Sivakkajoki

Occurence type: occurrence

Commodity	Rank	Total measure	Total production	Total resource	Importance
gold	1	NA	NA	NA	NA
copper	3	NA	NA	NA	NA

Easting EUREF: 400760
Northing EUREF: 7345520
Easting YKJ: 3400893
Northing YKJ: 7348593

Discovery year: 1991
Discovered by: Geological Survey of Finland
Province: Peräpohja (Cu, Co, Fe)
Comments:

References: 4, 5, 7

Mineral deposit type

Group: Metallogenic deposit
Main type: Orogenic (metamorphic hydrothermal)
Sub type 1: Au-Cu
Comments: All mineralogical and textural data, chiefly from, suggest epigenetic mesothermal origin; mineralisation took place under upper-greenschist facies conditions during regional metamorphism.
References: 5

Dimension

Expression: exposed
Form: discordant
Shape: NA
Length (m): 100
Width (m): 11
Thickness (m): NA
Depth (m): NA
Area (ha): NA
Dip azim: NA
Dip: NA
Plunge azim: NA
Plunge dip: NA
Orientation method: NA
Dimension comments: The controlling structure is a shear zone or a set of shear zones in the dolerite-metavolcanic rock sequence, parallel (W-trending) to the strike of bedding in the area. Possibly a continuum from the Kivimaa deposit which is just 1 km to the east of Sivakkajoki. The occurrence is within 1-3 km from a major fault extending across the Peräpohja supracrustal sequence and in the hanging wall of, <1 km at surface, from a WSW-trending major detachment fault.

Holder history

Current holder: Arctic Minerals Exploration AB
Years: 2021
Holding type: Application for exploration permit

Comments: JV with Rio Tinto Exploration Oy

Previous holders:

Company	Years	Holding type	Comments
Norrbotten Exploration AB	2017-2019	Reservation	NA
Endomines Oy	2013	Exploration permit	NA
Endomines Oy	2008-2013	Claim (old law)	NA
Outokumpu Oy	2000-2002	NA	NA
Geological Survey of Finland	1991-1992	Claim (old law)	NA
Outokumpu Oy	1960-1970	NA	NA

Figures

Start of the trench SIR-91-U1 in the cutting area of stand in seed-tree position in Sivakkajoki. Boundary of the cutting area shown in the photo defines the direction of the l-coordinate axel. The coordinate point k=24.00, l=60.00 lies in the intersection of the cutting area and the road. Photo by Risto Aario.

(from Rossi 1993)

EXPLORATION ACTIVITY

Geological Survey of Finland

Years	Activity type	Geologist	Exploration result	Ref
2002-2002	regional geophysics	Seppo Rossi.	key geological features	1, 5, 7, 8, 9, 10, 11, 12
	Low-altitude airborne magnetic, electromagnetic and radiometric survey			

1991-1992	core drilling	Seppo Rossi.	NA	5, 6, 7, 8, 10
	Core drilling (reconnaissance drilling): 12 diamond-drill holes, total 443 m.			
	Intersections			
	HoleID	M263191R402		
	From-To	61,3-62,3		
	Length	1m		
	gold	2,19ppm		
	HoleID	M263191R404		
	From-To	56,8-57,9		
	Length	1,1m		
	gold	1,5ppm		

1983-1993	excavation	Seppo Rossi.	NA	1, 5, 7, 8, 9, 10, 11, 12

1983-1993	detailed geochemistry	Seppo Rossi.	NA	1, 5, 7, 8, 9, 10, 11, 12
	The Au-till anomaly is about 1 km long, located to the W and SW of the Kivimaa deposit, and interpreted not to be related to the mined deposit, but to the Sivakkajoki mineralisation.According to a factor analysis, a good positive correlation between Au and Te in till.			

1983-1993	detailed geophysics	Seppo Rossi.	NA	5
	Irregular response with IP.			

