

Soretiavuoma

Occurrence type: occurrence

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

Easting EUREF: 422680

Northing EUREF: 7517610

Easting YKJ: 3422821

Northing YKJ: 7520751

Discovery year: 1984

Discovered by: Geological Survey of Finland

Province: Kittilä (Au, Cu)

District: Sirkka (Cu, Au, Ni, Co)

Comments: Discovery: an auriferous outcrop was found during local exploration work

References: 8, 10, 16

Mineral deposit type

Group: Metallogenic deposit

Main type: Metamorphic hydrothermal

Comments: Clearly epigenetic, "mesothermal" mineralisation with a distinct structural control

References: 4, 6, 7, 12

Dimension

Expression: exposed

Area (ha): NA

Form: discordant

Dip azim: NA

Shape: NA

Dip: NA

Length (m): 200

Plunge azim: NA

Width (m): 80

Plunge dip: NA

Thickness (m): NA

Orientation method: NA

Depth (m): 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
Lappland Goldminers Oy	2007-2010	Claim (old law)	NA
Scan Mining Oy	2002-2007	Claim (old law)	NA
Terra Mining Oy	1998-2002	Claim (old law)	NA
Geological Survey of Finland	1994-1995	Claim (old law)	NA

Geological Survey of Finland

1984-1989

Claim (old law)

NA

EXPLORATION ACTIVITY

Geological Survey of Finland

Years	Activity type	Geologist	Exploration result	Ref
1985-1995	core drilling	Veikko Keinänen	NA	5, 7, 8, 9
<i>Core drilling (reconnaissance drilling): 16 diamond-drill holes during 1985-1986 and 1994, total 1417 m, and 20 RC-drill holes during 1995, total 960 m.</i>				
<i>Intersections</i>				
	HoleID	M52/2743/86/R302		
	From-To	43-44,5		
	Length	1,5m		
	gold	5,1ppm		
	HoleID	M52/2743/86/R307		
	From-To	41,1-42,2		
	Length	1,1m		
	gold	48ppm		
	HoleID	M52/2743/86/R307		
	From-To	48,4-49,4		
	Length	1m		
	gold	2,1ppm		
	HoleID	M52/2743/86/R307		
	From-To	55,4-58,4		
	Length	3m		
	gold	5ppm		
	HoleID	R508		
	From-To	19-20		
	Length	1m		
	gold	24,5ppm		
	Comments	<i>RC-drill hole</i>		
	HoleID	R524		
	From-To	3-4		
	Length	1m		
	gold	3,09ppm		
	Comments	<i>RC-drill hole</i>		
	HoleID	R524		
	From-To	22-25		
	Length	3m		
	gold	1,68ppm		
	Comments	<i>RC-drill hole</i>		
1985-1995	excavation	Veikko Keinänen	NA	1, 3, 4, 5, 6, 7, 8, 9, 15
1983-1995	detailed geophysics	Veikko Keinänen	NA	7, 13, 15
	<i>An IP anomaly, and a non-magnetic domain within a positive magnetic anomaly. Another IP anomaly correlates with a graphitic phyllite or tuffite unit.</i>			
1979-1996	regional geophysics	Veikko Keinänen	key geological features	1, 3, 4, 5, 6, 7, 8, 9, 15
	<i>Low-altitude airborne magnetic, electromagnetic and radiometric survey during 1979 and 1996</i>			
1977-1995	percussion drilling	Veikko Keinänen	NA	1, 3, 4, 5, 6, 7, 8, 9, 15

1977-1995	detailed geology	Veikko Keinänen	NA	1, 3, 4, 5, 6, 7, 8, 9, 15
1973-1991	regional geochemistry	Veikko Keinänen	NA	3, 8, 9
	<i>Regional geochemical till survey; As, Co, Cu and Mo anomalies in till cover the area. Local Au, As, Co, Cu, Mo and W anomalies in till. In addition, K anomalies in till in the area of komatiites.</i>			

Atri Oy

Years	Activity type	Geologist	Exploration result	Ref
1940-1940	core drilling	NA	NA	9
1940-1940	detailed geophysics	NA	NA	9

Figures

The main exploration trench at the Soretiavuoma:



Main exploration trench at the Soretiavuoma mineralisation. Only metakomatiite in view. Photo Pasi Eilu, 20/8/1998.

