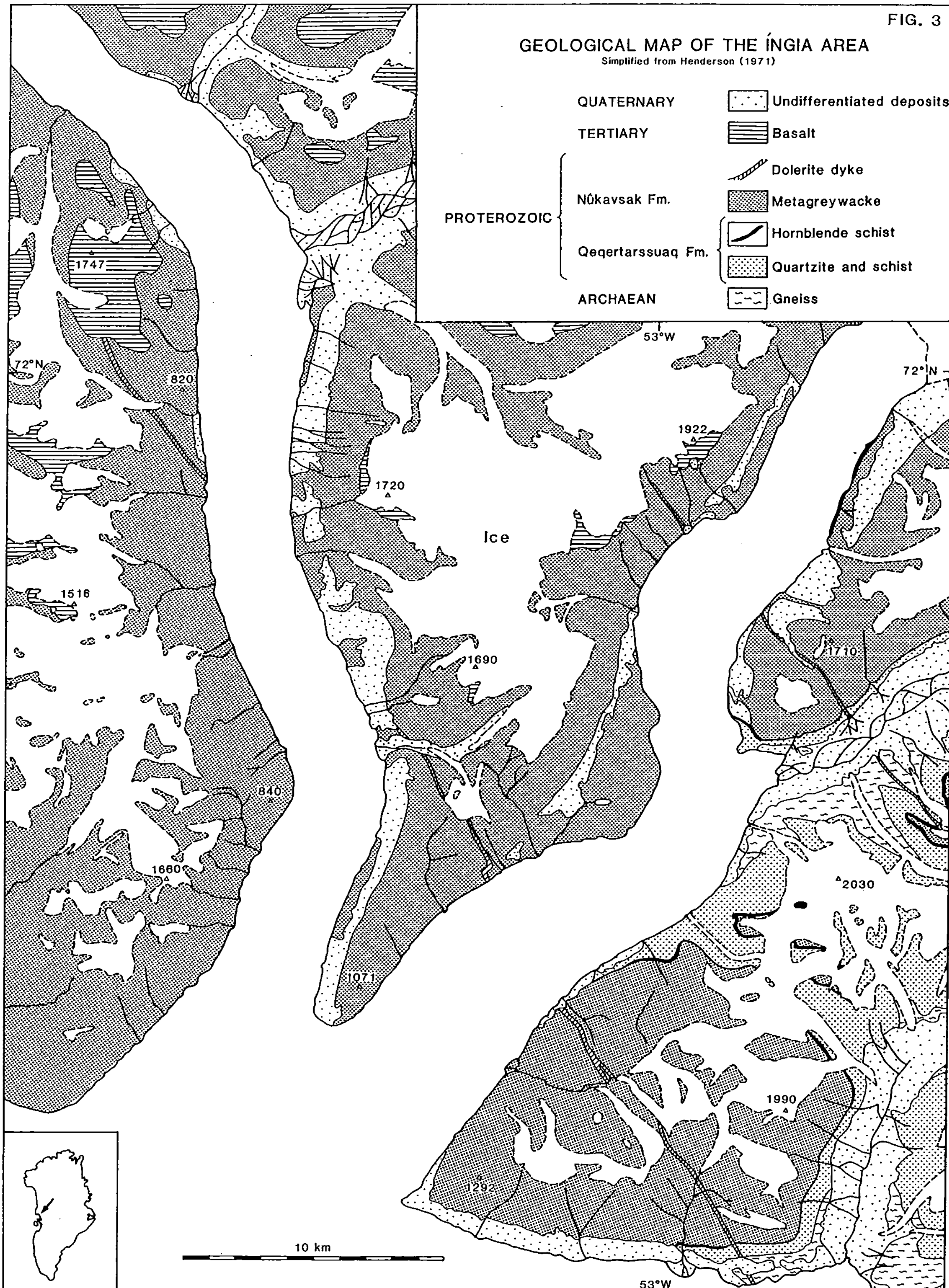


FIG. 3
GEOLOGICAL MAP OF THE ÍNGIA AREA
Simplified from Henderson (1971)
QUATERNARY
Undifferentiated deposits
TERTIARY
Basalt
PROTEROZOIC
Dolerite dyke
Nûkavsak Fm.
Metagreywacke
Qeqertarssuaq Fm.
Hornblende schist
Quartzite and schist
ARCHAEAN
Gneiss
53°W
72°N
72°N
1747
820
1922
1720
Ice
1516
1690
1710
840
1660
2030
1071
1990
1292
10 km
53°W

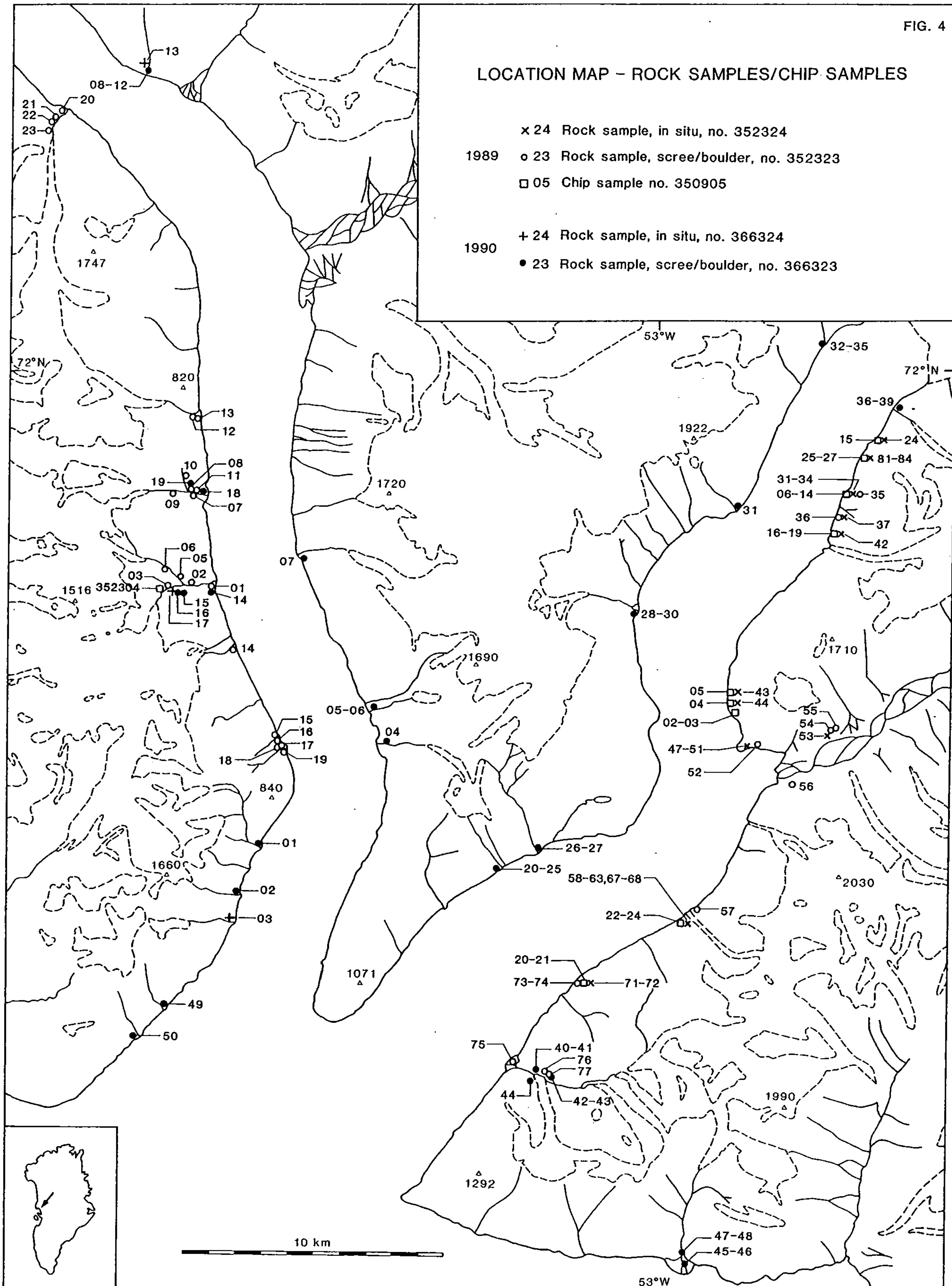


FIG. 4
LOCATION MAP - ROCK SAMPLES/CHIP SAMPLES
1989
× 24 Rock sample, in situ, no. 352324
o 23 Rock sample, scree/boulder, no. 352323
□ 05 Chip sample no. 350905
1990
+ 24 Rock sample, in situ, no. 366324
• 23 Rock sample, scree/boulder, no. 366323
53°W
72°N
10 km
1747
820
1720
1922
1516
1690
1710
840
1660
2030
1071
1990
1292

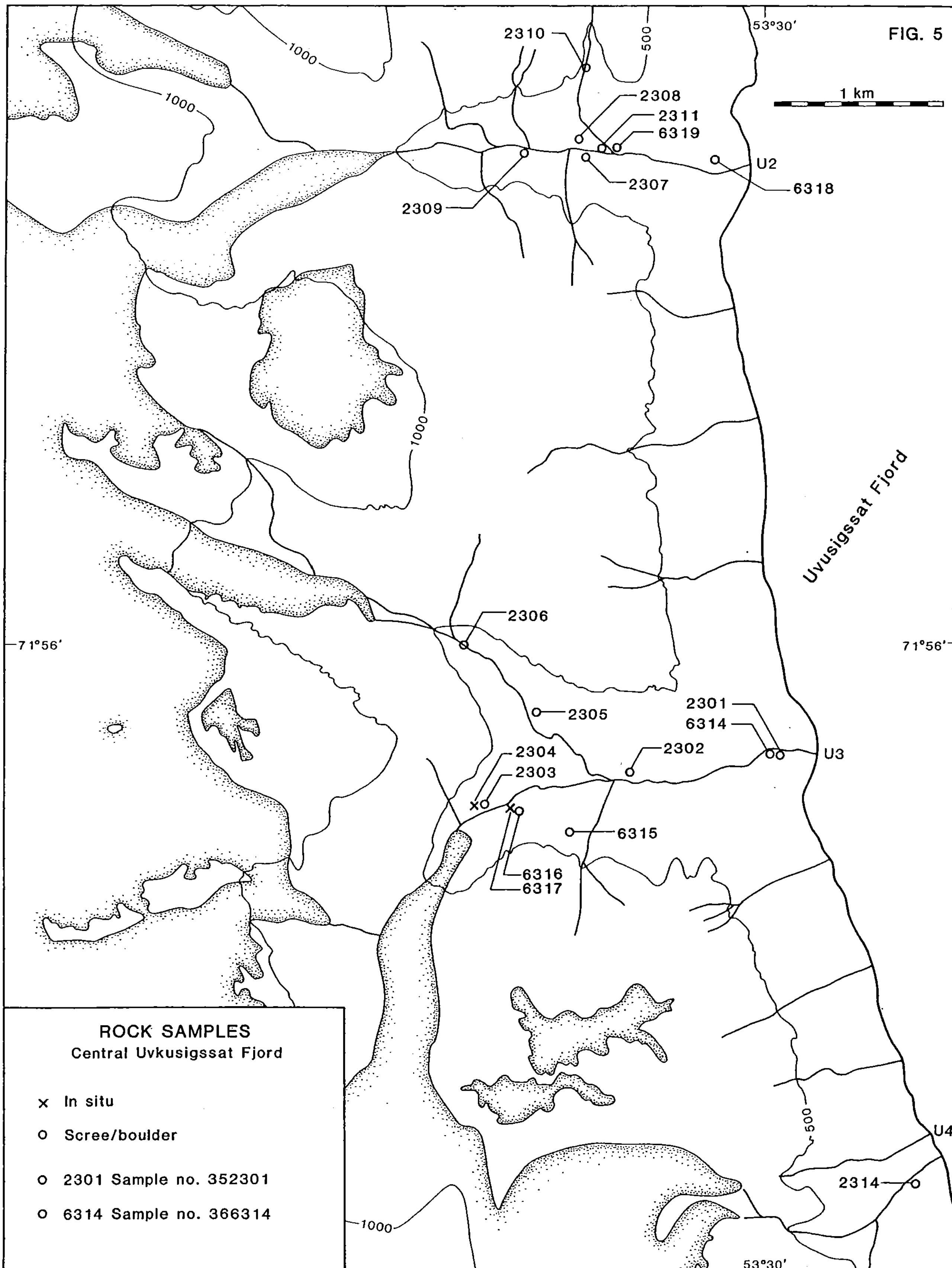


FIG. 5
1 km
53°30'
71°56'
1000
500
2310
2308
2311
6319
2307
2309
6318
U2
2306
2305
2301
6314
2302
U3
2304
2303
6315
6316
6317
U4
2314
Uvusigssat Fjord
ROCK SAMPLES
Central Uvkusigssat Fjord
× In situ
o Scree/boulder
o 2301 Sample no. 352301
o 6314 Sample no. 366314

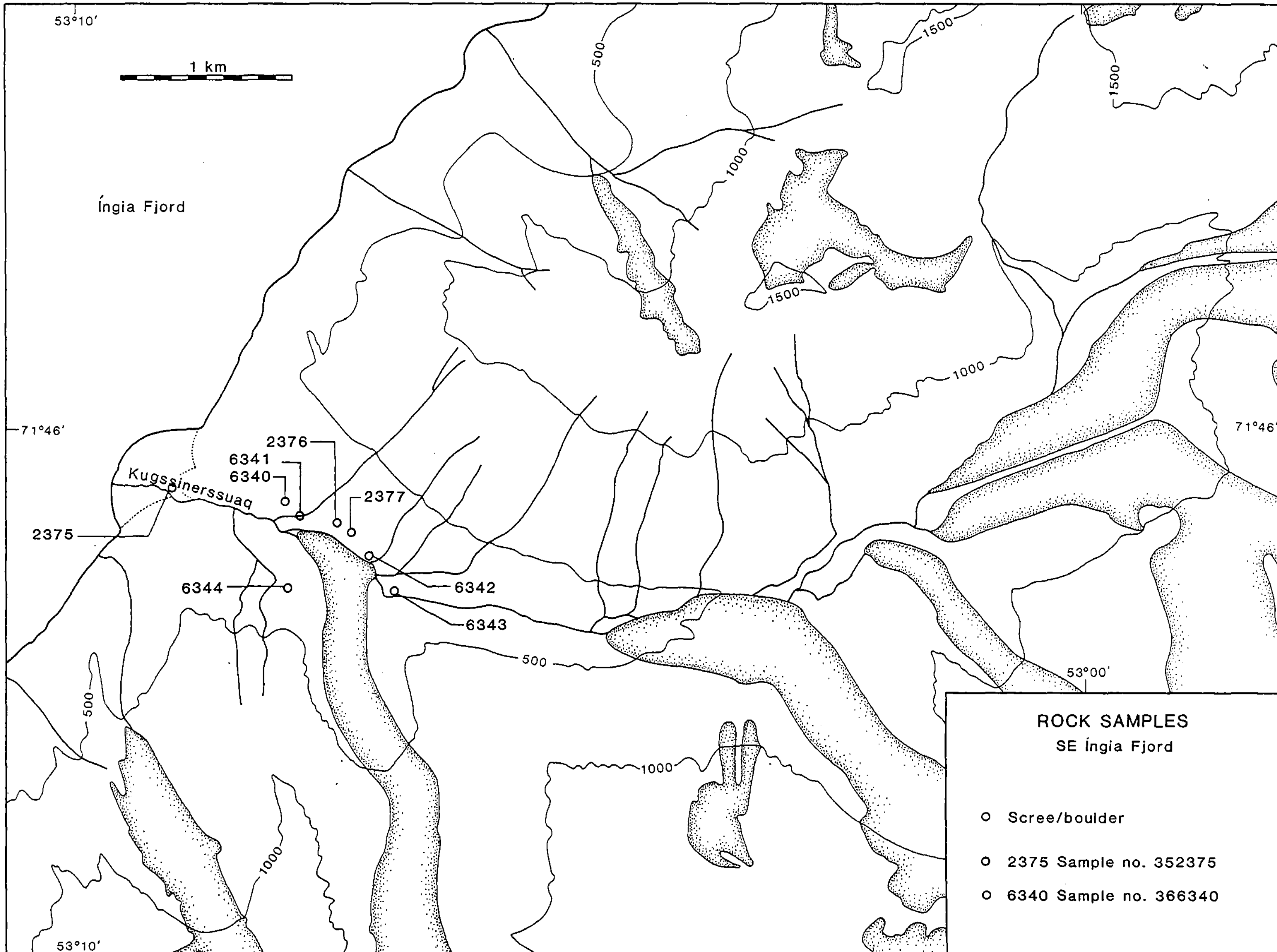

53°10'
1 km
Íngia Fjord
71°46'
2376
6341
6340
2377
Kugssinerssuaq
2375
6344
6342
6343
500
1000
1500
53°00'
ROCK SAMPLES
SE Íngia Fjord
Scree/boulder
2375 Sample no. 352375
6340 Sample no. 366340

FIG. 6

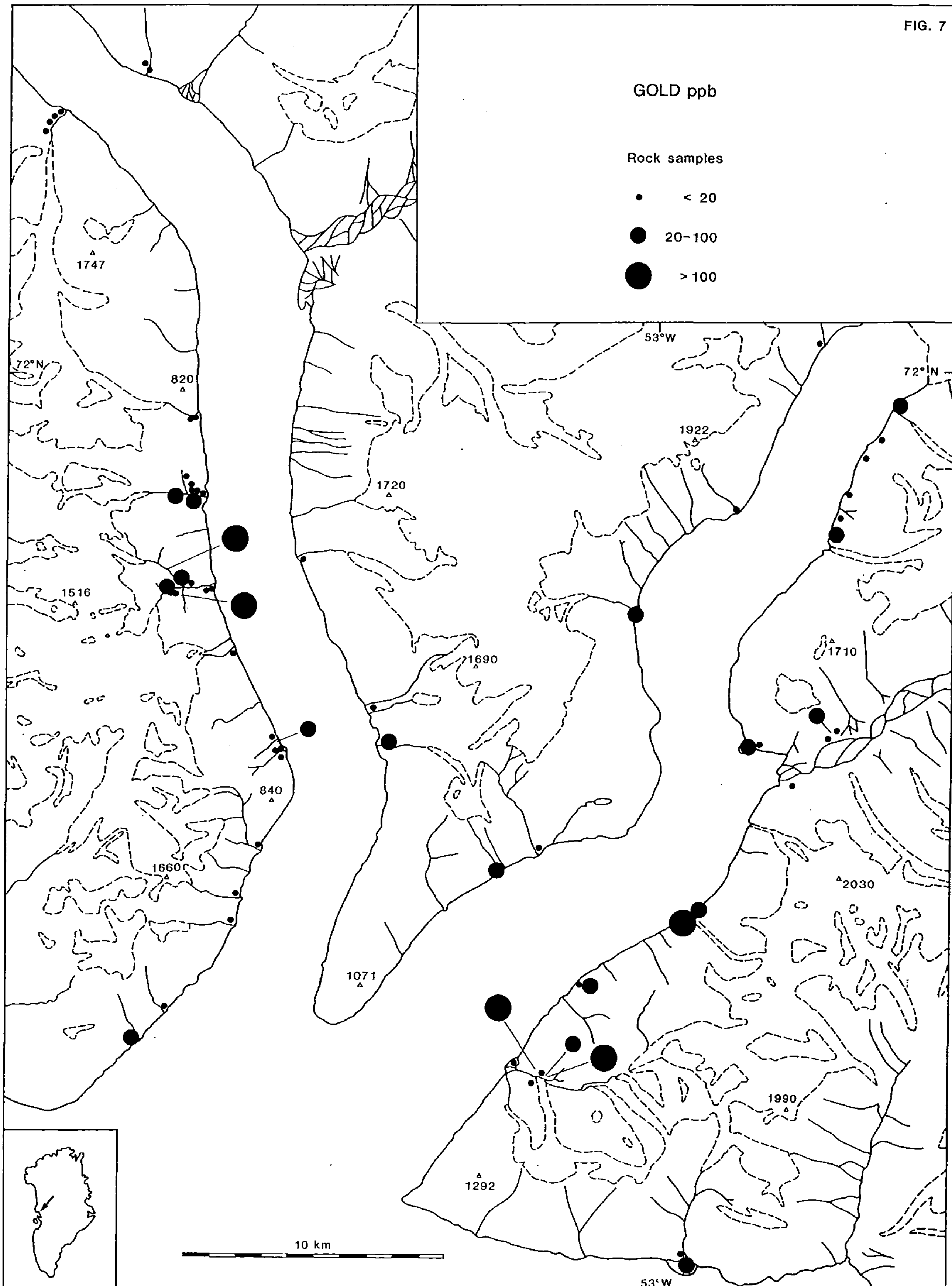


FIG. 7
GOLD ppb
Rock samples
< 20
20-100
> 100
1747
72°N
820
1516
1720
1690
840
1660
1071
53°W
1922
72°N
1710
2030
1990
1292
10 km
53°W

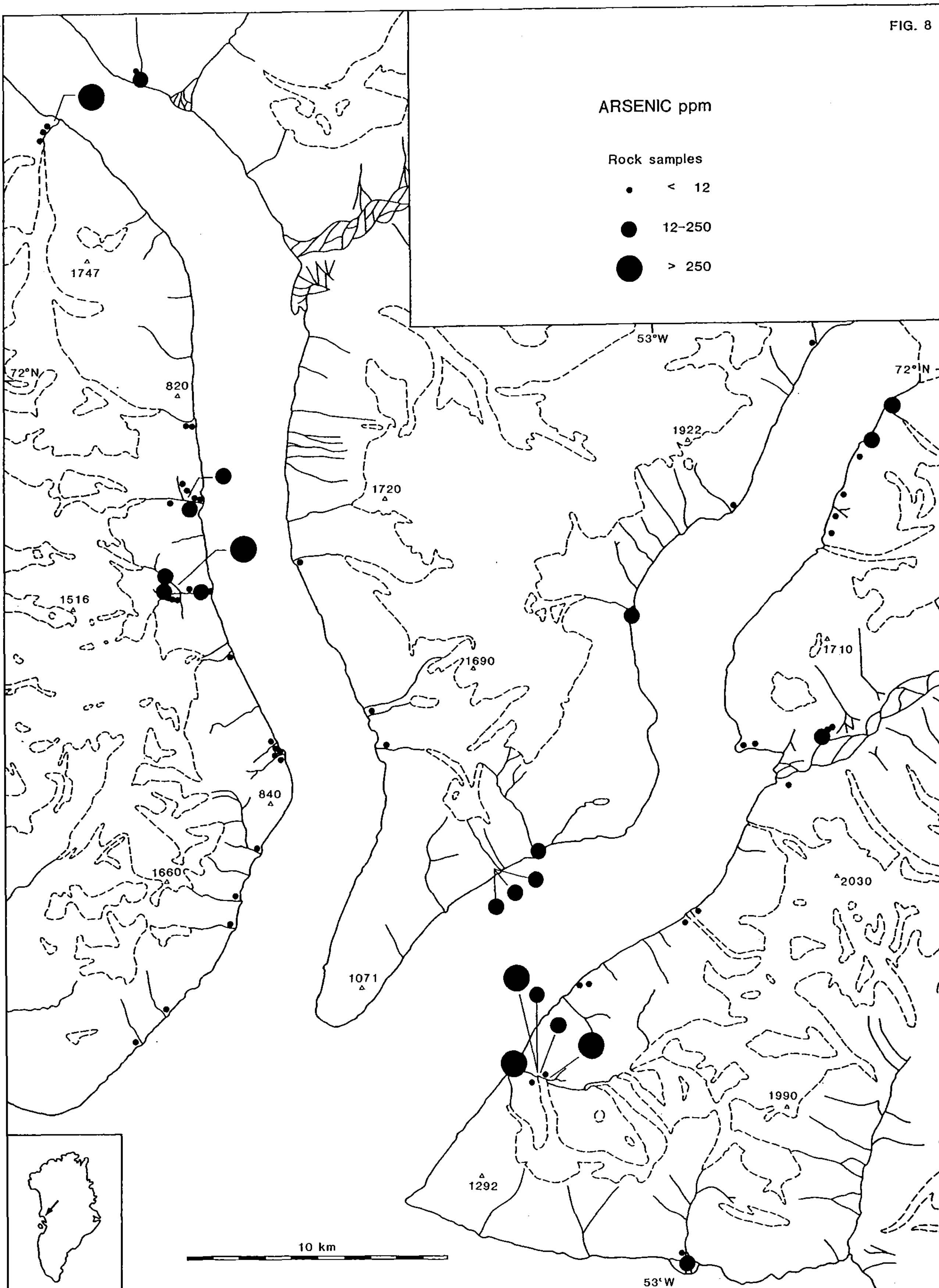


FIG. 8
ARSENIC ppm
Rock samples
< 12
12-250
> 250
1747
72°N
820
1922
1720
1516
1690
1710
840
1660
2030
1071
1990
1292
10 km
53°W
72°N
53°W

Fig. 9 The Cu-showing 7 km SSW of Puatdlarsîvik, Íngia Fjord. Sketch map with sample sites.

