Pikku-Mustavaara

Alternative Names: Eksymäselkä
Occurence type: occurrence

Commodity	Rank	Total measure	Total production	Total resource	Importance
gold	1	NA	NA	NA	NA
copper	2	NA	NA	NA	NA

Easting EUREF: 433799,287
Northing EUREF: 7500575,549
Easting YKJ: 3433945
Northing YKJ: 7503710

Discovery year: 1982
Discovered by: Geological Survey of Finland
Province: Kittilä (Au, Cu)
District: Sirkka (Cu, Au, Ni, Co)
Comments: Discovery in an outcrop: a grab sample with 0.5 ppm Au discovered during regional lithogeochemical survey.

References: 3, 6, 8

Mineral deposit type

Group: Metallogenic deposit
Main type: Orogenic (metamorphic hydrothermal)
Sub type 1: Au-Cu
Comments: Clearly epigenetic, "mesothermal" mineralisation with a distinct structural control

References: 1, 3, 7

Dimension

Expression: exposed
Form: NA
Shape: NA
Length (m): 300
Width (m): 100
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: B2Fingold Oy
Years: 2020-2023
Holding type: Exploration permit

Previous holders:

Company	Years	Holding type	Comments

Aurion Resources Oy	2015	Exploration permit	NA
Drake Resources Sweden AB	2011-2012	Claim reservation (old law)	NA
Agnico Eagle Finland Oy	2006	NA	NA
Suurikulta AB	2003-2006	Claim (old law)	NA
Onas Resources	1993-1998	Claim (old law)	NA
Geological Survey of Finland	1987-1989	Claim (old law)	NA

EXPLORATION ACTIVITY

Geological Survey of Finland

Years	Activity type	Geologist	Exploration result	Ref
1996-1996	regional geophysics	NA	key geological features	1, 3, 7
	Low-altitude airborne magnetic, electromagnetic and radiometric survey			

1987-1989	regional geochemistry	Veikko Keinänen	NA	1, 3, 5, 7
	An outcrop sample with 0.5 ppm Au discovered during regional lithogeochemical survey.			

1987-1989	percussion drilling	Veikko Keinänen	NA	1, 3, 7

1987-1987	detailed geophysics	Veikko Keinänen	NA	1, 3, 7

1987-1987	core drilling	Veikko Keinänen	NA	3, 4, 5
	Four diamond-drill holes, total 381 m.			
	Intersections			
	HoleID	R324		
	From-To	36-39,8		
	Length	3,8m		
	copper	0,45%		
	HoleID	R324		
	From-To	79,7-87,7		
	Length	8m		
	copper	0,55%		

1987-1989	detailed geochemistry	Veikko Keinänen	NA	1, 3, 7

1987-1989	detailed geology	Veikko Keinänen	NA	1, 3, 7

1987-1989	excavation	Veikko Keinänen	NA	1, 3, 7
	Trench M30; 18 m/0.22 % Cu, including 1 m/11.8 ppm Au or 7 m /0.27% Cu, including 5 m /2.8 ppm Au, Trench M27; 2.50 m/10 ppm Au, 10 m/0.73 % Cu			

1979-1991	regional geochemistry	NA	NA	
	Regional till geochemical survey			

Onas Resources

Years	Activity type	Geologist	Exploration result	Ref
NA	excavation	NA	NA	

GEOLOGY

Host rock: Graphite Phyllite, Chert, Komatiite

Graphite Phyllite (Host rock)

Rock type: Host rock
Proportion: major
Grain size: NA
Color: NA
References: 1, 2, 3, 5, 7
Comments: The occurrence is at the intersection of a WSW-trending fault which converges with the Sirkka Shear Zone 1-2 km from Pikku-Mustavaara. Carbonate and quartz-carbonate veins forming a set of small lodes (scattered lodes of irregular shape) in albitised graphitic phyllite.