GEOLOGY

Host rock: Basalt, Komatiite

Basalt (Host rock)

Rock type: Host rock

Proportion: minor

Grain size: NA

Color: NA

References: 2, 6, 7, 8, 13, 14, 15

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 - Min age (Ma):	Inferred age (Ma):	Age of mineralization:
Paleoproterozoic (2500-1600 Ma)	1600-2500	N	

Komatiite (Host rock)

Rock type: Host rock

Proportion: major

Grain size: NA

Color: NA

References: 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 14, 15

Comments: The occurrence is in the intersection of the NW-trending Sirkka Shear Zone, and a NE-trending fault, close to the contact zone between ultramafic rocks and graphitic phyllite. In earlier studies, the intensely altered metakomatiites were suggested to be of sedimentary origin. Auriferous quartz-dolomite ± albite, pyrite, chalcopyrite veins form networks. The auriferous veins are tension cracks opened during folding. The auriferous veins and breccia are in late, NW-, N- to NNE-striking, strike-slip

Ore minerals:

Mineral	Proportion	Mineral texture
Arsenopyrite	minor	
Bismuthinite	minor	
Chalcopyrite	minor	
Galena	minor	
Gold	present	<i>Native gold grains chiefly in fractures and as inclusions in pyrite.</i>
Millerite	minor	
Pyrite	major	
Pyrrhotite	minor	

Violarite

minor

Other minerals:

Mineral	Proportion	Mineral texture
Ankerite	present	
Calcite	present	Alteration product
Chlorite	present	Alteration product
Dolomite	present	
Magnesite	present	Alteration product
Quartz	present	
Scheelite	present	
Talc	present	Alteration product

Textures

Granoblastic

Alteration:	Distribution:	Degree:	Relation to mineralization:
carbonate alteration	NA	NA	Syn
albitic alteration	NA	NA	Syn

Comments: Synvolcanic and/or early-metamorphic, pre-gold albitisation and partial carbonation of large areas was followed by synorogenic, structurally-controlled carbonation and gold mineralisation.

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; Metamorphic mineral assemblage in ultramafic rocks; Talc-chlorite-calcite.

Geological age:

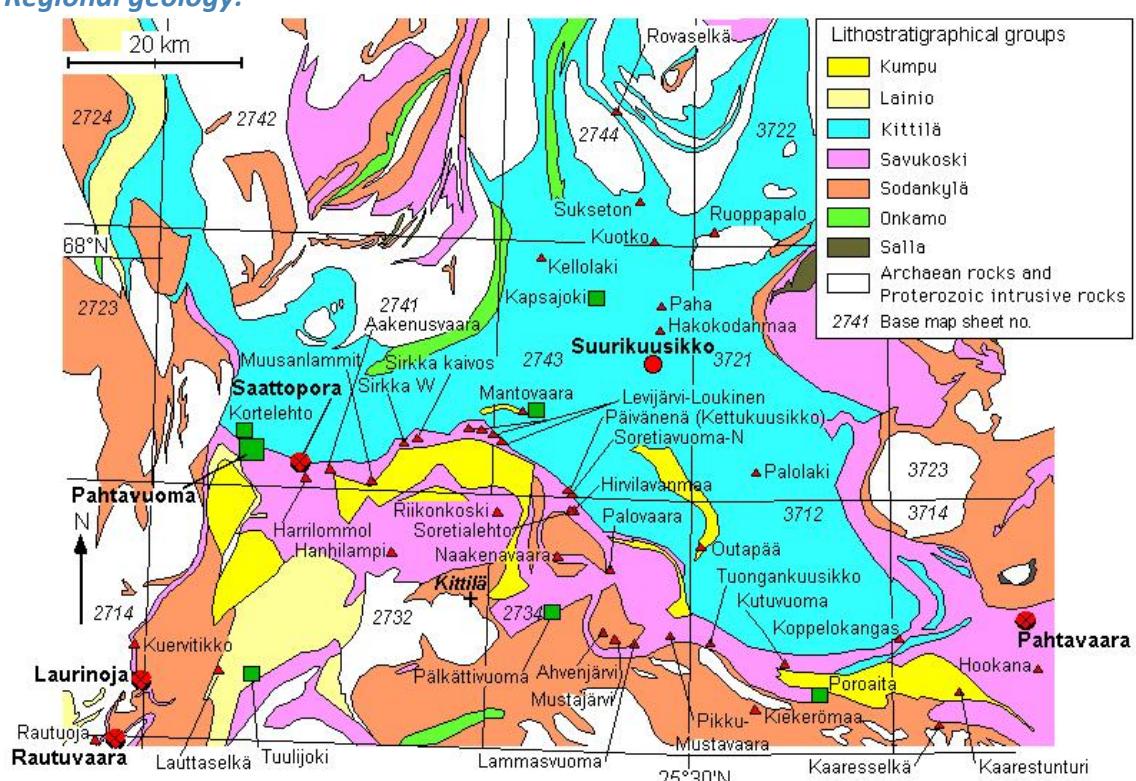
Geological era:	Max age - Min age (Ma):	Inferred age (Ma):	Age of mineralization:
Paleoproterozoic (2500-1600 Ma)	1600-2500		N
Paleoproterozoic (2500-1600 Ma)	1859-1890	1875	Y