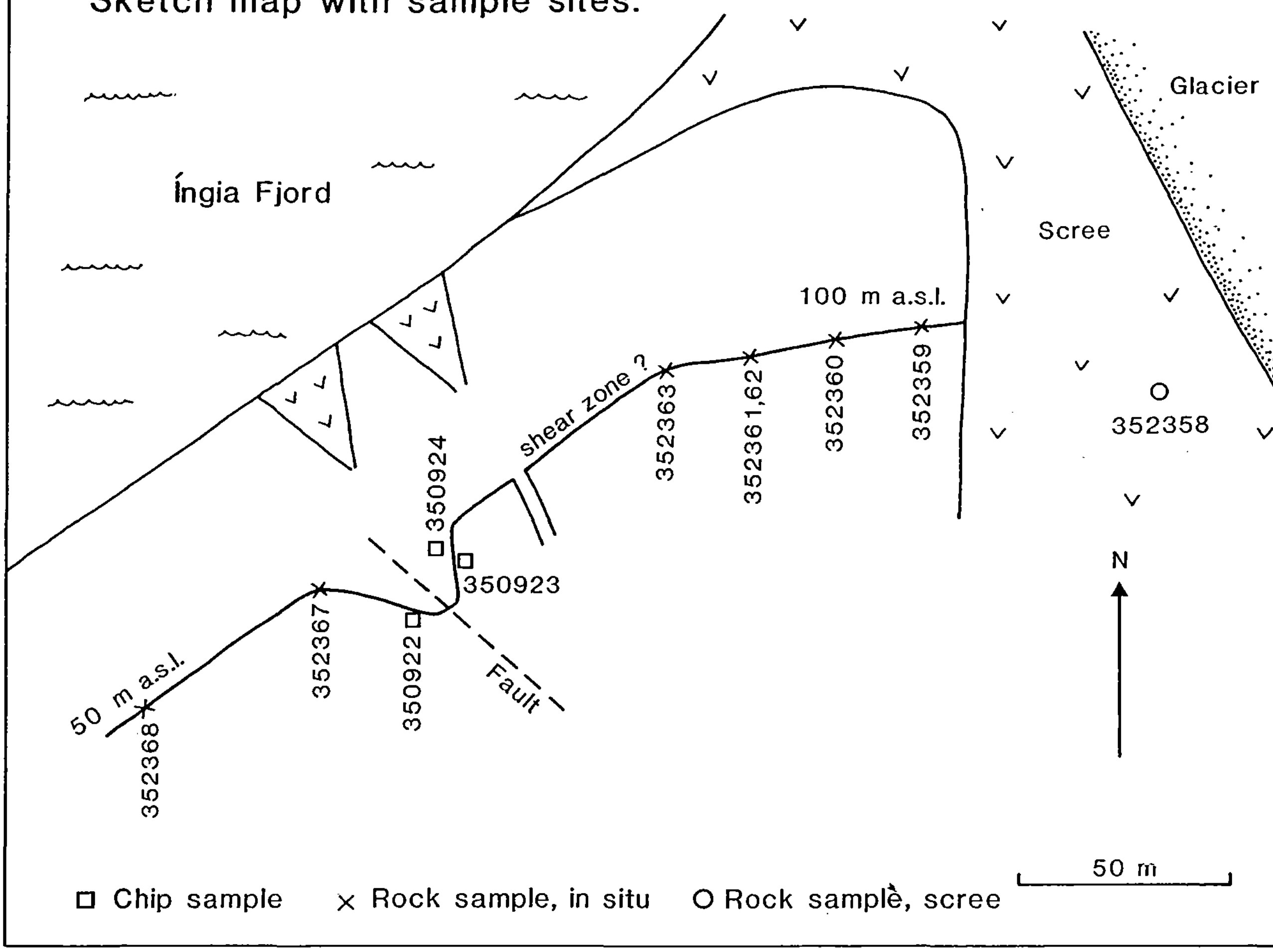
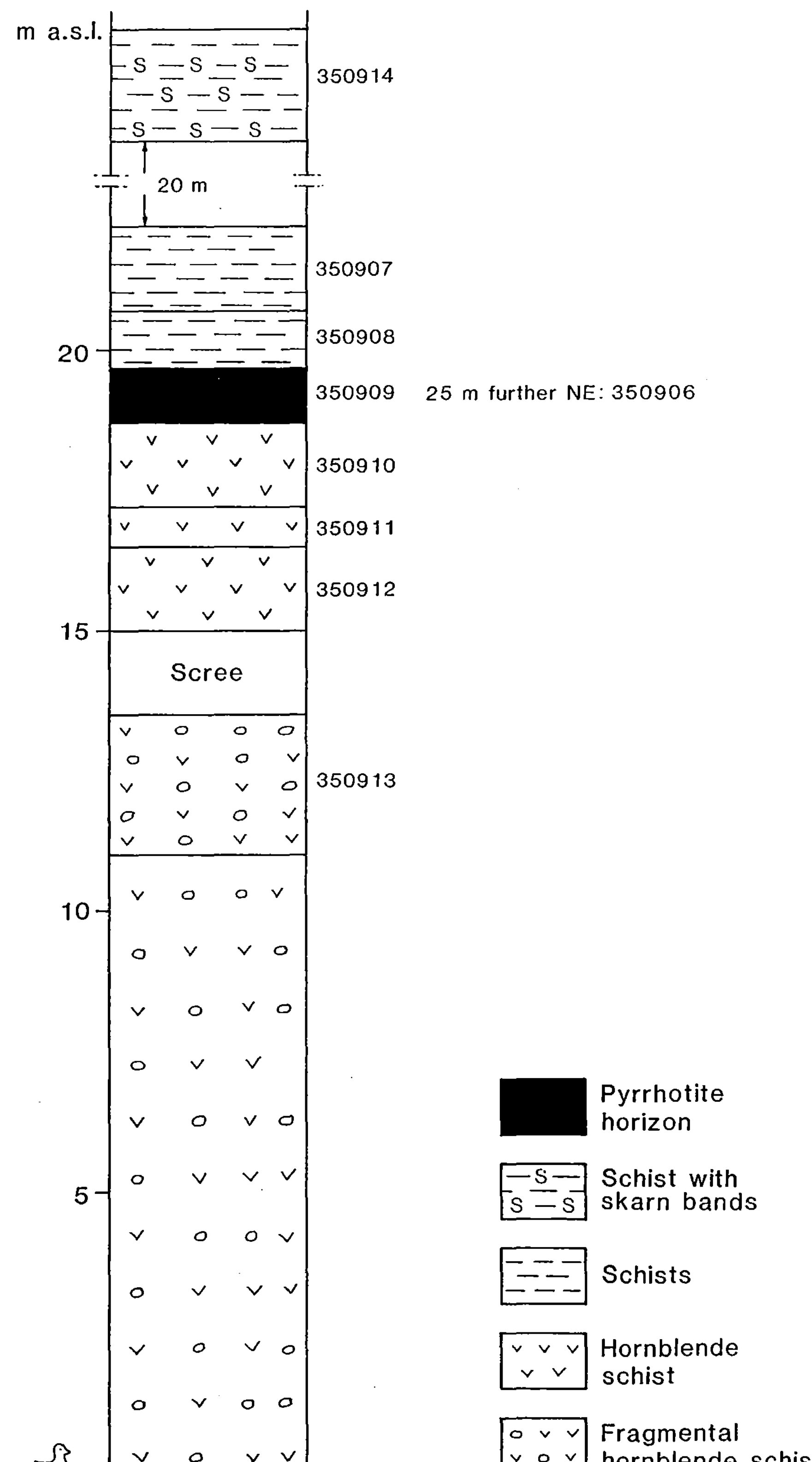


FIG. 10. Chip sampled section, central V1, Íngia Fjord.



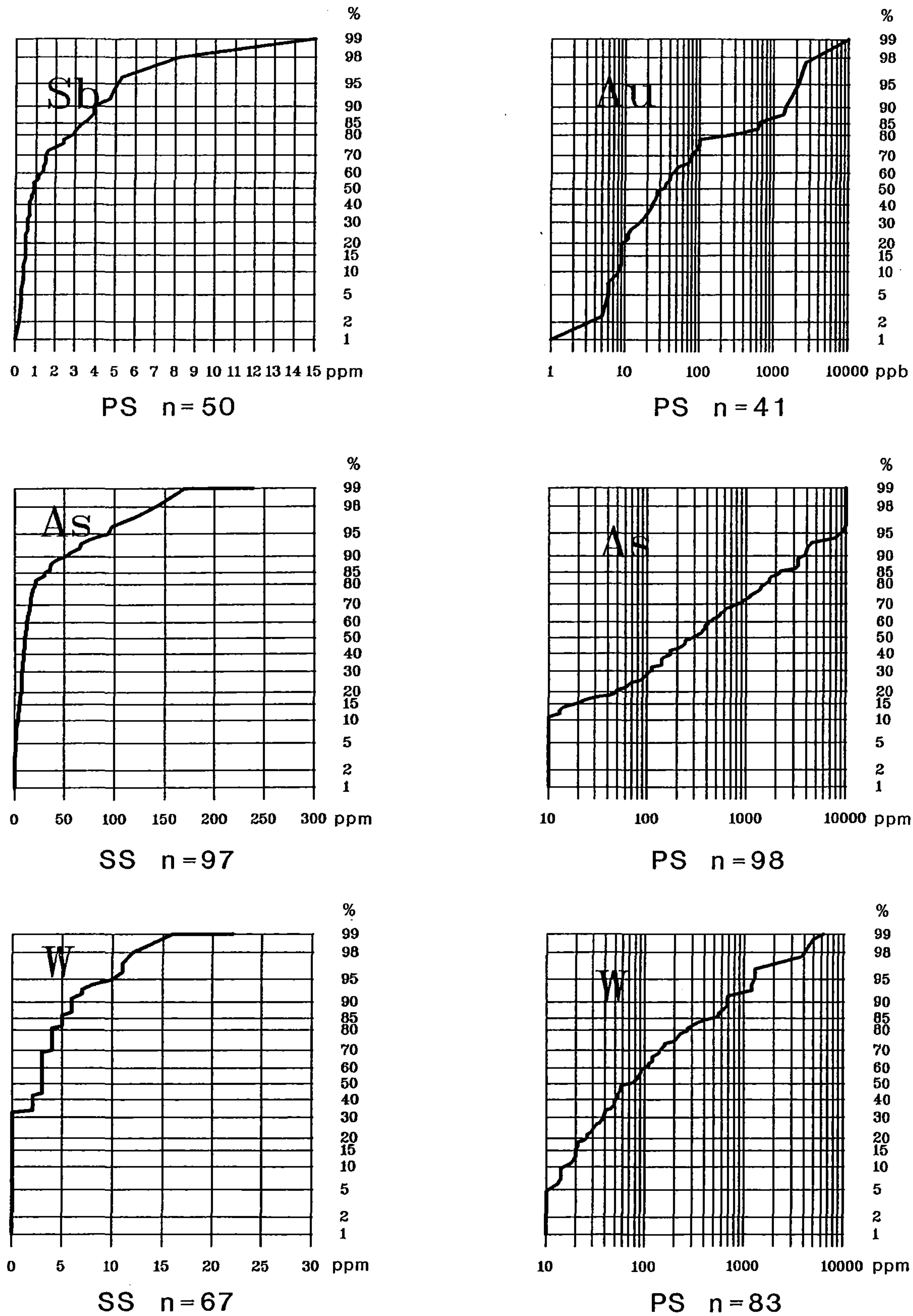


Fig. 11. Cumulative probability plots of antimony, gold, arsenic and tungsten analyses. SS = stream sediment samples; PS = pan samples; n = number of samples.

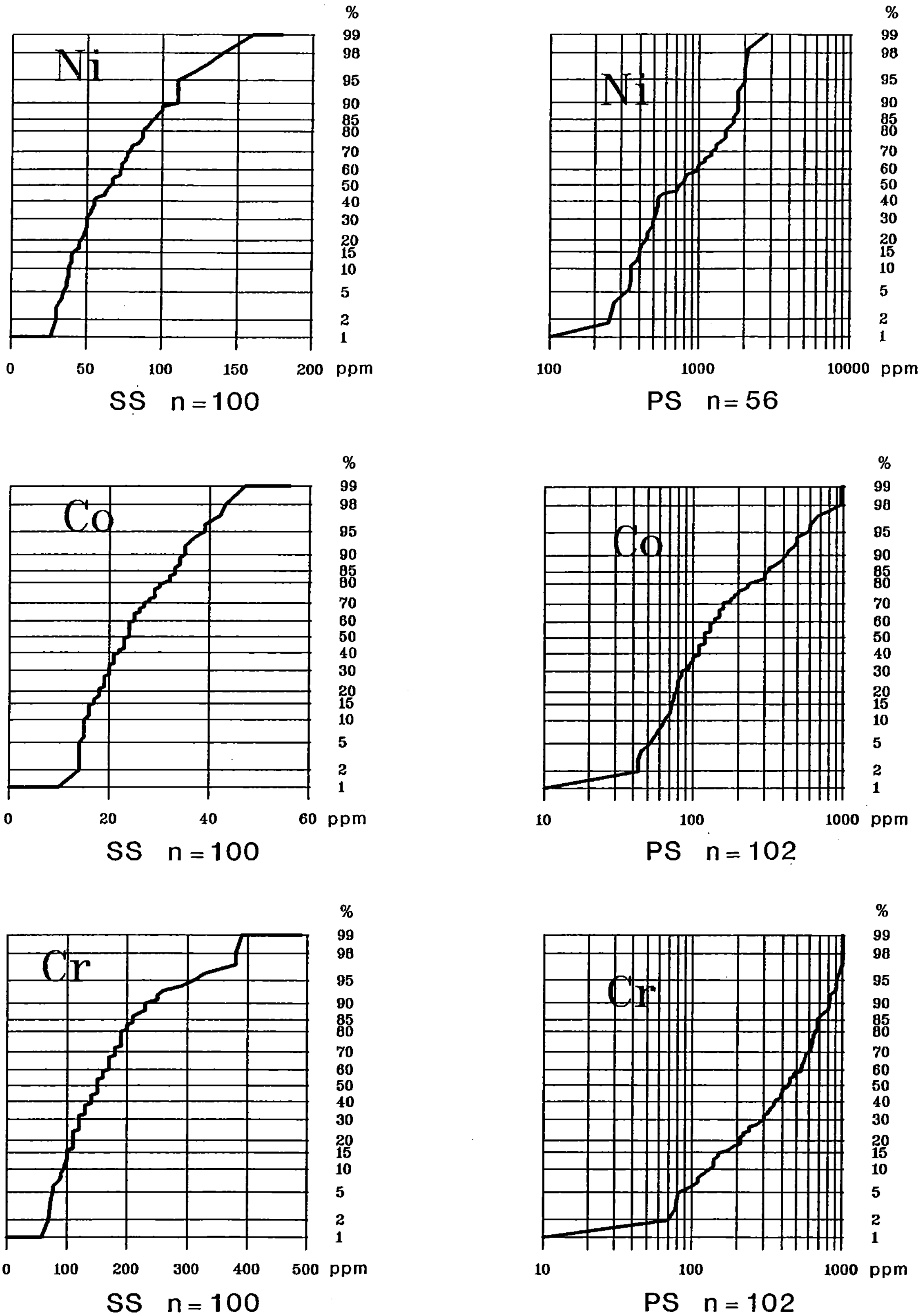


Fig. 12. Cumulative probability plots of nickel, cobalt and chromium analyses. SS = stream sediment samples; PS = pan samples; n = number of samples.

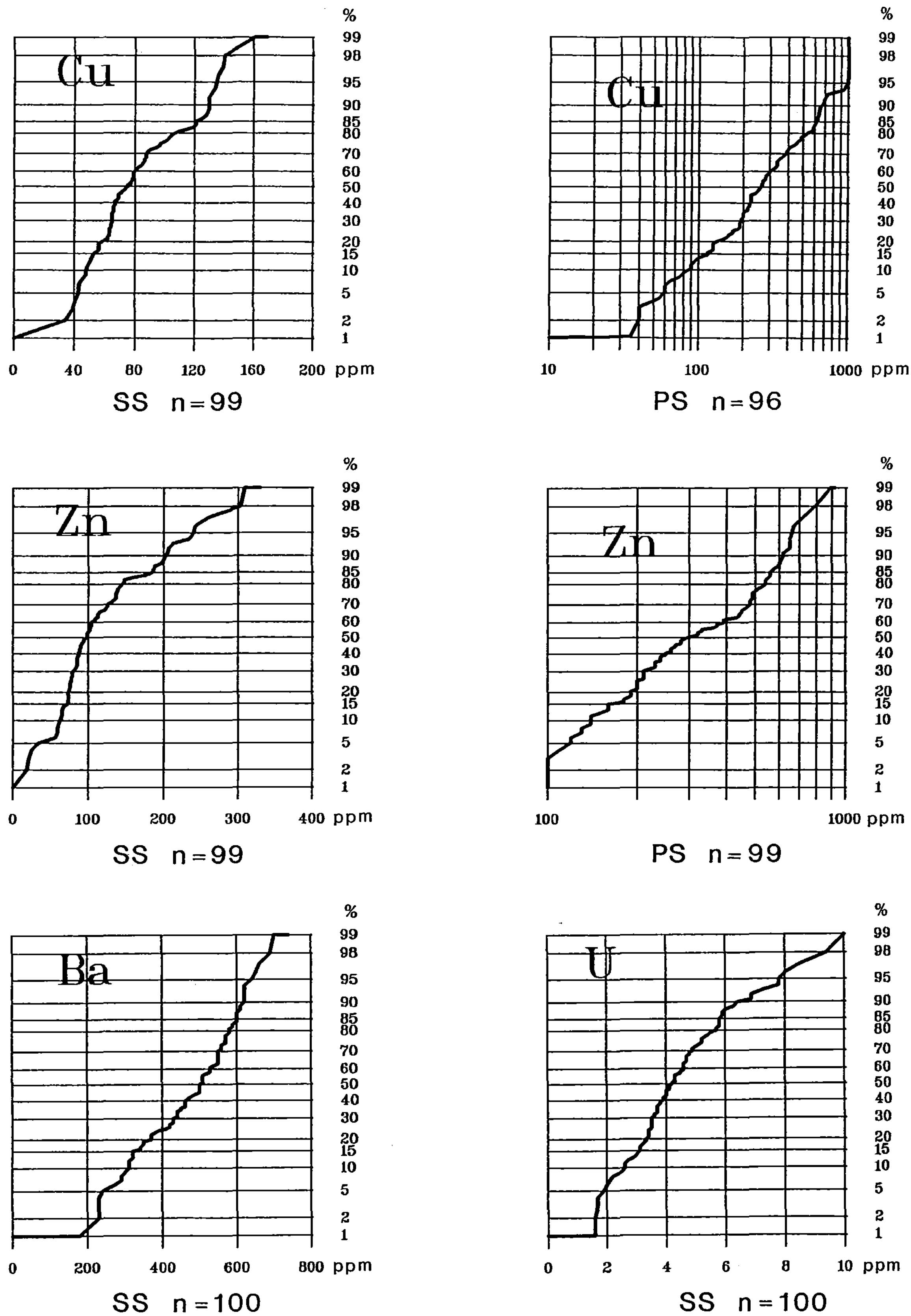


Fig. 13. Cumulative probability plots of copper, zinc, barium and uranium analyses. SS = stream sediment samples; PS = pan samples; n = number of samples.

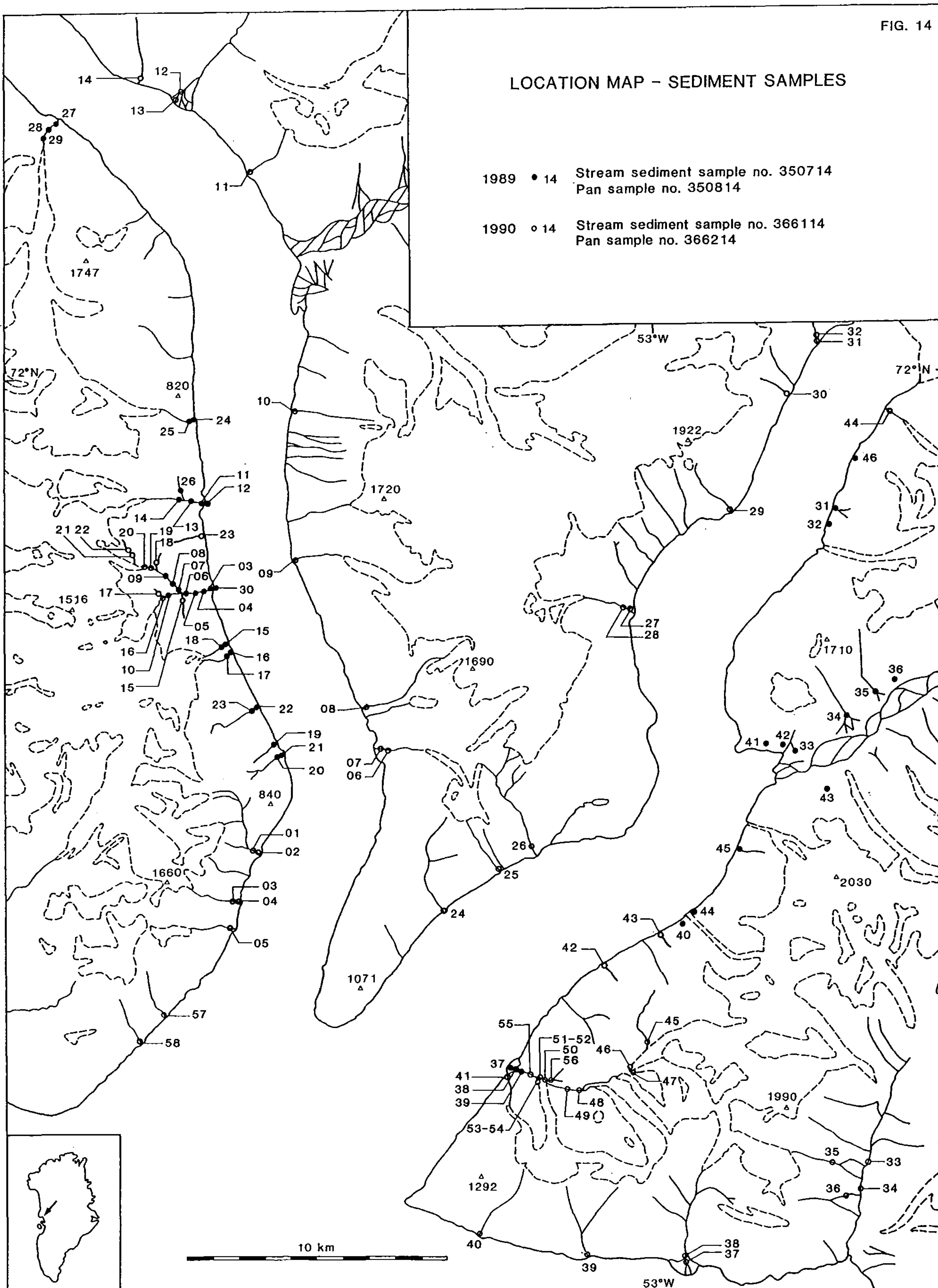


FIG. 14
LOCATION MAP - SEDIMENT SAMPLES
1989 • 14 Stream sediment sample no. 350714
Pan sample no. 350814
1990 ∘ 14 Stream sediment sample no. 366114
Pan sample no. 366214
72°N
53°W
10 km
1747
820
1720
1922
1516
1710
1690
840
1660
2030
1071
1990
1292

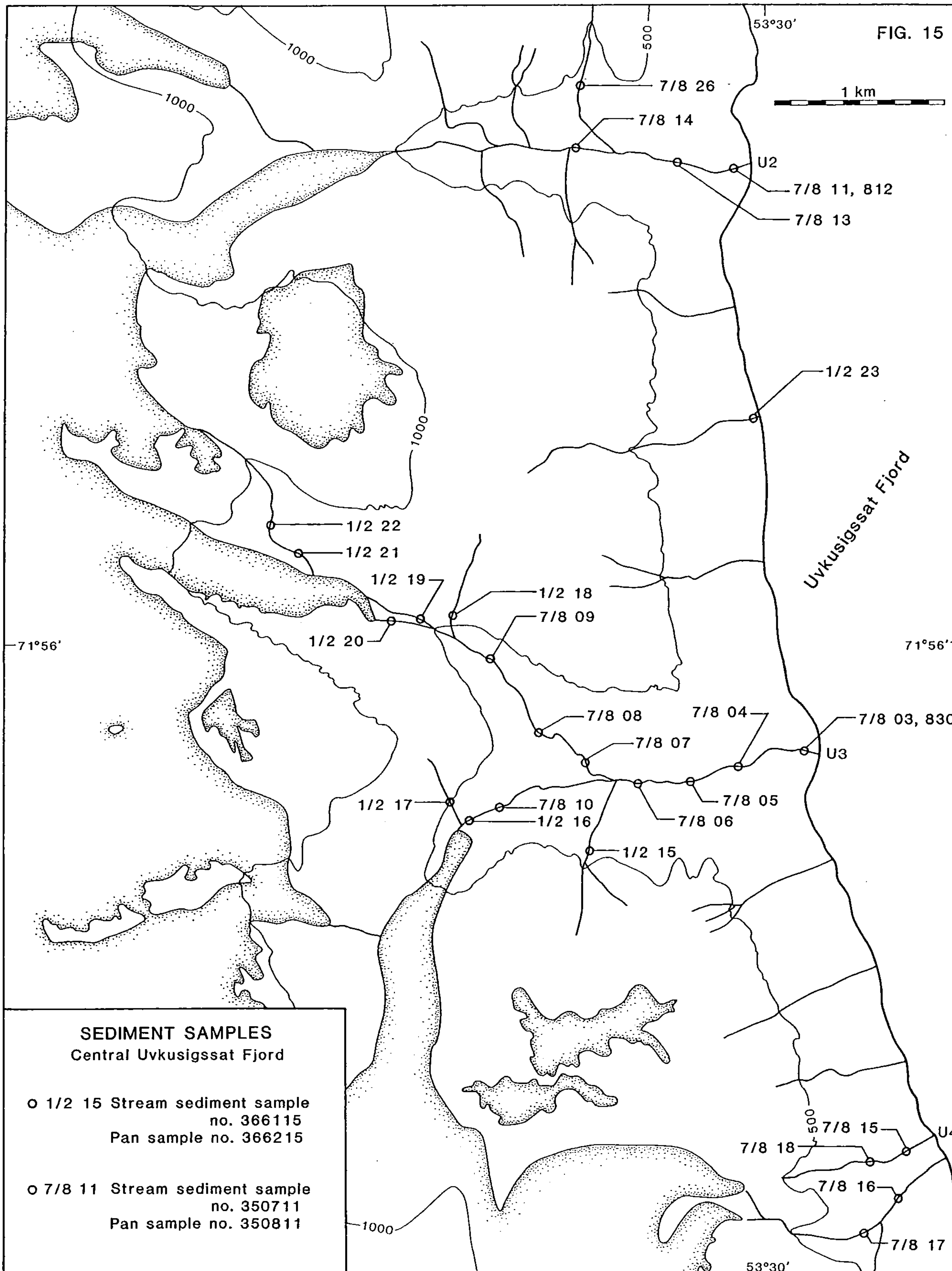


FIG. 15
1 km
53°30'
71°56'
71°56'
53°30'
1000
1000
1000
1000
500
500
Uvkusigssat Fjord
U2
U3
U4
7/8 26
7/8 14
7/8 11, 812
7/8 13
1/2 23
1/2 22
1/2 21
1/2 19
1/2 18
7/8 09
1/2 20
7/8 08
7/8 04
7/8 03, 830
7/8 07
7/8 05
7/8 06
1/2 17
7/8 10
1/2 16
1/2 15
7/8 15
7/8 18
7/8 16
7/8 17
SEDIMENT SAMPLES
Central Uvkusigssat Fjord
o 1/2 15 Stream sediment sample no. 366115 Pan sample no. 366215
o 7/8 11 Stream sediment sample no. 350711 Pan sample no. 350811

