Sivakko

Occurence type: occurrence

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

Easting EUREF: 713869,668
Northing EUREF: 6994522,965

Easting YKJ: 3714128
Northing YKJ: 6997453

Discovery year: 1993
Discovered by: Geological Survey of Finland
Province: Ilomantsi (Au)
District: Hattu (Au)

Mineral deposit type

Group: Metallogenic deposit
Main type: Orogenic (metamorphic hydrothermal)
Comments: Precipitation of gold by desulphidation of fluid and, possibly, by decomposition of Au-bisulphide, -thiosulphide and -telluride complexes of fluid due to cooling and/or changes in pH and fO2. Probably, gold precipitated just below 500°C with sulphides due to reaction between the mineralising fluid and wall-rock (chiefly by sulphidation).
References: 1

Dimension

Expression: NA
Form: NA
Shape: NA
Length (m): NA
Width (m): NA
Thickness (m): NA
Depth (m): NA

Area (ha): NA
Dip azim: NA
Dip: NA
Plunge azim: NA
Plunge dip: NA
Orientation method: NA

Holder history

Current holder: Endomines Oy
Years: 2023-2026
Holding type: Exploration permit

Previous holders:

Company	Years	Holding type	Comments
Geological Survey of Finland	-1998	NA	NA
Endomines Oy	2018-2022	Exploration permit	NA
Endomines Oy	2011-2018	Application for exploration permit	NA
Endomines Oy	1998-2006	Claim (old law)	NA

Endomines Oy	1993-1998	Claim (old law)	NA

EXPLORATION ACTIVITY

Geological Survey of Finland

Years	Activity type	Geologist	Exploration result	Ref
1993-1993	regional geophysics	Timo Heino	geophysical anomaly	1, 2, 3
	Low-altitude airborne magnetic, electromagnetic and radiometric survey			

1992-1995	detailed geophysics	Timo Heino	geophysical anomaly	1, 2, 3
	A distinct IP anomaly detected. This relates spatially with Au naomaly in till and with drilled Au occurrence.			

1992-1995	detailed geochemistry	Timo Heino	geochemical anomaly	1
	Sampling at till-bedrock interface geochemistry, samples collected across the Au anomaly along traverses 100-200 m apart with sampling distance 10-30 m. Au anomaly in till detected.			

1992-1995	core drilling	Timo Heino	mineralized zone identified	1, 2
	Drilling into structurally favourable location within a localgeochemical anomaly in till; 24 diamond-drill holes, total 1961 m.			
	Intersections			
	HoleID	NA		
	From-To	NA		
	Length	2m		
	gold	4,2ppm		
	HoleID	NA		
	From-To	NA		
	Length	1,7m		
	gold	4ppm		
	HoleID	NA		
	From-To	NA		
	Length	1m		
	gold	1,7ppm		
	HoleID	NA		
	From-To	NA		
	Length	1m		
	gold	3,97ppm		
	HoleID	NA		
	From-To	NA		
	Length	0,5m		
	gold	24,4ppm		