Comments: The gold mineralisation in the Kuotko-Kiistala-Soretiavuoma area probably took place between 1852-1890 Ma. Pb-Pb ages for chalcopyrite, arsenopyrite, pyrite and carbonates range 1859–1890 Ma

Radiometric age:	Method:	Age:	Error (Ma):	Mineral:	Reference:
	Pb-Pb	1859		Arsenopyrite	11, 13
	Pb-Pb	1890		Chalcopyrite	11, 13

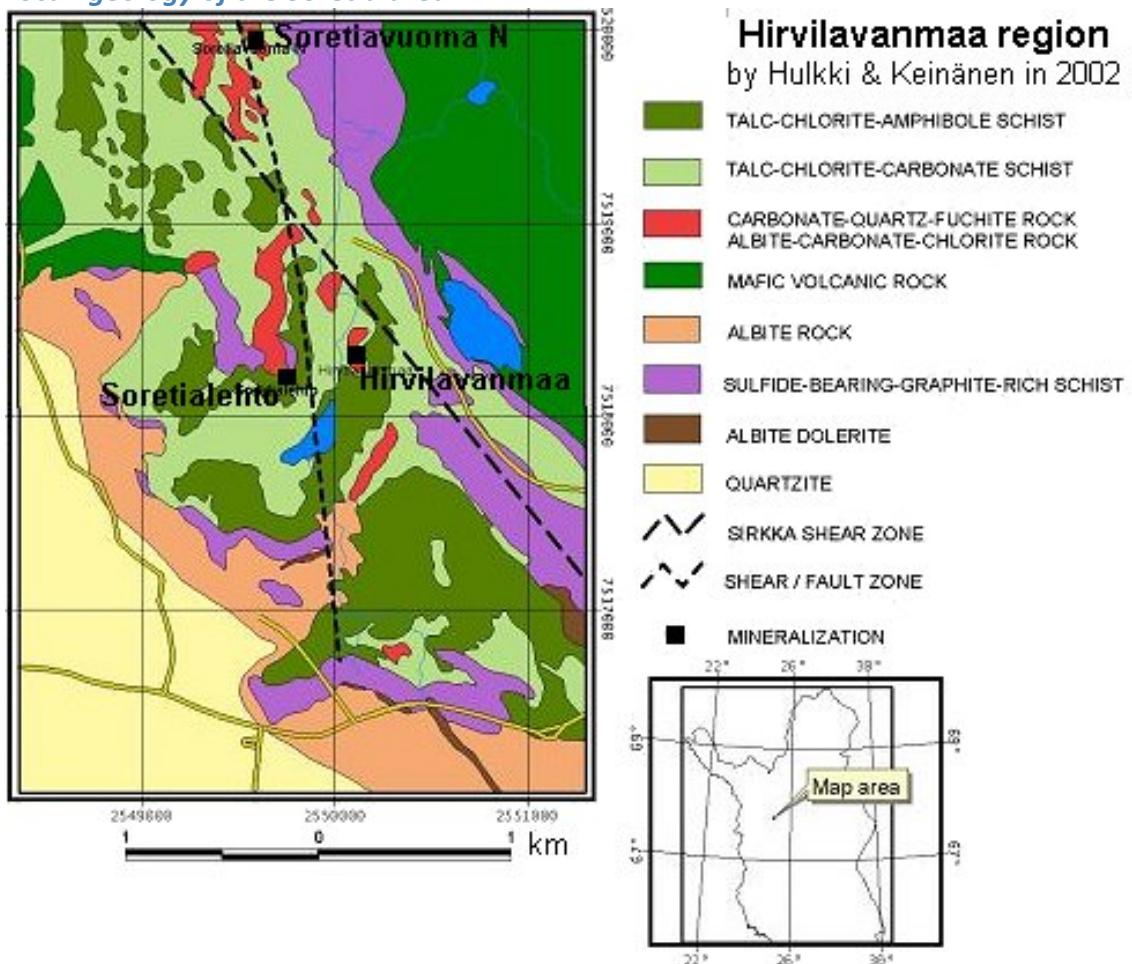
Figures

Regional geology:



Edited by P. Eilu (2007)

Local geology of the Soretia area:



Ore outcrop with auriferous veins:



Proximally altered metakomatiite and auriferous quartz veins at Soretiavuoma.
Length of the compass plate is 11 cm. Photo Pasi Eilu, 20/8/1998.