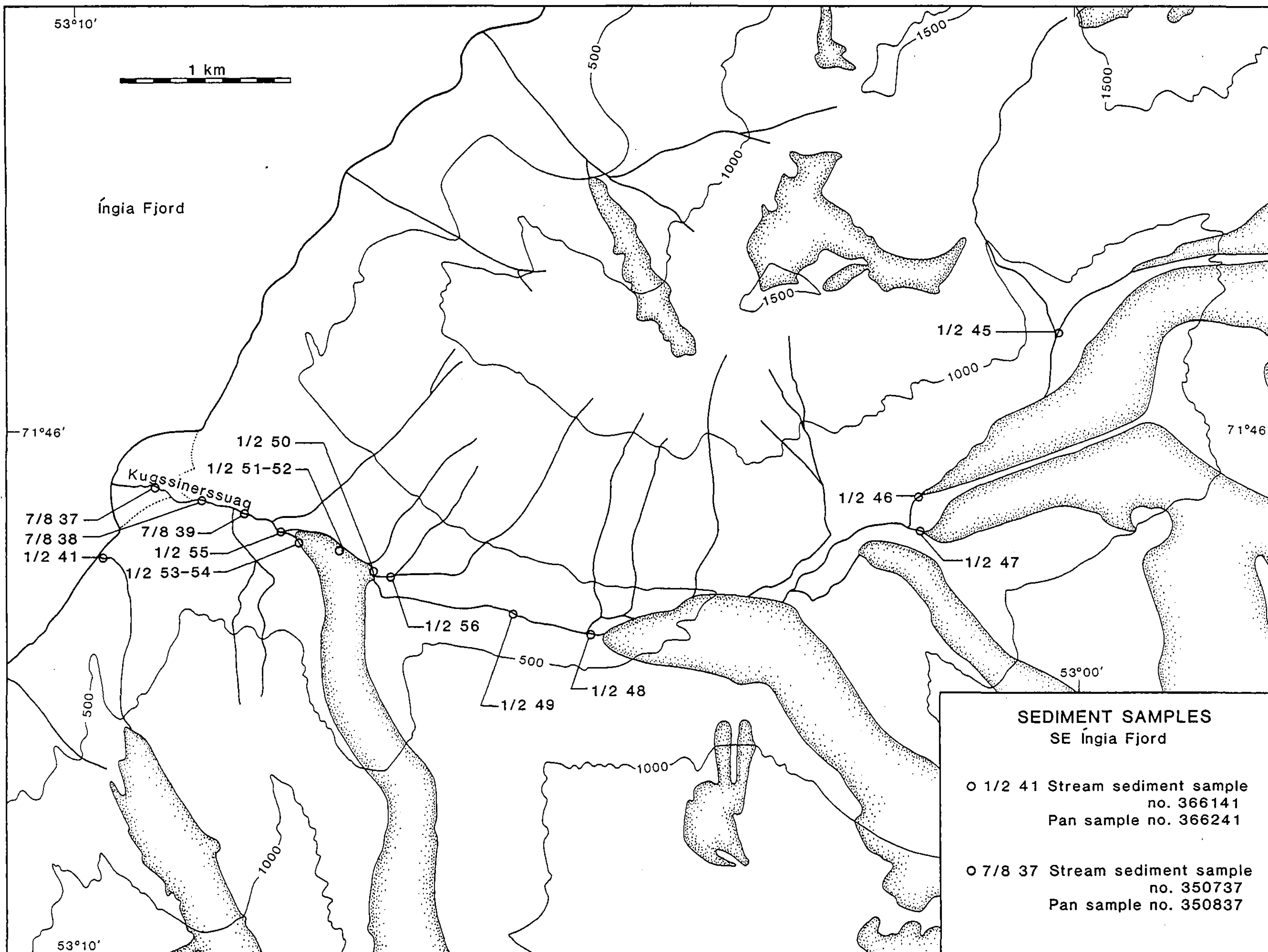

53°10'
1 km
Íngia Fjord
71°46'
Kugssinerssuaq
7/8 37
7/8 38
1/2 41
7/8 39
1/2 55
1/2 53-54
1/2 50
1/2 51-52
1/2 56
1/2 49
1/2 48
1/2 45
1/2 46
1/2 47
500
1000
1500
71°46'
53°00'
53°10'
SEDIMENT SAMPLES
SE Íngia Fjord
o 1/2 41 Stream sediment sample no. 366141
Pan sample no. 366241
o 7/8 37 Stream sediment sample no. 350737
Pan sample no. 350837

FIG. 16

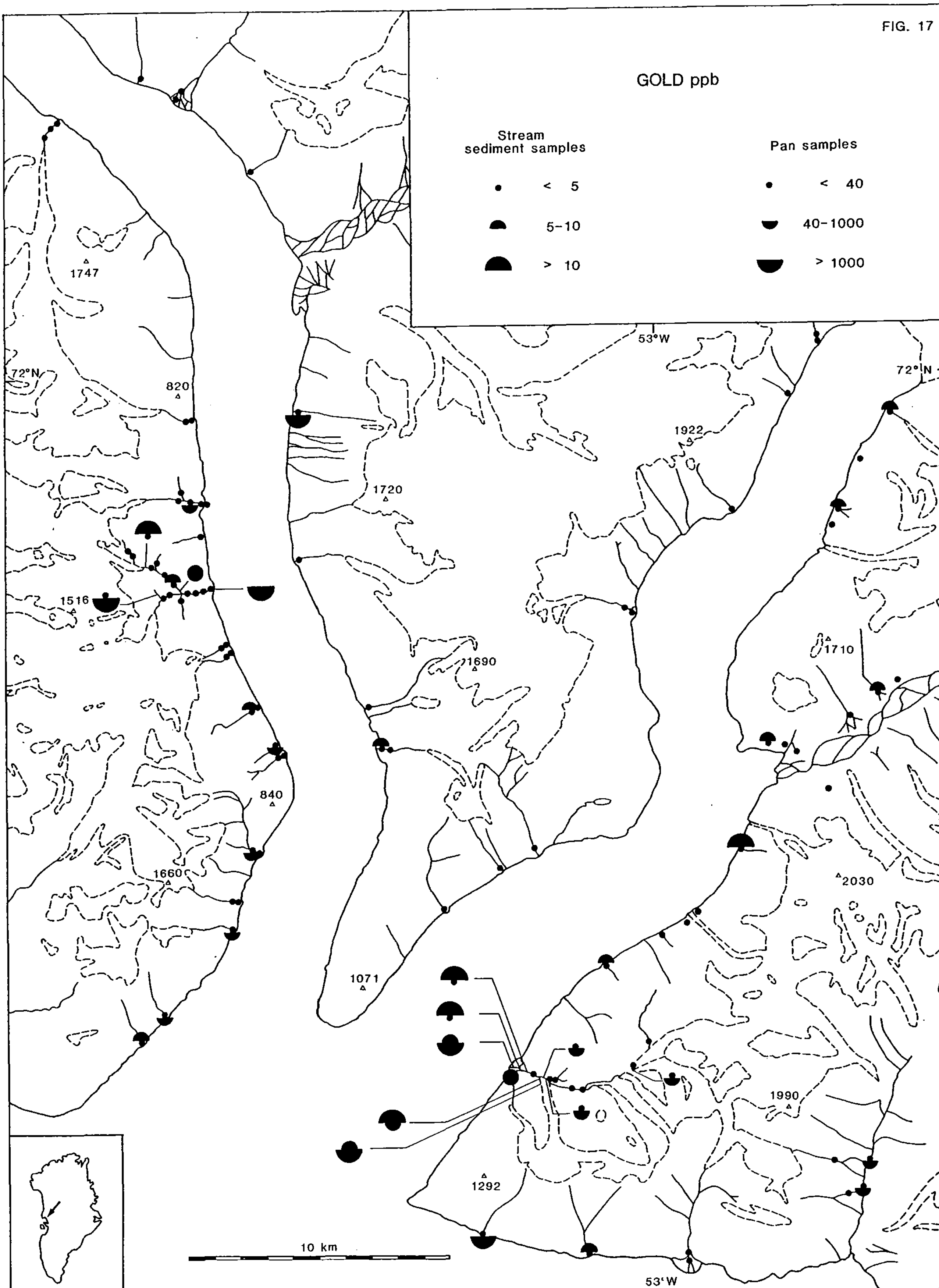
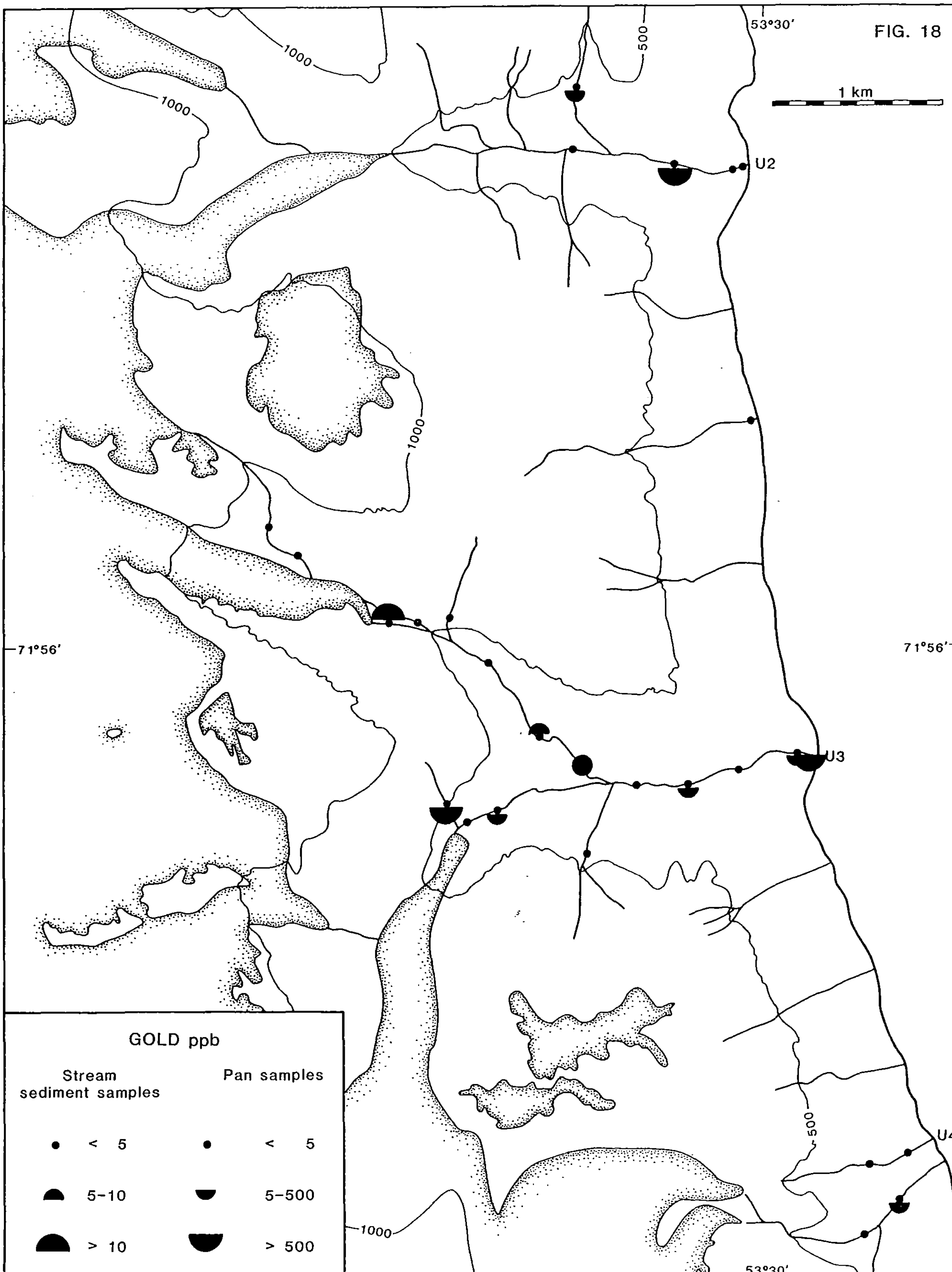


FIG. 17
GOLD ppb
Stream sediment samples
< 5
5-10
> 10
Pan samples
< 40
40-1000
> 1000
53°W
72°N
72°N
1747
820
1922
1720
1516
1710
1690
840
1660
2030
1071
1990
1292
10 km
53°W


53°30'
FIG. 18
1 km
1000
500
U2
1000
71°56'
71°56'
U3
500
U4
1000
53°30'
GOLD ppb
Stream sediment samples
Pan samples
< 5
5-10
> 10
< 5
5-500
> 500

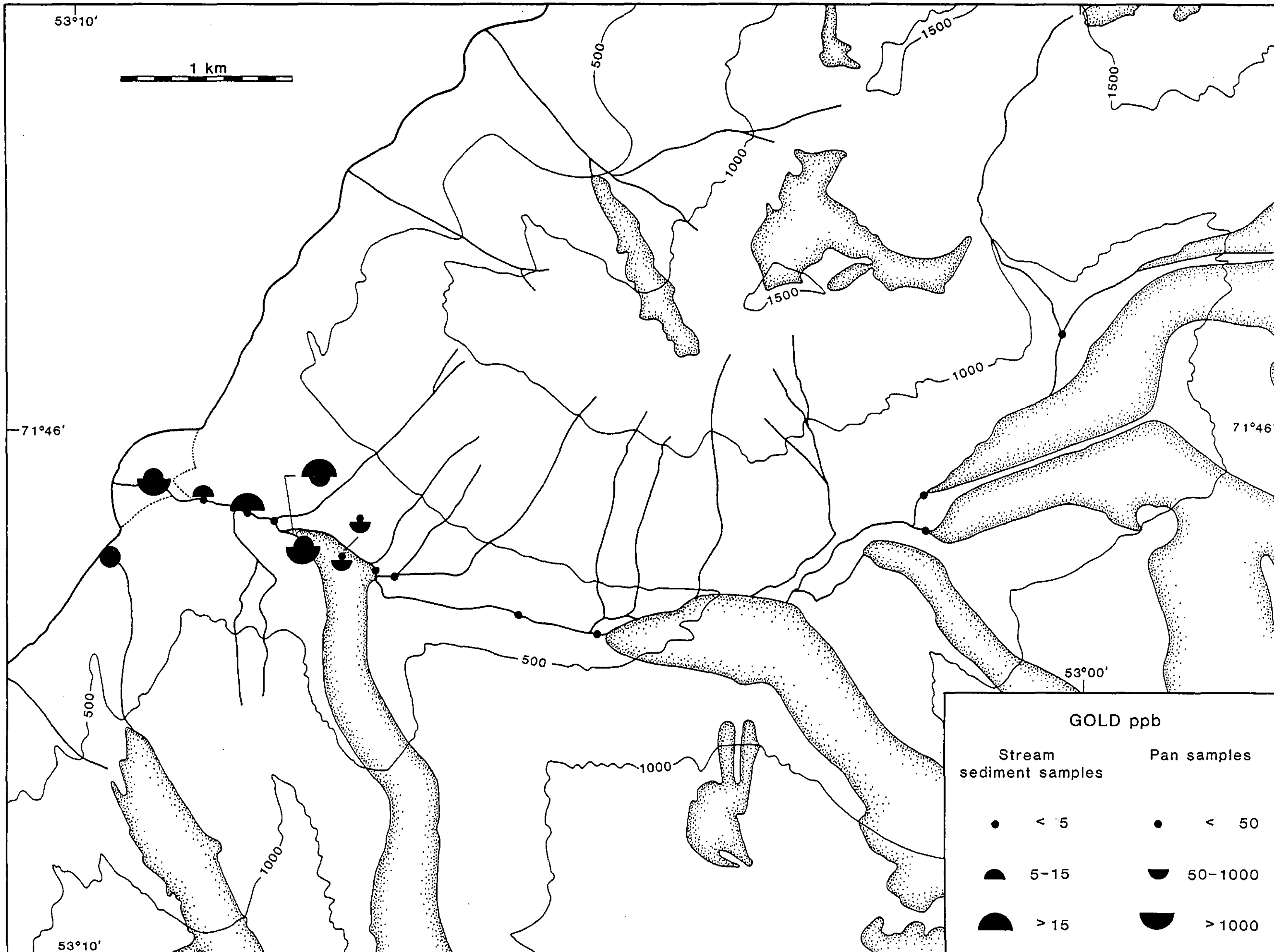

53°10'
1 km
500
1000
1500
71°46'
53°00'
GOLD ppb
Stream sediment samples
Pan samples
< 5
5-15
> 15
< 50
50-1000
> 1000

FIG. 19

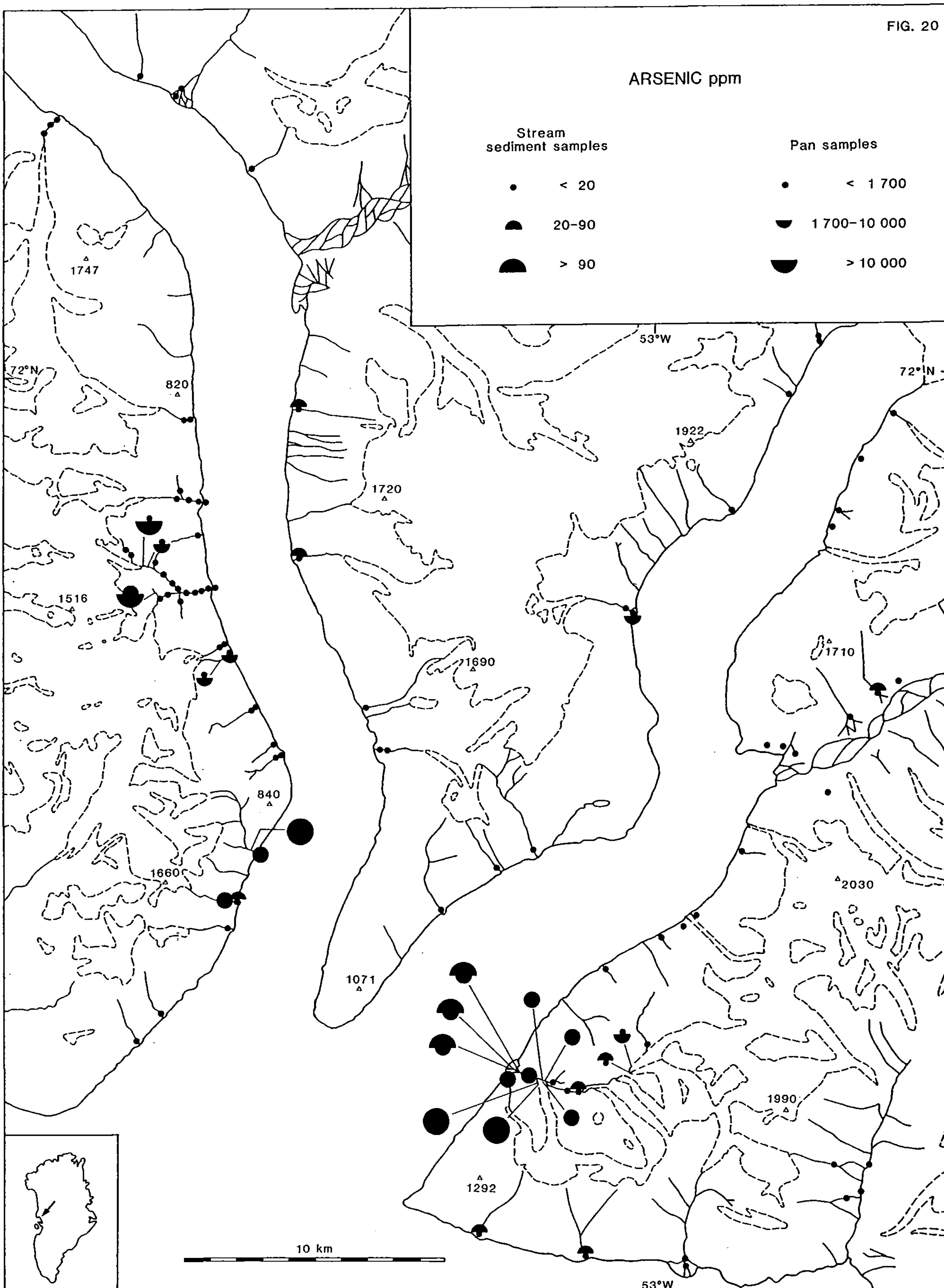


FIG. 20
ARSENIC ppm
Stream sediment samples
< 20
20-90
> 90
Pan samples
< 1 700
1 700-10 000
> 10 000
72°N
72°N
53°W
53°W
1747
820
1516
1720
1690
1922
1710
840
1660
1071
2030
1990
1292
10 km

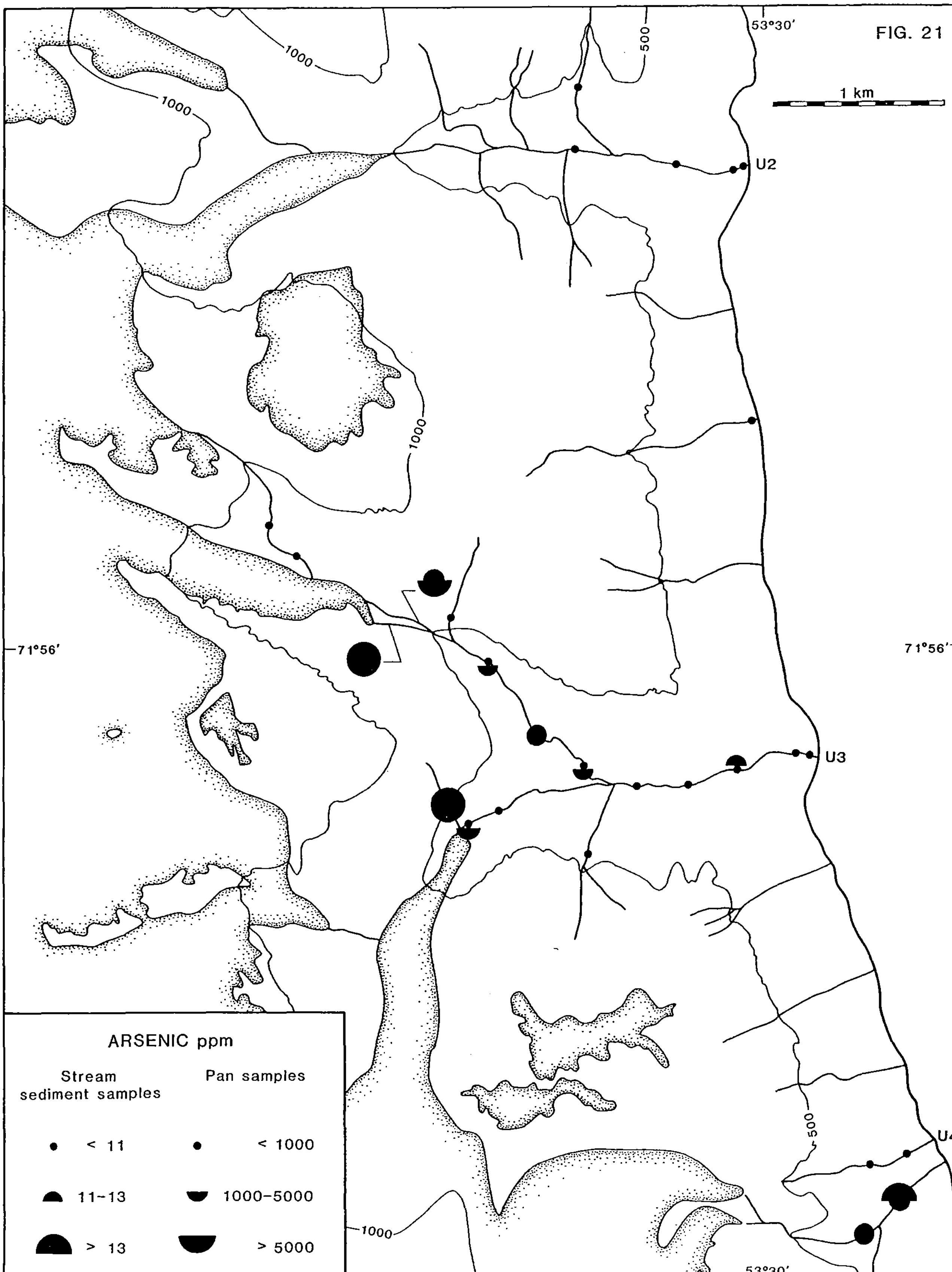


FIG. 21
53°30'
1 km
1000
500
U2
U3
U4
71°56'
71°56'
53°30'
ARSENIC ppm
Stream sediment samples
Pan samples
< 11
< 1000
11-13
1000-5000
> 13
> 5000