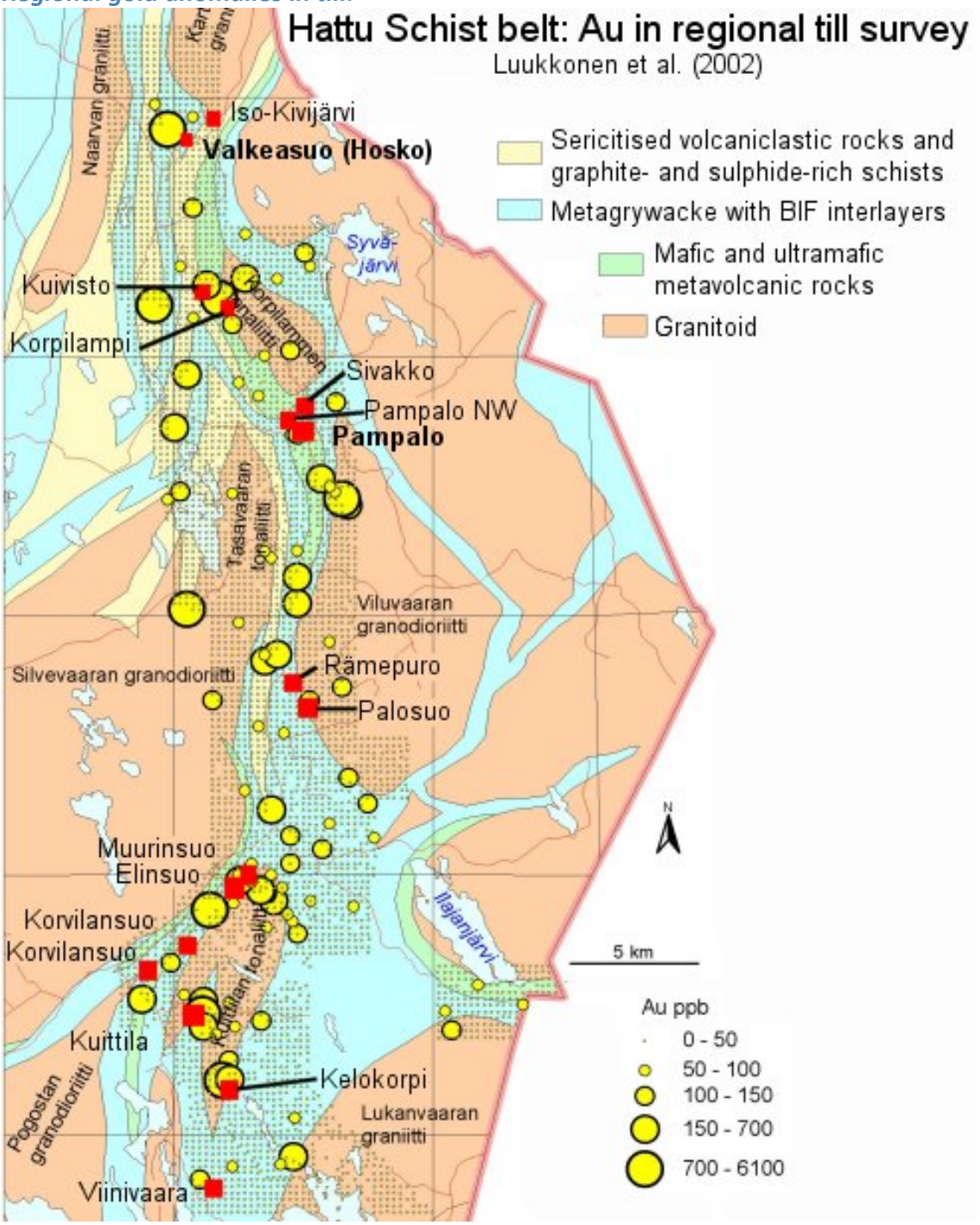
1992-1995	excavation	Timo Heino	mineral occurrences	1, 2, 3

1984-1984	regional geochemistry	Aimo Hartikainen	geochemical anomaly	
	Country-wide till-geochemical survey			

1983-1989	regional geochemistry	Aimo Hartikainen	geochemical anomaly	1, 2
	Sampling grid 250x250 m over the greenstone belt covering 400 km2			

Figures

Regional gold anomalies in till:



GEOLOGY

Host rock: Komatiite, Porphyry, Mafic volcanic rock

Komatiite (Host rock)

Rock type: Host rock
Proportion: minor
Grain size: NA
Color: NA
References: 1, 2, 3, 4
Comments: The mineralisation is in the contact zone between metakomatiite and porphyry.

Metamorphic description:

Type:	Facies:	Degree:	Relation to mineralization:	Min P- Max P (kbar)	MIn T- Max T (°C)
Regional	amphibolite metamorphic facies	medium metamorphic grade	Post		
Comments: Progressive regional metamorphism on ca. 2750-2700 Ma, apparently peaked soon after gold mineralisation, at a temperature of about 550±50°C. Thermal peak was synchronous or outlasted deformation. Formation of post-mineralisation tremolite porphyroblasts in the metakomatiite. A relatively strong, but unevenly distributed Palaeoproterozoic overprint.					

