Ruosselkä

Alternative Names: Sakiatieva
Occurence type: occurrence

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

Easting EUREF: 506675,092
Northing EUREF: 7536651,021
Easting YKJ: 3506850
Northing YKJ: 7539800

Discovery year: 2000
Discovered by: Geological Survey of Finland
Province: Kittilä (Au, Cu)
References: 2, 7, 8, 9

Mineral deposit type

Group: Metallogenic deposit
Main type: Orogenic (metamorphic hydrothermal)
Comments: Orogenic gold mineralisation during the 1.9-1.8 Ga orogeny, before intrusion of the Nattanen-granites.
References: 2, 9

Dimension

Expression: exposed
Form: discordant
Shape: NA
Length (m): 200
Width (m): 10
Thickness (m): NA
Depth (m): NA
Area (ha): NA
Dip azim: 70
Dip: NA
Plunge azim: NA
Plunge dip: NA
Orientation method: NA
Dimension comments: Based on the drilling results, the main mineralized zone is 200 m long and 10 m wide, but it is open at depth and along strike at both ends.

Holder history

Current holder: Niskanen Jusa
Years: 2022-2026
Holding type: Gold panning permit

Previous holders:

Company	Years	Holding type	Comments
private enterprise	2014	Application for exploration permit	Hangasojan Kulta Oy; appl. for exploration permit
Magnus Minerals Oy	2009-2014	Claim (old law)	NA
Geological Survey of Finland	2001-2006	Claim (old law)	NA

EXPLORATION ACTIVITY

Geological Survey of Finland

Years	Activity type	Geologist	Exploration result	Ref
2005-2006	core drilling	Veikko Keinänen	NA	3
	20 diamond drill holes, total 2166 m			
	Intersections			
	HoleID	374106R268		
	From-To	62,8-67,4		
	Length	4,6m		
	gold	7,2ppm		

2001-2004	excavation	Eelis Pulkkinen, Veikko Keinänen	NA	2, 5, 6, 7, 8, 9, 10
	First ore-grade gold in bedrock was detected in exploration trenches. The best sections of channel sampling; 6.0 m @ 4.8 g/t (M10/2001), 7.0 m @ 13.7 g/t7.0 m (M2/2004).			

2000-2000	regional geophysics	Veikko Keinänen, Eelis Pulkkinen	key geological features	2, 5, 6, 7, 8, 9, 10
	Low-altitude airborne magnetic, electromagnetic and radiometric survey			

1999-2006	regional heavy mineral sampling	Eelis Pulkkinen, Veikko Keinänen	NA	2, 5, 6, 7, 8, 9, 10

1999-2006	detailed geology	Eelis Pulkkinen, Veikko Keinänen	NA	2, 5, 6, 7, 8, 9, 10
	Altered, auriferous, W-, WNW-, NNW- and NE-trending, up to 200 m wide, shear and fault zones apparently concentrating in the hinge area of an eastward-opening fold. At Sakiatieva, NNW-SSE and NE-SW trending shear zones intersect a ESE-WNW trending thrust zone. Gold mineralization at Sakiatieva is located at the intersection zone of these shear and fault zones, and seems to be controlled by an ENE-trending shear zone.			

1999-2004	core drilling	Eelis Pulkkinen, Veikko Keinänen	NA	7, 8, 9
	Core drilling (reconnaissance drilling): 20 diamond-drill holes, total 1620 m. (Abundant core loss, up to 70%)			
	Intersections			
	HoleID	374100R310		
	From-To	28-30		
	Length	2m		
	gold	3,3ppm		
	HoleID	374100R311		
	From-To	69-70		
	Length	1m		
	gold	4,8ppm		
	HoleID	374104R256		
	From-To	53-54,5		
	Length	1,5m		
	gold	2,8ppm		
	HoleID	374104R258		
	From-To	49-50,5		
	Length	1,5m		
	gold	3,8ppm		

	HoleID	374104R259
	From-To	79-80
	Length	1m
	gold	4,8ppm

1999-2006	detailed geophysics	Eelis Pulkkinen, Veikko Keinänen	NA	7, 8
	The altered and potentially mineralised shear zones have a distinct response by ground electromagnetic methods, at least by IP and VLF-R. However, graphitic phyllites define the most significant conductors, and unaltered metakomatiites the positive magnetic anomalies in the area.			

1999-2006	detailed geochemistry	Eelis Pulkkinen, Veikko Keinänen	NA	6, 7
	Locally abundant gold nuggets in overlying till and saprock; The old till samples were reanalysed for Au and Te. The concentrations of both elements were found to be tens of times higher than the regional background in about 100 samples.			

1988-1988	regional heavy mineral sampling	Eelis Pulkkinen, Veikko Keinänen	NA	2, 5, 6, 7, 8, 9, 10
	Several gold grains were discovered by panning till from areas which were detected anomalous in gold in regional geochemical till survey.			

1980-1980	detailed geochemistry	Eelis Pulkkinen, Veikko Keinänen	NA	6, 7
	Locally abundant gold nuggets in overlying till and saprock.			

1980-1980	detailed heavy mineral sampling	Eelis Pulkkinen, Veikko Keinänen	NA	2, 5, 6, 7, 8, 9, 10

1980-1980	excavation	Eelis Pulkkinen, Veikko Keinänen	NA	2, 5, 6, 7, 8, 9, 10

1980-1980	detailed geology	Eelis Pulkkinen, Veikko Keinänen	NA	2, 5, 6, 7, 8, 9, 10