1983-1993	detailed geology	Seppo Rossi.	NA	1, 5, 7, 8, 9, 10, 11, 12

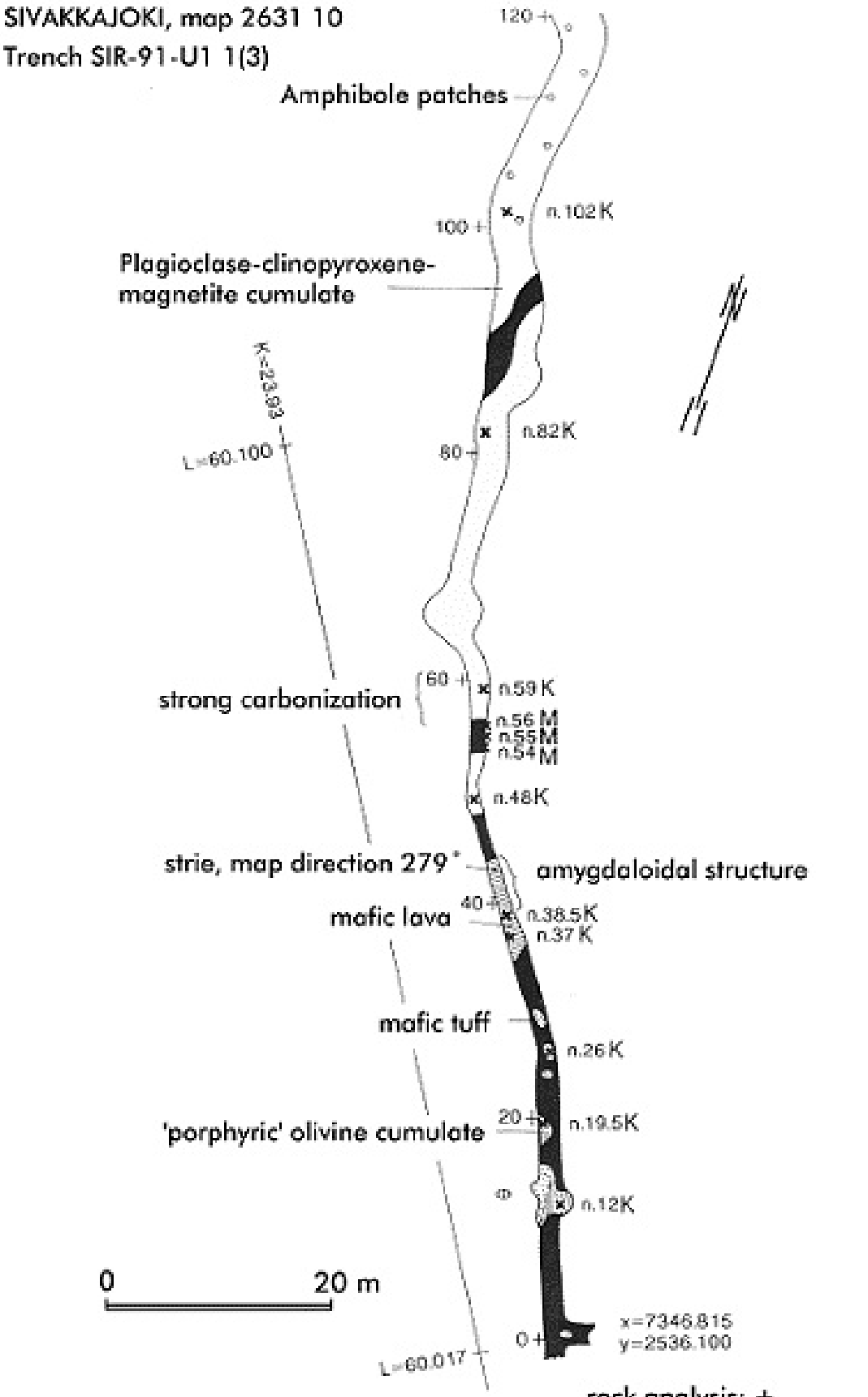
Outokumpu Oy

Years	Activity type	Geologist	Exploration result	Ref
1960-1970	core drilling	NA	NA	7
	Core drilling (reconnaissance drilling): two diamond-drill holes.			