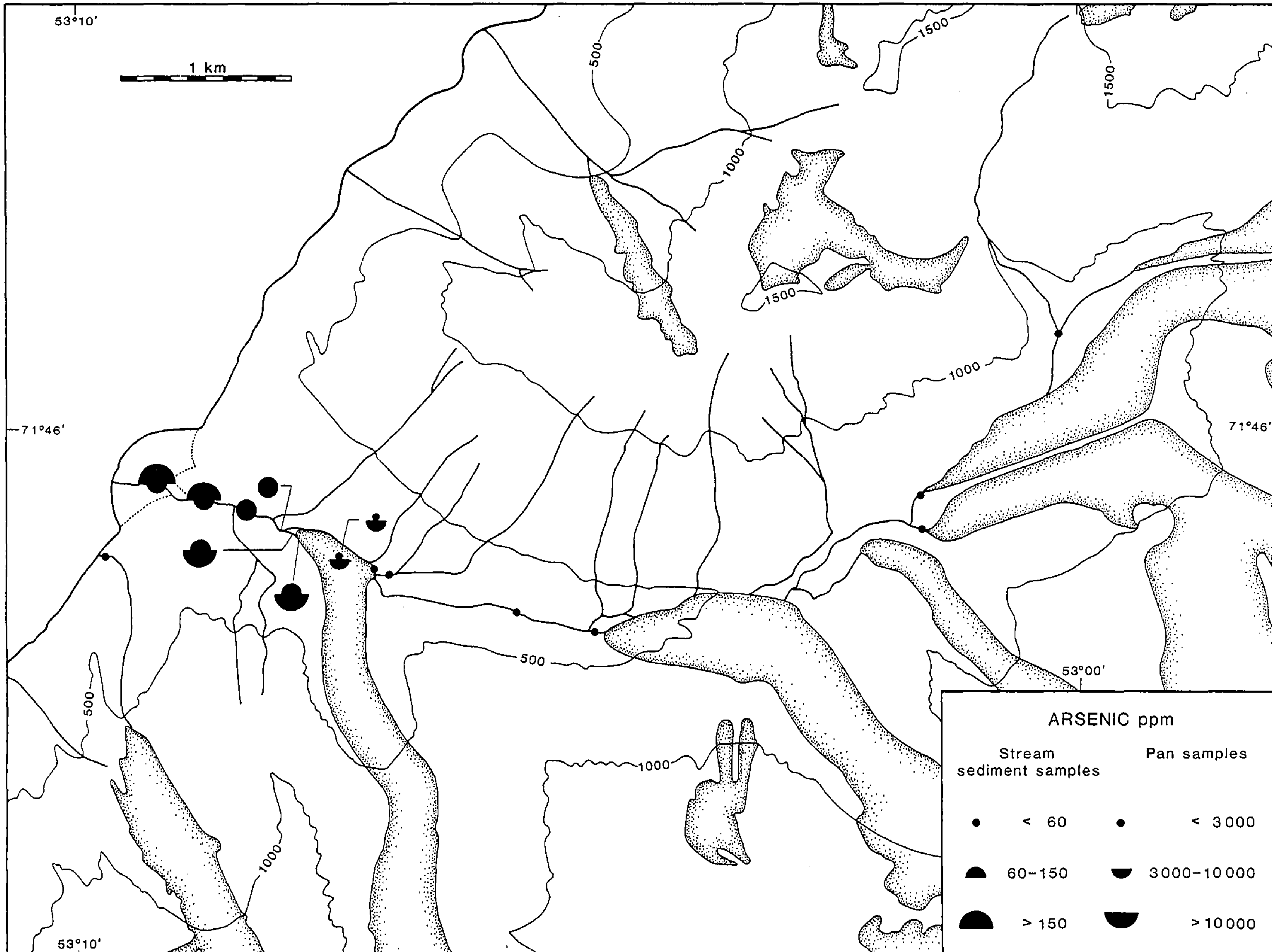

53°10'
1 km
500
1000
1500
71°46'
53°00'
ARSENIC ppm
Stream sediment samples
Pan samples
< 60
60-150
> 150
< 3000
3000-10000
> 10000

FIG. 22

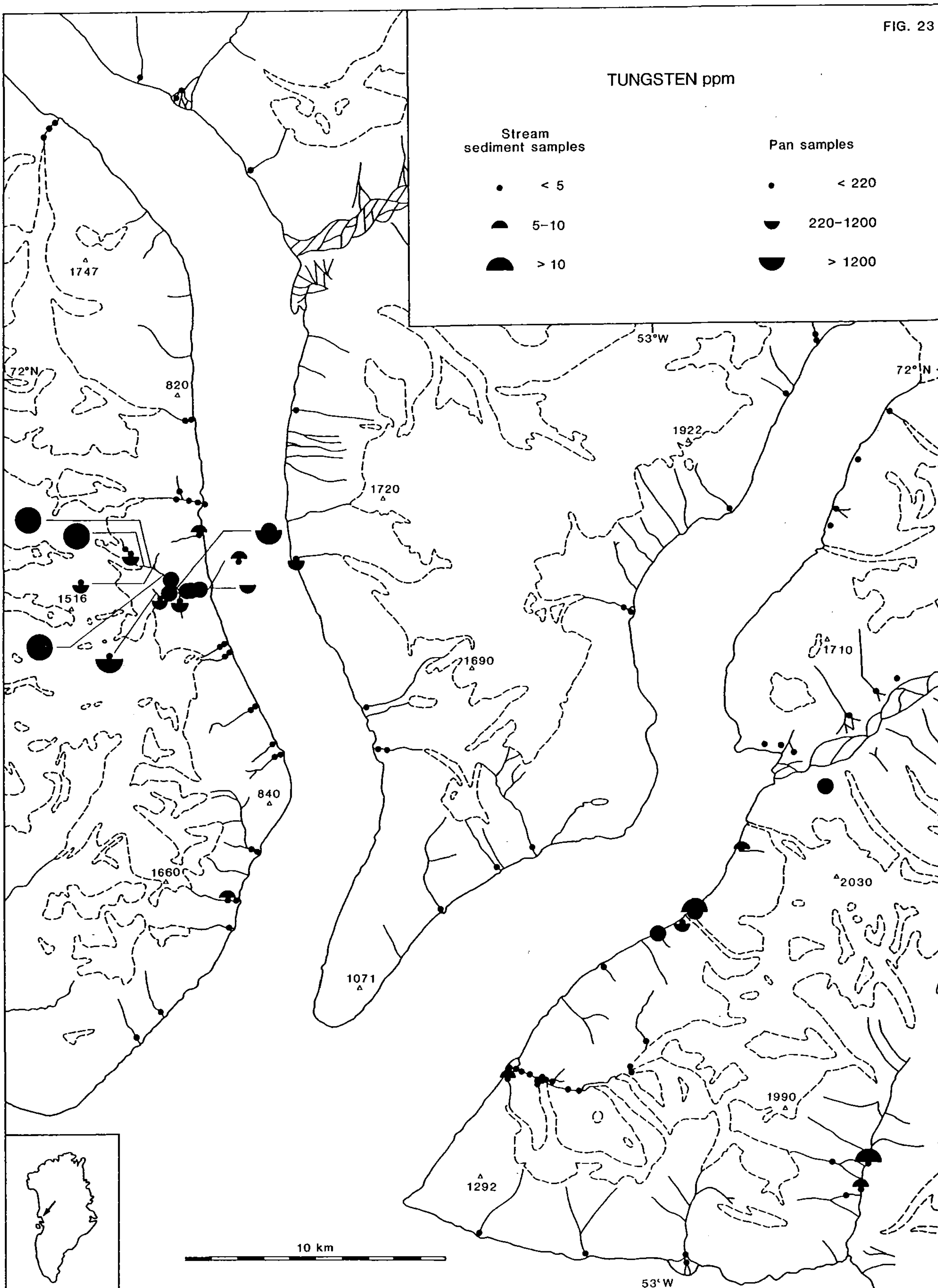
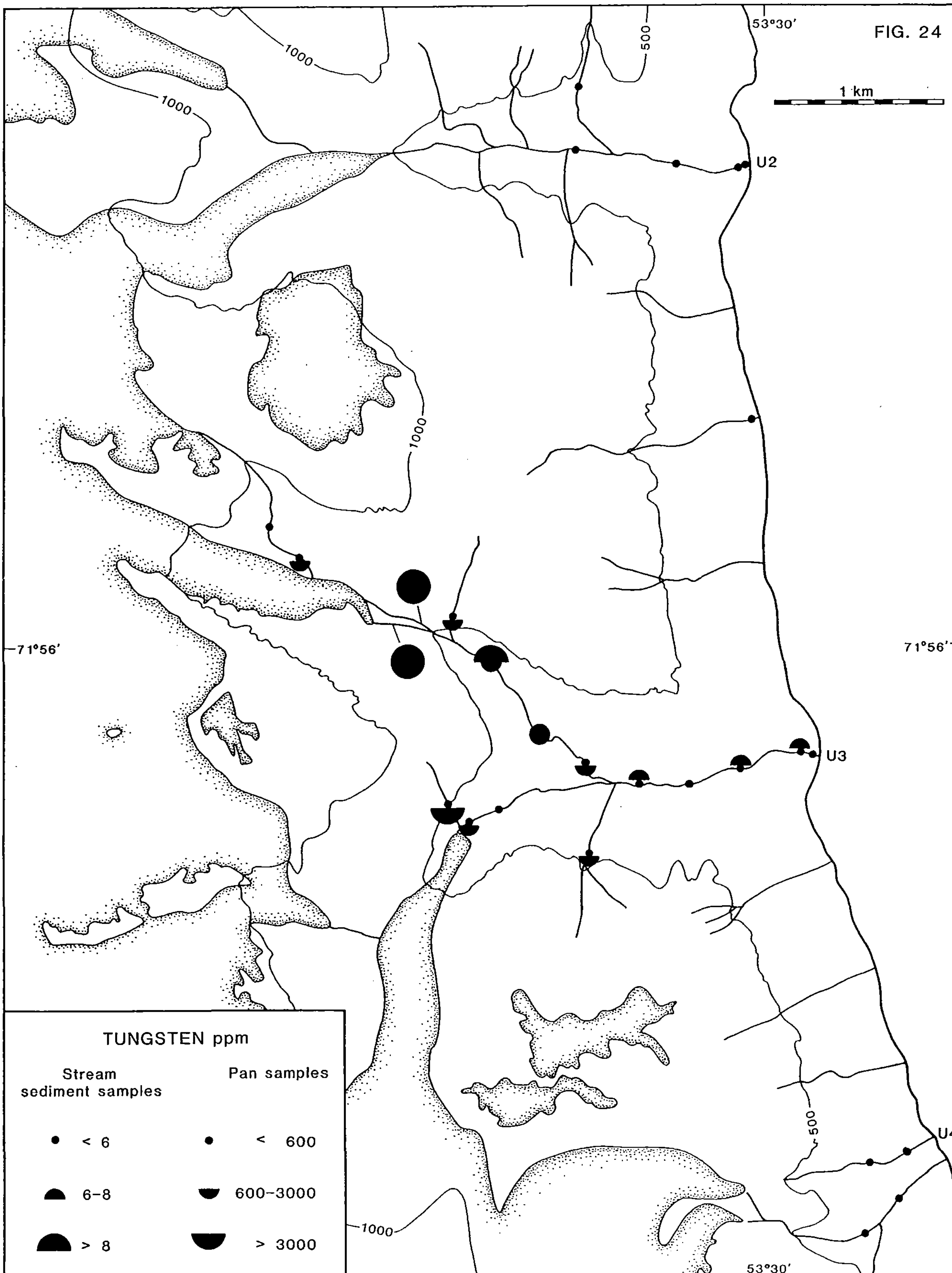


FIG. 23
TUNGSTEN ppm
Stream sediment samples
< 5
5-10
> 10
Pan samples
< 220
220-1200
> 1200
53°W
72°N
72°N
1747
820
1516
1660
840
1720
1690
1071
1922
1710
2030
1990
1292
10 km
53°W

FIG. 24


53°30'
1 km
1000
1000
500
U2
1000
71°56'
71°56'
U3
U4
500
1000
53°30'
TUNGSTEN ppm
Stream sediment samples
Pan samples
< 6
6–8
> 8
< 600
600–3000
> 3000

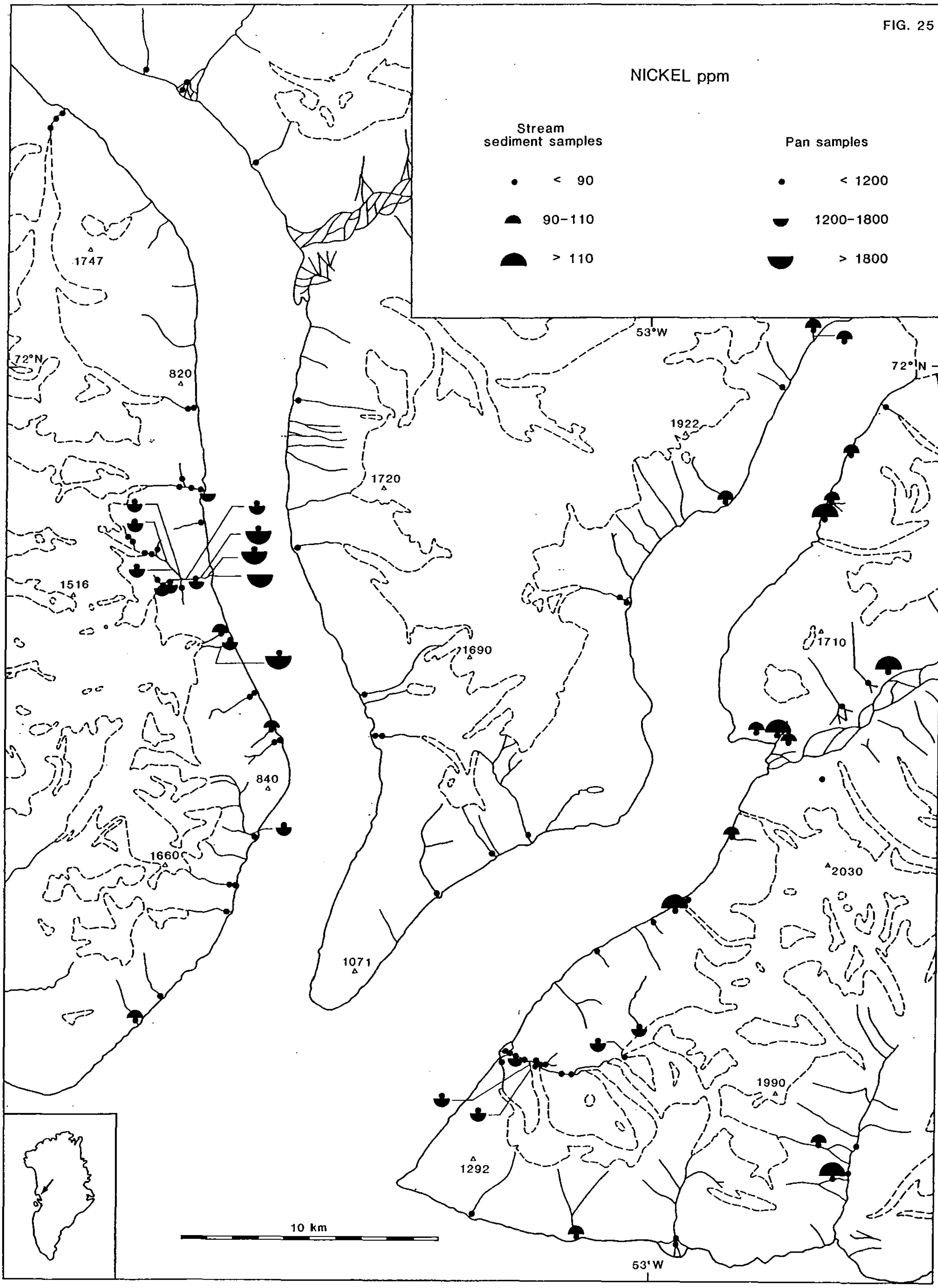


FIG. 25
NICKEL ppm
Stream sediment samples
< 90
90-110
> 110
Pan samples
< 1200
1200-1800
> 1800
1747
72°N
820
1516
1660
840
1071
1720
1690
1922
53°W
72°N
1710
2030
1990
1292
10 km
53°W

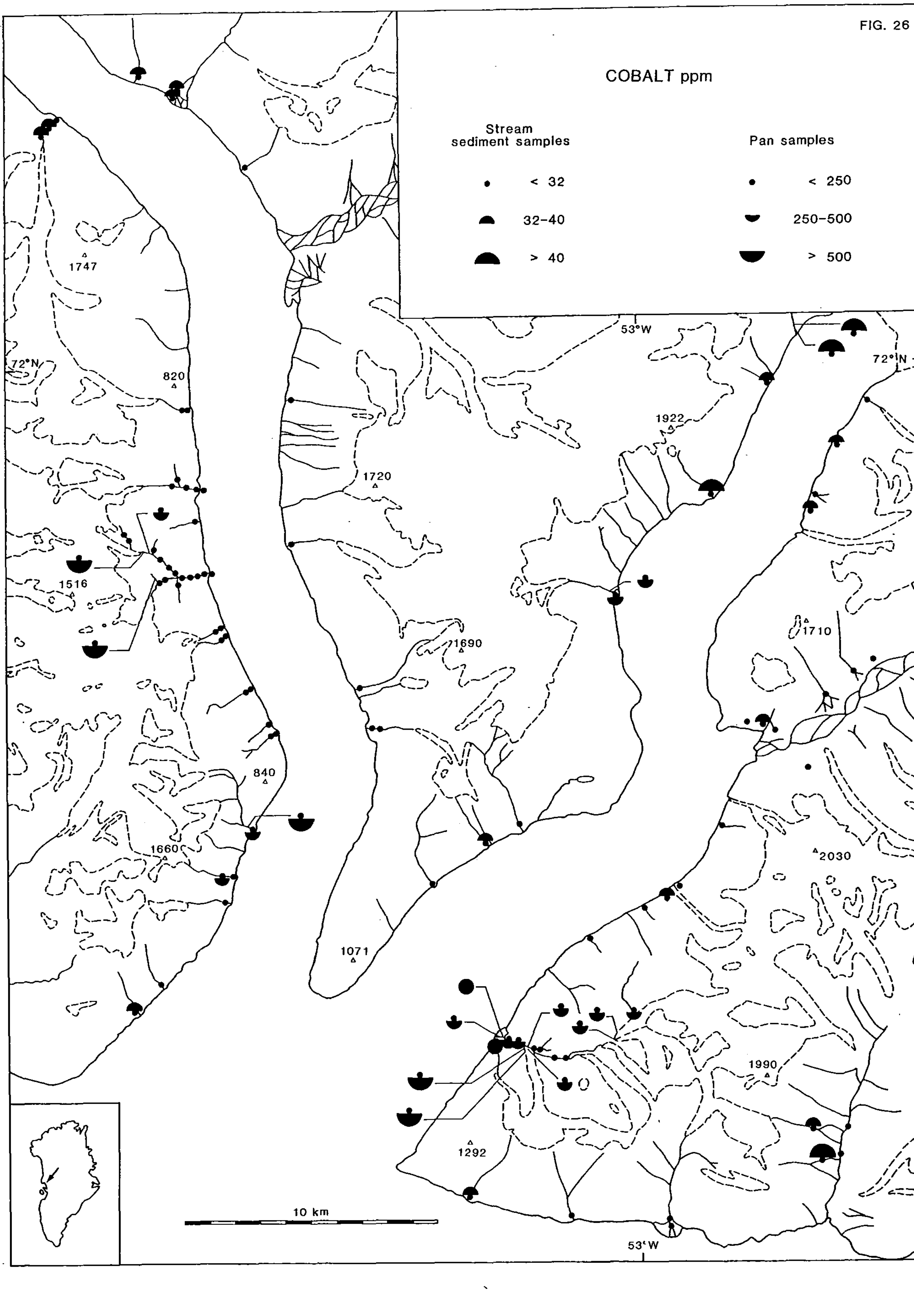


FIG. 26
COBALT ppm
Stream sediment samples
< 32
32-40
> 40
Pan samples
< 250
250-500
> 500
53°W
72°N
72°N
1747
820
1516
840
1660
1720
1690
1071
1922
1710
2030
1990
1292
10 km
53°W

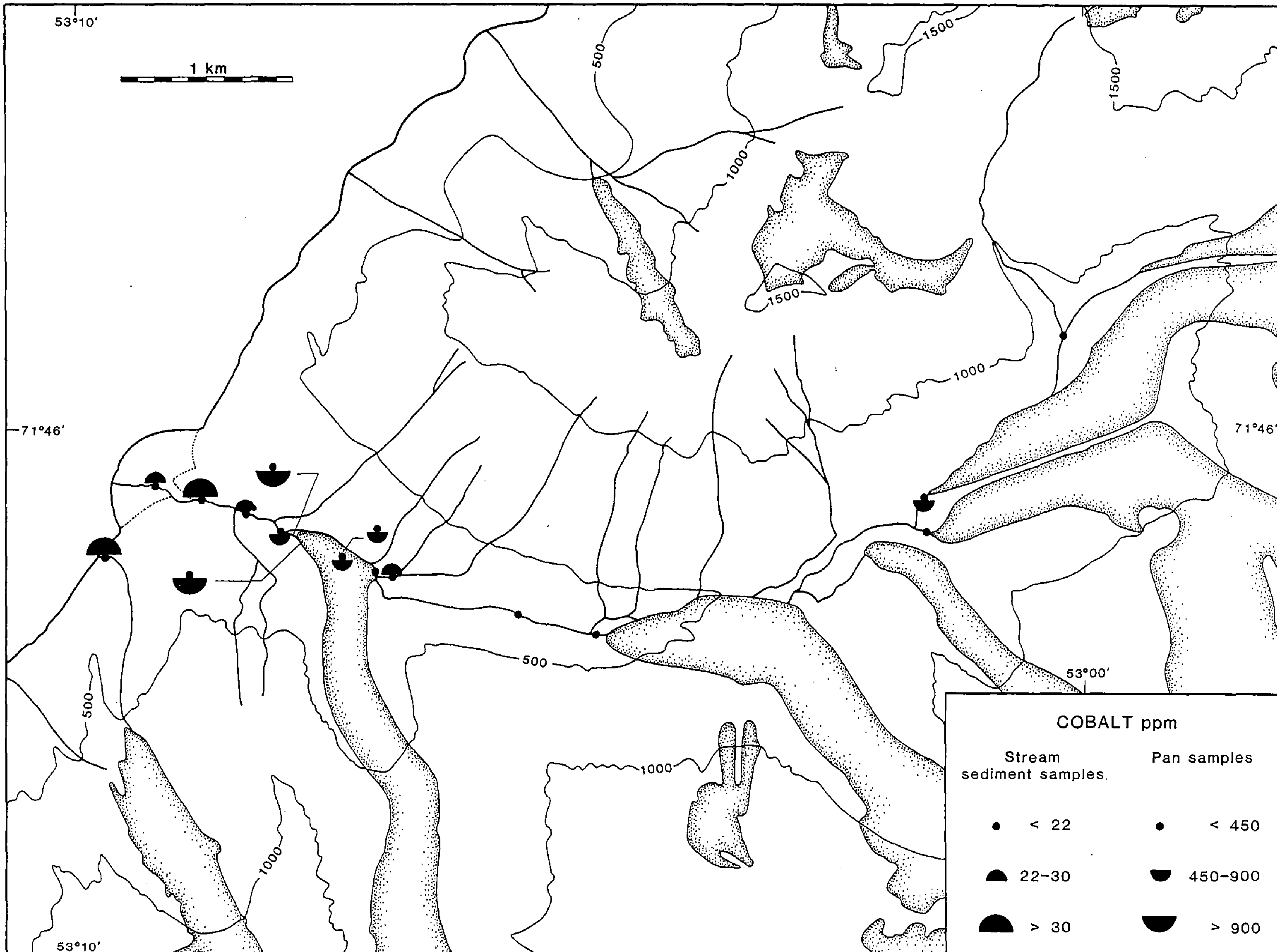

53°10'
1 km
500
1500
1500
1000
1500
1000
71°46'
71°46'
500
500
53°00'
1000
1000
53°10'
COBALT ppm
Stream sediment samples.
Pan samples
< 22
< 450
22-30
450-900
> 30
> 900

FIG. 27

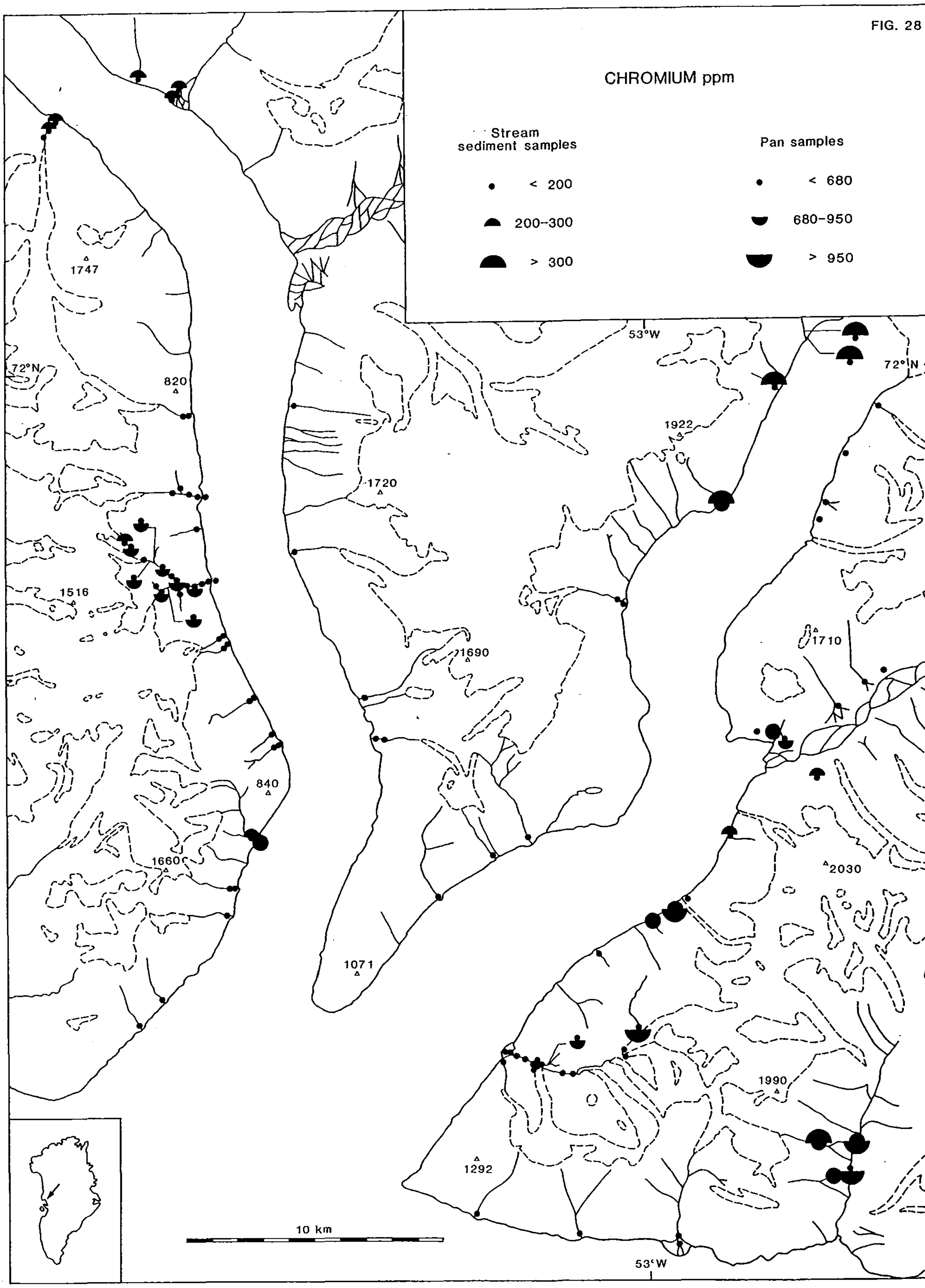


FIG. 28
CHROMIUM ppm
Stream sediment samples
< 200
200-300
> 300
Pan samples
< 680
680-950
> 950
53°W
72°N
1747
820
1516
840
1660
1720
1690
1071
1922
1710
2030
1990
1292
10 km