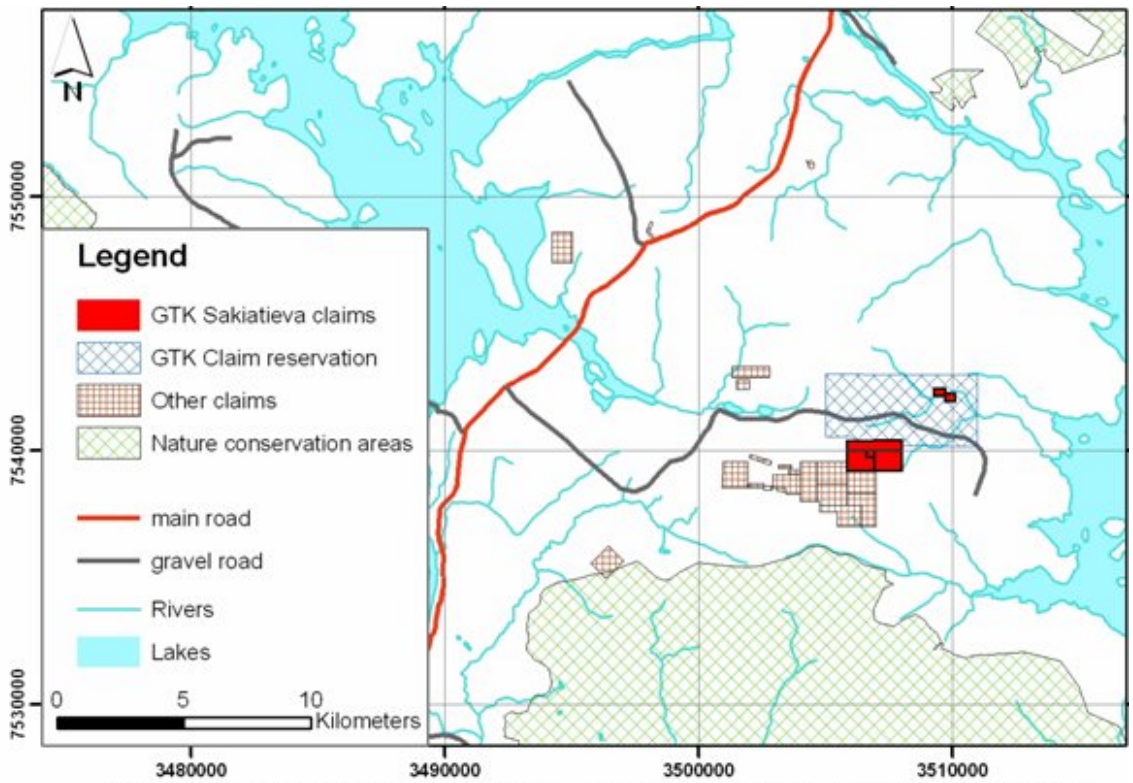
1980-1980	detailed geophysics	Eelis Pulkkinen, Veikko Keinänen	NA	7, 8
	The altered and potentially mineralised shear zones have a distinct response by ground electromagnetic methods, at least by IP and VLF-R. However, graphitic phyllites define the most significant conductors, and unaltered metakomatiites the positive magnetic anomalies in the area.			

1974-1975	regional geophysics	Eelis Pulkkinen	NA	2, 5, 6, 7, 8, 9, 10

1974-1975	regional geochemistry	Eelis Pulkkinen	NA	2, 5, 6, 7, 8, 9, 10

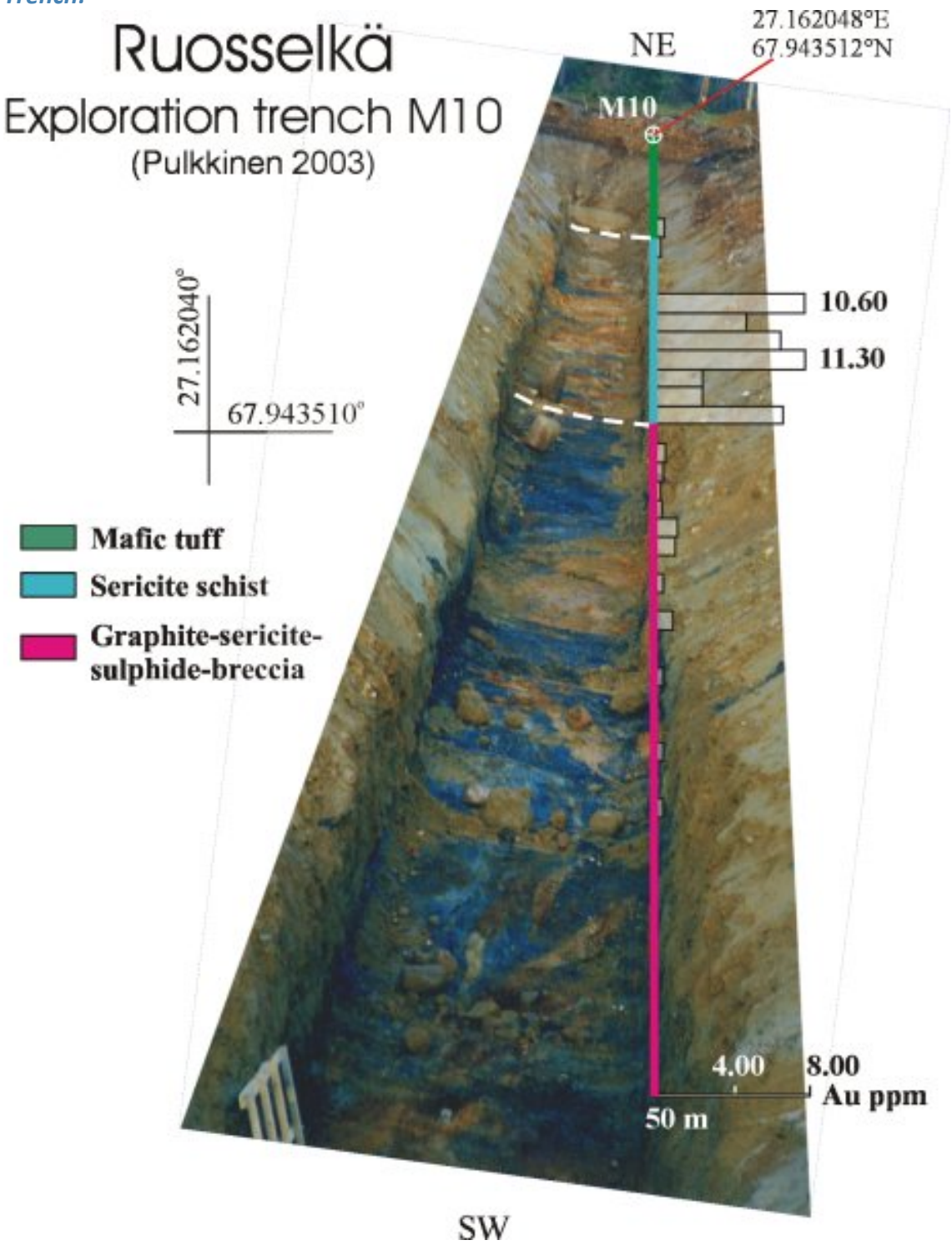
Figures

Claims and nature conservation areas:

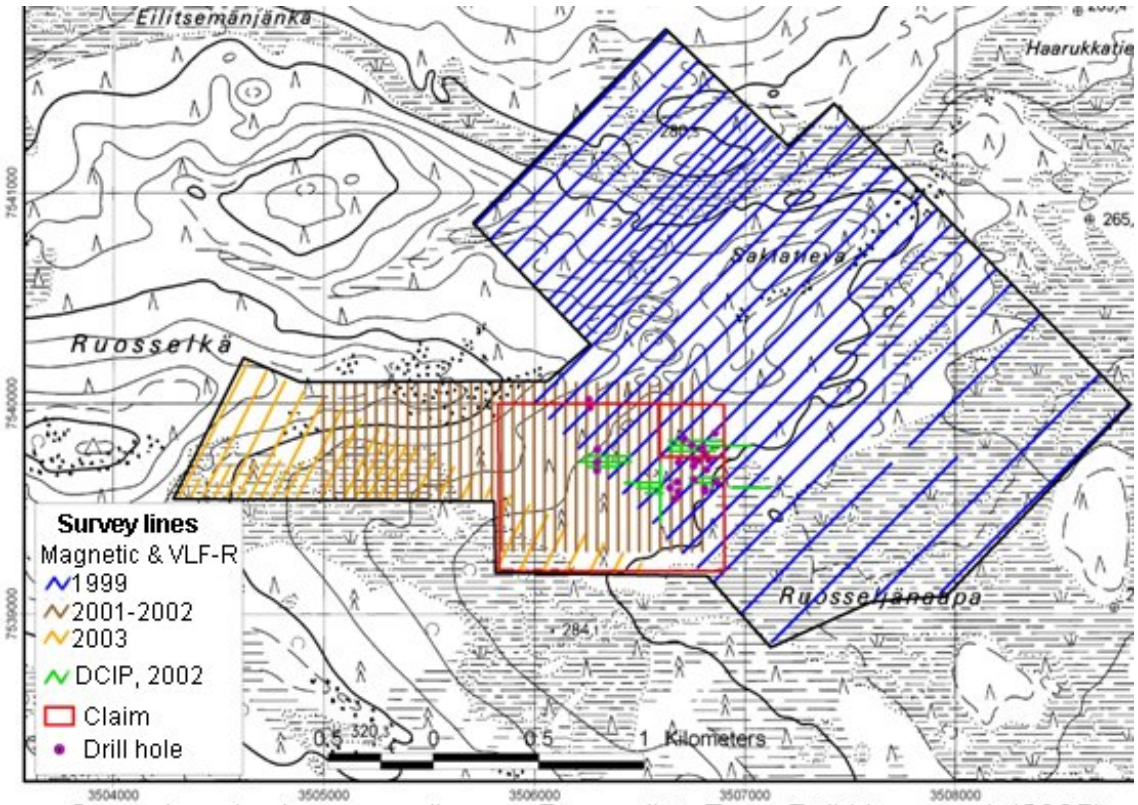


Claims in the Ruosselkä region in early 2005. From Pulkkinen et al. (2005).

Trench:


Ruosselkä
Exploration trench M10
(Pulkkinen 2003)
NE
27.162048°E
67.943512°N
M10
27.162040°
67.943510°
10.60
11.30
Mafic tuff
Sericite schist
Graphite-sericite-sulphide-breccia
4.00
8.00
Au ppm
50 m
SW

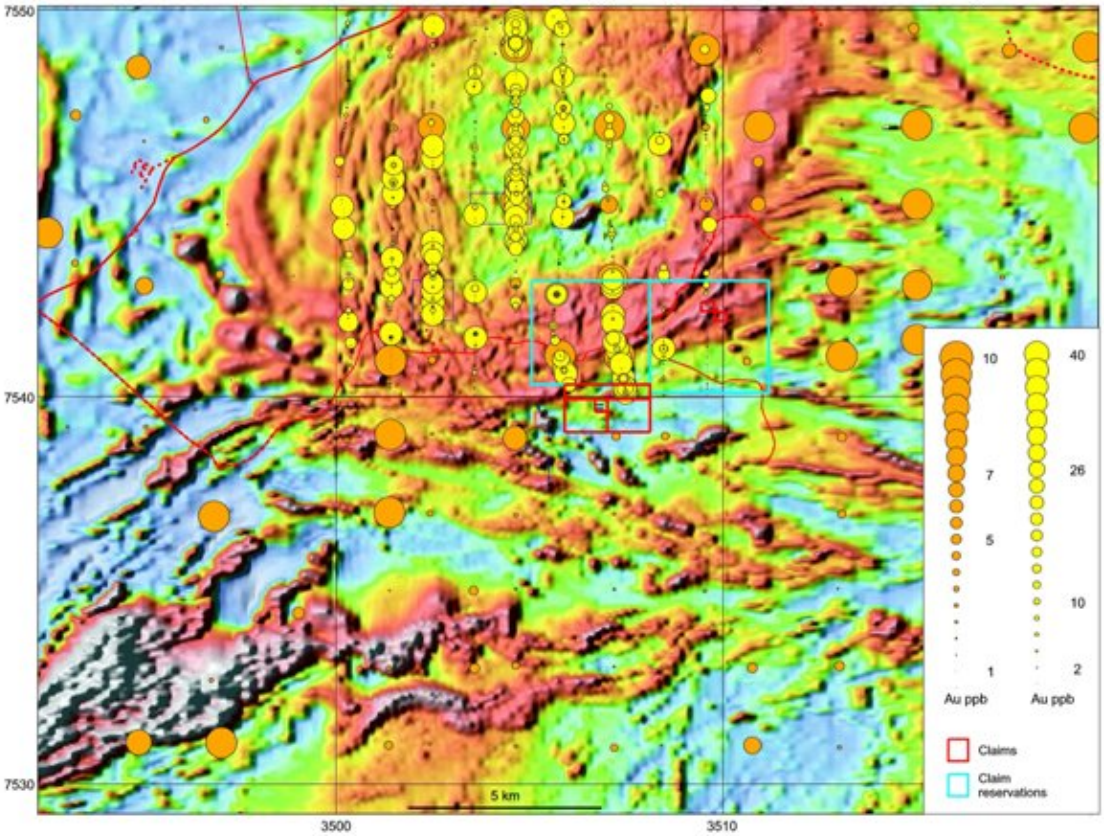
Plan view:



Ground gephysics survey lines at Ruosselkä. From Pulkkinen et al. (2005).

