Harrilommol

Alternative Names: Harrilompolo
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: 391920
Northing EUREF: 7521560
Easting YKJ: 3392049
Northing YKJ: 7524703

Discovery year: 1988
Discovered by: Outokumpu Oy
Province: Kittilä (Au, Cu)
District: Sirkka (Cu, Au, Ni, Co)
Comments: Discovered by Outokumpu as a follow-up of a till geochemical survey of the surroundings of the Saattopora Mine. The occurrence is located in the same albitised schist zone as the ore body B at Saattopora (few hundred meters to the east from the ore body B).
References: 5, 8

Mineral deposit type

Group: Metallogenic deposit
Main type: Orogenic (metamorphic hydrothermal)
Sub type 1: Au-Cu
Comments: Clearly, an orogenic 'mesothermal' mineralisation, like the Saattopora deposit near by

References: 1, 7

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: Outokumpu Mining Oy
Years: 1979
Holding type: Mining concession (old law)

Previous holders:

Company	Years	Holding type	Comments

Polar Mining Oy	2009-2014	Claim (old law)	NA
Outokumpu Oy	1989-1996	Claim (old law)	NA

EXPLORATION ACTIVITY

Geological Survey of Finland

Years	Activity type	Geologist	Exploration result	Ref
2004-2004	regional geophysics	NA	NA	
	Low-altitude airborne magnetic, electromagnetic and radiometric survey			

Outokumpu Oy

Years	Activity type	Geologist	Exploration result	Ref
1997-1997	detailed geochemistry	R. Hugg, T. Korkalo, E. Korvuo	NA	4
	A local Au anomaly in till.			

1997-1997	core drilling	R. Hugg, T. Korkalo, E. Korvuo	NA	3, 4
	Core drilling (reconnaissance drilling): 16 diamond-drill holes.			
	Intersections			
	HoleID	SP-293		
	From-To	NA		
	Length	3m		
	gold	5ppm		
	HoleID	NA		
	From-To	NA		
	Length	12m		
	gold	0,51ppm		
	copper	0,16%		

1997-1997	detailed geology	R. Hugg, T. Korkalo, E. Korvuo	NA	3, 4

1997-1997	detailed geophysics	R. Hugg, T. Korkalo, E. Korvuo	NA	3, 4

Geological Survey of Finland

Years	Activity type	Geologist	Exploration result	Ref
1981-1982	regional geochemistry	NA	NA	
	Regional geochemical till survey			

GEOLOGY

Host rock: Mica schist, Intermediate tuff

Mica schist (Host rock)

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

Alteration:	Distribution:	Degree:	Relation to mineralization:
albitic alteration	NA	NA	Syn
Comments: Albitisation and part of carbonation have preceded gold mineralisation, either taken place before regional deformation, as a synvolcanic, spilitic stage of alteration, related to the formation of the syngenetic base-metal mineralisation in the phyllites of Saattopora or, perhaps more probably, during the early stages of deformation and fluid flow along the Sirkka Line.			
sulphidation	NA	NA	Syn
sericitic alteration	NA	NA	Syn
Comments: Sericitisation, sulphidation and main carbonation, with formation of abundant quartz veins, are most probably related to the syn-peak metamorphic gold mineralisation			
carbonate alteration	NA	NA	Syn

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		
Paleoproterozoic (2500-1600 Ma)	1662-1781	1708	Y		
Comments: Mineralisation probably during 1870-1900 Ma.					
Radiometric age:	**Method:**	**Age:**	**Error (Ma):**	**Mineral:**	**Reference:**
	Pb-Pb	1662	5	Pyrrhotite	
	U-Pb	1684	5	Rutile	
	Pb-Pb	1704	4	Pyrrhotite	
	U-Pb	1707	8	Rutile	
	U-Pb	1781	18	Monazite	

Intermediate tuff (Host rock)

Rock type: Host rock
Proportion: major

Grain size: NA
Color: NA
References: 1, 2, 3, 4, 6
Comments: One lode hosted by intensely albitised tuffites and phyllite immediately to the south of the E-W trending Sirkka Shear Zone (SSZ). The local control probably is by a subsidiary shear zone of the SSZ.

Metamorphic description:

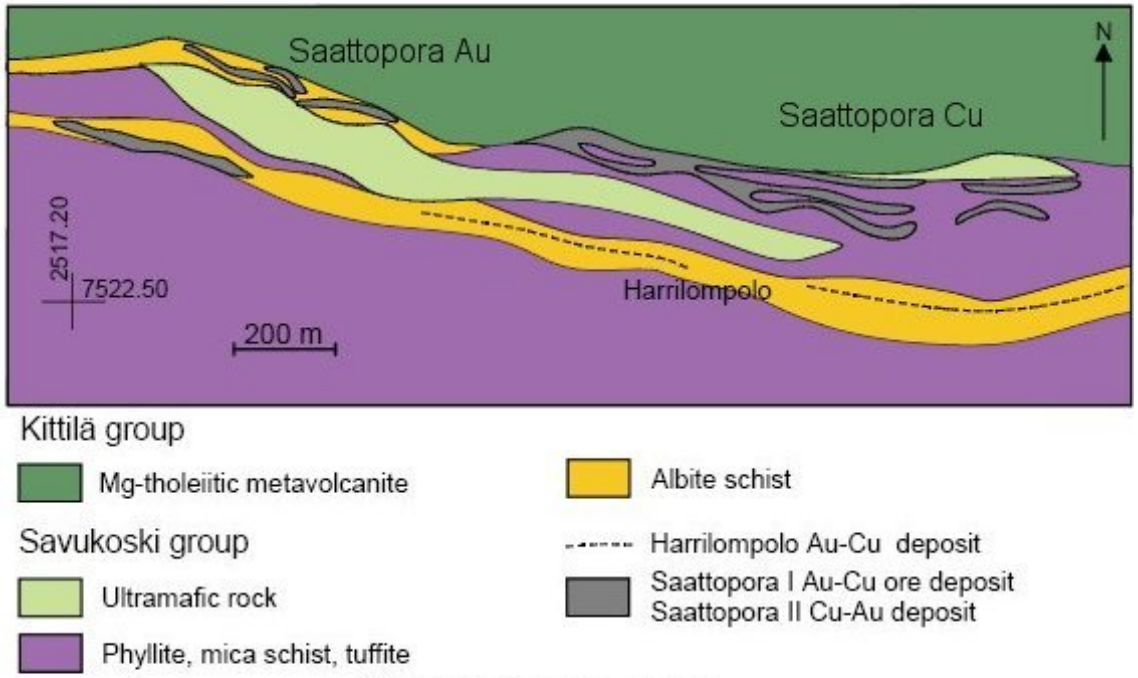
Type:	Facies:	Degree:	Relation to mineralization:	Min P- Max P (kbar)	MIn T- Max T (°C)
Regional	greenschist metamorphic facies	low metamorphic grade	NA		
Comments: Metamorphic peak during D2, thrusting during D3 was at least partly post-peak, late metamorphic					

Geological age:

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

Figures

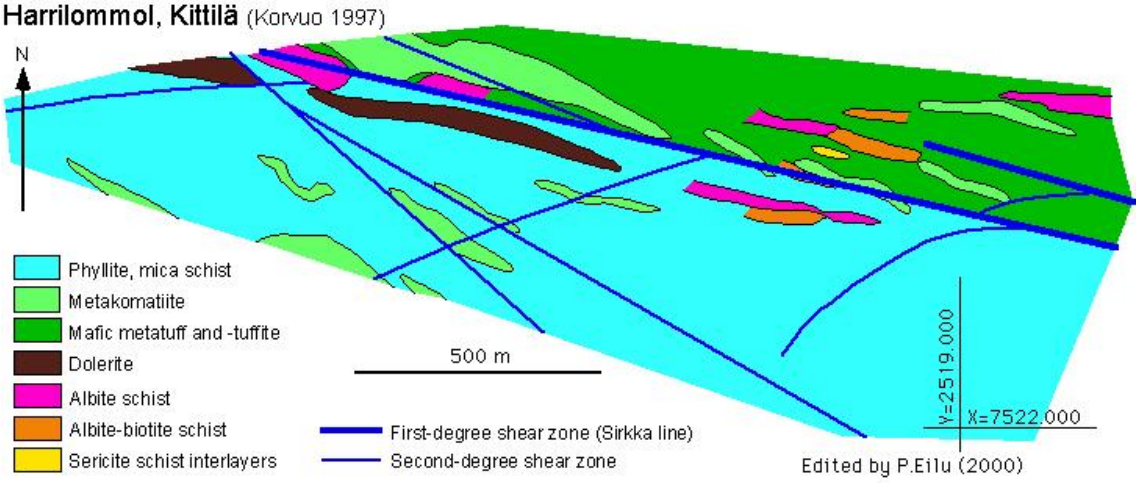
Local geology:



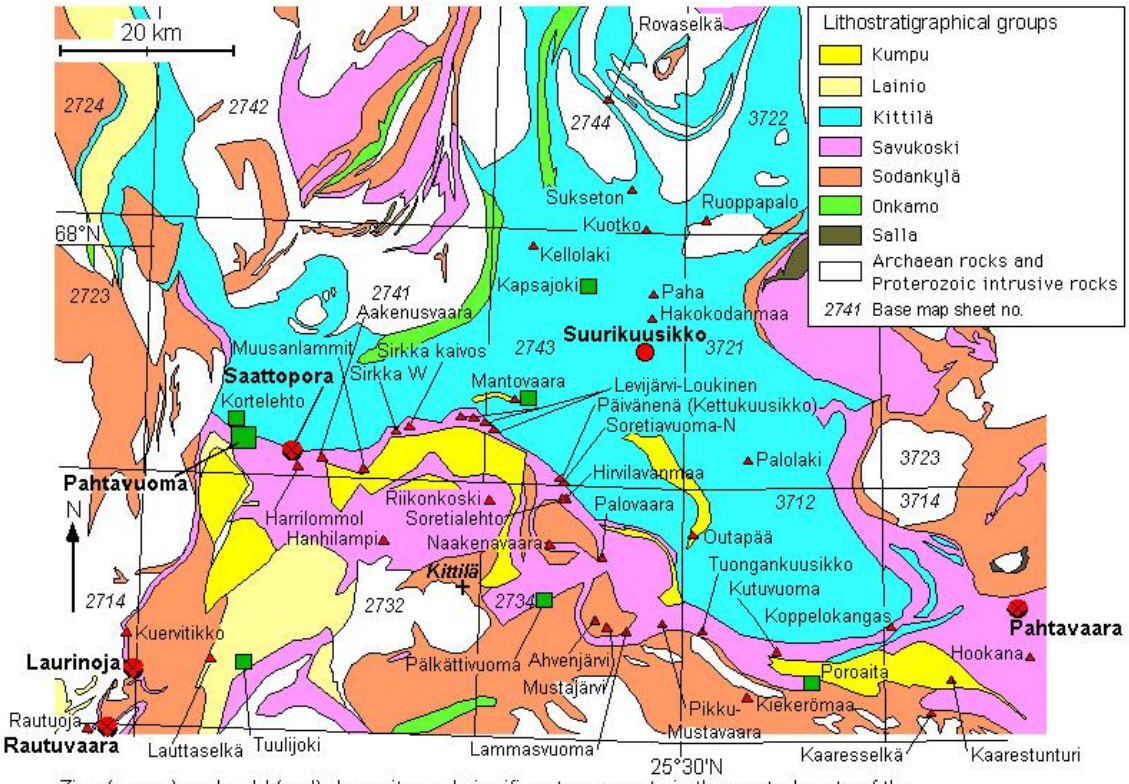
Saattopora area
Strongly simplified surface geology
(Korkalo 2006)

Local geology:

Harrilommol, Kittilä (Korvuo 1997)



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)

REFERENCES

1. Eilu, P. 1997. Orogenic lode-gold deposits: Notes to accompany samples from deposits located on the Fennoscandian Shield. University of Turku, Department of Geology and Mineralogy, Publication 35, 1st edition. 14 p.

2. Hölttä, P., Väisänen, M., Väänänen, J. & Manninen, T. 2007. Paleoproterozoic metamorphism and deformation in Central Lapland, Finland. Geological Survey of Finland, Special Paper 44, 7-56. *http://tupa.gtk.fi/julkaisu/specialpaper/sp_044_pages_007_056.pdf*

3. Korkalo, T. 2006. Gold and copper deposits in Central Lapland, northern Finland, with special reference to their exploration and exploitation. Acta Univ. Oulensis, A Scientiae Rerum Naturalium 461. 122 p.*http://herkules.oulu.fi/isbn951428108X/isbn951428108X.pdf*

4. Korvuo, E. 1997. Kaivoslain 19§:n mukainen tutkimustyöselostus valtausalue Harrilommol 1, kaiv.rek.nro 4519/1. Outokumpu Oy, Report 080/2741/EK/91. 3 p. (in Finnish) *http://tupa.gtk.fi/raportti/valtaus/4519_1.pdf*

5. Lehtinen, M. 1987. Kittilän tutkimusalue: Saattopora. In: H. Papunen (ed.) Lapin vulkaniittien tutkimusprojekti. Loppuraportti. Department of Geology, University of Turku, Report. 47-53. (in Finnish)*http://tupa.gtk.fi/raportti/arkisto/71_2014.pdf*

6. Lehtonen, M., Airo, M.-L., Eilu, P., Hanski, E., Kortelainen, V., Lanne, E., Manninen, T., Rastas, P., Räsänen, J. & Virransalo, P. 1998. Kittilän vihreäkivialueen geologia: Lapin vulkaniittiprojektin raportti. Summary: The stratigraphy, petrology and geochemistry of the Kittilä greenstone area, northern Finland: a report of the Lapland Volcanite Project. Geological Survey of Finland, Report of Investigation 140. 144 p.*http://tupa.gtk.fi/julkaisu/tutkimusraportti/tr_140.pdf*

7. Mänttäri, I. 1995. Lead isotope characteristics of epigenetic gold mineralization in the Palaeoproterozoic Lapland greenstone belt, northern Finland. Geological Survey of Finland, Bulletin 381. 70 p.*http://tupa.gtk.fi/julkaisu/bulletin/bt_381.pdf*

8. Väisänen, M. 2002. Structural features in the Central Lapland greenstone belt, northern Finland. Geological Survey of Finland, Report K 21.42/2002/3. 20 p. *http://tupa.gtk.fi/raportti/arkisto/k21_42_2002_3.pdf*