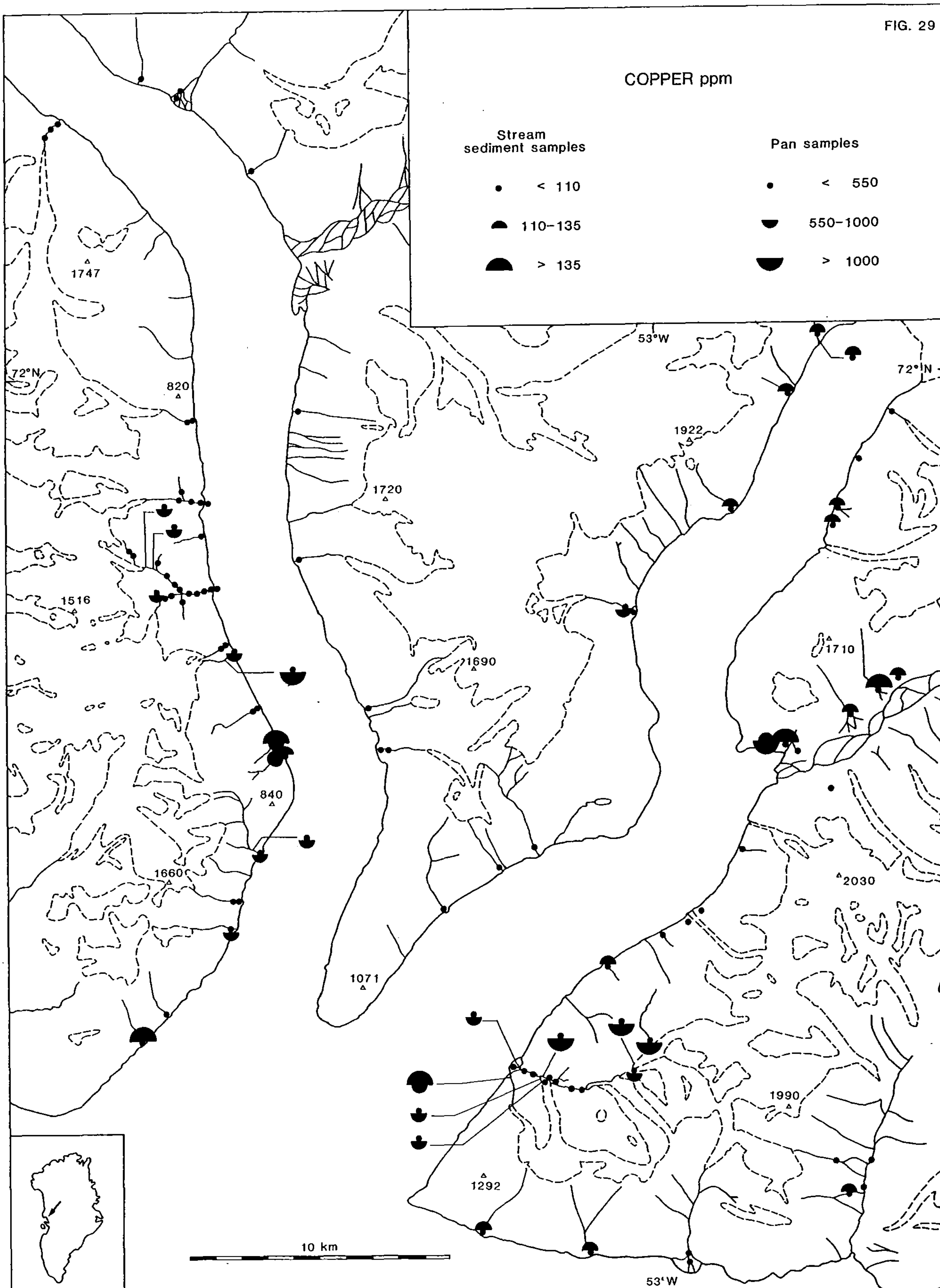


FIG. 29
COPPER ppm
Stream sediment samples
< 110
110-135
> 135
Pan samples
< 550
550-1000
> 1000
53°W
72°N
72°N
1747
820
1516
840
1660
1720
1690
1071
1922
1710
2030
1990
1292
10 km
53°W

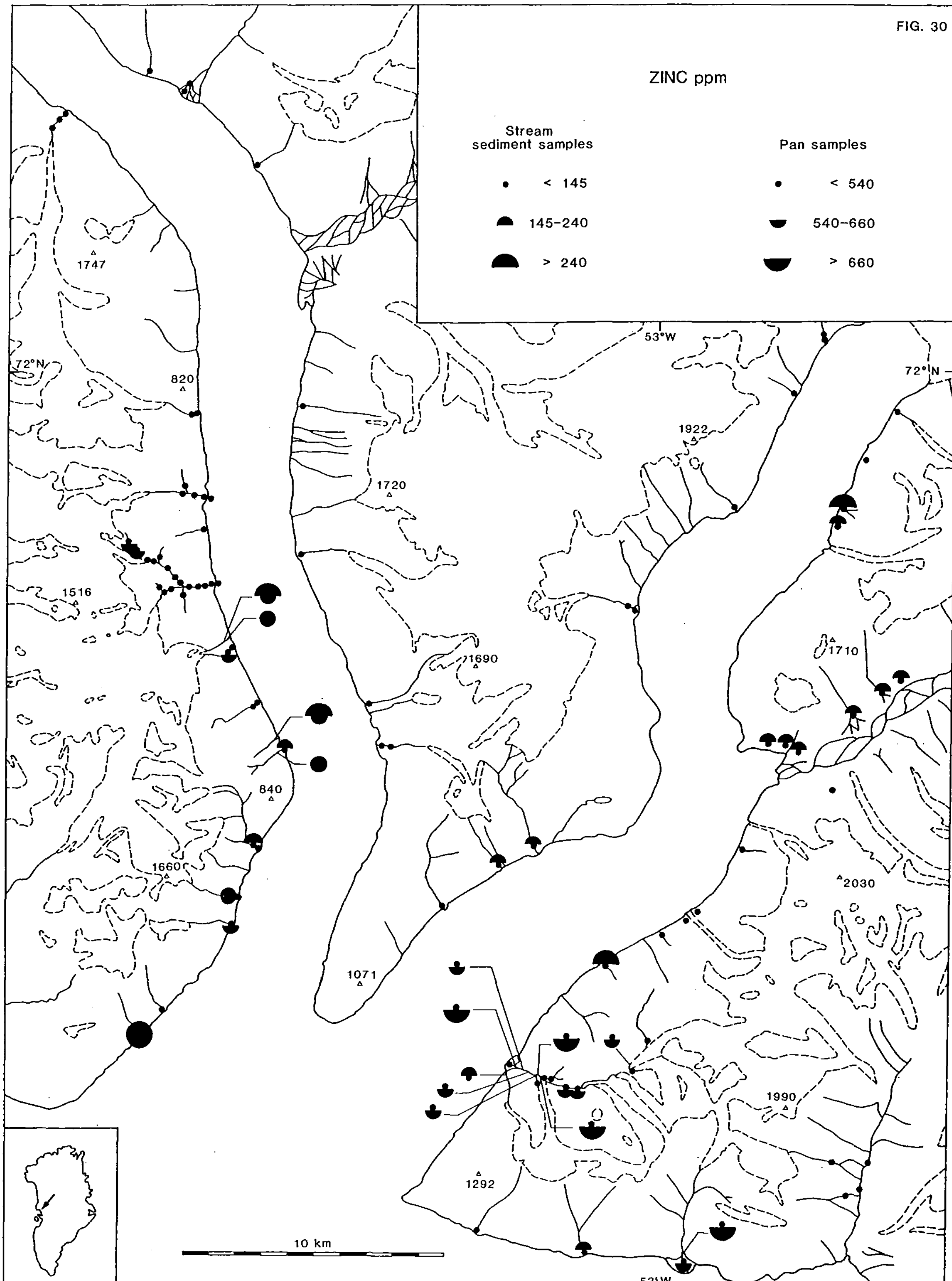
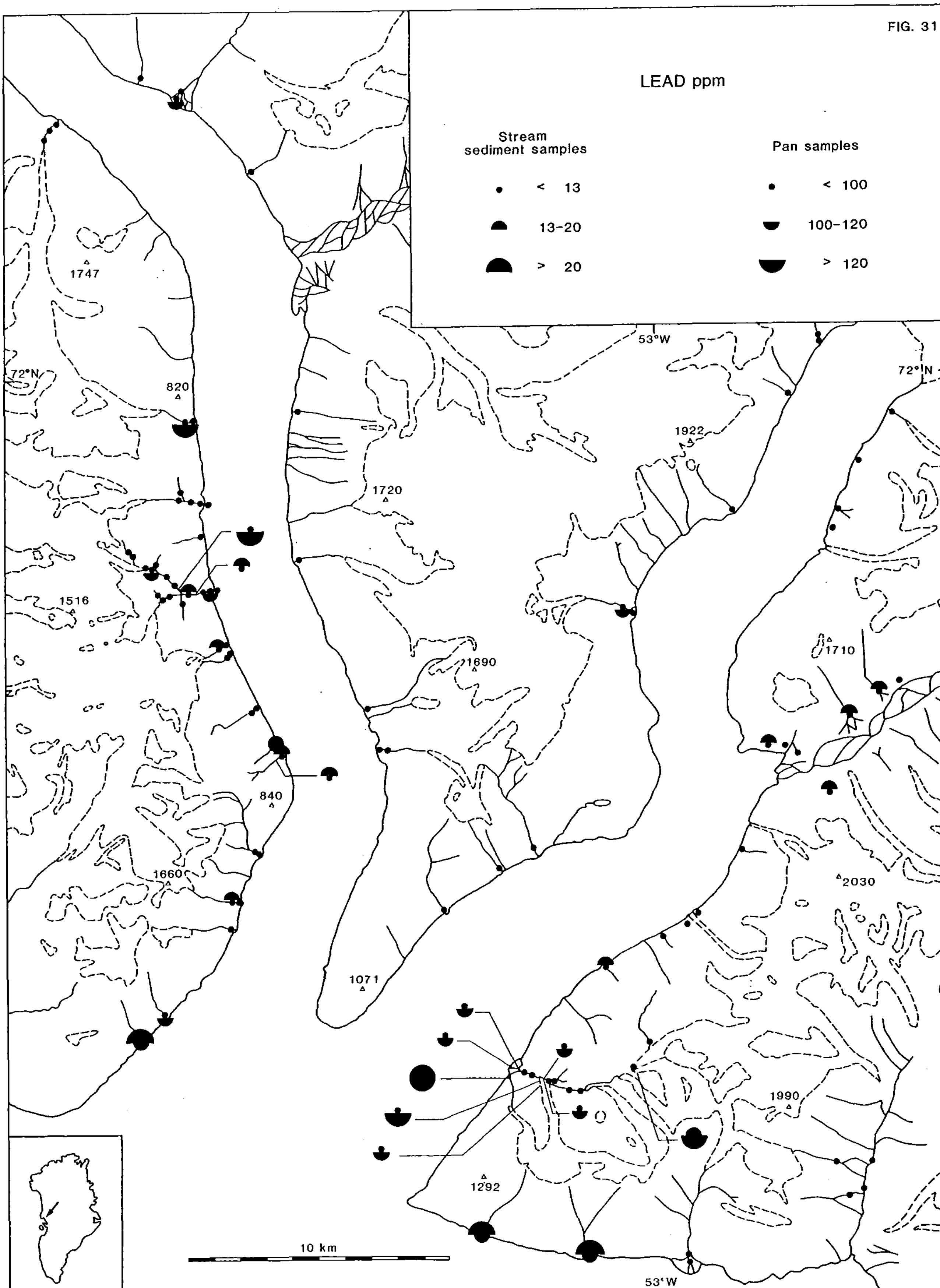


FIG. 30
ZINC ppm
Stream sediment samples
< 145
145-240
> 240
Pan samples
< 540
540-660
> 660
53°W
72°N
72°N
1747
820
1516
1720
1922
1690
1710
840
1660
2030
1071
1990
1292
10 km
53°W

FIG. 31



LEAD ppm
Stream sediment samples
< 13
13-20
> 20
Pan samples
< 100
100-120
> 120
1747
72°N
820
1720
1922
53°W
72°N
1516
1690
1710
840
1660
2030
1071
1990
1292
10 km
53°W

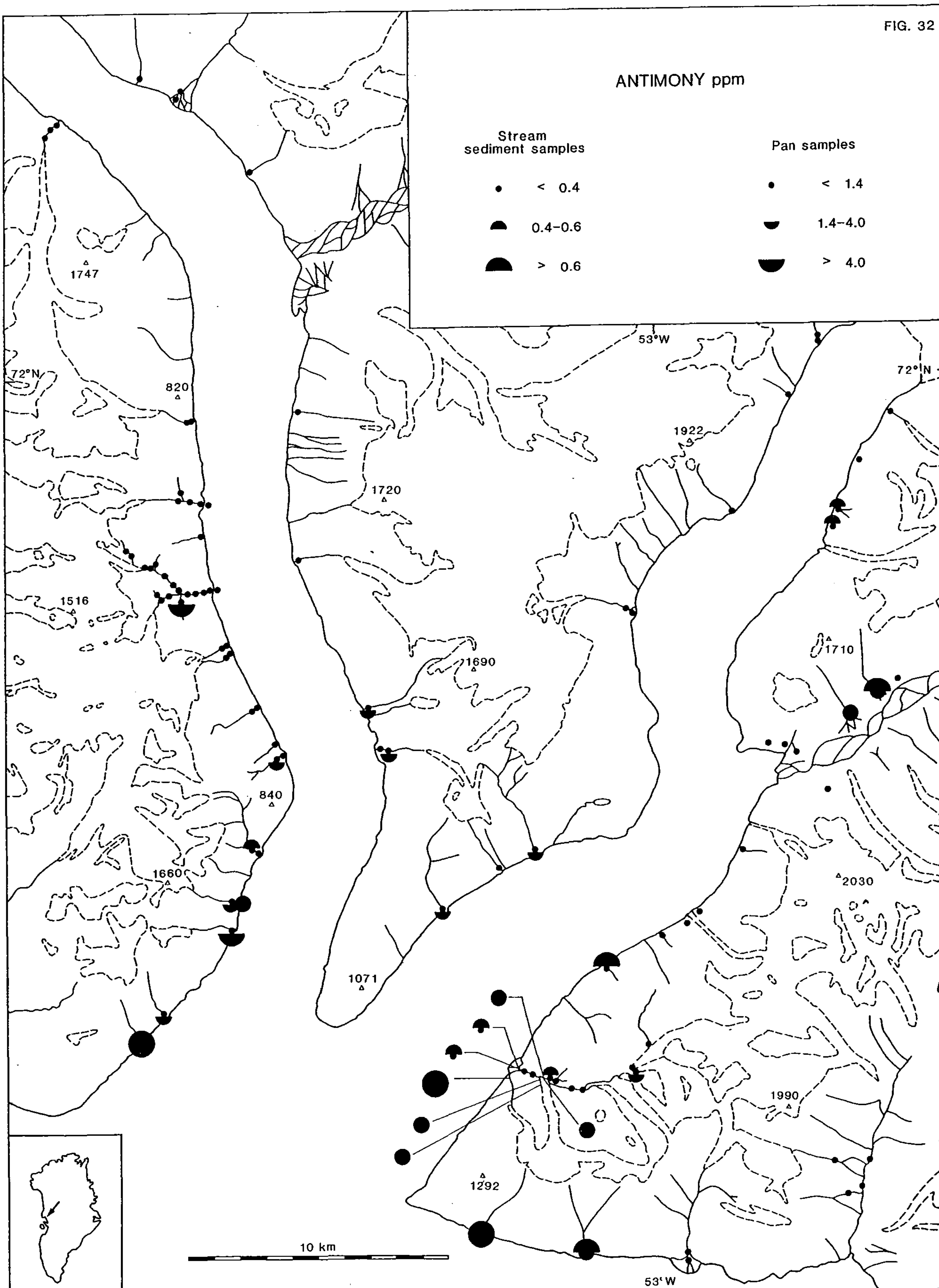


FIG. 32
ANTIMONY ppm
Stream sediment samples
< 0.4
0.4–0.6
> 0.6
Pan samples
< 1.4
1.4–4.0
> 4.0
1747
72°N
820
1516
1660
840
1071
1720
1690
53°W
1922
72°N
1710
2030
1990
1292
10 km
53°W

FIG. 33

GOLD - ANOMALOUS SUB AREAS

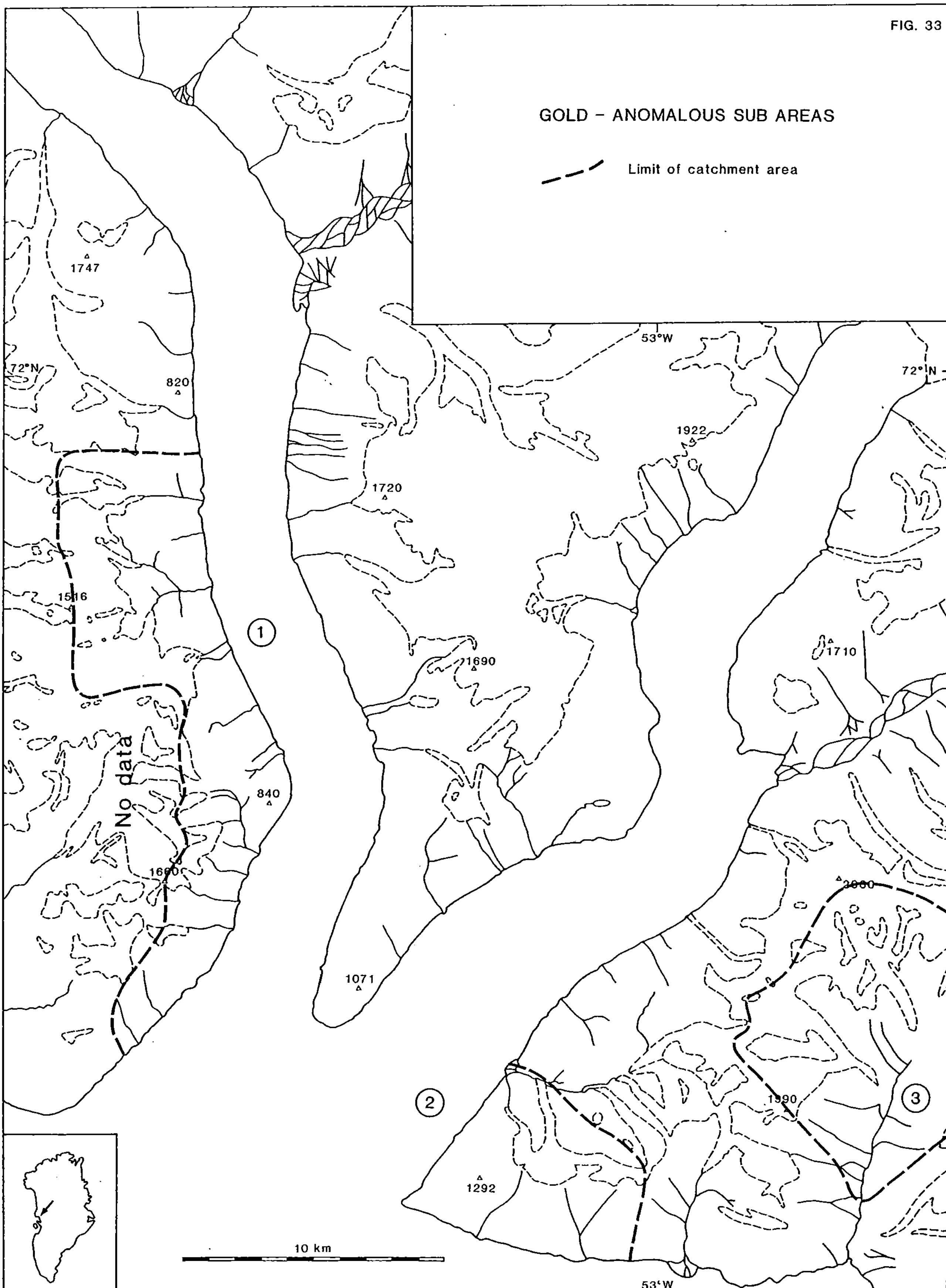


Table 1. Analytical methods and detection limits.

(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	200 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

(6) XRF analysis by the Geological Survey of Greenland.

Chip samples, rock samples.

Elements: Si, Ti, Al, Fe, Mn, Mg, Ca, Na, K, P

Note. 0 or 0.0 in the analytical results indicates 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	Source	Altitude metre	-0.1 mm fraction gramme
350703	N,D	20	11
350704	N,D	70	20
350705	N,D	120	37
350706	N,D	160	22
350707	N,D	225	35
350708	N,D	330	44
350709	N,D	440	58
350710	N	270	31
350711	N	20	41
350713	N	80	42
350714	N	240	89
350715	N,D	80	42
350716	N,D	110	49
350717	N	250	68
350718	N,D	170	25
350719	N,D	110	27
350720	N,D	35	48
350721	N,D	20	62
350722	N	20	82
350723	N	100	39
350724	N,D	20	99
350725	N,D	80	142
350726	N	360	26
350727	N,G,P	60	100
350728	N,G,P	200	181
350729	N,G,P	360	120
350731	V,N	40	52
350732	V,N	40	91
350733	Q,V,N	20	104
350734	Q,D,V	110	70
350735	Q,V,N	170	67
350736	Q,V,N	130	71
350737	N	15	47
350738	N	40	47
350739	N	60	71
350740	Q	80	29
350741	Q,V,N	140	38
350742	Q,V,N	160	56
350743	B	350	47
350744	Q	10	60
350745	B	15	33
350746	V,N	5	88

Table 2. Stream sediment samples

GGU no	Source	Altitude metre	-0.1 mm fraction gramme
366101	N	40	28
366102	N	5	42
366103	N	45	8
366104	N	40	45
366105	N	130	67
366106	N,D	70	53
366107	N,D	55	40
366108	N,D	6	130
366109	N	5	19
366110	N	10	128
366111	N	15	61
366112	N,P	25	40
366113	N,P	60	24
366114	N,G,P	60	47
366115	N	380	25
366116	N	380	84
366117	N	880	23
366118	N	580	72
366119	N,D	570	80
366120	N,D	640	65
366121	N	800	13
366122	N	850	18
366123	N	10	4
366124	N	35	7
366125	N,D	70	21
366126	N	125	7
366127	N	30	79
366128	N	65	74
366129	N,P	35	40
366130	N	5	55
366131	N,P	36	104
366132	N,P	60	157
366133	B,Q	200	28
366134	B,Q	180	82
366135	Q,V,N	470	3
366136	B,Q,V	280	53
366137	V,N	60	40
366138	V,N	90	32
366139	N	10	50
366140	N	10	37
366141	N	25	35
366142	V	5	43

Table 2. Stream sediment samples

GGU no	Source	Altitude metre	-0.1 mm fraction gramme
366143	Q	5	67
366144	N	60	168
366145	N	940	28
366146	N	730	28
366147	N	700	6
366148	N,D	410	12
366149	N,D	350	7
366150	N	230	67
366151	N	200	102
366152	N	215	44
366153	N	160	78
366154	N	160	30
366155	N	140	60
366156	N	270	19
366157	N	10	43
366158	N	40	7
Samples			100
Minimum			3
Maximum			181
Average			53
Median			44

P = Plateau basalt
D = Dolerite dyke
G = Granitic sheet
N = Nûkavsak Formation (79)
V = Metavolcanic unit (6)
Q = Qeqertarssuaq Formation (10)
B = Gneissic basement (5)

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

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 %
366101	0	118	3	0	0	87	27	0	210	3.8
366102	0	65	3	0	0	87	25	0	210	4.7
366103	0	30	6	0	0	94	26	0	120	4.7
366104	0	26	4	0	0	85	25	0	150	4.6
366105	0	4	3	0	0	53	20	0	140	3.9
366106	0	15	0	0	0	52	21	0	150	4.2
366107	7	17	3	0	0	45	20	0	160	4.2
366108	0	13	0	0	0	54	23	0	140	3.7
366109	0	20	0	0	0	40	19	0	150	3.6
366110	0	30	0	0	0	76	24	0	180	4.4
366111	0	1	0	0	0	63	24	0	190	4.3
366112	0	7	0	0	0	56	34	0	230	5.9
366113	0	10	2	0	0	64	34	0	230	6.1
366114	0	8	0	0	0	62	33	0	230	5.7
366115	0	5	3	0	0	72	26	0	140	4.4
366116	0	7	3	0	0	48	16	0	120	3.1
366117	0	36	3	0	0	71	24	0	160	4.1
366118	0	8	2	0	0	73	23	0	160	4.0
366119	0	12	11	0	0	40	10	0	100	2.4
366120	33	16	16	0	0	39	14	0	110	2.4
366121	0	8	3	0	0	63	23	0	170	4.4
366122	0	9	4	0	0	80	28	0	200	4.9
366123	0	7	5	0	0	41	17	0	160	4.3
366124	0	12	0	0	0	51	24	0	180	4.4
366125	0	11	2	0	0	77	39	0	140	6.7
366126	0	18	0	0	0	77	22	0	170	4.2
366127	0	9	0	0	0	53	15	0	120	3.5
366128	0	15	3	0	0	40	14	0	110	3.1
366129	0	4	0	0	0	110	56	0	490	8.8
366130	0	10	0	0	0	84	33	0	310	6.0
366131	0	11	2	0	0	100	42	0	380	7.1
366132	0	12	0	0	0	110	47	0	390	7.5
366133	0	2	12	0	0	66	20	0	250	3.8
366134	0	2	7	0	0	54	18	0	190	3.6
366135	0	8	4	0	0	96	33	0	330	6.1
366136	0	7	2	0	0	140	43	0	380	6.6
366137	0	15	3	0	0	50	19	0	130	3.4
366138	0	16	3	0	0	67	19	0	130	3.5
366139	9	76	0	0	0	110	31	0	150	5.5
366140	0	56	2	0	0	79	34	0	170	5.0
366141	6	51	5	0	0	73	32	0	170	5.8
366142	6	18	3	5	0	68	23	0	190	5.5