Gold in till:

Gold in till in the Ruosselkä region (Pulkkinen et al. 2005)



The results of the regional (orange symbols) and local (yellow symbols) geochemical surveys of the fine fraction of till (<0.06 mm). In the Ruosselkä area, gold concentrations in most samples are above the regional median (1.2 ppb). Background map is a colour-shaded aeromagnetic image. The GTK claims and claim reservations also shown in the map.

GEOLOGY

Host rock: Mafic tuff, Felsic tuff, Quartz vein, Komatiite

Mafic tuff (Host rock)

Rock type: Host rock
Proportion: major
Grain size: NA
Color: NA
References: 1, 2, 4, 6, 8, 9

Ore minerals:

Mineral	Proportion	Mineral texture
Chalcopyrite	minor	
Galena	minor	
Gold	minor	
	Free native gold with gangue and sulphides.	
Molybdenite	minor	
Monazite	minor	
Pyrite	minor	
Pyrrhotite	major	
Scheelite	minor	
Sphalerite	minor	
Telluride	minor	

Other minerals:

Mineral	Proportion	Mineral texture
Albite	present	
Biotite	present	
Calcite	present	
Chlorite	present	
Diopside	present	
Quartz	present	

Structures
Sheared

Alteration:	Distribution:	Degree:	Relation to mineralization:
biotite alteration	NA	NA	NA
sulphidation	NA	NA	NA
carbonate alteration			

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	NA		
Comments: Qartz-sericite-chlorite-graphite.					

Geological age:

Geological era:	Max age - Minage (Ma):	Inferred age (Ma):	Age of mineralization:
Paleoproterozoic (2500-1600 Ma)	2050-2500		N
Comments: Mineralisation during ca. 1800-1900 Ma, before intrusion of the Nattanen granites at ca. 1.77 Ga			

Felsic tuff (Host rock)

Rock type: Host rock
References: 2
Comments: Matarakoski formation

Alteration:	Distribution:	Degree:	Relation to mineralization:
chloritic alteration			
Comments: alteration on auriferous parts +quartz and Fe sulphides and disappearance of graphite			
carbonate alteration			
sericitic alteration			
Comments: alteration on auriferous parts +quartz and Fe sulphides and disappearance of graphite			

Quartz vein (Host rock)

Rock type: Host rock
Proportion: minor
Grain size: NA
Color: NA
References: 8
Comments: Quartz-carbonate-sulphide veins and breccias

Komatiite (Host rock)

Rock type: Host rock
Proportion: major
Grain size: NA
Color: NA
References: 2, 4, 8, 9
Comments: Basaltic metakomatiite.

Other minerals:

Mineral	Proportion	Mineral texture
Biotite	present	Alteration product
Calcite	present	Alteration product
Chlorite	present	Alteration product
Diopside	present	Alteration product
Hornblende	present	Alteration product
Quartz	present	Alteration product
Sericite	present	Alteration product

Alteration:	Distribution:	Degree:	Relation to mineralization:

chloritic alteration	NA	NA	NA
sericitic alteration	NA	NA	NA
carbonate alteration	NA	NA	NA

Metamorphic description:

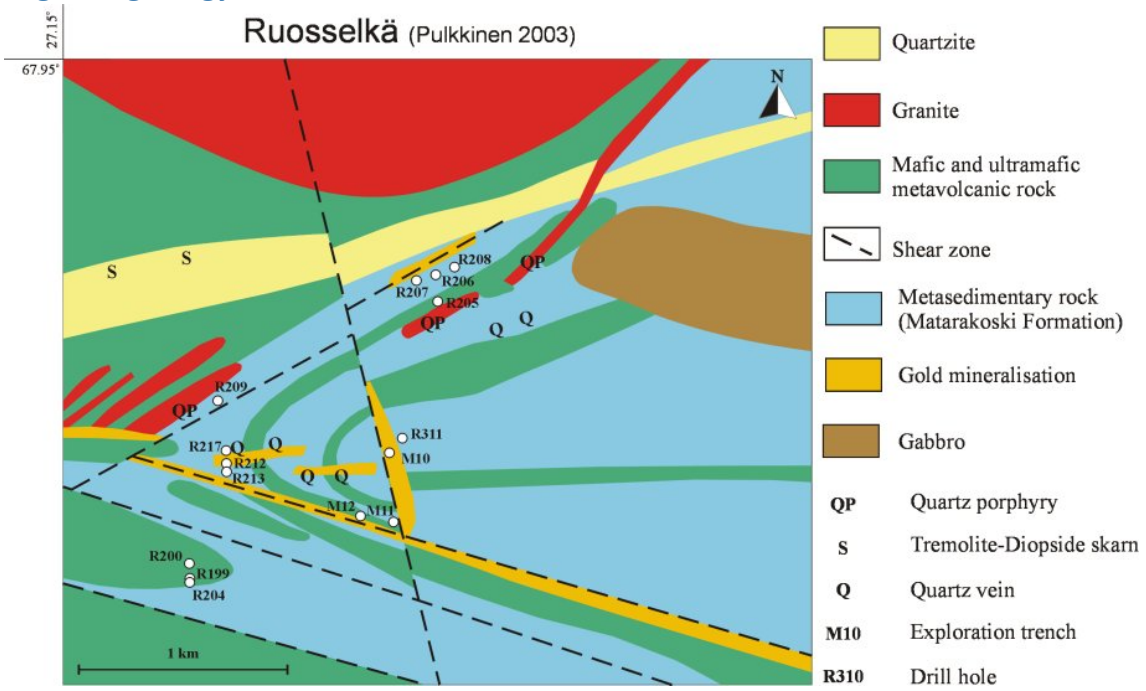
Type:	Facies:	Degree:	Relation to mineralization:	Min P- Max P (kbar)	MIn T- Max T (°C)
Regional	amphibolite metamorphic facies	medium metamorphic grade	NA		
Comments: Talc-tremolite.					