Ore outcrop:



Fresh surface of proximally altered metakomatiite with abundant quartz-carbonate veins, Soretiavuoma. Length of the compass plate is 11 cm.
High-grade gold mineralisation. Photo Pasi Eilu, 20/8/1998.

REFERENCES

1. Härkönen, I. & Keinänen, V. 1989. Exploration of structurally controlled gold deposits in the Central Lapland greenstone belt. Current Research 1988, Geological Survey of Finland, Special Paper 10, 79-82.http://tupa GTK.fi/julkaisu/specialpaper/sp_010_pages_079_082.pdf
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. Johansson, P., Keinänen, V. & Lehmuspelto, P. 1986. Geochemical exploration of tungsten in glaciogenic deposits in Soretiapulju, western Finnish Lapland. Proceedings in Areas of Glaciated Terrain. Symposium held in Kuopio, 1 and 2 September 1986. London: The Institution of Mining and Metallurgy, 61-67.
4. Keinänen, V. & Hulkki, H. 1992. Main features of the three geochemically different gold mineralizations in Soretiavuoma, Finnish Lapland. 20:e Nordiska Geologiska Vintermötet, Reykjavik. Abstracts. p. 96.
5. Keinänen, V. 1990. Tutkimustyöselostus valtausalueiden Soretiajärvi 1, kaiv.rn: 3761/2, sekä Soretiavuoma 1 (kaiv.rn: 3761/1) ja 2 (kaiv.rn: 3821/1) malmitutkimuksista vuosina 1984-89. Geological Survey of Finland, Report M06/2734/-90/1/10. 3 p. (in Finnish)http://tupa GTK.fi/raportti/valtaus/m06_2734_90_1_10.pdf
6. Keinänen, V. 1994. Shear zone-related Soretialehto gold occurrence in green carbonate rocks in the Central Lapland Greenstone Belt, Kittilä, Finnish Lapland. 21:a Nordiska Geologiska vintermötet, Luleå. Abstracts. p. 99.
7. Keinänen, V. 1997, 1998. Personal communications on 24/11/1997, 18/8/1998 and 23/12/1998.
8. Keinänen, V. 1997. Tutkimustyöselostus Kittilän kunnassa valtausalueella Soretiavuoma 3 (kaiv.rn:o 5290/1) suoritetuista malmitutkimuksista. Geological Survey of Finland, Report M06/2734/- 97/1/10. 8 p. (in Finnish)http://tupa GTK.fi/raportti/valtaus/m06_2734_97_1_10.pdf
9. Keinänen, V., Johansson, P. & Lehmuspelto, P. 1988. Soretiavuoman volframi- ja kultatutkimuksista. Annales Universitatis Turkuensis, Sarja C, Tom. 67, 69-77. (in Finnish)
10. 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 vulkaniittiprojektiin 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
11. Määttäri, 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
12. Nurmi, P. A., Lestinen, P. & Niskavaara, H. 1991. Geochemical characteristics of mesothermal gold deposits in the Fennoscandian Shield, and a comparison with selected Canadian and Australian deposits. Geological Survey of Finland, Bulletin 351. 101 p.http://tupa GTK.fi/julkaisu/bulletin/bt_351.pdf

13. Patison, N.L. 2007. Structural controls on gold mineralisation in the Central Lapland Greenstone Belt. Geological Survey of Finland, Special Paper 44, 107-124.

http://tupa GTK.fi/julkaisu/specialpaper/sp_044_pages_107_124.pdf

14. Pekkala, Y. and Puustinen, K. 1978. The chromian marbles of Kittilä, Finnish Lapland. Geological Society of Finland, Bulletin 50, 15-29.

http://tupa GTK.fi/julkaisu/sgs_bulletin/sgs_bt_050_pages_015_029.pdf

15. Turunen, P. 1987. Keski-Lapin vihreäkivivyöhykkeen kultaprojektiin geofysikaiset tutkimukset vuonna 1986. Geological Survey of Finland, Report Q19/2743/1987/1. 22 p. (in Finnish)

http://tupa GTK.fi/raportti/arkisto/q19_2743_1987_1_10.pdf

16. 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