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 %
366143	0	4	6	0	0	79	22	0	210	4.3
366144	6	9	0	0	0	55	25	0	140	4.4
366145	0	7	4	0	0	46	16	0	130	3.4
366146	0	14	0	0	0	43	15	0	90	2.9
366147	0	20	4	0	0	37	20	0	100	3.7
366148	0	21	0	0	0	45	21	0	110	3.7
366149	0	16	0	0	0	26	20	0	130	3.5
366150	0	42	3	0	0	49	20	0	110	3.6
366151	0	36	3	0	0	50	21	0	100	3.8
366152	0	37	3	0	0	38	18	0	120	3.7
366153	10	93	3	0	0	47	21	0	96	2.7
366154	16	97	0	0	0	50	21	0	77	2.7
366155	0	67	0	0	0	34	17	0	73	2.7
366156	0	9	0	0	0	55	24	0	160	3.8
366157	0	3	4	0	0	88	25	0	150	4.7
366158	8	6	4	2	0	110	35	0	170	5.8
Samples	100	100	100	100	100	100	100	100	100	100
Minimum	0	0	0	0	0	26	10	0	57	2.4
Maximum	33	239	22	7	0	180	56	0	490	8.8
Average	–	22	4	–	–	69	25	–	164	4.4
Median	–	10	3	–	–	66	24	–	150	4.3

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

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
366101	105	0	145	0	12	0	0.4	0	0
366102	95	0	139	0	8	0	0.3	0	0
366103	87	0	147	0	17	0	0.3	0	0
366104	79	0	142	0	8	0	0.6	0	0
366105	73	0	113	0	8	0	0.2	0	0
366106	69	0	99	0	6	0	0.4	0	0
366107	69	0	100	0	5	0	0.0	0	0
366108	67	0	86	0	6	0	0.0	0	0
366109	65	0	82	0	4	0	0.0	0	0
366110	75	0	115	0	7	0	0.2	0	0
366111	88	0	104	0	5	0	0.0	0	0
366112	81	0	65	0	3	0	0.0	0	0
366113	87	0	65	0	3	0	0.0	0	0
366114	97	0	75	0	5	0	0.0	0	0
366115	77	0	136	0	10	0	0.0	0	0
366116	46	0	90	0	6	0	0.0	0	0
366117	67	0	130	0	8	0	0.0	0	0
366118	66	0	99	0	9	0	0.0	0	0
366119	34	0	74	0	4	0	0.0	0	0
366120	43	0	73	0	6	0	0.0	0	0
366121	63	0	112	0	10	0	0.0	0	0
366122	77	0	136	0	11	0	0.0	0	0
366123	58	0	125	0	11	0	0.3	0	0
366124	78	0	133	0	8	0	0.0	0	0
366125	91	0	147	0	10	0	0.2	0	0
366126	89	0	175	0	9	0	0.0	0	0
366127	56	0	88	0	5	0	0.2	0	0
366128	62	0	80	0	5	0	0.0	0	0
366129	135	0	76	0	3	0	0.0	0	0
366130	110	0	92	0	10	0	0.2	0	0
366131	125	0	73	0	4	0	0.0	0	0
366132	121	0	76	0	5	0	0.0	0	0
366133	39	0	25	0	5	0	0.0	0	0
366134	43	0	21	0	6	0	0.0	0	0
366135		0		0		0	0.2	0	0
366136	121	0	98	0	7	0	0.0	0	0
366137	64	0	89	0	8	0	0.0	0	0
366138	65	0	91	0	9	0	0.2	0	0
366139	134	0	240	0	26	0	1.2	0	0
366140	130	0	112	0	21	0	0.9	0	0
366141	136	0	203	0	21	0	0.7	0	0
366142	132	0	260	0	18	0	0.7	0	0

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
366143	75	0	86	0	7	0	0.0	0	0
366144	103	0	95	0	5	0	0.0	0	0
366145	65	0	90	0	6	0	0.0	0	0
366146	66	0	77	0	8	0	0.0	0	0
366147	68	0	99	0	15	0	0.3	0	0
366148	71	0	88	0	10	0	0.2	0	0
366149	62	0	89	0	7	0	0.0	0	0
366150	65	0	94	0	10	0	0.4	0	0
366151	84	0	125	0	9	0	0.6	0	0
366152	88	0	123	0	9	0	0.5	0	0
366153	64	0	78	0	7	0	0.4	0	0
366154	67	0	73	0	11	0	0.4	0	0
366155	63	0	73	0	7	0	0.3	0	0
366156	74	0	102	0	9	0	0.0	0	0
366157	100	0	138	0	11	0	0.3	0	0
366158	161	0	330	0	23	0	1.3	0	0
Samples	99	100	99	100	99	100	100	100	100
Minimum	34	0	18	0	4	0	0.0	0	0
Maximum	169	380	330	0	26	0	1.3	0	0
Average	83	-	116	-	9	-	-	-	-
Median	75	-	98	-	9	-	-	-	-

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

Table 2. Stream sediment samples

GGU no	Na %	Ba ppm	Br ppm	Sc ppm	Rb ppm	Cs ppm	Zr ppm	Hf ppm	Ta ppm
366101	1.1	500	0	11.0	130	7	0	5	0
366102	1.3	510	2	13.0	120	8	0	4	0
366103	1.4	550	0	13.0	140	8	680	4	1
366104	1.4	540	0	13.0	140	9	0	4	1
366105	1.5	470	0	11.0	99	6	0	3	0
366106	1.6	560	0	12.0	120	6	0	3	1
366107	1.5	460	0	12.0	100	6	580	5	0
366108	1.6	440	0	11.0	85	5	0	3	0
366109	1.4	530	0	11.0	100	6	0	6	0
366110	1.4	560	0	14.0	130	7	0	4	1
366111	1.8	440	0	14.0	89	6	0	4	0
366112	1.6	310	0	24.0	40	3	0	4	0
366113	1.5	230	0	25.0	37	3	0	5	0
366114	1.4	320	0	24.0	56	5	0	4	0
366115	1.5	560	0	12.0	140	9	0	3	0
366116	1.6	580	0	10.0	120	6	0	4	0
366117	1.6	620	0	13.0	190	9	0	4	1
366118	1.4	510	0	13.0	110	7	0	3	0
366119	1.6	530	0	8.1	110	5	0	5	0
366120	1.5	520	0	7.8	95	5	0	6	1
366121	1.5	550	0	13.0	110	7	0	4	1
366122	1.5	570	2	15.0	130	9	0	3	1
366123	1.6	550	0	14.0	120	7	590	4	1
366124	1.7	580	0	14.0	120	8	0	3	0
366125	1.8	660	0	17.0	110	7	0	3	0
366126	1.5	600	0	13.0	120	7	0	4	0
366127	1.7	500	0	11.0	100	5	0	4	0
366128	1.7	490	0	10.0	87	5	0	4	0
366129	1.1	180	0	39.0	31	2	0	4	0
366130	0.9	340	0	25.0	74	5	0	4	0
366131	1.2	230	0	30.0	39	2	0	3	0
366132	1.2	240	0	32.0	43	2	0	4	0
366133	1.7	290	0	13.0	45	1	0	9	2
366134	1.7	290	0	12.0	46	1	0	8	2
366135	1.5	740	0	19.0	81	4	0	4	3
366136	1.6	510	0	21.0	85	5	0	4	3
366137	1.5	480	0	10.0	98	5	0	5	1
366138	1.3	510	0	10.0	90	5	0	4	1
366139	1.1	590	0	12.0	140	9	0	3	1
366140	1.5	550	0	14.0	120	7	0	5	1
366141	1.3	590	0	13.0	130	10	0	3	1
366142	1.3	700	0	16.0	170	10	0	3	2

Table 2. Stream sediment samples

GGU no	Na %	Ba ppm	Br ppm	Sc ppm	Rb ppm	Cs ppm	Zr ppm	Hf ppm	Ta ppm
366143	1.8	440	0	14.0	86	5	0	5	1
366144	1.3	320	0	14.0	67	5	0	4	0
366145	1.9	570	0	11.0	100	6	0	5	0
366146	1.6	620	0	7.6	87	5	0	6	0
366147	1.4	610	0	10.0	110	6	0	4	0
366148	1.4	470	0	10.0	91	5	0	5	0
366149	1.6	500	0	11.0	100	5	0	5	0
366150	1.5	440	0	11.0	110	6	580	5	1
366151	1.4	450	0	11.0	110	7	0	3	0
366152	1.4	450	0	10.0	94	7	0	5	0
366153	1.4	350	0	6.9	71	5	0	7	0
366154	1.3	310	0	6.8	72	4	0	7	0
366155	1.3	340	0	6.9	75	4	0	6	0
366156	1.6	550	0	12.0	110	6	0	4	0
366157	1.3	460	0	12.0	120	8	0	6	1
366158	1.2	500	0	12.0	130	8	0	5	1
Samples	100	100	100	100	100	100	100	100	100
Minimum	0.9	180	0	6.8	31	1	0	3	0
Maximum	2.0	740	5	39.0	200	10	850	18	4
Average	1.5	483	-	13.7	105	6	-	5	1
Median	1.5	500	-	13.0	100	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

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
366101	4.8	10.0	30	66	6.1	0	0	0	0
366102	4.6	10.0	37	66	6.1	0	0	0	0
366103	5.2	12.0	41	74	6.4	0	0	0	0
366104	4.7	11.0	38	76	5.9	0	1	0	0
366105	4.7	9.2	35	70	5.6	0	0	0	0
366106	3.7	8.9	28	58	4.6	0	0	0	0
366107	4.0	8.7	27	49	4.6	0	0	0	0
366108	3.7	8.7	30	61	5.0	0	0	0	0
366109	3.0	7.5	22	43	3.7	0	0	0	0
366110	4.2	10.0	34	65	5.3	0	0	0	0
366111	3.9	8.9	39	67	6.0	0	0	0	0
366112	1.7	5.0	17	31	3.9	0	0	0	0
366113	1.9	4.5	15	35	3.7	0	0	0	0
366114	2.7	5.6	22	40	4.5	0	0	0	0
366115	5.7	12.0	49	98	7.1	0	0	0	0
366116	3.5	8.3	24	48	4.0	0	0	0	0
366117	5.9	14.0	45	90	6.8	0	1	0	0
366118	3.5	9.3	30	61	4.9	0	0	0	0
366119	3.4	7.5	22	47	3.7	0	0	0	0
366120	3.8	8.3	23	42	4.1	0	0	0	0
366121	4.3	11.0	39	70	5.7	0	0	0	0
366122	4.6	11.0	46	90	6.8	0	0	0	0
366123	4.5	15.0	41	83	5.9	0	0	0	0
366124	4.3	11.0	34	66	5.3	0	0	0	0
366125	4.9	10.0	38	75	7.4	0	1	0	0
366126	5.3	10.0	38	77	5.9	0	1	0	0
366127	3.1	7.5	23	45	3.7	0	0	0	0
366128	3.2	7.6	23	48	3.7	0	0	0	0
366129	1.6	3.5	18	38	4.7	0	0	0	0
366130	2.6	6.8	27	54	5.1	0	0	0	0
366131	1.6	4.1	18	33	4.2	0	0	0	0
366132	1.7	4.4	19	39	4.7	0	1	0	0
366133	4.1	13.0	35	65	5.5	0	0	0	0
366134	3.8	13.0	36	75	5.5	0	0	0	0
366135	3.5	8.1	37	67	6.0	0	1	0	0
366136	4.6	10.0	44	92	7.5	0	1	0	0
366137	3.7	9.4	30	59	4.7	0	0	0	0
366138	3.7	8.8	27	48	4.6	0	0	0	0
366139	7.3	18.0	59	120	10.0	0	1	0	0
366140	5.5	12.0	42	82	7.0	0	0	0	0
366141	6.4	15.0	49	100	7.9	0	0	0	0
366142	10.0	19.0	55	120	9.3	0	1	0	0

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
366143	4.7	14.0	42	80	6.8	0	0	0	0
366144	3.7	8.2	32	67	5.3	0	1	0	0
366145	4.3	10.0	30	61	4.8	0	0	0	0
366146	4.3	11.0	29	64	4.8	0	0	0	0
366147	5.2	12.0	39	73	5.5	0	0	0	0
366148	3.9	9.0	30	55	4.9	0	0	0	0
366149	3.5	9.1	30	57	5.0	0	0	0	0
366150	4.1	10.0	31	63	5.2	0	1	0	0
366151	4.5	10.0	35	70	5.6	0	0	0	0
366152	5.0	10.0	35	67	5.4	0	0	0	0
366153	3.4	8.5	21	54	3.8	0	0	0	0
366154	3.4	8.4	21	45	3.6	0	0	0	0
366155	3.3	8.4	23	46	3.7	0	0	0	0
366156	4.3	10.0	39	83	6.1	0	1	0	0
366157	6.0	13.0	51	95	8.0	0	1	0	0
366158	7.8	15.0	68	130	11.0	0	1	0	0
Samples	100	100	100	100	100	100	100	100	100
Minimum	1.6	3.5	15	31	3.6	0	0	0	0
Maximum	26.0	47.0	140	230	20.2	0	2	6	0
Average	4.6	10.5	36	67	5.9	-	-	-	-
Median	4.2	10.0	34	63	5.0	-	-	-	-

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	Altitude metre	-1.0 mm fract. litre	Preconc. gramme	Conc. gramme	Analysis gramme
366201	40	3.50	15.0	3.8	2.03
366202	5	1.20	17.0	2.5	1.51
366203	45	1.80	11.9	0.8	0.60
366204	40	0.60	20.0	0.7	0.66
366205	130	3.00	20.9	1.8	0.25
366206	70	3.10	19.6	10.8	2.06
366207	55	1.60	13.4	8.1	2.03
366208	60	1.60	15.1	1.6	1.09
366209	5	1.20	22.3	0.8	0.59
366210	10	1.90	29.2	3.1	1.95
366211	15	2.00	25.6	3.9	1.89
366212	25	1.90	27.9	21.5	19.76
366213	60	1.90	52.7	37.8	17.74
366214	60	2.90	22.4	12.0	1.94
366215	420	1.20	18.7	1.7	1.68
366216	380	1.40	22.6	6.5	2.13
366217	880		9.3	1.9	1.43
366218	580	1.10	36.1	4.2	1.99
366219	570	2.10	26.0	2.5	1.89
366220	640	1.80	37.7	4.2	2.02
366221	800		12.6	6.0	2.02
366222	850		14.2	9.0	2.17
366223	10	1.20	12.0	6.9	2.04
366224	35	1.10	21.6	2.2	1.73
366225	70	2.00	66.8	53.0	20.04
366226	125	2.00	23.9	2.8	1.94
366227	30	1.20	12.5	1.4	1.37
366228	65	4.00	41.2	5.9	2.16
366229	35	3.00	44.7	34.3	19.77
366230	5	2.10	27.2	22.0	19.97
366231	30	1.80	56.0	47.1	19.73
366232	60	2.20	43.9	35.2	19.90
366233	200		56.4	47.4	20.57
366234	180	3.80	181.4	156.0	20.06
366235	470		13.7	10.0	1.98
366236	280	1.80	72.9	58.7	20.02
366237	60	2.80	92.5	60.0	20.96
366238	90	2.50	75.4	66.8	20.56
366239	10	1.50	18.2	7.1	2.15
366240	10	1.70	9.7	3.0	2.00
366241	25	3.00	49.6	26.8	20.13
366242	5	1.00	12.1	4.4	2.11
366243	5	2.00	12.5	8.7	2.08
366244	60	1.00	19.3	8.8	2.07

Table 3. Pan samples

GGU no	Altitude metre	-1.0 mm fract. litre	Preconc. gramme	Conc. gramme	Analysis gramme
366245	940		5.2	1.6	1.15
366246	730		7.6	1.8	1.49
366247	700		6.3	2.4	1.99
366248	410		16.5	12.9	2.01
366249	350		13.9	9.9	2.01
366250	230	2.90	26.6	8.7	2.03
366251	200	1.70	16.6	3.2	2.07
366252	215	1.60	18.1	4.2	2.22
366253	160	2.60	13.2	4.7	2.14
366254	160	4.50	27.9	11.5	2.03
366255	140	1.20	11.1	6.6	2.01
366256	270		13.9	7.9	2.06
366257	10	3.50	29.6	1.6	1.16
366258	40	0.40	5.2	1.2	0.95
Samples				102	
Minimum				0.7	
Maximum				156.0	
Average				15.4	
Median				6.4	

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

Table 3. Pan samples

GGU no	Au ppb	As ppm	W ppm	Mo ppm	Ni ppm	Co ppm	Ir ppb	Cr ppm	Fe %
366201	51	14000	150	0	1500	670	0	630	27.7
366202	0	7700	39	0	840	320	0	810	31.1
366203	0	3900	120	28	0	300	0	170	45.8
366204	0	1000	53	0	0	160	0	180	34.5
366205	100	1300	100	55	0	220	0	210	50.6
366206	0	380	0	0	0	190	0	440	38.0
366207	0	290	14	0	270	130	0	400	39.7
366208	0	170	33	0	0	82	0	610	24.7
366209	0	1500	390	0	530	200	0	220	26.4
366210	1350	360	92	0	450	71	0	360	20.2
366211	0	0	78	0	0	96	0	400	20.2
366212	0	170	140	0	0	120	0	390	25.1
366213	0	140	76	0	250	110	0	400	24.6
366214	0	140	53	0	0	79	0	540	18.2
366215	0	460	680		0	190	0	110	35.6
366216	0	1400	690	0	1300	230	0	950	27.4
366217	18800	58000	4900		500	970	0	430	36.0
366218	0	200	630	0	1100	140	0	910	21.5
366219	0	9100	6300	0	710	380	0	710	23.8
366220	0	14000	3700	0	0	600	0	560	32.7
366221	0	13	1200	0	0	160	0	820	34.2
366222	0	7	31	0	0	160	0	610	39.2
366223	0	320	60	0	0	130	0	540	37.1
366224	0	240	0	0	0	120	0	270	24.0
366225	26	23	57	0	0	110	0	450	35.2
366226	0	880	120	32	0	180	0	210	33.1
366227	0	1700	40		520	270	0	340	25.3
366228	0	1600	86	0	810	300	0	290	26.7
366229	0	29	0	0	400	93	0	810	16.8
366230	0	410	53	0	0	120	0	630	26.0
366231	0	110	0	0	470	100	0	620	21.1
366232	0	220	0	0	390	110	0	620	22.2
366233	616	10	120	0	0	62	0	1500	31.6
366234	338	6	110	0	0	66	0	1800	36.2
366235	19	44	36	0	0	85	0	680	24.0
366236	0	8	110	0	350	42	0	800	19.3
366237	0	170	9	0	400	110	0	320	35.5
366238	21	450	200	0	0	120	0	450	42.7
366239	0	240	26	0	0	84	0	330	31.0
366240	1450	270	40	0	510	120	0	240	29.5
366241	100	1800	39	0	450	320	0	210	40.4
366242	0	380	140	0	0	97	0	530	22.4
366243	15	100	270	0	490	110	0	910	26.2
366244	0	140	0	0	530	120	0	360	22.2

Table 3. Pan samples

GGU no	Au ppb	As ppm	W ppm	Mo ppm	Ni ppm	Co ppm	Ir ppb	Cr ppm	Fe %
366245	24	540	160	0	1500	300	0	1000	24.1
366246	27	2200	160	0	1600	490	0	130	43.2
366247	40	1400	37	0	1100	420	0	69	49.5
366248	8	510	0	0	340	140	0	480	45.2
366249	9	590	0	0	490	150	0	450	45.1
366250	35	2100	29	0	350	240	0	280	36.0
366251	77	4100	0	0	750	590	0	110	37.8
366252	72	3300	49	0	800	470	0	120	36.5
366253	1760	18000	47	0	1500	1200	0	81	39.7
366254	96	13000	26	0	1400	970	0	78	40.5
366255	36	3300	20	0	780	490	0	300	38.5
366256	6	21	90	0	0	79	0	820	32.7
366257	46	100	130	0	0	120	0	140	41.0
366258	0	170	55	66	0	180	0	98	49.5
Samples	102	102	102	99	102	102	102	102	102
Minimum	0	0	0	0	0	42	0	49	13.7
Maximum	18800	58000	6300	66	2800	1200	0	1800	50.6
Average	-	1964	291	-	570	191	-	473	27.6
Median	-	290	49	-	350	120	-	440	25.1

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

Table 3. Pan samples

GGU no	Cu ppm	Zn ppm	Zn ppm (a.a.)	Pb ppm	Ag ppm	Sb ppm	Se ppm	Hg ppm
366201	635	390	270	60	0	0.7	0	0
366202	695	390	330	40	0	0.4	0	0
366203	485	650	650	60	0	1.4	0	0
366204		450			0	3.0	0	0
366205	625	0	650	60	0	4.7	0	0
366206	100	450	470	40	0	0.8	0	0
366207	95	430	510	40	0	0.7	0	0
366208	225	270	230	40	0	1.5	0	0
366209	265	240	230	40	0	1.3	0	0
366210	225	0	200	40	0	0.0	0	0
366211	390	220	310	40	0	0.6	0	0
366212	250	301	370	20	0	0.0	0	0
366213	245	323	330	100	0	0.0	0	0
366214	215	200	220	20	0	0.0	0	0
366215		290			0	4.9	0	0
366216	360	240	190	80	0	0.0	0	0
366217	640	200	210	60	0	0.0	0	0
366218	280	0	260	60	0	0.9	0	0
366219	650	220	210	100	0	0.0	0	0
366220	575	0	210	80	0	0.0	0	0
366221	80	410	540	40	0	0.0	0	0
366222	60	450	650	40	0	0.5	0	0
366223	75	300	360	80	0	0.0	0	0
366224	270	300	320	40	0	1.4	0	0
366225	60	593	500	40	0	0.0	0	0
366226	450	280	430	60	0	3.9	0	0
366227		290			0	0.0	0	0
366228	620	280	280	100	0	0.2	0	0
366229	160	241	200	20	0	0.0	0	0
366230	240	339	250	60	0	0.0	0	0
366231	185	300	230	20	0	0.4	0	0
366232	195	288	240	20	0	0.0	0	0
366233	40	335	90	20	0	0.0	0	0
366234	65	304	90	20	0	0.0	0	0
366235	200	0	130	20	0	0.6	0	0
366236	130	253	110	20	0	0.0	0	0
366237	205	710	560	40	0	0.0	0	0
366238	90	871	790	40	0	0.7	0	0
366239	335	470	490	120	0	2.9	0	0
366240	485	290	290	100	0	5.3	0	0
366241	585	681	490	240	0	15.0	40	0
366242	225	260	300	80	0	0.5	0	0
366243	330	340	200	40	0	0.3	0	0
366244	300	250	320	40	0	0.8	0	0

Table 3. Pan samples

GGU no	Cu ppm	Zn ppm	Zn ppm (a.a.)	Pb ppm	Ag ppm	Sb ppm	Se ppm	Hg ppm
366245	1025	200	180	20	0	0.9	0	0
366246	1250	540	610	60	0	0.6	70	0
366247	985	380	370	260	0	2.0	40	0
366248	90	550	620	40	0	0.0	0	0
366249	115	500	600	40	0	0.0	0	0
366250	385	350	440	80	0	0.6	0	0
366251		450	920	100	0	2.4	0	0
366252	1325	560	720	120	0	3.6	0	0
366253	680	430	460	110	0	1.6	30	0
366254	725	470	550	140	0	3.2	30	0
366255	430	400	560	60	0	0.9	0	0
366256	35	450	390	40	0	0.5	0	0
366257		380	530	100	0	3.9	0	0
366258		820	890	100	0	8.2	0	0
Samples	96	102	99	99	102	102	102	102
Minimum	35	0	90	0	0	0.0	0	0
Maximum	2110	871	920	260	0	15.0	70	9
Average	359	308	358	56	-	-	-	-
Median	245	300	280	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

Table 3. Pan samples

GGU no	Na %	Ca %	Ba ppm	Sr %	Br ppm	Sc ppm	Rb ppm	Cs ppm	Hf ppm	Ta ppm
366201	0.255	0	0	0	870	22.0	0	0	28	3
366202	0.358	0	0	0	1300	22.0	0	4	21	4
366203	0.301	0	0	0	2400	16.0	0	0	37	11
366204	0.648	0	0	0	2000	20.0	0	12	29	4
366205	0.412	0	700	0	3800	20.0	0	0	15	15
366206	0.209	4	0	0	830	41.0	0	0	11	4
366207	0.171	2	0	0	68	39.0	67	0	14	3
366208	0.762	5	0	0	200	41.0	0	0	42	9
366209	0.826	0	0	0	160	38.0	140	7	42	21
366210	0.807	4	450	0	420	41.0	76	6	51	7
366211	0.541	5	0	0	410	55.0	0	4	63	4
366212	0.748	7	540	0	2100	48.0	0	0	10	36
366213	0.856	7	0	0	1700	49.0	0	0	9	5
366214	0.841	7	0	0	360	57.0	52	0	15	1
366215	0.237	0	810	0	2400	13.0	190	15	53	8
366216	0.347	0	0	0	760	18.0	0	0	25	4
366217	0.314	0	0	0	800	15.0	0	8	58	4
366218	0.463	7	0	0	910	41.0	67	0	27	6
366219	0.376	0	710	0	830	20.0	0	0	83	7
366220	0.304	0	0	0	1100	19.0	0	0	66	0
366221	0.317	0	0	0	360	41.0	0	0	11	0
366222	0.267	0	310	0	270	39.0	0	0	8	0
366223	0.127	0	400	0	300	71.0	0	0	63	25
366224	0.464	5	540	0	760	46.0	130	9	12	5
366225	0.178	3	0	0	170	51.0	0	4	9	0
366226	0.299	0	690	0	1000	28.0	0	9	36	8
366227	0.407	0	0	0	290	39.0	140	6	66	10
366228	0.353	4	0	0	350	41.0	89	6	85	11
366229	0.780	7	0	0	1200	57.0	0	0	7	4
366230	0.558	6	0	0	180	64.0	0	0	13	5
366231	0.874	7	0	0	410	53.0	0	0	8	2
366232	0.760	5	280	0	500	49.0	0	3	8	3
366233	0.201	0	0	0	19	22.0	0	0	18	5
366234	0.152	0	0	0	31	24.0	0	0	22	9
366235	0.723	5	1000	0	99	37.0	0	3	10	18
366236	0.610	4	0	0	63	43.0	0	0	8	16
366237	0.207	0	0	0	510	44.0	0	0	10	4
366238	0.131	0	390	0	66	41.0	0	0	12	4
366239	0.361	0	0	0	480	28.0	0	0	16	8
366240	0.379	0	660	0	300	20.0	84	3	42	13
366241	0.203	0	0	0	1200	15.0	0	0	0	3
366242	0.572	3	0	0	440	32.0	0	0	25	17
366243	0.366	5	0	0	19	31.0	0	0	24	5
366244	0.668	6	380	0	220	44.0	0	0	10	5