Geological age:

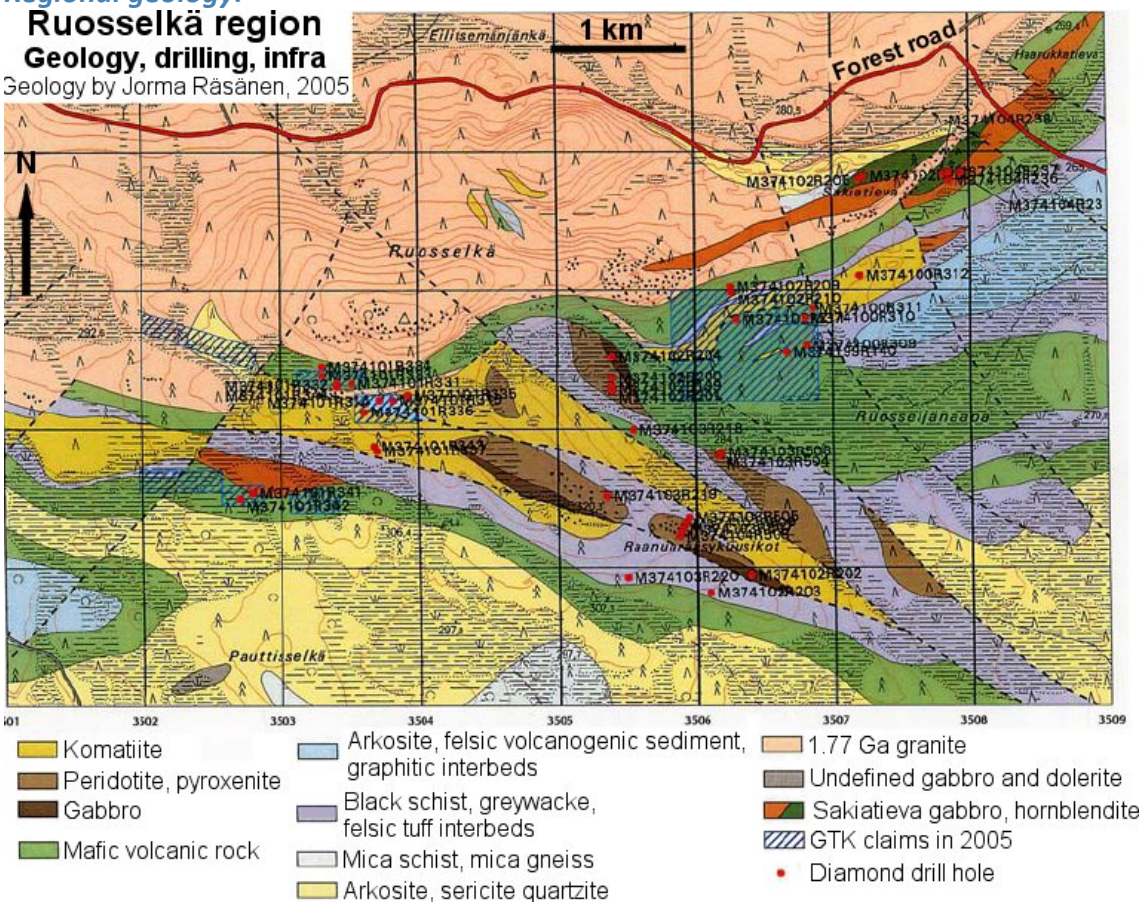
Geological era:	Max age - Minage (Ma):	Inferred age (Ma):	Age of mineralization:
Paleoproterozoic (2500-1600 Ma)	2050-2500		N

Figures

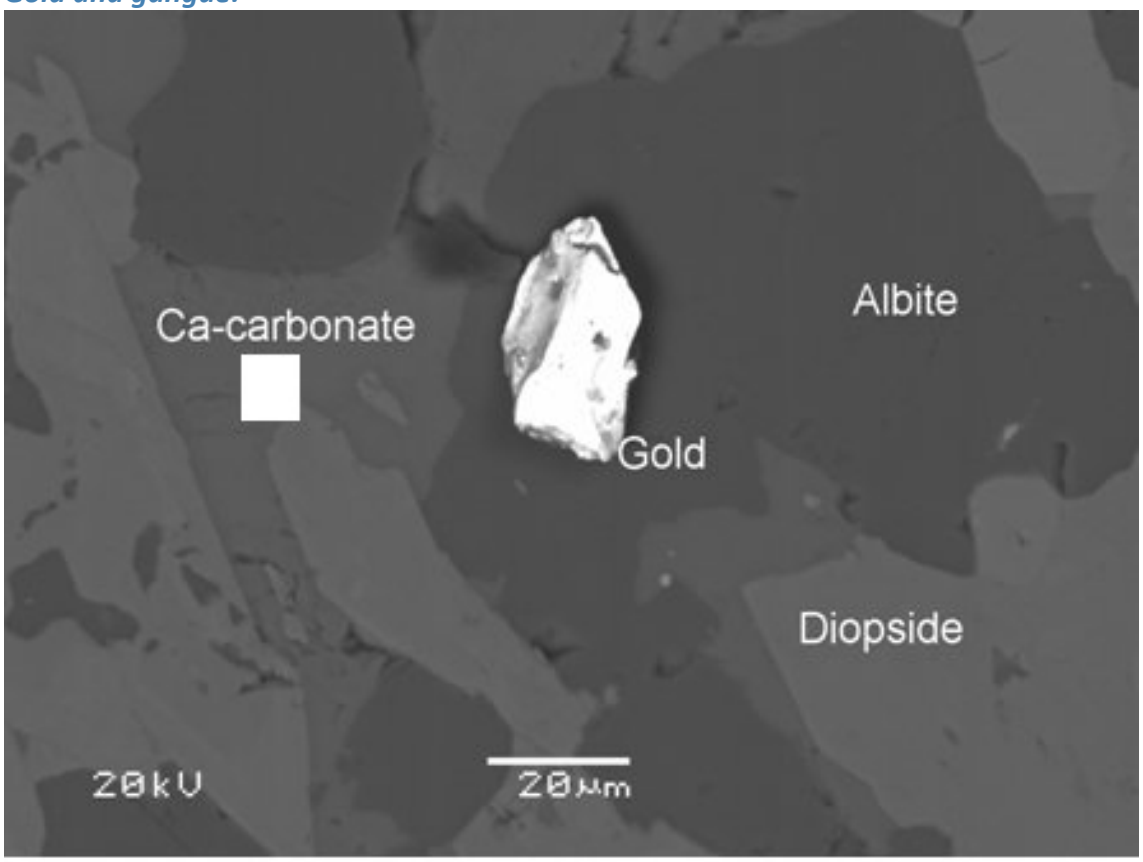
Regional geology:



Regional geology:



Gold and gangue:

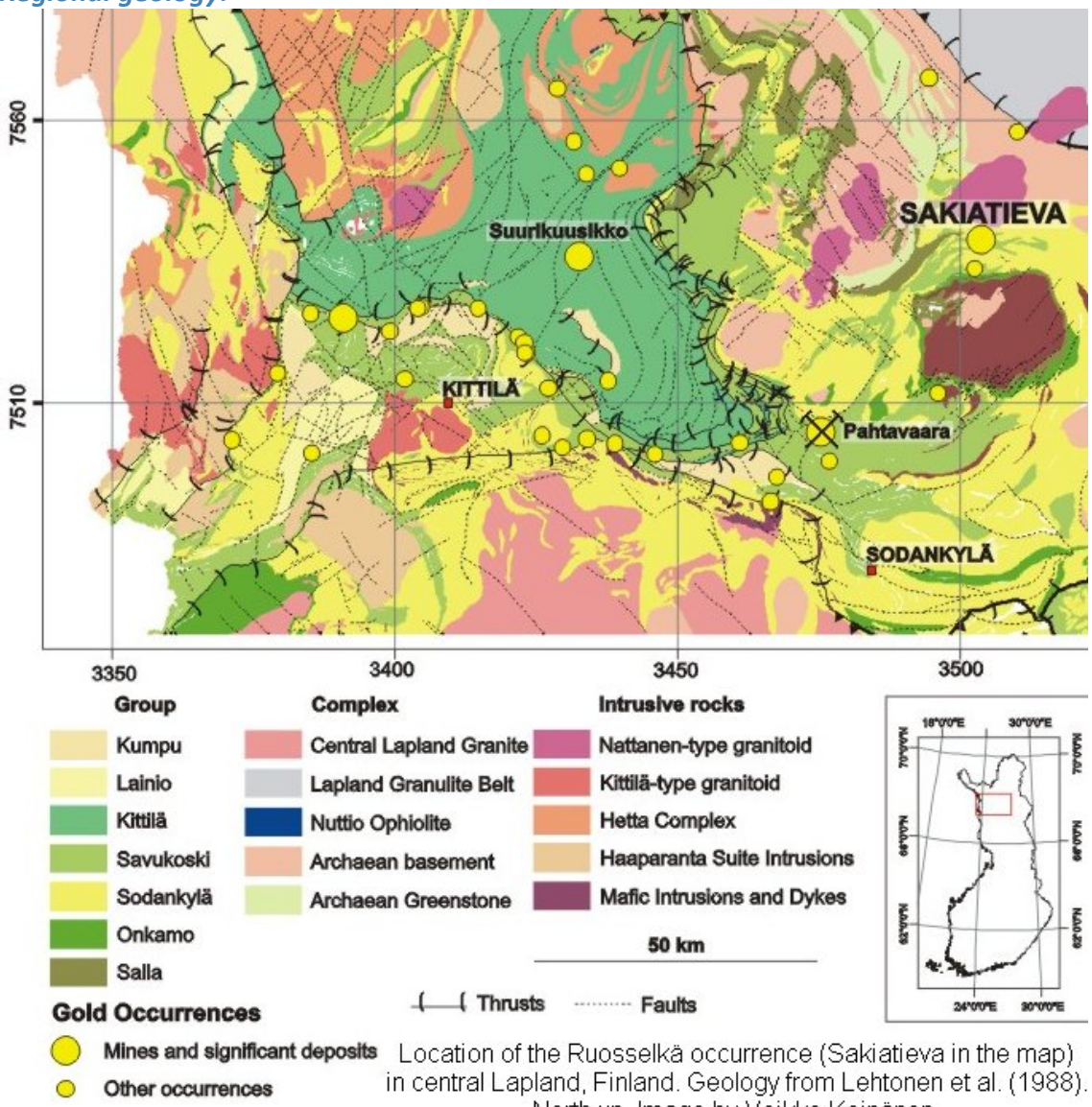


A gold grain associated with silicates in Sakiatieva, Ruosselkä. From Pulkkinen et al. (2005).

Prox Geology:

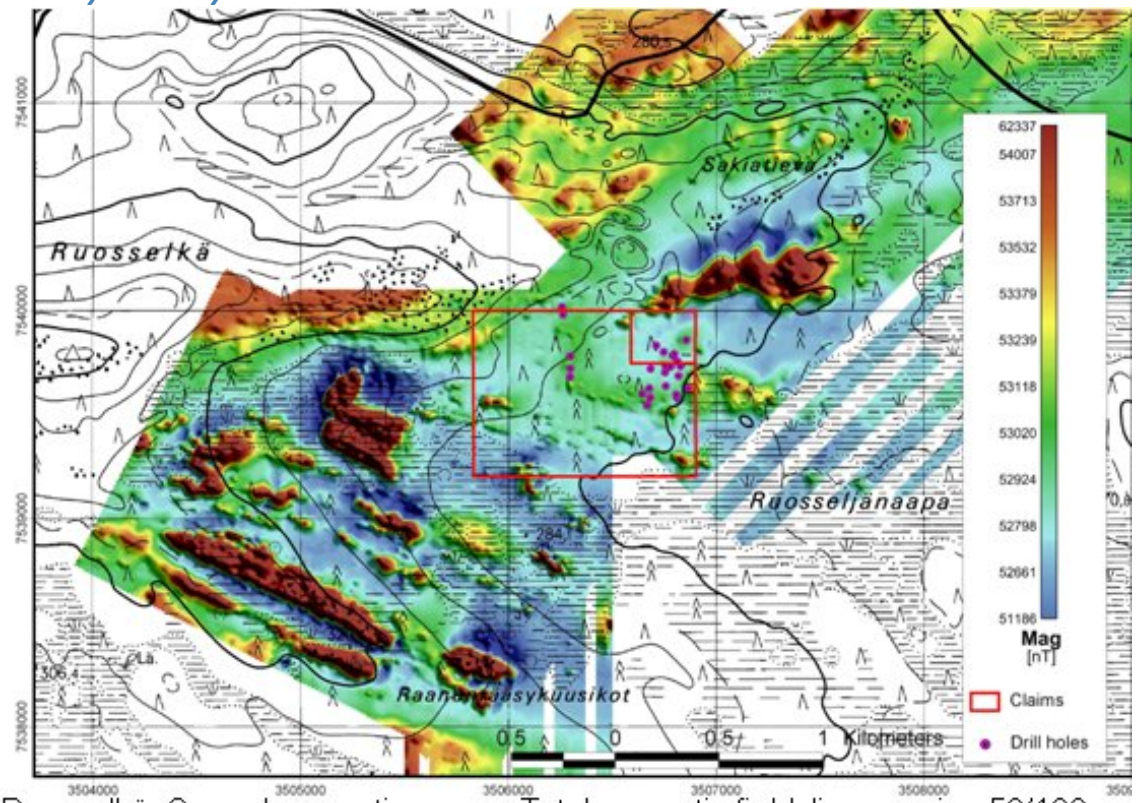
Sulphidised, diopside-banded graphitic pyllite in Sakiatieva, Ruosselkä. Drill core 5 cm wide. From Pulkkinen et al. (2005).