Ore minerals:

Mineral	Proportion	Mineral texture
Arsenopyrite	major	
Chalcopyrite	minor	
Galena	minor	
Gersdorffite	minor	
Gold	present	
	Related to sulphides	
Pentlandite	minor	
Pyrite	major	
Pyrrhotite	minor	
Tellurium	minor	

Other minerals:

Mineral	Proportion	Mineral texture
Albite	present	Alteration product
Baryte	present	
Chlorite	present	Alteration product
Dolomite	present	
Fuchsite	present	Alteration product
Graphite	present	
Magnesite	present	Alteration product
Quartz	present	
Rutile	present	Alteration product

Alteration:	Distribution:	Degree:	Relation to mineralization:
carbonate alteration	NA	Strong	NA
Comments: Intense alteration in the contact zone between the main rock units.			
albitic alteration	NA	Strong	NA
Comments: Intense alteration in the contact zone between the main rock units.			

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: Metamorphic peak during D2, thrusting during D3 was at least partly post-peak, late metamorphic.

Geological age:

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

Chert (Host rock)

Rock type: Host rock
Proportion: minor
Grain size: NA
Color: NA
References: 1, 2, 3, 5, 7

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: Metamorphic peak during D2, thrusting during D3 was at least partly post-peak, late metamorphic.					

Geological age:

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

Komatiite (Host rock)

Rock type: Host rock
Proportion: minor
Grain size: NA
Color: NA
References: 1, 2, 3, 5, 7

Metamorphic description:

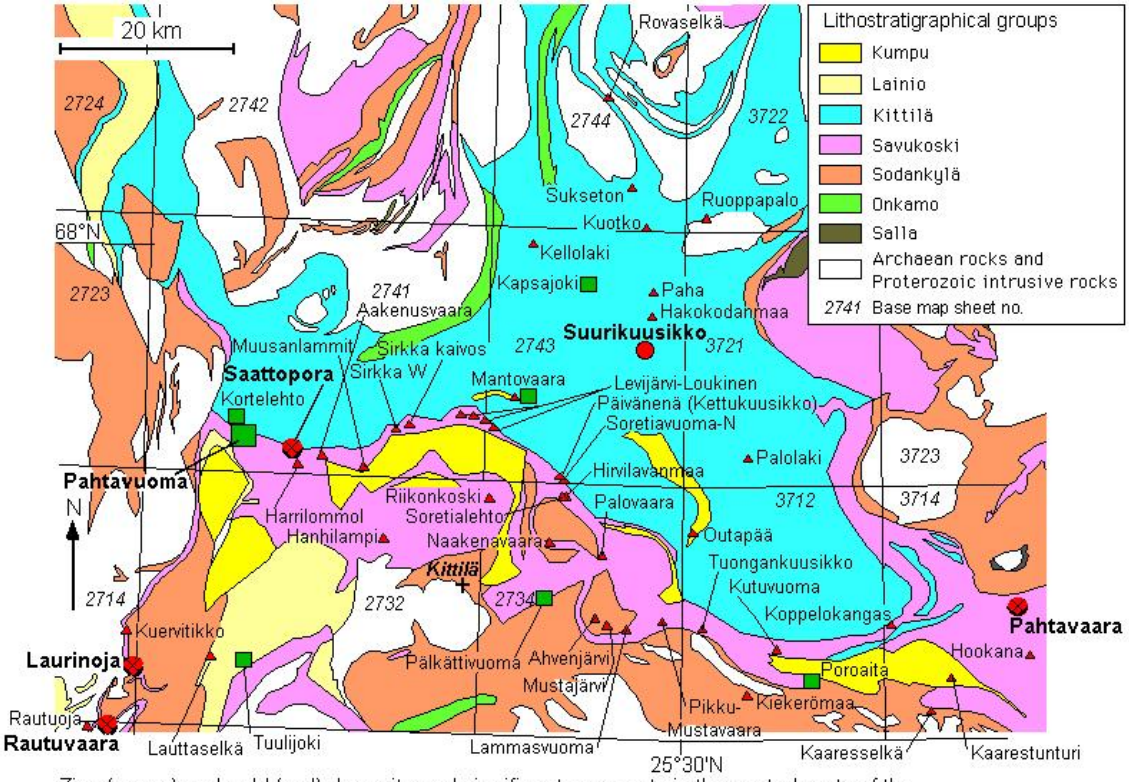
Type:	Facies:	Degree:	Relation to mineralization:	Min P- Max P (kbar)	MIn T- Max T (°C)
Regional	greenschist metamorphic facies	low metamorphic grade	NA		
Comments: Metamorphic peak during D2, thrusting during D3 was at least partly post-peak, late metamorphic.					