Geological age:

Geological era:	Max age - Minage (Ma):	Inferred age (Ma):	Age of mineralization:
Neoarchean (2800-2500 Ma)	2726-2754		N

Porphyry (Host rock)

Rock type: Host rock
Proportion: major
Grain size: NA
Color: NA
References: 1, 2, 3, 4
Comments: The mineralisation is in the contact zone between metakomatiite and porphyry.

Metamorphic description:

Type:	Facies:	Degree:	Relation to mineralization:	Min P- Max P (kbar)	MIn T- Max T (°C)
Regional	amphibolite metamorphic facies	medium metamorphic grade	Post		
Comments: Progressive regional metamorphism on ca. 2750-2700 Ma, apparently peaked soon after gold mineralisation, at a temperature of about 550±50°C. Thermal peak was synchronous or outlasted deformation. Formation of post-mineralisation tremolite porphyroblasts in the metakomatiite. A relatively strong, but unevenly distributed Palaeoproterozoic overprint.					

Geological age:

Geological era:	Max age - Minage (Ma):	Inferred age (Ma):	Age of mineralization:
Neoarchean (2800-2500 Ma)	2726-2754		N

Mafic volcanic rock (Host rock)

Rock type: Host rock
Proportion: minor
Grain size: NA
Color: NA
References: 1, 2, 3, 4

Metamorphic description:

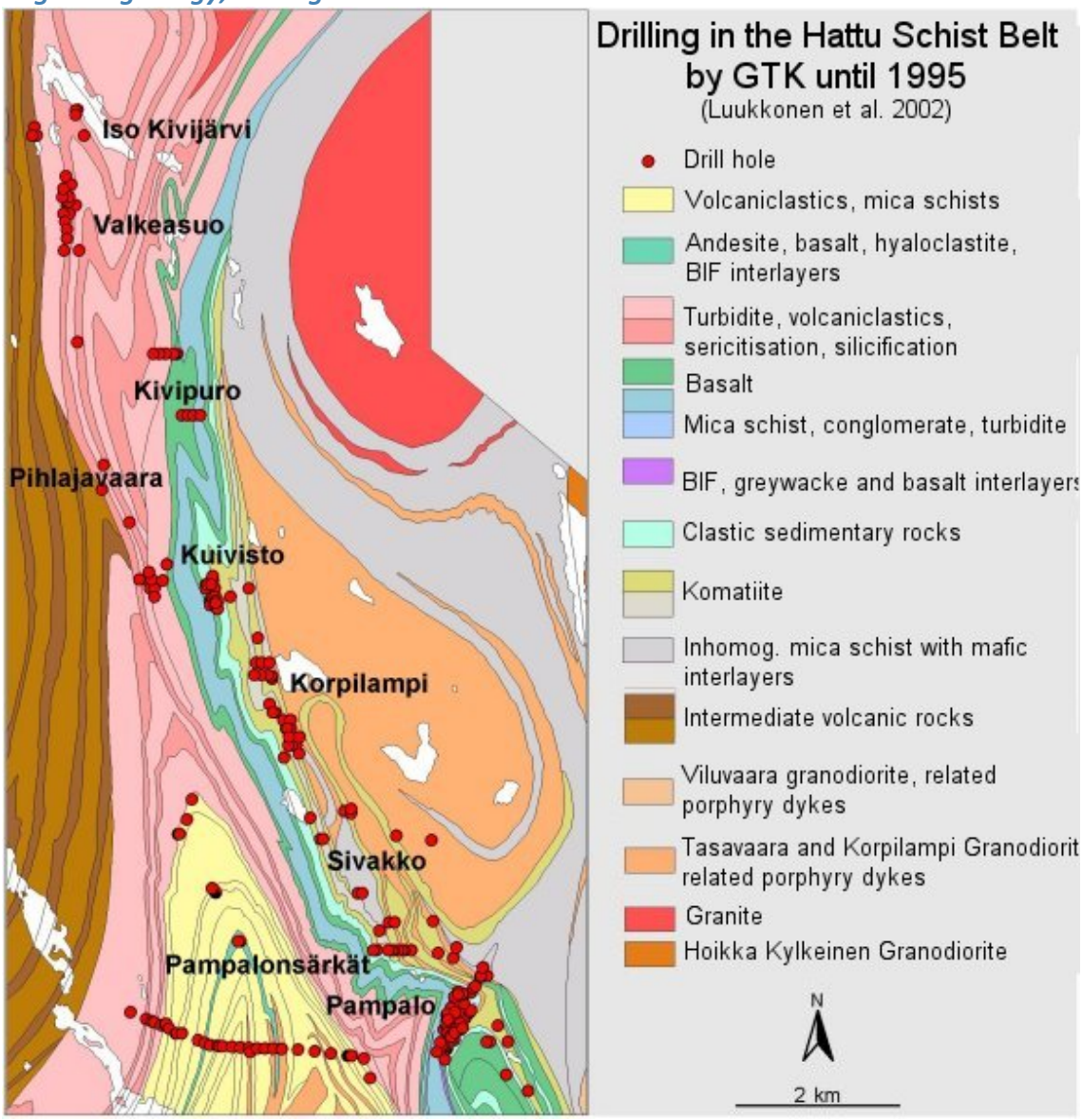
Type:	Facies:	Degree:	Relation to mineralization:	Min P- Max P (kbar)	MIn T- Max T (°C)
Regional	amphibolite metamorphic facies	medium metamorphic grade	Post		
Comments: Progressive regional metamorphism on ca. 2750-2700 Ma, apparently peaked soon after gold mineralisation, at a temperature of about 550±50°C. Thermal peak was synchronous or outlasted deformation. Formation of post-mineralisation tremolite porphyroblasts in the metakomatiite. A relatively strong, but unevenly distributed Palaeoproterozoic overprint.					