Regional geology:



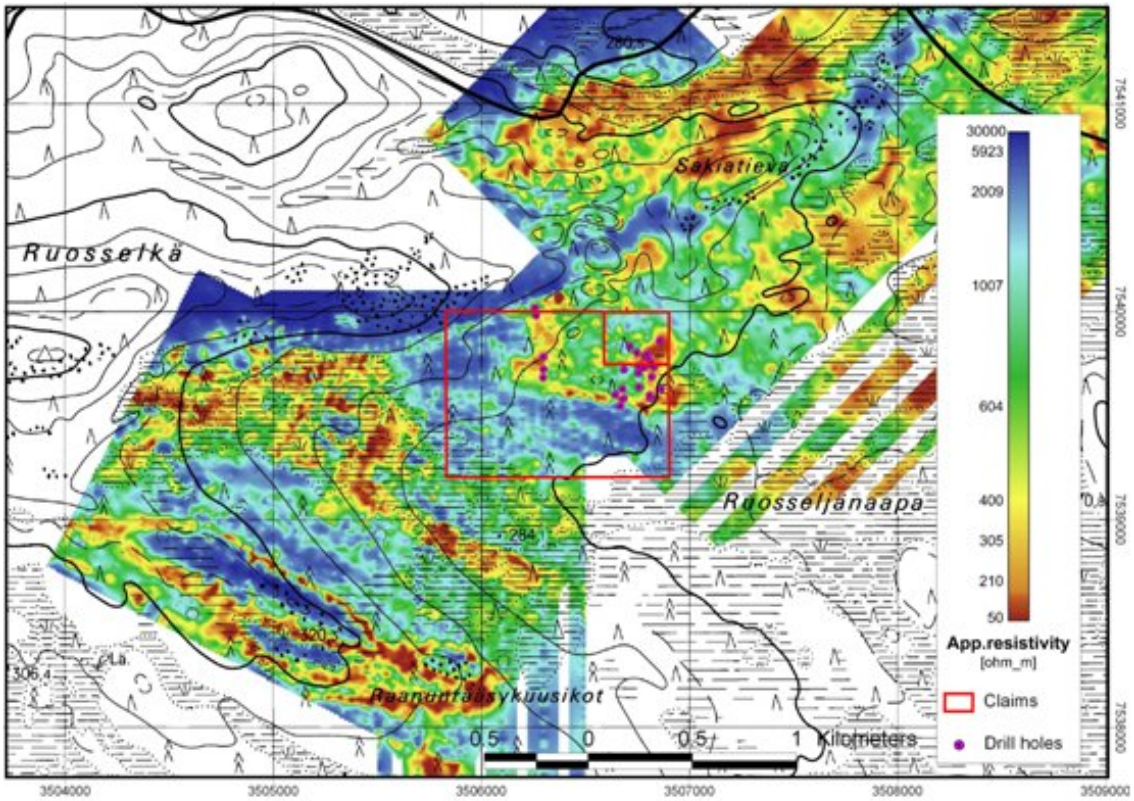
Location of the Ruosselkä occurrence (Sakiatieva in the map) in central Lapland, Finland. Geology from Lehtonen et al. (1988). North up. Image by Veikko Keinänen.

Primary anomaly:



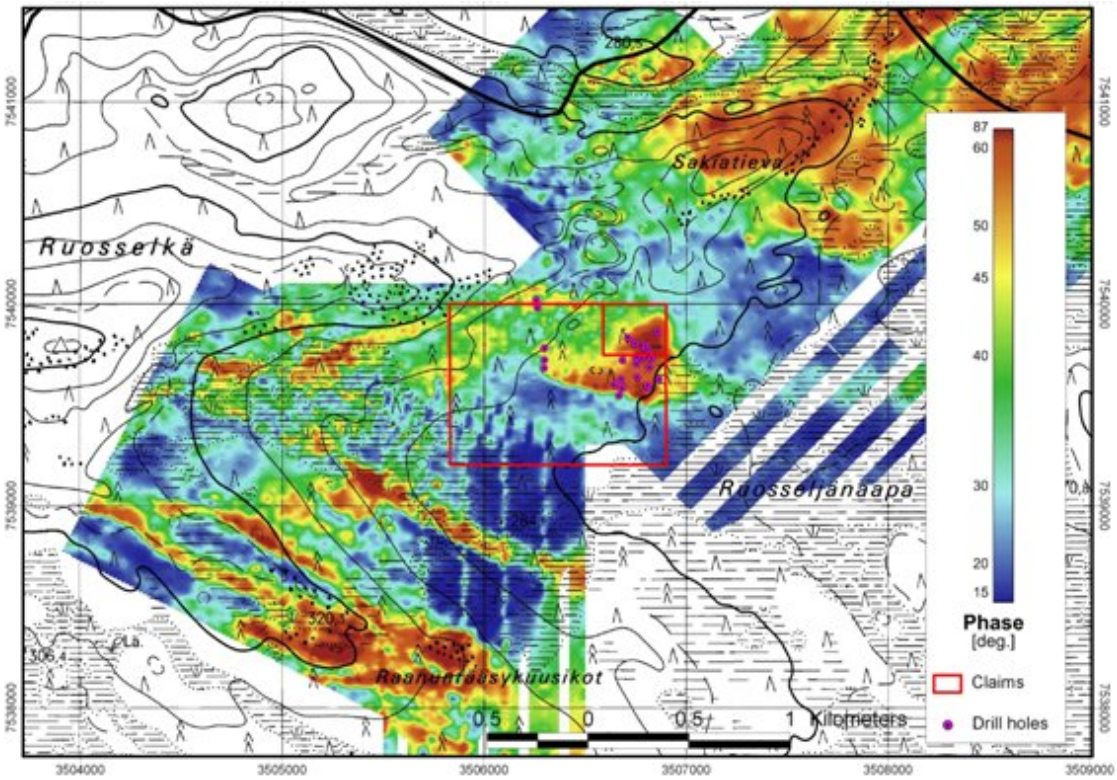
Ruosselkä: Ground magnetic survey. Total magnetic field, line spacing 50/100 m, station spacing 10 m. Pulkkinen et al. (2005)