Geological age:

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

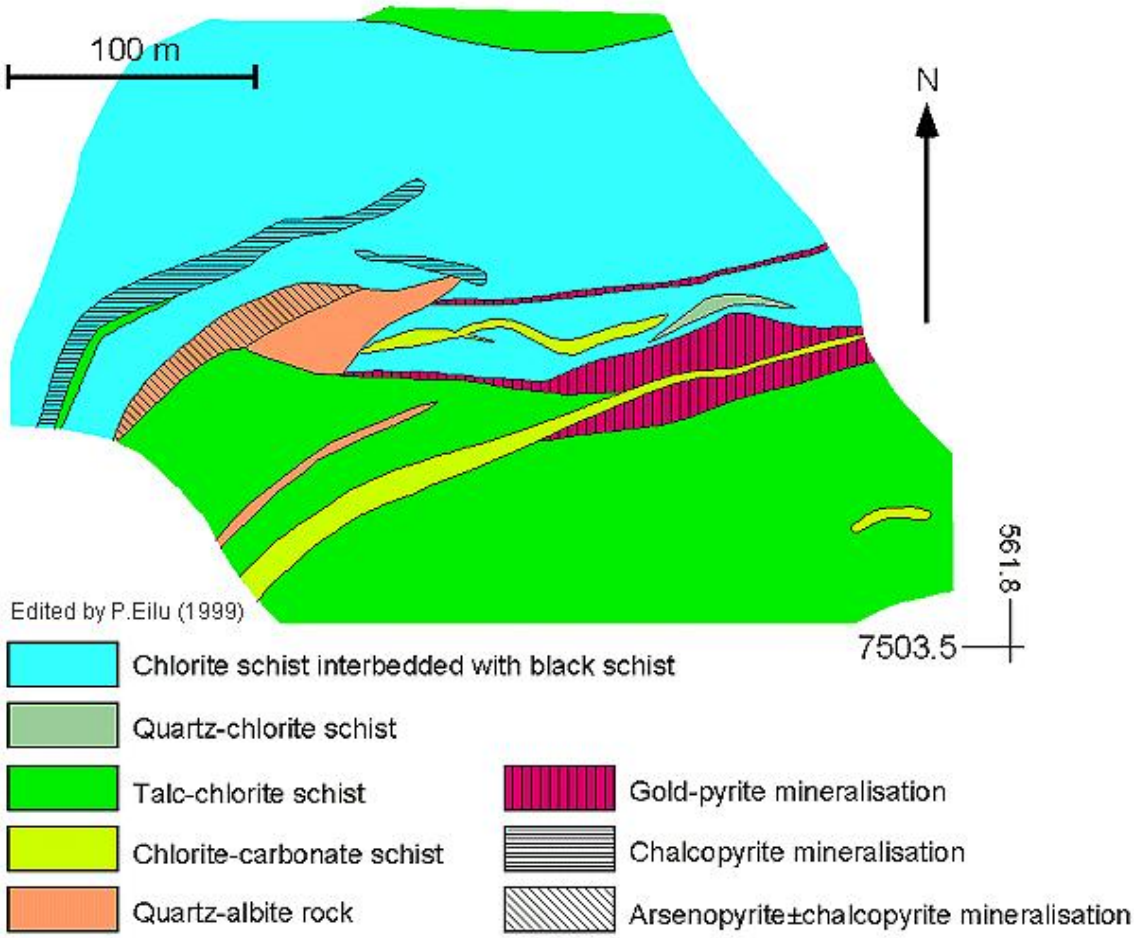
Figures

Regional geology:



Zinc (green) and gold (red) deposits and significant prospects in the central parts of the Central Lapland greenstone belt. Lithostratigraphy from Lehtonen et al. (1998). Edited by P. Eilu (2007)

Local geology:



Geology at Pikku-Mustavaara. Primary rock types present are black schist and metakomatiite. After Härkönen and Keinänen (1989).

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