1960-1970	detailed geology	NA	NA	7

Figures

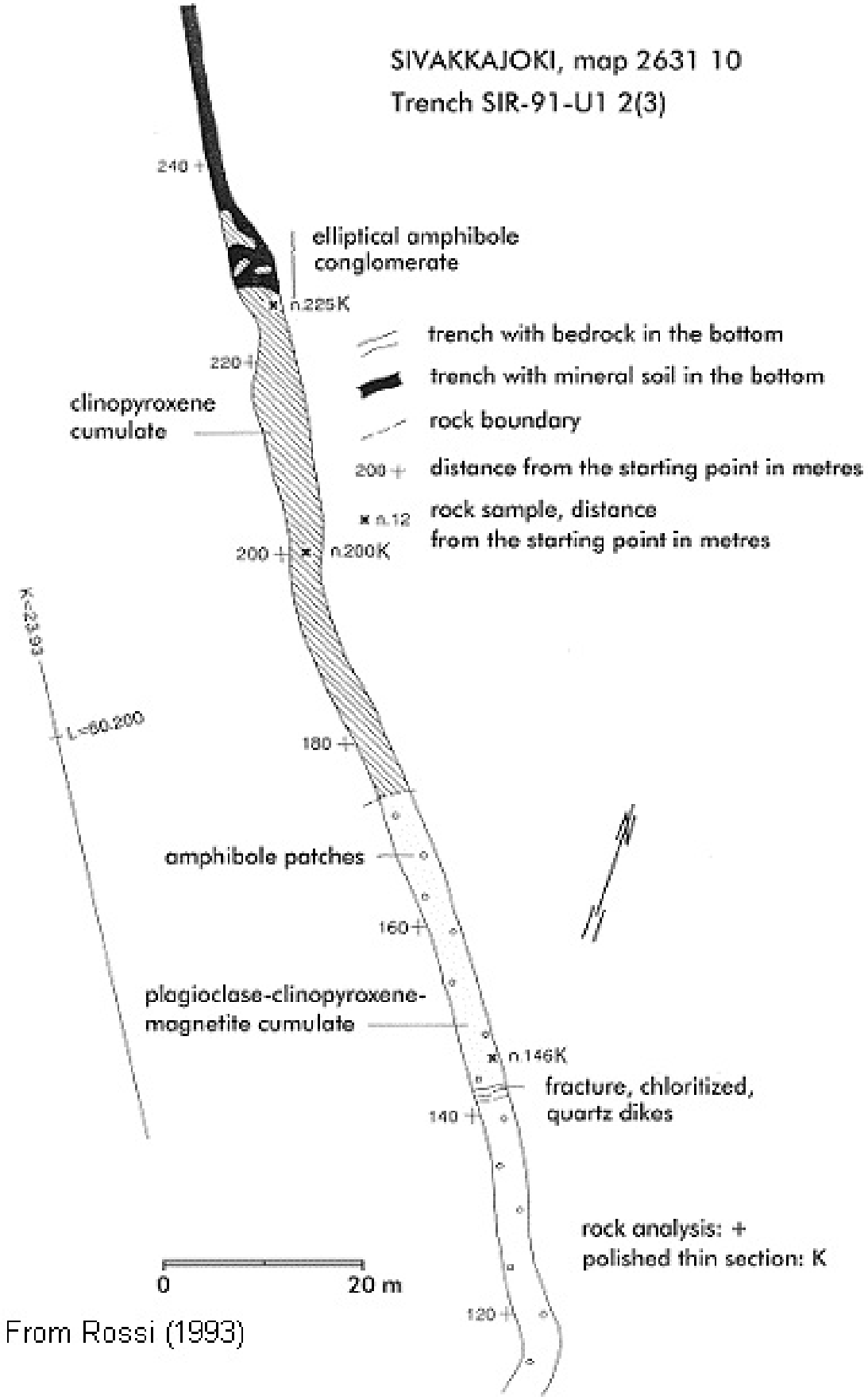
Trench 1, section 0-120 m:



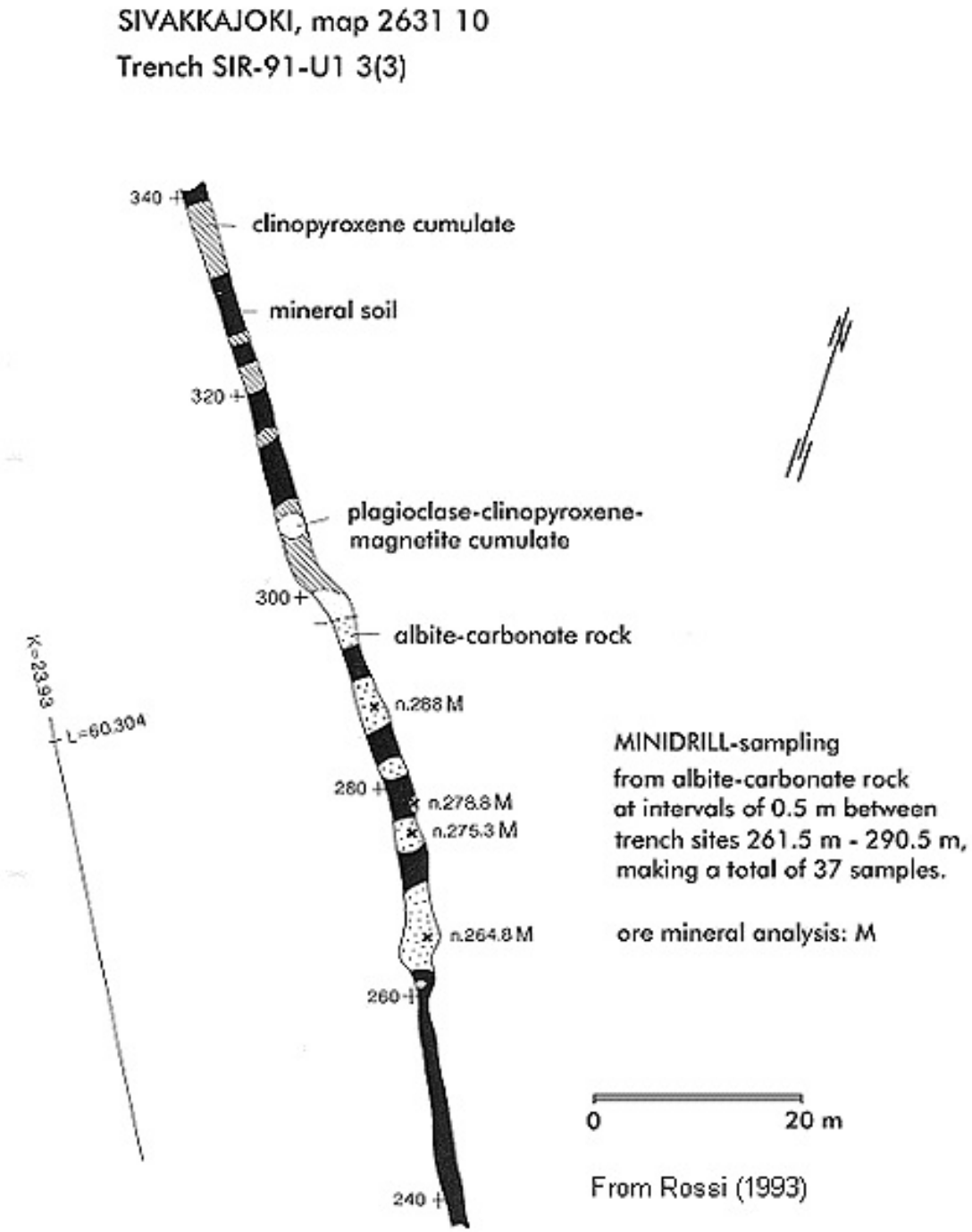
rock analysis: +
polished thin section: K
ore mineral analysis: M