Primary anomaly:



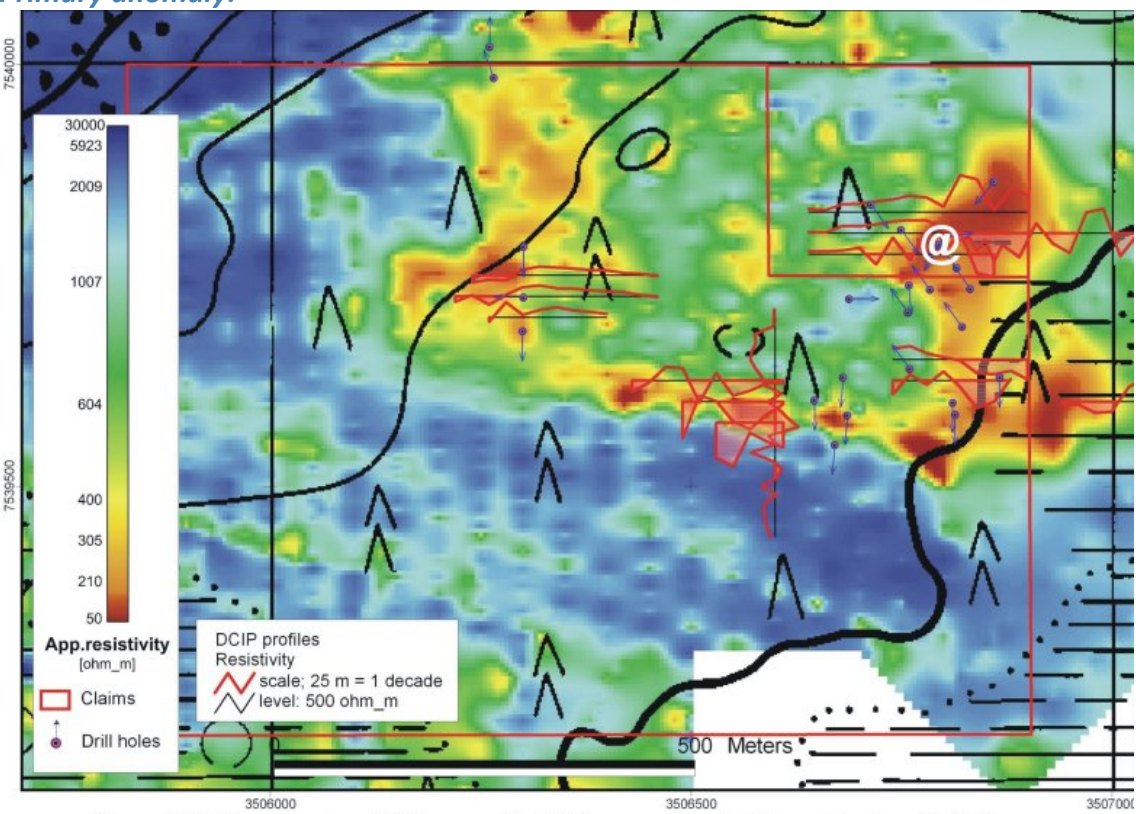
Ruosselkä: VLF-R apparent resistivity map. Line spacing 50/100 m, station spacing 10 m. Pulkkinen et al. (2005)

Primary anomaly:



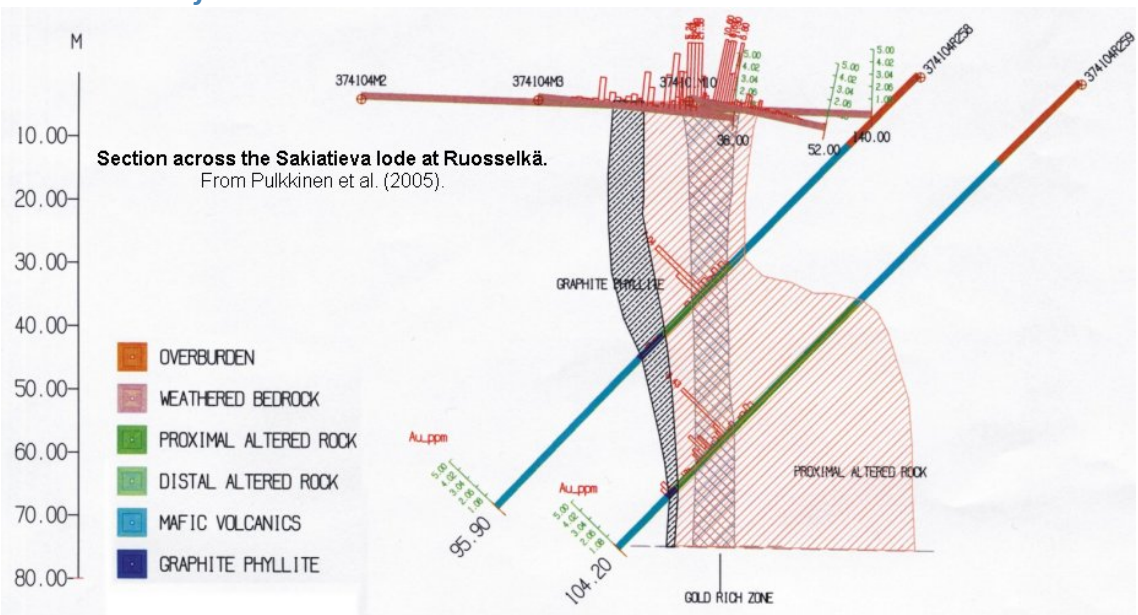
Ruosselkä: VLF-R phase map. Conductors as the areas where the phase angle is >50°. Line spacing 50/100 m, station spacing 10 m. Pulkkinen et al. (2005)

Primary anomaly:



Ground VLF-R apparent resistivity map with DCIP apparent resistivity profiles from Sakiatieva.
The @ indicates the location of the Sakiatieva lode. From Pulkkinen et al. (2005).

Cross section of the main lode:



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