Geological age:

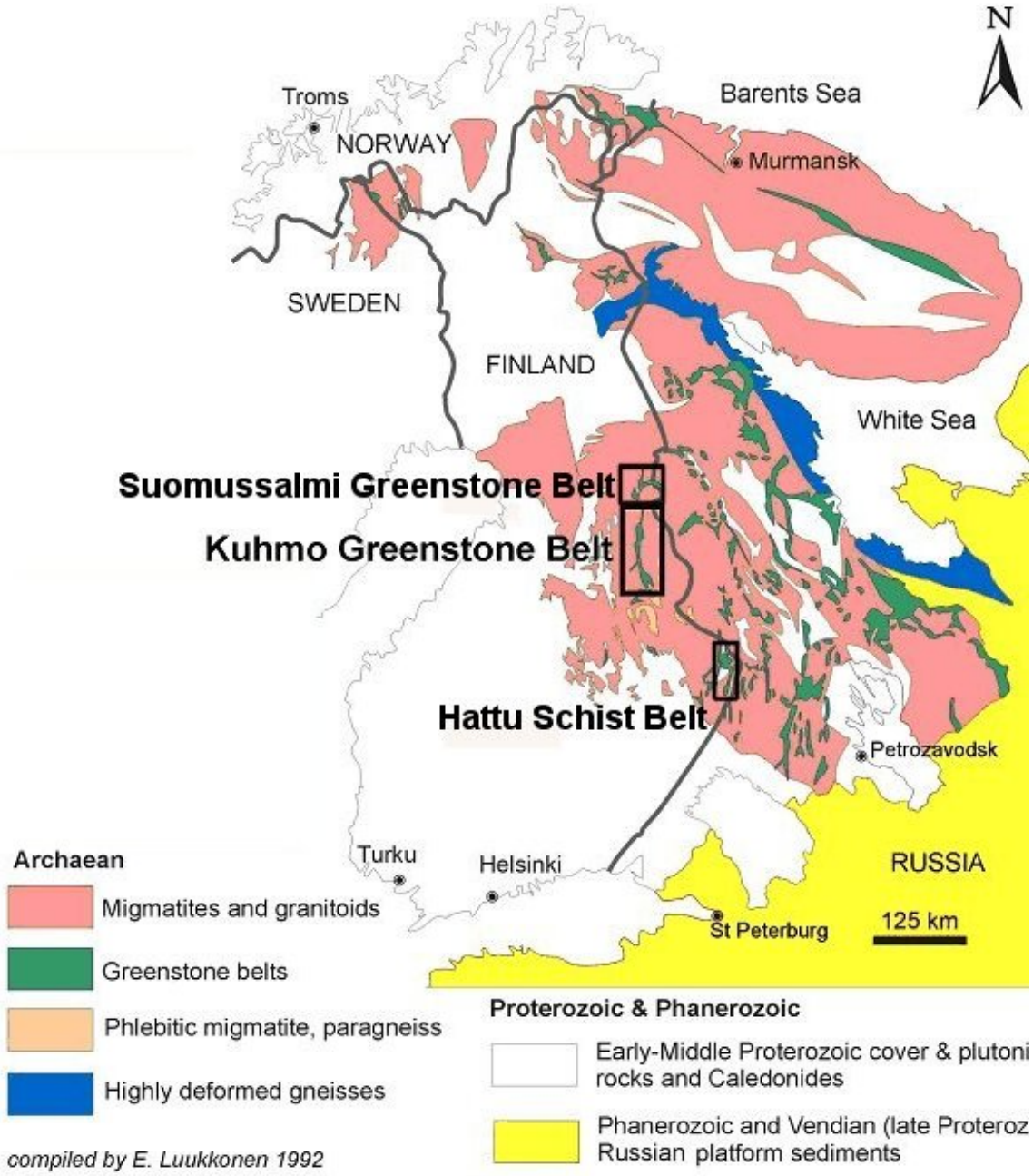
Geological era:	Max age - Minage (Ma):	Inferred age (Ma):	Age of mineralization:
Neoarchean (2800-2500 Ma)	2726-2754		N