From Rossi (1993)

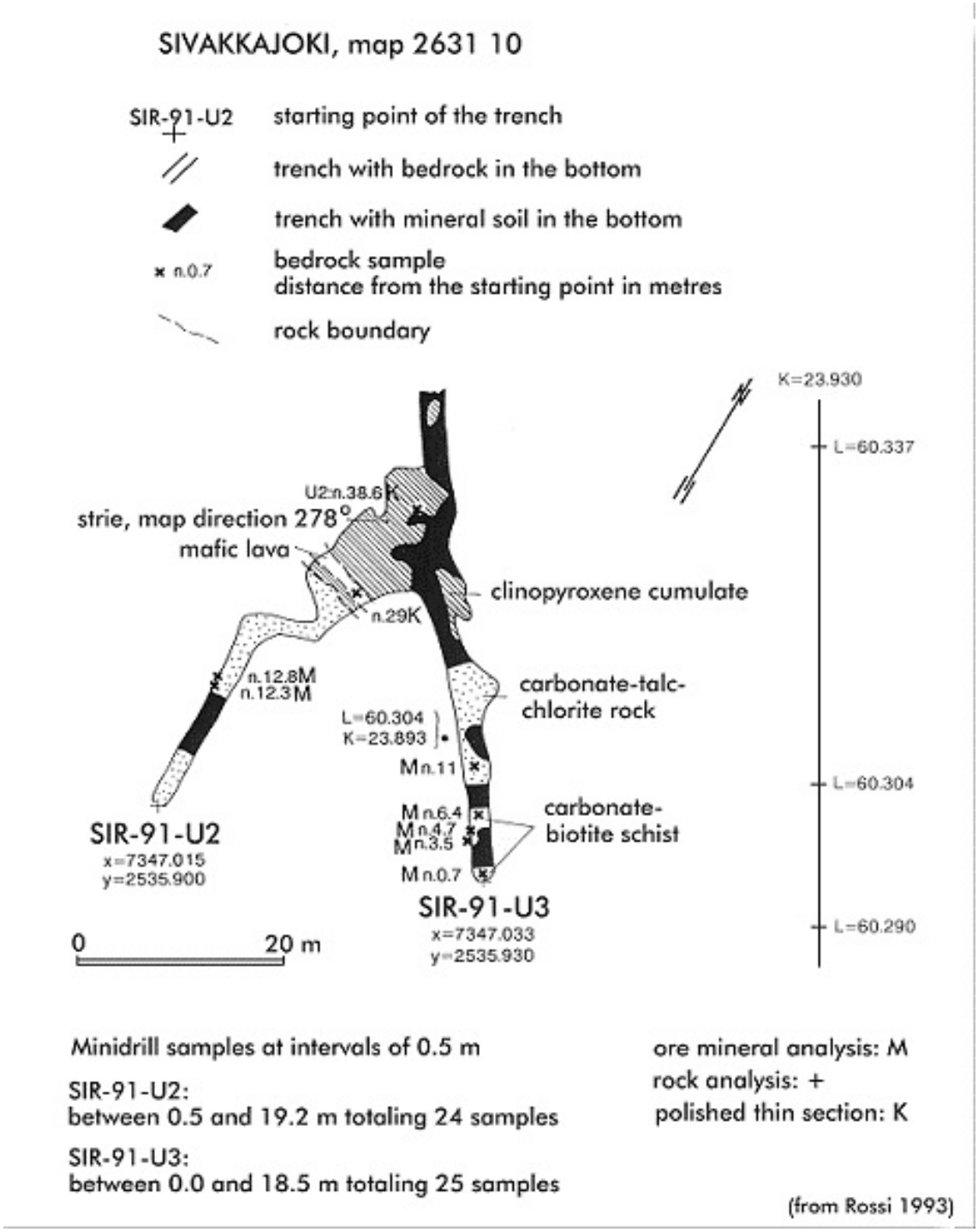
Trench 1, section 120-240 m:



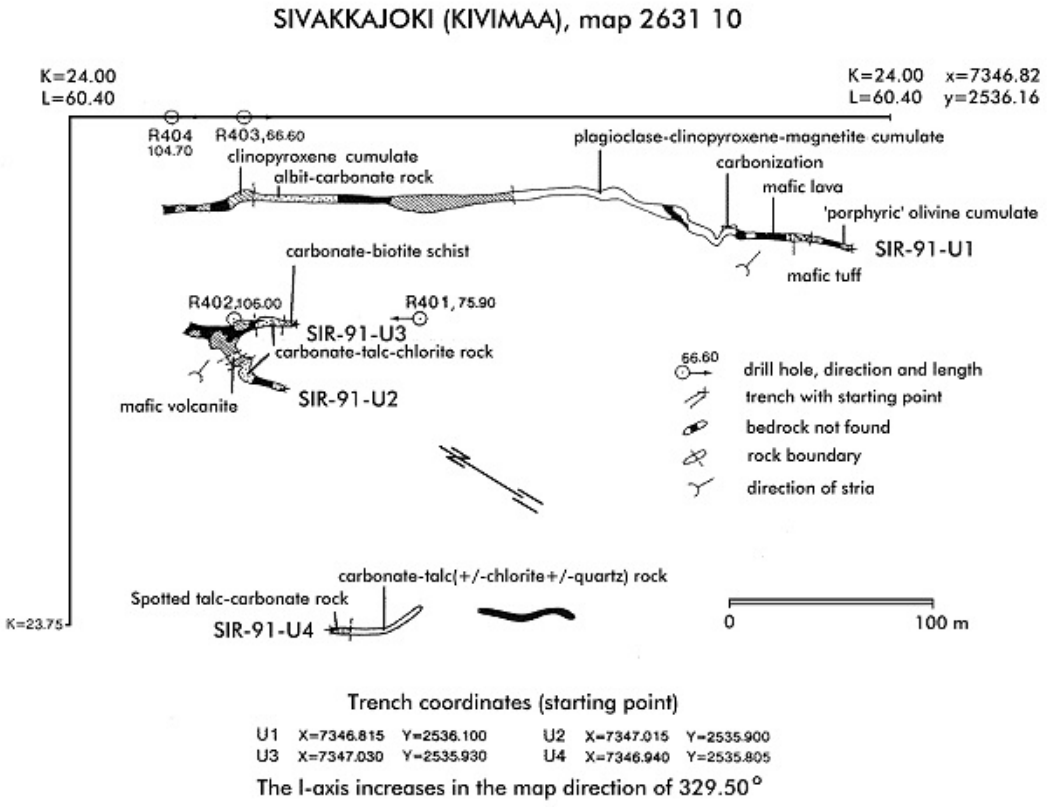
Trench 1, section 240-340 m:



Trench 2 and 3:



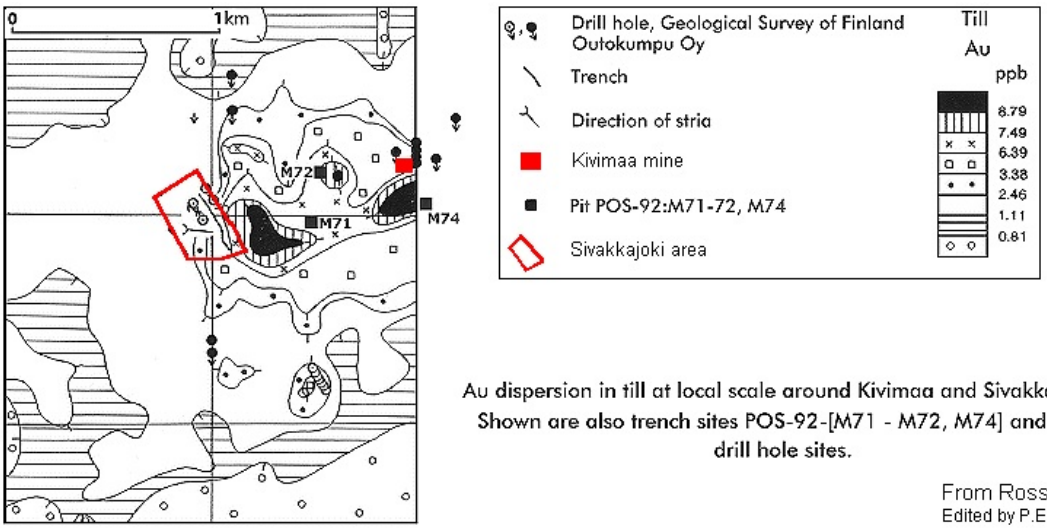
Trenches 1-4:



Trench locations and drilling sites in Sivakkajoki 1. The l-axis of a separate system of kl-coordinates increases in the map direction of 329.5°.