Table 3. Pan samples

GGU no	Na %	Ca %	Ba ppm	Sr %	Br ppm	Sc ppm	Rb ppm	Cs ppm	Hf ppm	Ta ppm
366245	0.348	5	530	0	240	24.0	120	7	79	4
366246	0.310	0	430	0	300	12.0	150	3	90	7
366247	0.126	0	0	0	130	7.2	0	4	16	4
366248	0.131	2	0	0	44	38.0	0	0	13	3
366249	0.170	2	0	0	210	41.0	0	0	14	3
366250	0.195	0	480	0	230	29.0	0	3	38	7
366251	0.191	0	780	0	980	14.0	0	0	37	13
366252	0.194	0	0	0	2000	12.0	0	5	54	8
366253	0.164	0	0	0	130	11.0	0	0	80	10
366254	0.156	0	510	0	110	11.0	0	0	110	15
366255	0.148	3	0	0	150	21.0	0	0	39	7
366256	0.183	0	0	0	55	33.0	0	0	20	4
366257	0.354	0	0	0	1500	15.0	0	0	170	0
366258	0.177	0	0	0	1400	8.3	0	0	32	0
Samples	102	102	102	102	102	102	102	102	102	102
Minimum	0.126	0	0	0	19	7.2	0	0	0	0
Maximum	1.290	7	1000	0	6100	71.0	190	15	170	120
Average	0.487	–	–	–	875	32.6	–	–	22	6
Median	0.407	–	–	–	600	32.0	–	–	10	4

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

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
366201	16.0	12.0	57	120	8.2	46	1.9	0	8.3	1.4
366202	12.0	13.0	64	130	13.0	63	2.1	2	7.7	1.2
366203	30.0	36.0	145	216	25.0	114	5.1	5	14.1	2.2
366204	19.0	33.0	136	237	23.0	133	3.3	4	9.8	1.6
366205	29.0	23.0	170	337	37.0	231	6.1	0	14.4	0.9
366206	5.6	2.2	17	25	3.3	12	1.1	0	4.2	0.8
366207	2.3	2.6	14	33	3.6	16	0.9	0	4.3	0.8
366208	12.0	18.0	95	216	19.0	95	4.7	2	9.7	1.5
366209	12.0	15.0	52	121	9.5	57	1.9	0	8.9	1.3
366210	14.0	13.0	55	110	11.0	48	3.0	3	14.8	2.1
366211	15.0	14.0	66	144	15.0	57	3.6	4	25.4	3.6
366212	0.0	0.0	12	31	3.3	10	1.2	0	5.2	0.8
366213	0.0	2.0	11	26	3.6	10	1.3	0	5.5	0.7
366214	2.4	3.2	16	36	5.2	24	1.4	0	5.0	0.7
366215	30.0	52.0	202	334	31.0	126	5.9	8	31.7	4.8
366216	8.7	12.0	46	85	8.8	33	2.5	2	8.8	1.4
366217	25.0	28.0	123	131	16.0	76	4.5	7	31.8	5.0
366218	14.0	41.0	112	196	17.0	73	2.3	3	15.8	2.3
366219	22.0	15.0	102	187	19.0	93	4.5	5	32.4	4.7
366220	34.0	35.0	111	173	18.0	171	3.1	6	23.0	4.1
366221	0.0	3.8	21	47	5.3	24	1.5	0	4.2	0.7
366222	2.1	2.7	15	33	3.8	17	0.8	0	2.3	0.4
366223	12.0	210.0	379	684	39.0	213	1.8	5	15.7	2.5
366224	12.0	12.0	62	114	12.0	70	2.2	2	11.6	1.6
366225	0.0	0.0	13	32	3.8	18	0.7	0	5.3	0.9
366226	23.0	23.0	82	157	16.0	91	3.2	6	24.7	3.7
366227	17.0	16.0	56	109	10.0	36	3.0	4	17.2	2.5
366228	16.0	15.0	57	107	11.0	42	3.0	3	21.3	3.0
366229	0.0	3.1	16	27	4.4	0	1.4	0	3.3	0.7
366230	0.0	5.3	20	45	4.9	15	1.9	0	6.6	1.2
366231	0.0	2.5	17	32	4.3	19	1.3	0	3.6	0.8
366232	0.0	3.9	18	39	4.1	19	1.3	0	4.4	0.8
366233	4.5	15.0	42	84	5.6	25	1.1	0	9.2	1.7
366234	4.2	20.0	49	100	6.8	38	1.4	0	10.1	1.7
366235	5.1	12.0	133	258	17.0	100	4.0	0	3.8	0.6
366236	5.9	9.8	69	140	9.0	52	2.2	0	7.1	1.3
366237	0.0	4.5	32	66	4.5	26	1.1	0	4.4	1.0
366238	3.4	3.0	19	40	2.7	15	0.7	0	4.3	0.8
366239	11.0	23.0	109	189	14.0	51	2.9	0	5.9	1.0
366240	15.0	17.0	79	154	14.0	60	3.5	5	16.5	2.5
366241	14.0	17.0	55	75	6.5	42	2.0	0	4.7	0.9
366242	12.0	18.0	63	133	11.0	48	2.2	0	10.0	1.7
366243	7.0	29.0	106	225	17.0	78	2.5	2	11.9	2.0
366244	2.6	4.2	29	62	6.1	25	1.4	0	3.6	0.6

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
366245	12.0	14.0	55	115	9.8	54	2.1	2	13.5	2.2
366246	21.0	21.0	73	152	13.0	69	3.2	4	28.0	4.5
366247	9.3	16.0	53	100	7.2	47	1.5	0	4.5	0.6
366248	1.8	1.9	13	25	3.2	18	0.7	0	3.2	0.6
366249	2.1	1.7	15	35	4.0	12	0.8	0	3.3	0.6
366250	9.6	11.0	52	98	8.4	43	2.3	2	8.4	1.5
366251	20.0	22.0	107	164	15.0	83	3.4	4	10.3	1.8
366252	21.0	21.0	99	146	14.0	18	3.7	3	9.7	1.2
366253	12.0	14.0	44	79	7.1	37	2.8	3	13.2	2.4
366254	16.0	14.0	47	94	7.7	46	3.2	0	12.5	2.0
366255	6.6	11.0	40	65	6.0	29	2.6	0	7.4	1.8
366256	4.5	6.5	27	54	5.0	20	1.4	0	9.5	1.5
366257	44.0	43.0	171	261	30.0	132	7.5	8	23.3	3.7
366258	18.0	26.0	85	152	15.0	111	2.9	3	8.1	1.0
Samples	102	102	102	102	102	102	102	102	102	102
Minimum	0.0	0.0	11	19	2.7	0	0.0	0	1.9	0.0
Maximum	47.0	210.0	379	684	39.0	231	7.5	42	54.2	5.8
Average	10.4	15.2	64	111	11.1	54	2.4	-	10.8	1.5
Median	8.4	12.0	52	95	9.4	42	2.0	-	8.3	1.1

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	Hornblende schist.
350911	17	0.7	Black, hornblende-calcite schist.
350912	16	1.5	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	SiO2 %	TiO2 %	Al2O3 %	Fe2O3 %	MnO %	MgO %	CaO %	Na2O %	K2O %	P2O5 %
350902	59.49	0.65	18.24	6.98	0.23	2.07	0.77	7.38	2.019	0.061
350903	43.59	1.75	8.18	13.57	0.20	15.77	11.67	0.98	0.166	0.153
350904	42.13	1.74	7.55	14.05	0.19	17.37	11.04	1.32	0.479	0.174
350905	40.93	1.53	7.25	13.04	0.20	16.79	12.52	1.17	0.466	0.184
350906	53.34	0.74	9.50	16.45	0.48	3.39	2.46	1.54	2.003	0.123
350907	61.54	0.72	15.63	7.12	0.07	4.27	2.53	2.45	3.468	0.125
350908	69.87	0.54	11.24	5.30	0.06	3.32	1.84	2.52	2.288	0.109
350909	50.30	1.34	10.14	14.89	0.11	3.76	4.39	3.45	0.750	0.159
350910	38.09	2.42	7.27	14.46	0.20	18.97	8.80	0.25	0.070	0.274
350911	34.62	3.40	11.38	14.59	0.23	7.64	15.52	2.36	1.040	0.792
350912	34.36	2.04	6.64	12.71	0.22	16.22	14.41	0.36	0.314	0.374
350913	44.36	1.53	7.07	12.92	0.19	18.83	9.06	0.77	0.102	0.162
350914	62.70	0.73	14.26	7.22	0.07	4.48	3.09	2.57	2.702	0.125
350915	47.01	0.72	7.93	23.72	0.82	3.55	2.58	0.65	2.151	0.102
350916	56.40	1.11	7.53	12.49	0.08	3.82	5.06	0.48	1.750	0.139
350917	56.77	1.13	9.86	11.23	0.03	2.89	2.97	0.96	2.367	0.616
350918	39.86	1.19	9.72	24.82	0.11	5.05	5.80	3.15	0.680	0.683
350919	59.17	0.61	12.44	8.59	0.06	3.34	2.24	2.70	3.597	0.131
350920	52.38	0.59	12.59	10.74	0.20	6.09	8.45	0.75	2.625	0.090
350921	45.15	0.87	12.29	12.40	0.24	13.59	10.17	0.94	1.016	0.050
350922	75.76	0.14	12.19	1.59	0.02	0.61	0.72	2.67	5.601	0.051
350923	45.79	0.96	6.87	15.01	0.23	17.55	9.62	0.52	0.301	0.096
350924	68.99	0.50	5.98	9.00	0.13	7.46	4.57	0.62	1.253	0.057
350925	49.75	0.66	8.33	21.35	0.04	1.86	1.76	0.65	1.980	0.071
350926	62.49	0.67	15.11	5.64	0.06	3.88	2.61	2.42	3.014	0.167
350927	42.26	0.80	10.41	25.52	0.10	2.76	1.76	1.28	2.212	0.096
352304	65.90	0.50	12.39	4.93	0.09	2.90	5.86	1.41	2.361	0.119
Samples	27	27	27	27	27	27	27	27	27	27
Minimum	34.36	0.14	5.98	1.59	0.02	0.61	0.72	0.25	0.070	0.050
Maximum	75.76	3.40	18.24	25.52	0.82	18.97	15.52	7.38	5.601	0.792

Table 4. Chip samples

GGU no	Au ppb	Au ppb (f.a.)	As ppm	W ppm	Ni ppm	Co ppm	Pt ppm	Pd ppm	Ir ppb	Cr ppm	Fe %
350902	0		0	0	46	21			0	160	4.7
350903	0		2	0	720	92			0	1300	10.0
350904	0	2	0	4	770	99	0	1	0	1400	11.0
350905	0		1	0	720	95			0	1300	10.0
350906	7		2	2	110	33			0	270	12.0
350907	0		0	0	0	16			0	180	5.2
350908	9		0	0	91	38			0	190	3.7
350909	0		2	0	170	40			0	290	10.0
350910	0	1	0	0	320	72	0	0	0	1300	10.0
350911	0		0	0	160	62			0	190	10.0
350912	0		0	0	390	80			0	880	8.9
350913	0	0	0	4	870	110	0	2	0	1400	10.0
350914	0		0	0	71	20			0	200	5.0
350915	0	2	49	7	140	47	0	13	0	370	17.0
350916	0		3	5	72	11			0	260	8.5
350917	6		4	5	120	25			0	320	7.5
350918	6	4	1	4	370	50	0	26	0	280	17.0
350919	0		0	3	190	27			0	190	5.7
350920	0		2	5	88	22			0	180	7.9
350921	0	4	5	0	320	73	0	5	0	1000	8.8
350922	0		0	0	0	0			0	58	1.2
350923	0	1	0	0	650	98	0	2	0	1200	11.0
350924	7	6	0	2	260	40	0	1	0	530	6.5
350925	0	3	11	5	230	33	10	17	0	150	16.0
350926	0		1	0	67	24			0	180	3.9
350927	15	9	3	4	160	170	9	17	0	140	17.0
352304	0		0	3	31	15			0	90	3.6
Samples	27	10	27	27	27	27	10	10	27	27	27
Minimum	0	0	0	0	0	0	0	0	0	58	1.2
Maximum	15	9	49	7	870	170	10	26	0	1400	17.0

Table 4. Chip 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
350902	48	0	64	0	6	0	0.0	0	0	0	0
350903	105	0	30	0	4	5	0.0	0	0	0	0
350904	91	0	40	0	2	0	0.0	0	0	0	0
350905	112	0	55	0	2	0	0.0	0	0	0	0
350906	381	440	389	0	17	0	1.0	0	0	25	0
350907	48	240	164	0	6	9	0.0	0	0	0	0
350908	96	250	168	0	6	0	0.0	0	0	0	0
350909	204	620	441	0	17	0	0.0	0	0	24	0
350910	87	0	92	0	3	0	0.0	0	0	0	0
350911	79	320	112	0	6	0	0.0	0	0	0	0
350912	55	0	103	0	7	0	0.0	0	0	0	0
350913	116	340	231	0	2	0	0.0	0	0	0	0
350914	52	0	113	0	12	0	0.0	0	0	0	0
350915	129	460	369	0	11	0	0.8	11	0	12	0
350916	247	540	493	0	15	0	0.4	15	0	47	0
350917	183	490	478	0	17	0	0.8	0	0	45	0
350918	2648	1100	885	14	18	0	0.4	11	0	190	0
350919	288	410	447	0	16	0	0.4	0	0	17	0
350920	184	350	185	0	11	0	0.0	0	0	13	0
350921	71	0	47	0	3	6	0.0	0	0	0	0
350922	1500	0	53	0	34	0	0.0	0	0	3	0
350923	336	0	59	0	2	0	0.0	0	0	0	0
350924	748	260	101	0	4	0	0.0	0	0	9	0
350925	334	1200	958	0	45	0	6.3	13	0	64	0
350926	82	290	190	0	16	0	0.0	0	0	3	0
350927	490	710	622	0	27	0	0.9	17	0	27	0
352304	45	0	101	0	8	0	0.0	0	0	0	0
Samples	27	27	27	27	27	27	27	27	27	27	27
Minimum	45	0	30	0	2	0	0.0	0	0	0	0
Maximum	2648	1200	958	14	45	9	6.3	17	0	190	0

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	Volat. %
350902	2.3	10.0	25	50	3.3	0	0	0	0	1.30
350903	0.6	1.9	20	40	4.5	0	0	0	0	2.84
350904	0.0	1.8	16	45	4.7	0	0	0	0	2.65
350905	0.0	1.6	16	40	4.1	0	0	0	0	4.55
350906	5.2	6.1	20	55	4.1	0	0	0	0	9.84
350907	3.7	10.0	10	15	1.6	0	0	0	0	1.70
350908	3.6	7.1	11	25	2.1	0	0	0	0	2.83
350909	7.4	5.3	12	13	2.8	0	0	0	0	9.93
350910	1.2	2.8	21	41	5.7	0	1	0	0	6.66
350911	2.4	9.3	82	160	15.0	3	2	0	0	6.50
350912	1.4	4.2	46	85	8.6	0	1	0	0	10.29
350913	1.6	1.4	33	60	8.6	0	2	0	0	3.89
350914	2.3	9.3	28	49	4.6	0	0	0	0	1.69
350915	3.7	5.0	21	38	3.6	0	0	0	0	9.98
350916	6.7	6.0	22	35	4.4	0	1	0	0	10.88
350917	10.0	6.2	27	40	5.2	0	1	0	0	10.77
350918	20.0	5.0	17	0	5.2	0	2	0	0	7.74
350919	6.8	9.1	20	36	4.1	0	0	0	0	6.84
350920	5.2	8.4	27	42	4.3	0	0	0	0	4.85
350921	0.5	1.3	9	21	2.8	0	0	0	0	2.27
350922	2.3	1.1	9	17	1.3	0	0	0	0	0.47
350923	1.4	1.4	12	21	3.4	0	0	0	0	2.41
350924	0.9	1.0	6	0	1.6	0	0	0	0	1.41
350925	11.0	3.7	8	0	2.2	0	0	0	0	13.38
350926	3.8	10.0	23	39	3.7	0	0	0	0	3.40
350927	8.5	6.0	18	38	4.3	0	1	0	0	11.73
352304	3.6	10.0	23	50	4.6	0	0	0	0	2.90
Samples	27	27	27	27	27	27	27	27	27	27
Minimum	0.0	1.0	6	0	1.3	0	0	0	0	0.47
Maximum	20.0	10.0	82	160	15.0	3	2	0	0	13.38

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, pyrite, chalcopyrite.
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 (ref. 350915).
352331	17	+	Hornblende-calcite schist (ref. 350911).
352333	15	+	Hornblende schist (ref. 350913).
352334	15	+	Fragment in hornbl. schist (ref. 350913).
352335	50	-	Malachite-stained skarn.
352336	55	-	Amphibolite, pyrrhotite, chalcopyrite.
352337	50	+	Malachite-stained skarn.
352342	35	+	Chalcopyrite-bearing hornblende schist.
352343	3	+	Fragmental hornbl. schist (ref. 350905).
352344	3	+	Fragment in hornbl. schist (ref. 350904).
352347	70	+	Siliceous metasediment, magnetite, pyrrh.
352348	45	+	Malachite-stained breccia.
352349	40	+	Malachite-stained breccia.
352350	25	+	Quartzite, pyrrhotite.
352351	10	+	Ultramafic rock, 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, vein quartz, chalcopyrite.
352358	130	-	Quartzite, chalcopyrite, pyrrhotite.
352359	100	+	Quartzite, chalcopyrite, pyrrhotite.
352360	90	+	Quartzite, chalcopyrite, pyrrhotite.
352361	80	+	Quartzite, chalcopyrite.

Table 5. Rock samples

GGU no	Altitude metre	In situ	Description
352362	80	+	Quartzite, chalcopyrite, pyrrhotite.
352363	80	+	Quartzite, chalcopyrite.
352367	60	+	Quartzitic schist, chalcopyrite.
352368	50	+	Quartzite, chalcopyrite, pyrrhotite.
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.
352381	50	+	Hornblende-calcite schist.
352382	45	+	Hornblende schist, chalcopyrite.
352383	45	+	Fragmental hornblende schist.
352384	50	+	Hornblende schist, chalcopyrite.
366301	20	-	Metagreywacke, vqz., pyrrh., chalcopy.
366302	40	-	Metagreywacke, vqz., pyrrh., chalcopy.
366303	100	+	Metagreywacke, pyrrh.
366304	150	-	Semi-massive pyrrh., chalcopy.
366305	200	-	Graphitic pelite, vqz., pyrrh.
366306	200	-	Vqz, tourmaline, chalcopy.
366307	5	-	Vqz., pyrite, chalcopy.
366308	50	-	Vqz., pyrrh., chalcopy.
366309	100	-	Granitic vein, pyrrh., chalcopy.
366310	110	-	Aplite, pyrrh., chalcopy.
366311	130	-	Metagreywacke, aplite, garnet.
366312	140	-	Vqz., pyrrh., chalcopy., scheelite.
366313	140	+	Metagreywacke, pyrrh.
366314	40	-	Banded pelite, pyrrh., arsenopyrite.
366315	320	-	Metagreyw., vqz., pyrrh., pyr., chalcopy.
366316	300	-	Metagreywacke, vqz., calcite, chalcopy.
366317	300	+	Metagreywacke, pyrrh.
366318	50	-	Vqz., pyrrh., molybdenite, chalcopy.
366319	160	-	Semi-massive pyrrh., vqz., chalcopy.
366320	15	-	Metagreywacke, vqz., pyrrh.
366321	15	-	Metagreywacke, vqz., chalcopy., pyrrh.
366322	20	-	Dolerite, pyrrh., chalcopy.
366323	25	-	Vqz., sphalerite, chalcopy., galena.
366324	25	-	Breccia, calcite, vqz., chalcopy.
366325	60	-	Semi-massive pyrrh.
366326	20	-	Semi-massive pyrrh.
366327	80	-	Vqz., pyrrh., chalcopy.
366328	3	-	Brecciated pelite, vqz., pyrrh., chalcopy.
366329	20	-	Metagreywacke, vqz., pyrrh., chalcopy.
366330	25	-	Semi-massive pyrrh., chalcopy.
366331	25	-	Metagreywacke, vqz., pyrrh., chalcopy.
366332	35	-	Vqz., chalcopy., malachite.

Table 5. Rock samples

GGU no	Altitude metre	In situ	Description
366333	65	-	Metagreywacke, vqz., chalcopy., galena.
366334	40	-	Metagreywacke, vqz., pyrrh., chalcopy.
366335	60	-	Metagreywacke, vqz., pyrrh., chalcopy.
366336	30	-	Metagreywacke, vqz., chalcopy., pyrrh.
366337	40	-	Pelite, vqz., pyrrh., chalcopy.
366338	50	-	Pelite, vqz., pyrrh., chalcopy., scheelite
366339	50	-	Graphitic pelite, pyrrh., chalcopy.
366340	160	-	Pelite, vqz., pyrrh., arsenopyrite.
366341	160	-	Semi-massive pyrrh., vqz., graphite.
366342	200	-	Quartzite, vqz.
366343	250	-	Semi-massive pyrrh., chalcopy., arsenopy.
366344	250	-	Breccia, vqz., chalcopy., sphaler., galena
366345	40	-	Vqz., pyrrh., pyrite.
366346	60	-	Pelite, vqz., pyrrh., pyrite.
366347	100	-	Ultramafic rock, pyrrh., chalcopy.
366348	100	-	Altered amphibolite, pyrrh.
366349	1	-	Metagreywacke, vqz., pyrrh., galena.
366350	0	-	Semi-massive pyrrh.

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
352371	0		0	0	270	86			0	690	11.0

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 %
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
366301	7		4	0	110	30			0	170	3.9
366302	25	10	4	0	230	39	0	24	0	96	5.5
366303	0		0	0	68	16			0	170	3.7
366304	49	33	6	0	580	80	10	39	0	210	20.0
366305	0		0	4	120	15			0	110	4.8
366306	0		0	0	0	0			0	0	0.0
366307	0		0	0	0	0			0	0	0.0
366308	0		16	0	20	0			0	67	1.3
366309	0		0	0	0	0			0	0	0.6
366310	0		0	0	0	0			0	0	0.5
366311	0		0	0	0	0			0	71	1.4
366312	0		0	50	61	17			0	80	3.4
366313	0		0	0	70	21			0	260	5.0
366314	0	7	101	0	0	15	0	1	0	170	3.6
366315	1910	1408	0	3	0	18	0	1	0	100	2.4
366316	11		2	4	0	10			0	65	1.0
366317	0		0	0	120	0			0	120	3.0
366318	27	13	0	0	320	46	0	8	0	0	6.9
366319	0	6	0	0	630	75	10	8	0	150	15.0
366320	0		12	0	110	30			0	320	4.3
366321	0		0	0	0	0			0	66	1.1
366322	0	0	2	0	200	110	9	6	0	230	12.0
366323	0		3	0	40	26			0	58	1.0
366324	0		15	15	51	12			0	180	1.3
366325	100	68	20	0	650	78	16	33	0	180	28.0
366326	0	6	198	0	960	71	18	8	0	300	28.0
366327	0		4	0	0	0			0	61	0.9
366328	0		2	0	0	0			0	91	1.7
366329	0		4	0	26	0			0	120	2.3
366330	49	61	31	0	710	66	16	14	0	180	29.0
366331	6		4	0	37	14			0	160	3.0
366332	0		0	0	0	0			0	0	0.0
366333	0		0	0	0	0			0	63	0.6
366334	0		0	0	61	22			0	190	4.7
366335	0		1	0	55	29			0	70	3.2
366336	59	50	0	0	0	0	0	1	0	75	1.1
366337	5		2	0	45	12			0	120	2.3
366338	0		1	19	22	0			0	0	0.7

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 %
366339	10		14	8	170	44			0	330	6.5
366340	0	4	1070	7	57	17	0	6	0	160	3.4
366341	82	113	46	0	600	52	12	9	0	190	20.0
366342	0		0	2	0	0			0	0	0.6
366343	120	106	433	0	640	42	6	17	0	77	23.0
366344	0		5	0	0	16			0	83	2.2
366345	0		0	6	240	10			0	100	9.0
366346	12	20	14	9	300	120	0	7	0	110	16.0
366347	0	10	0	0	370	76	10	7	0	2200	6.3
366348	0		0	0	71	52			0	510	7.5
366349	0		0	0	26	0			0	87	1.4
366350	32	38	0	10	650	40	15	73	0	280	21.0
Samples	106	36	106	106	106	106	36	36	106	106	106
Minimum	0	0	0	0	0	0	0	0	0	0	0.0
Maximum	1910	1408	21300	549	1200	380	18	73	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
352371	200	0	42	0	3	0	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
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
366301	544	0	48	0	11	0	0.0	0	0	0	0
366302	619	1100	904	33	22	0	1.7	0	0	35	0
366303	47	0	114	0	9	0	0.2	0	0	0	0
366304	230	2100	2010	0	89	6	10.0	25	0	180	0
366305	115	370	269	0	26	0	0.6	0	0	16	0
366306	28	0	11	0	4	0	0.0	0	0	0	0
366307	55	0	16	0	4	0	0.3	0	0	0	0
366308	261	0	31	0	5	0	0.0	0	0	0	0
366309	47	0	21	0	24	0	0.0	0	0	0	0
366310	117	0	19	0	16	0	0.0	0	0	0	0
366311	15	0	66	0	19	0	0.0	0	0	0	0
366312	452	0	36	0	6	0	0.0	0	0	0	0
366313	56	0	155	0	10	0	0.0	0	0	5	0
366314	37	0	96	11	15	0	0.0	0	0	0	0
366315	103	0	43	0	38	0	0.0	0	0	4	0
366316	38	1700	1460	0	25	0	0.0	0	0	0	0
366317	233	320	286	0	11	0	0.0	0	0	38	0
366318	102	0	9	0	6	0	0.0	12	0	751	0
366319	1820	2600	2460	52	14	0	0.0	24	0	100	0
366320	85	0	99	0	9	0	0.0	0	0	0	0
366321	218	0	134	0	16	0	0.0	0	0	0	0
366322	295	0	80	0	8	0	0.0	0	0	3	0
366323	3480	15000	12700	44	286	0	0.0	0	0	0	0
366324	144	0	93	0	7	0	0.9	0	0	0	0
366325	204	5200	4100	45	35	8	3.4	34	0	215	0
366326	156	3300	2750	31	18	0	1.3	81	0	160	0
366327	125	290	304	0	2	0	0.0	0	0	0	0
366328	1030	0	94	0	153	0	0.0	0	0	0	0
366329	91	0	59	0	7	0	0.0	0	0	0	0
366330	755	6700	5250	41	37	6	4.8	47	0	200	0
366331	27	0	58	0	9	0	0.0	0	0	0	0
366332	203	0	23	0	9	0	0.0	0	0	0	0
366333	934	0	164	0	133	0	0.0	0	0	0	0
366334	96	0	143	0	19	0	0.2	0	0	2	0
366335	135	0	21	0	7	0	0.0	0	0	0	0
366336	8719	0	102	0	9	6	0.0	0	0	0	0
366337	76	0	102	0	11	0	0.4	0	0	0	0
366338	31	0	27	0	9	0	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
366339	153	0	111	0	9	0	0.3	0	0	22	0
366340	58	0	140	13	11	0	0.0	0	0	0	0
366341	475	4100	3343	22	23	0	6.5	31	0	170	0
366342	5	0	16	0	0	0	0.0	0	0	0	0
366343	2845	3400	2864	24	31	0	1.7	30	0	63	0
366344	1788	8600	5841	22	705	0	0.0	0	0	0	0
366345	208	2300	2041	21	7	0	0.4	14	0	93	0
366346	254	1200	956	15	8	0	0.5	34	0	95	0
366347	560	0	35	0	0	0	0.3	0	0	0	0
366348	135	0	52	0	0	0	0.0	0	0	0	0
366349	16	0	50	0	203	6	0.0	0	0	0	0
366350	780	2800	2319	0	54	0	5.3	27	0	228	0
Samples	106	106	106	106	106	106	106	106	106	106	106
Minimum	1	0	3	0	0	0	0.0	0	0	0	0
Maximum	22700	15000	12700	52	705	24	12.0	81	0	751	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
352371	1.60	510	0	33.0	47	2	0	5	3