Figures

Regional geology, drilling until 1995:



Location in the Carelian craton:



REFERENCES

1. Heino, T., Hartikainen, A., Koistinen, E. & Niskanen, M. 1995. Tutkimustyöselostus Ilomantsin kunnassa valtausalueilla Sivakko 1 (5188/1), Korpilampi 1-2 (5402/1-2), Korpi 1-4 (5356/1-4), Kuivisto 1 (5210/1), Kuivisto 2-3 (5356/5-6), Pihlajavaara 1-2 (5511/2-3) ja Valkeasuo 1-2 (4853/1, 5511/1) suoritetuista kultamalmitutkimuksista vuosina 1992-1995 sekä neljältä vireillä olevalta valtaukselta (Sivakko 2-3 ja Valkeasuo 3-4). English summary: Report on exploration in Ilomantsi in 1992-1995, within claims Sivakko 1 (Mine Register no. 5188/1), Korpilampi 1-2 (5402/1-2), Korpi 1-4 (5356/1-4), Kuivisto 1 (5210/1), Kuivisto 2-3 (5356/5-6), Pihlajavaara 1-2 (5511/2-3) and Valkeasuo 1-2 (4853/1, 5511/1). Geological Survey of Finland, Report M06/4333/-95/1/10. 17 p. *http://tupa.gtk.fi/raportti/arkisto/m06_4333_95_1_10.pdf*

2. Luukkonen, E., Halkoaho, T., Hartikainen, A., Heino, T., Niskanen, M., Pietikäinen, K. & Tenhola, M. 2002. Itä-Suomen arkeeiset alueet -hankkeen (12201 ja 210 5000) toiminta vuosina 1992-2001 Suomussalmen, Hyrynsalmen, Kuhmon, Nurmeksen, Rautavaaran, Valtimon, Lieksan, Ilomantsin, Kiihtelysvaaran, Enon, Kontiolahden, Tohmajärven ja Tuupovaaran alueella. Geological Survey of Finland, Report M19/4513/2002/1. 265 p. (in Finnish) *http://tupa.gtk.fi/raportti/arkisto/m19_4513_2002_1.pdf*

3. Nurmi, P. A. & Sorjonen-Ward, P. (eds) 1993. Geological Development, Gold Mineralization and Exploration Methods in the Late Archaean Hattu Schist Belt, Ilomantsi, Eastern Finland. Geological Survey of Finland, Special Paper 17. 386 p.*http://tupa.gtk.fi/julkaisu/specialpaper/sp_017.pdf*

4. Sorjonen-Ward, P. & Luukkonen, E.J. 2005. Archean rocks. In: Precambrian Geology of Finland - Key to the Evolution of The Fennoscandian Shield. Elsevier Science B.V., Amsterdam, 19-99.