(from Rossi 1993)

Secondary anomaly, Au content in till:



Au dispersion in till at local scale around Kivimaa and Sivakkajoki. Shown are also trench sites POS-92-[M71 - M72, M74] and the drill hole sites.

From Rossi (1993)
Edited by P.Eilu (1999)

GEOLOGY

Host rock: Quartz vein, Dolerite

Quartz vein (Host rock)

Rock type: Host rock
Proportion: minor
Grain size: NA
Color: NA
References: 5, 7, 8
Comments: Quartz-carbonate, quartz and carbonate veins and vein networks variably containing sulphides

Ore minerals:

Mineral	Proportion	Mineral texture
Chalcopyrite	major	Cluster
	Apparently, only in quartz veins.	
Gold	present	
	Apparently, only in quartz veins.	

Dolerite (Host rock)

Rock type: Host rock
Proportion: major
Grain size: NA
Color: NA
References: 1, 2, 3, 5, 7, 8, 11, 12
Comments:

Ore minerals:

Mineral	Proportion	Mineral texture
Pyrite	major	

Other minerals:

Mineral	Proportion	Mineral texture
Biotite	present	Alteration product
Calcite	present	
Chlorite	present	Alteration product
Quartz	present	
Talc	present	Alteration product

Alteration:	Distribution:	Degree:	Relation to mineralization:
carbonate alteration	NA	NA	NA
Comments: The along-strike extent of altered rocks is several hundreds of metres enveloping a network of quartz-carbonate veins, width of the altered domain is 2-20 m. Extent: 2-20 m wide, >100 m long domain of alteration.			
biotite alteration	NA	NA	NA
Comments: The along-strike extent of altered rocks is several hundreds of metres enveloping a network of quartz-carbonate veins, width of the altered domain is 2-20 m. Extent: 2-20 m wide, >100 m long domain of alteration.			

albitic alteration	NA	NA	NA
Comments: The along-strike extent of altered rocks is several hundreds of metres enveloping a network of quartz-carbonate veins, width of the altered domain is 2-20 m. Extent: 2-20 m wide, >100 m long domain of alteration.			
chloritic alteration	NA	NA	NA
Comments: The along-strike extent of altered rocks is several hundreds of metres enveloping a network of quartz-carbonate veins, width of the altered domain is 2-20 m. Extent: 2-20 m wide, >100 m long domain of alteration.			
sulphidation	NA	NA	NA
Comments: The along-strike extent of altered rocks is several hundreds of metres enveloping a network of quartz-carbonate veins, width of the altered domain is 2-20 m. Extent: 2-20 m wide, >100 m long domain of alteration.			

Metamorphic description:

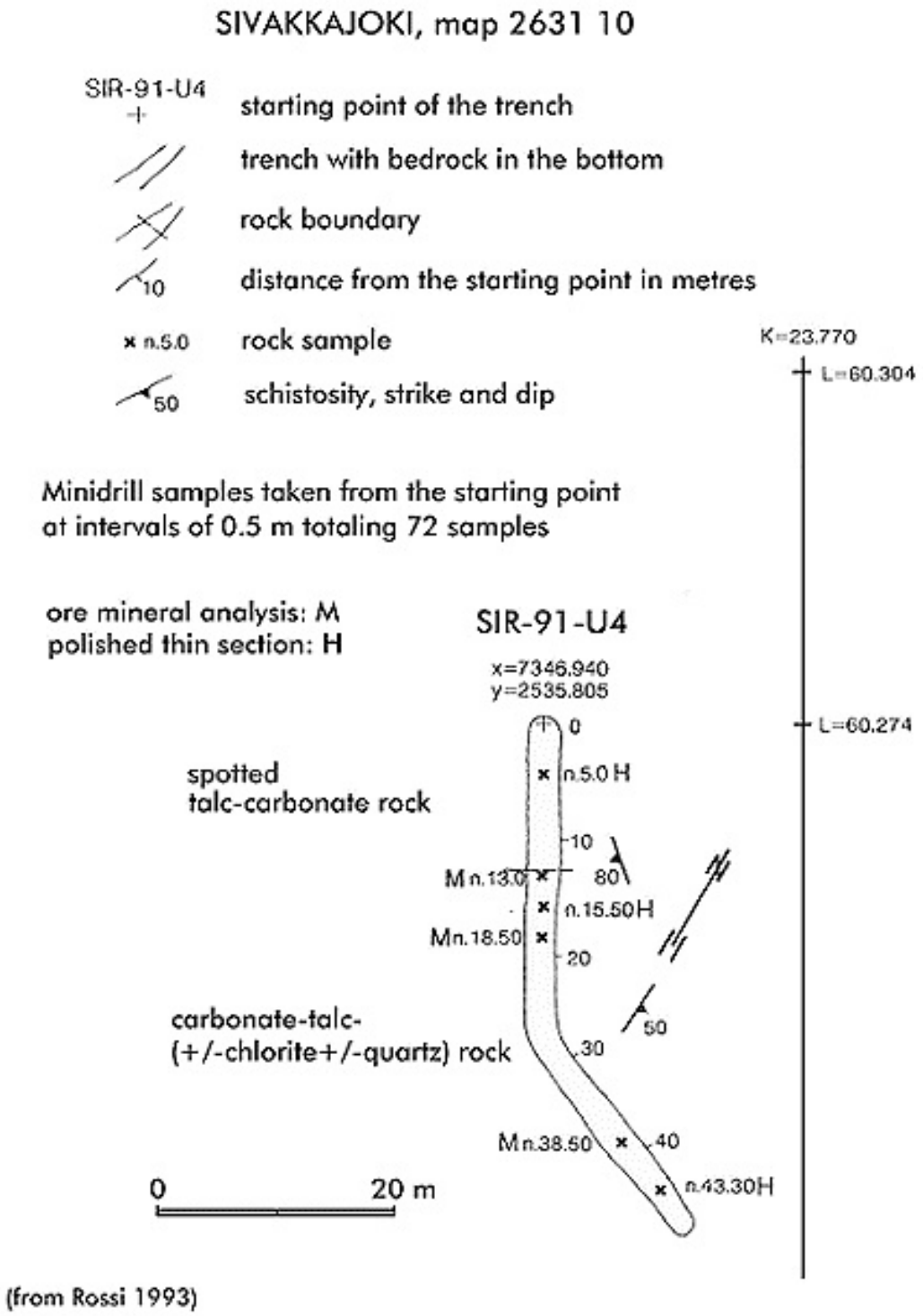
Type:	Facies:	Degree:	Relation to mineralization:	Min P- Max P (kbar)	MIn T- Max T (°C)
Regional	greenschist metamorphic facies	low metamorphic grade	NA		
Comments: Actinolitic hornblende-albite-magnetite.					