Table 5. Rock samples

GGU no	Na %	Ba ppm	Br ppm	Sc ppm	Rb ppm	Cs ppm	Zr ppm	Hf ppm	Ta ppm
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
366301	0.93	350	0	15.0	40	2	0	3	0
366302	0.26	130	0	3.0	25	0	0	0	0
366303	1.90	500	0	14.0	130	9	0	4	0
366304	2.00	220	0	12.0	83	4	0	3	2
366305	0.74	0	0	8.2	82	4	0	0	0
366306	0.00	0	0	0.0	0	0	0	0	0
366307	0.00	0	0	0.0	0	0	0	0	0
366308	0.62	380	0	6.3	64	4	0	0	0
366309	3.00	250	0	1.1	150	8	0	0	4
366310	2.90	670	0	2.2	180	3	0	0	3
366311	2.40	330	0	5.7	120	15	0	4	9
366312	0.22	270	0	8.1	84	6	0	0	0
366313	2.10	1100	0	21.0	160	9	0	3	0
366314	1.00	690	0	14.0	200	11	0	3	1
366315	0.39	160	0	5.9	82	4	0	0	0
366316	0.55	120	2	5.1	87	1	0	0	0
366317	0.35	180	0	8.2	200	12	610	5	0
366318	0.12	260	0	0.0	24	1	0	0	0
366319	0.33	220	0	6.7	42	3	0	0	0
366320	1.10	360	0	14.0	20	1	0	3	0
366321	0.40	370	0	4.3	72	0	0	0	0
366322	1.80	630	0	24.0	38	0	0	2	0
366323	0.22	100	0	2.1	25	0	0	0	0
366324	0.74	480	3	17.0	140	1	0	2	0
366325	0.40	240	0	13.0	88	4	0	2	0
366326	0.29	0	2	14.0	47	4	0	0	0
366327	0.25	240	0	2.8	58	1	0	0	0
366328	0.69	390	0	4.6	170	4	0	0	0
366329	0.94	360	0	6.7	110	3	0	0	0
366330	0.27	360	0	13.0	73	3	0	0	0
366331	1.30	520	1	7.3	130	2	0	0	0
366332	0.00	0	2	0.0	0	0	0	0	0
366333	0.28	110	0	0.9	26	0	0	0	0
366334	1.60	670	0	16.0	160	10	0	0	1
366335	0.87	110	0	2.4	24	1	0	0	0
366336	0.13	560	0	2.2	72	0	0	0	0
366337	2.00	1200	0	15.0	200	6	0	7	1
366338	0.69	180	0	2.9	35	1	0	0	2

Table 5. Rock samples

GGU no	Na %	Ba ppm	Br ppm	Sc ppm	Rb ppm	Cs ppm	Zr ppm	Hf ppm	Ta ppm
366339	2.60	570	0	22.0	190	12	0	5	1
366340	1.00	820	10	15.0	150	7	0	0	0
366341	0.00	190	0	10.0	58	1	0	0	0
366342	0.32	0	0	1.3	0	0	0	0	0
366343	0.00	0	3	3.1	0	0	0	0	0
366344	0.59	270	0	3.9	89	2	0	0	0
366345	0.00	0	0	3.9	13	0	0	0	0
366346	0.00	0	0	3.4	0	0	0	0	0
366347	0.47	110	0	81.4	0	4	0	3	0
366348	1.70	0	0	36.0	0	0	680	0	0
366349	0.57	230	0	5.5	61	3	0	0	0
366350	0.29	850	0	16.0	63	3	0	0	0
Samples	106	106	106	106	106	106	106	106	106
Minimum	0.00	0	0	0.0	0	0	0	0	0
Maximum	4.90	3200	29	81.4	240	31	680	7	9

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
352371	1.1	3.4	36	69	8.0	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
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
366301	3.6	16.0	35	81	6.7	0	0	0	0
366302	2.9	2.7	0	0	0.8	0	0	0	0
366303	3.4	12.0	27	57	5.2	0	0	0	0
366304	25.0	13.0	12	0	2.3	0	0	0	0
366305	5.7	7.1	21	38	4.3	0	0	6	1
366306	0.0	0.0	0	0	0.0	0	0	0	0
366307	0.0	0.0	0	0	0.0	0	0	0	0
366308	8.5	1.0	6	14	1.9	0	0	0	0
366309	11.0	1.8	0	0	0.0	0	0	0	0
366310	10.0	11.0	17	43	2.0	0	0	0	0
366311	7.0	4.7	11	31	2.0	0	0	0	0
366312	1.1	2.4	10	21	2.8	0	0	0	0
366313	5.4	13.0	38	86	6.1	0	0	0	0
366314	4.6	15.0	36	90	6.1	0	0	0	0
366315	2.8	5.6	15	44	2.2	0	0	0	0
366316	2.5	5.5	19	57	3.4	0	0	0	0
366317	13.0	17.0	51	120	11.0	0	2	0	0
366318	0.0	0.0	0	0	0.4	0	0	0	0
366319	15.0	4.5	7	0	1.3	0	0	0	0
366320	2.0	7.3	23	49	3.6	0	0	0	0
366321	0.9	1.9	5	13	1.1	0	0	0	0
366322	1.1	4.6	18	45	4.6	0	1	0	0
366323	0.6	1.6	0	0	0.7	0	0	0	0
366324	17.0	125.0	37	110	7.3	0	2	6	1
366325	30.0	3.8	9	0	1.7	0	0	0	1
366326	19.0	3.1	12	39	2.7	0	0	0	0
366327	0.5	0.9	0	11	0.7	0	0	0	0
366328	1.0	4.0	7	25	1.4	0	0	0	0
366329	1.5	5.8	15	41	2.7	0	0	0	0
366330	31.0	2.8	7	0	1.5	0	0	0	1
366331	7.2	7.4	14	32	2.2	0	0	0	0
366332	0.0	0.0	0	0	0.0	0	0	0	0
366333	0.6	1.5	0	0	0.4	0	0	0	0
366334	3.1	12.0	27	49	4.3	0	0	0	0
366335	0.6	1.6	8	22	2.1	0	0	0	0
366336	0.0	1.1	0	0	0.6	0	0	0	0
366337	5.1	21.0	41	82	6.7	0	1	0	0
366338	1.1	4.5	9	0	1.9	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
366339	6.1	19.0	39	110	7.4	0	0	0	0
366340	3.2	12.0	29	65	5.3	0	0	0	0
366341	20.0	2.4	9	39	1.7	0	0	0	1
366342	0.6	2.3	8	19	1.5	0	0	0	0
366343	8.8	1.2	0	0	1.0	0	0	0	0
366344	1.4	4.0	7	14	1.4	0	0	0	0
366345	10.0	1.1	0	0	0.5	0	0	0	0
366346	11.0	1.1	0	0	0.7	0	0	0	0
366347	0.0	1.3	8	23	3.1	0	0	0	0
366348	0.0	0.0	6	0	3.0	0	0	0	0
366349	1.6	4.0	13	26	1.7	0	0	0	0
366350	25.0	4.9	14	0	2.3	0	1	0	1
Samples	106	106	106	106	106	106	106	106	106
Minimum	0.0	0.0	0	0	0.0	0	0	0	0
Maximum	31.0	125.0	96	180	11.0	3	2	17	1

Table 5. Rock samples

GGU no	SiO2 %	TiO2 %	Al2O3 %	Fe2O3 %	MnO %	MgO %	CaO %	Na2O %	K2O %	P2O5 %	Volat. %
352331	30.26	3.83	12.54	16.64	0.22	8.62	15.22	1.57	1.99	1.23	7.88
352333	42.84	1.35	7.77	12.95	0.22	19.23	8.49	0.61	0.10	0.09	6.39
352334	41.22	1.23	7.55	12.61	0.17	18.29	10.63	0.93	0.12	0.16	7.16
352343	44.33	1.79	7.61	14.25	0.18	18.84	8.66	1.10	1.10	0.17	1.86
352344	38.90	1.78	7.05	13.12	0.19	15.63	13.98	1.39	0.50	0.16	6.98
352347	52.98	1.58	14.77	21.79	0.08	1.31	1.29	1.94	1.79	0.28	3.21
352351	42.02	0.22	6.30	8.61	0.14	29.81	2.60	0.05	0.02	0.00	9.44
352372	36.69	1.71	7.46	12.18	0.18	12.14	18.17	1.27	0.43	0.17	9.17
352373	45.12	2.04	8.82	13.55	0.19	15.14	11.09	1.45	0.28	0.05	2.09
352381	32.88	2.13	8.09	9.46	0.21	6.33	24.08	1.53	0.42	0.35	14.67
352383	36.88	1.59	7.33	12.34	0.15	11.12	16.42	1.49	2.00	0.15	10.44
366304	30.19	0.65	12.41	28.54	0.03	1.70	2.33	2.99	1.34	0.01	18.45
366319	54.38	0.25	5.15	23.07	0.03	0.83	1.53	0.50	0.98	0.06	10.89
366325	32.90	0.46	6.00	40.46	0.02	0.82	0.48	0.59	2.04	0.04	15.20
366326	22.34	0.54	5.49	40.83	0.02	1.09	0.93	0.40	1.69	0.04	25.63
366330	24.25	0.41	5.18	41.77	0.02	0.79	0.25	0.31	1.68	0.02	24.37
366341	47.53	0.25	4.37	27.84	0.04	0.50	2.57	0.08	1.47	0.03	13.39
366343	55.44	0.14	1.53	32.03	0.01	0.14	0.89	0.04	0.42	0.00	7.73
366346	67.72	0.09	1.31	22.33	0.00	0.06	0.04	0.06	0.36	0.04	7.13
366347	44.26	1.18	4.36	8.64	0.14	16.01	16.85	0.55	0.23	0.03	2.92
366350	43.39	0.58	8.24	29.06	0.02	0.93	0.46	0.40	2.93	0.08	12.14
Samples	21	21	21	21	21	21	21	21	21	21	21
Minimum	22.34	0.09	1.31	8.61	0.00	0.06	0.04	0.04	0.02	0.00	1.86
Maximum	67.72	3.83	14.77	40.83	0.22	29.81	24.08	2.99	2.93	1.23	25.63

Table 6. Metal contents in various rock types from the Qeqertarssuaq-Nûkavsak Formations transition zone (chip samples) and from upper Nûkavsak Formation (boulders).

	Hornbl. schist		Sulphide rock		Sulphide rock		Mica schist	
Element	average	median	average	median	average	median	average	median
Samples	7 chips		6 chips		9 boulders		5 chips	
SiO_2%	42.13	41.23	48.38	47.09	42.02	43.39	62.49	63.15
TiO_2%	1.74	1.70	0.77	0.91	0.37	0.41	0.67	0.65
Al_2O_3%	7.28	8.04	9.61	9.34	5.52	5.18	14.26	13.74
Fe_2O_3%	13.04	13.31	22.53	21.12	31.77	29.06	7.12	6.77
MnO%	0.20	0.21	0.11	0.28	0.02	0.02	0.06	0.06
MgO%	16.79	16.79	3.47	3.40	0.76	0.82	3.88	3.86
CaO%	11.04	11.09	2.52	3.13	1.05	0.89	2.53	2.46
Na_2O%	0.94	0.83	1.41	1.79	0.60	0.40	2.52	2.53
K_2O%	0.31	0.37	1.99	1.63	1.43	1.47	3.01	3.01
P_2O_5%	0.17	0.20	0.11	0.21	0.04	0.04	0.13	0.13
Volat.%	3.89	4.74	9.96	10.43	14.99	13.39	2.83	3.29
Au ppb	2	2	5	4	50	38	3	2
As ppm	1	1	11	3	83	20	1	1
W ppm	2	1	4	4	3	1	1	1
Ni ppm	587	720	197	155	643	640	86	71
Co ppm	89	92	62	44	69	71	25	24
Pt ppb	<5	<5	6	5	12	12		
Pd ppb	2	1	18	17	23	14		
Cr ppm	1226	1330	250	275	186	180	188	190
Cu ppm	91	91	698	358	749	475	113	82
Zn ppm	85	55	611	532	2895	2750	216	168
Pb ppm	3	3	23	18	34	31	11	12
Ag ppm	<5	<5	<5	<5	<5	<5	<5	<5
Sb ppm	<0.2	<0.2	2	1	4	3	<0.2	<0.2
Se ppm	<10	<10	10	11	37	31	<10	<10
Mo ppm	<2	<2	57	26	157	170	5	1
Ba ppm	133	130	152	200	248	220	504	490
Rb ppm	12	<10	46	50	52	58	128	130
U ppm	1	1	9	8	21	20	4	4
Th ppm	2	2	5	5	4	3	9	9
La ppm	23	20	16	18	8	9	18	20
Ce ppm	47	41	26	26	<20	<20	33	36

Table 7. Maximum analytical values for selected elements in 46 quartz-veined boulders from the Nûkavsak Formation.

Element	Analysis	Locality	Sample no.
Au	1408 ppb	U3	366315
	371 ppb	U3	352306
As	2.13 %	U3	352305
W	449 ppm	U0	352321
Mo	751 ppm	U2	366318
Cu	8719 ppm	Íngia Fjord NE	366336
	3480 ppm	Íngia Fjord SW	366323
Zn	1.27 %	Íngia Fjord SW	366323
	5841 ppm	Kugssinerssuaq	366344
Pb	705 ppm	Kugssinerssuaq	366344

Tabel 8. Summary statistics for selected elements: ranges, percentiles and std. regression coefficients (R) for the two types of geochemical samples. C.W.G.: percentiles for 606 stream sediment samples from central West Greenland (Steenfelt, 1988). C.E.G.: percentiles for 3823 pan samples from central East Greenland (Harpøth et al., 1986).

	Stream sediment samples (100)						Pan samples (102)							C.W.G.	C.E.G.	
	min.	50%	80%	90%	95%	max.	min.	50%	80%	90%	95%	max.	R	98%	95%	
Au ppb	<5	<5	<5	6	10	33	<5	<5	31	98	1004	18800	0.19	5	20	Au
As ppm	<1	10	20	51	93	239	<2	290	1550	3600	8400	58000	0.28	80	<1000	As
W ppm	<2	3	4	6	10	22	<4	49	205	595	1200	6300	0.35	10	100	W
Ni ppm	26	66	87	110	110	180	<200	350	1050	1550	1800	2800	-0.43	210	200	Ni
Co ppm	10	24	31	35	39	56	42	120	235	410	540	1200	-0.24	80	-	Co
Cr ppm	57	150	190	230	310	490	49	440	660	810	910	1800	0.41	400	-	Cr
Fe pct	2.4	4.3	5.3	5.9	6.1	8.8	14	25	36	40	44	51	-0.28	-	-	Fe
Cu ppm	34	75	107	130	135	169	35	245	500	645	958	2110	0.06	170	200	Cu
Zn ppm	18	98	145	203	240	330	90	280	535	615	655	920	0.50	170	<500	Zn
Pb ppm	4	9	12	15	17	26	<20	40	80	100	120	260	0.39	-	500	Pb
Sb ppm	<0.2	<0.2	0.3	0.5	0.7	1.3	<0.2	<0.2	1.2	2.7	3.9	15.0	0.48	-	<200	Sb
Ba ppm	184	500	580	620	640	740	<200	<200	400	540	695	1000	0.30	950	3500	Ba
U ppm	1.6	4.2	5.7	6.4	7.8	26.0	<0.5	8	17	23	29	47	0.47	-	20	U
Ce ppm	31	63	83	95	110	230	19	95	152	216	254	684	0.27	-	3000	Ce

	Au	As	W	Ni	Co	Cr	Fe	Cu	Zn	Pb	Sb	Ba	U	Ce	
Au	1.00														Au
As	0.46	1.00													As
W	0.22	-0.08	1.00												W
Ni	-0.04	-0.03	-0.13	1.00											Ni
Co	-0.02	0.09	-0.32	0.71	1.00										Co
Cr	-0.23	-0.30	-0.12	0.55	0.73	1.00									Cr
Fe	-0.16	-0.16	-0.27	0.61	0.90	0.79	1.00								Fe
Cu	0.02	0.09	-0.37	0.65	0.62	0.29	0.59	1.00							Cu
Zn	0.05	0.04	-0.20	0.43	0.17	-0.18	0.18	0.75	1.00						Zn
Pb	0.16	0.22	-0.09	0.29	0.08	-0.26	0.05	0.53	0.69	1.00					Pb
Sb	0.25	0.42	-0.11	0.19	0.18	-0.14	0.15	0.47	0.47	0.63	1.00				Sb
Ba	-0.05	-0.05	0.01	-0.08	-0.37	-0.40	-0.31	-0.07	0.39	0.39	0.09	1.00			Ba
U	0.08	-0.02	0.21	0.27	0.00	-0.07	0.04	0.20	0.34	0.48	0.19	0.14	1.00		U
Ce	0.12	-0.07	0.10	0.39	0.14	0.02	0.21	0.38	0.51	0.50	0.32	0.31	0.44	1.00	Ce
	Au	As	W	Ni	Co	Cr	Fe	Cu	Zn	Pb	Sb	Ba	U	Ce	

	Au	As	W	Ni	Co	Cr	Fe	Cu	Zn	Pb	Sb	Ba	U	Ce	
Au	1.00														Au
As	0.10	1.00													As
W	0.08	-0.03	1.00												W
Ni	0.03	-0.22	-0.01	1.00											Ni
Co	0.08	-0.10	-0.23	0.75	1.00										Co
Cr	-0.29	-0.35	-0.17	0.55	0.62	1.00									Cr
Fe	-0.07	-0.20	-0.21	0.69	0.88	0.74	1.00								Fe
Cu	0.08	0.05	-0.12	0.07	0.08	-0.11	0.03	1.00							Cu
Zn	0.10	0.15	-0.07	0.03	-0.03	-0.24	-0.07	0.97	1.00						Zn
Pb	0.15	0.06	0.01	0.01	-0.07	-0.29	-0.13	0.93	0.95	1.00					Pb
Sb	0.24	0.34	0.04	0.17	0.17	-0.18	0.09	-0.02	0.03	0.07	1.00				Sb
Ba	0.02	0.18	0.22	-0.13	-0.39	-0.40	-0.33	-0.17	0.03	0.05	0.10	1.00			Ba
U	0.25	-0.13	0.30	0.30	-0.04	-0.19	-0.03	0.10	0.21	0.32	0.24	0.45	1.00		U
Ce	0.20	-0.24	0.18	0.42	0.15	0.02	0.19	0.08	0.14	0.22	0.25	0.44	0.74	1.00	Ce
	Au	As	W	Ni	Co	Cr	Fe	Cu	Zn	Pb	Sb	Ba	U	Ce	

Table 9. Correlation matrices for stream sediment samples. Top: non-transformed values; bottom: log-transformed values.

	Au	As	W	Ni	Co	Cr	Fe	Cu	Zn	Pb	Sb	Ba	U	Ce	
Au	1.00														Au
As	0.87	1.00													As
W	0.50	0.61	1.00												W
Ni	0.04	0.15	0.09	1.00											Ni
Co	0.43	0.74	0.34	0.35	1.00										Co
Cr	-0.02	-0.09	0.16	-0.00	-0.28	1.00									Cr
Fe	0.09	0.22	0.01	-0.04	0.47	-0.30	1.00								Fe
Cu	0.10	0.26	0.11	0.44	0.42	-0.30	0.25	1.00							Cu
Zn	-0.08	0.01	-0.18	-0.09	0.25	-0.52	0.65	0.27	1.00						Zn
Pb	0.03	0.16	0.09	0.21	0.42	-0.32	0.41	0.37	0.35	1.00					Pb
Sb	-0.04	-0.01	-0.10	-0.13	0.16	-0.34	0.40	0.09	0.29	0.47	1.00				Sb
Ba	-0.05	-0.05	0.08	-0.03	0.04	-0.13	0.04	-0.01	0.07	-0.02	0.14	1.00			Ba
U	0.14	0.28	0.29	0.04	0.32	-0.36	0.36	0.38	0.17	0.21	0.32	0.14	1.00		U
Ce	0.01	0.05	0.12	-0.06	0.07	-0.16	0.30	0.18	0.06	0.11	0.20	0.23	0.59	1.00	Ce
	Au	As	W	Ni	Co	Cr	Fe	Cu	Zn	Pb	Sb	Ba	U	Ce	

	Au	As	W	Ni	Co	Cr	Fe	Cu	Zn	Pb	Sb	Ba	U	Ce	
Au	1.00														Au
As	0.15	1.00													As
W	0.12	0.06	1.00												W
Ni	0.21	0.43	0.09	1.00											Ni
Co	0.30	0.65	0.17	0.39	1.00										Co
Cr	-0.08	-0.25	0.10	0.00	-0.42	1.00									Cr
Fe	0.25	0.43	0.12	-0.05	0.62	-0.46	1.00								Fe
Cu	0.06	0.01	0.01	0.17	-0.03	0.21	-0.19	1.00							Cu
Zn	0.13	-0.01	-0.13	0.06	-0.00	0.03	0.05	0.64	1.00						Zn
Pb	0.23	0.02	-0.08	0.03	0.11	-0.07	0.09	0.49	0.76	1.00					Pb
Sb	0.04	0.07	-0.08	-0.12	0.20	-0.32	0.30	-0.17	-0.01	-0.02	1.00				Sb
Ba	0.05	0.04	-0.04	-0.01	0.02	-0.06	-0.01	0.01	0.02	0.07	0.17	1.00			Ba
U	0.22	0.21	0.21	0.01	0.33	-0.25	0.33	-0.07	-0.06	-0.05	0.33	0.14	1.00		U
Ce	0.11	0.15	0.31	-0.12	0.23	-0.31	0.32	-0.17	-0.17	-0.11	0.28	0.13	0.69	1.00	Ce
	Au	As	W	Ni	Co	Cr	Fe	Cu	Zn	Pb	Sb	Ba	U	Ce	

Table 10. Correlation matrices for pan samples. Top: non-transformed values; bottom: log-transformed values.

Table 11. Varimax rotated factor loadings, stream sediment samples. Values below 0.25 excluded.

	Non-transformed (76% variance explained)					Log-transformed (75% variance explained)			
	F1	F2	F3	F4		F1	F2	F3	F4
Co	0.93	-	-	-	Fe	0.93	-	-	-
Fe	0.91	-	-	-	Co	0.93	-	-	-
Cr	0.87	-	0.27	-	Ni	0.85	-	0.27	-
Ni	0.75	0.41	-	-	Cr	0.77	-	-	-0.39
Zn	-	0.89	-	-	Cu	-	0.99	-	-
Pb	-	0.86	0.25	-	Zn	-	0.98	-	-
Ce	-	0.69	-	0.37	Pb	-	0.97	-	-
Cu	0.59	0.64	-	-0.30	U	-	-	0.87	-
Sb	-	0.56	0.56	-	Ce	0.30	-	0.84	-
Ba	-0.51	0.56	-0.25	-	Ba	-0.38	-	0.65	-
As	-	-	0.85	-	Sb	-	-	-	0.80
Au	-	-	0.76	0.32	As	-0.28	-	-0.28	0.72
W	-	-	-	0.84	Au	-	-	-	0.53
U	-	0.53	-	0.56	W	-	-	0.49	-

Table 12. Varimax rotated factor loadings, pan samples. Values below 0.25 excluded.

	Non-transformed (66% variance explained)					Log-transformed (70% variance explained)				
	F1	F2	F3	F4		F1	F2	F3	F4	F5
Zn	0.83	-	-	-	Zn	0.92	-	-	-	-
Fe	0.78	-	-	-	Pb	0.88	-	-	-	-
Cr	-0.66	-	-	-	Cu	0.76	-0.32	-	-	-
Sb	0.64	-	-	-	Cr	-	-0.77	-	-	-
Pb	0.61	-	0.38	0.25	Fe	-	0.74	0.29	-	-
As	-	0.96	-	-	Sb	-	0.61	-	-	-
Au	-	0.89	-	-	Ni	-	-0.26	0.82	-	-
W	-	0.74	-	-	As	-	0.29	0.79	-	-
Co	0.42	0.64	0.42	-	Co	-	0.49	0.73	-	-
Ni	-	-	0.88	-	Ce	-	0.33	-	0.78	-
Cu	0.29	-	0.76	-	U	-	0.33	-	0.73	-
Ce	-	-	-	0.85	W	-	-0.27	-	0.78	-
U	0.30	-	-	0.74	Ba	-	-	-	-	0.89
Ba	-	-	-	0.52	Au	0.30	-	0.35	0.31	-

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May 1991

ISSN 0903-7322