Geological age:

Geological era:	Max age - Minage (Ma):	Inferred age (Ma):	Age of mineralization:
Paleoproterozoic (2500-1600 Ma)	1600-2500	2200	N
Comments: Mineralisation is post 2.2 Ga.			

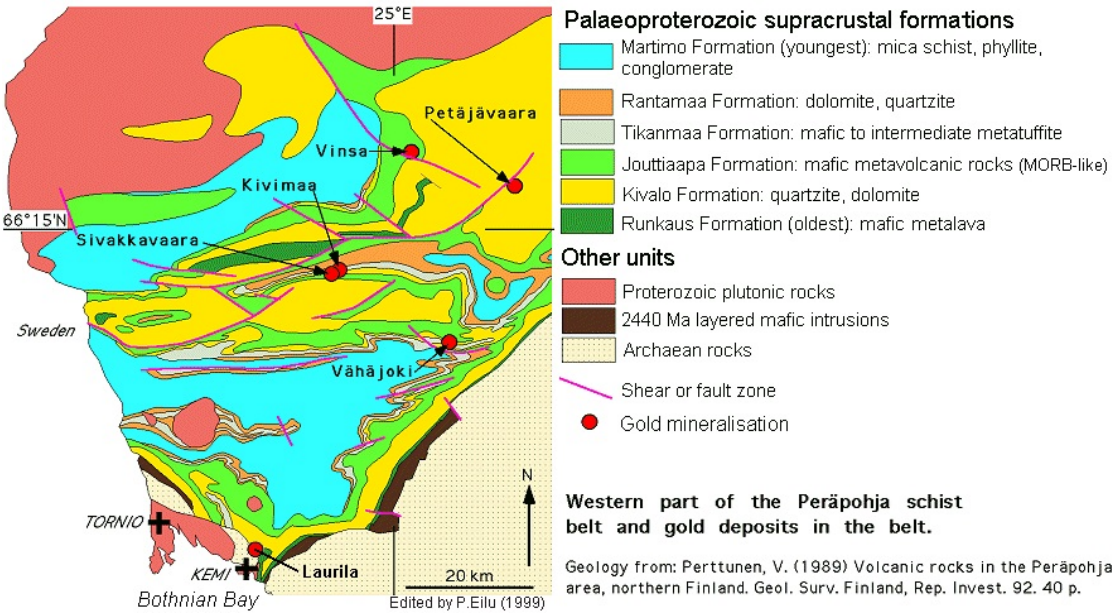
Figures

Trench 4:

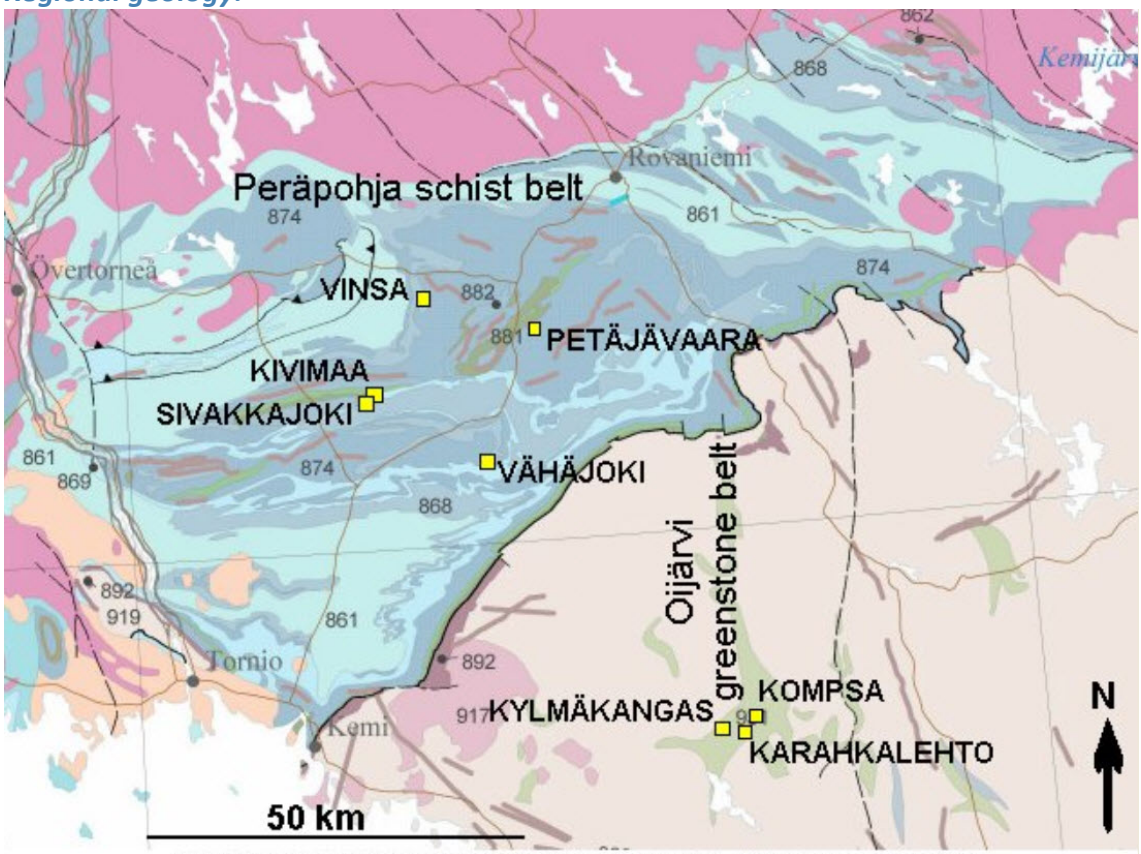


(from Rossi 1993)

Regional geology:

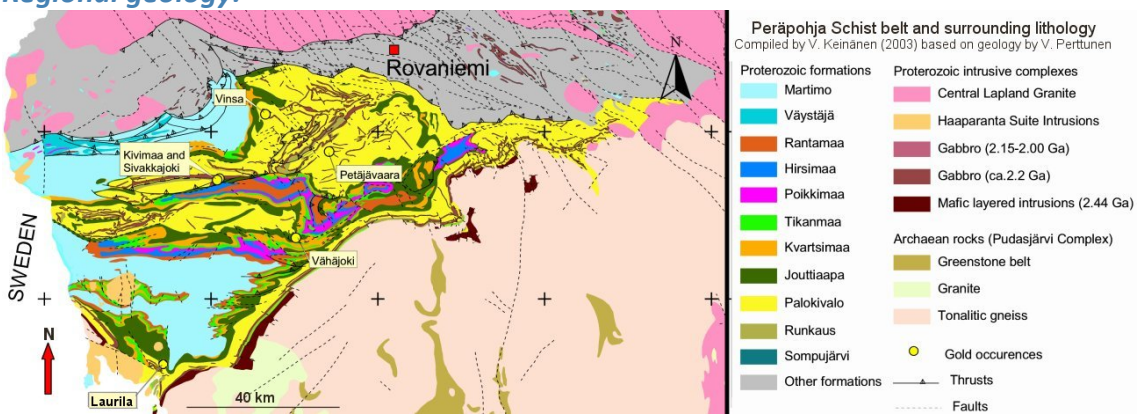


Regional geology:



Drilling-indicated gold occurrences in Oijärvi greenstone belt and Peräpohja schist belt. Geology from Korsman et al. (1997).

Regional geology:



Vein:

Sivakkajoki, Peräpohja. Auriferous quartz-carbonate veins in carbonated and biotitised dolerite. Compass plate is 11 cm long. Photo Pasi Eilu 12/8/1998.

Outcrop photo:

Sivakkajoki, Peräpohja. An outcrop of gold-mineralised, carbonated and biotitised dolerite. Hammer handle is 80 cm. Photo Pasi Eilu 12/8/1998.

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