Kantolahti

Alternative Names: Kantosuo
Occurence type: prospect

Commodity	Rank	Total measure	Total production	Total resource	Importance
gold	1	NA	NA	NA	NA
cobalt	2	NA	NA	NA	NA
copper	3	NA	NA	NA	NA

Easting EUREF: 590410
Northing EUREF: 7347932,459
Easting YKJ: 3590619
Northing YKJ: 7351006

Discovery year: 1983
Discovered by: Geological Survey of Finland
Province: Kuusamo-Kuolajärvi (Co, Au)
District: Kuusamo (Co, Au)
Comments: Discovery by GTK: trenching through the overburden within a low-altitude airborne electromagnetic and magnetic anomaly in a geologically "right" area
References: 2, 12

Mineral deposit type

Group: Metallogenic deposit
Main type: Orogenic (metamorphic hydrothermal)
Sub type 1: Au-Co-Cu
Comments: The auriferous fluids were transported along deep, rift-tectonic faults up to the greenschist-metamorphic environment, concentrated on the antiform; the metals precipitated in structurally controlled sites close to impermeable dolerites and metavolcanic units or, rather, in the more competent sericite quartzite units between the more plastic mafic units or, rather, in the more competent sericite quartzite units between the more plastic mafic units.
References: 2, 3, 6, 7, 9, 10, 11

Dimension

Expression: exposed
Form: discordant
Shape: NA
Length (m): NA
Width (m): 25
Thickness (m): NA
Depth (m): NA
Area (ha): NA
Dip azim: NA
Dip: NA
Plunge azim: NA
Plunge dip: NA
Orientation method: NA
Dimension comments: Four subparallel lodes; at surface, 25 m wide; extent along strike and in depth not known

Holder history

Current holder: EMX Finland Oy

Years: 2022-2024
Holding type: Reservation

Previous holders:

Company	Years	Holding type	Comments
Latitude 66 Cobalt Oy	2018-2020	Reservation	NA
Polar Mining Oy	2010-2011	Claim reservation (old law)	NA
Geological Survey of Finland	1995-1999	Claim (old law)	NA
Geological Survey of Finland	1983-1985	Claim (old law)	NA

EXPLORATION ACTIVITY

Geological Survey of Finland

Years	Activity type	Geologist	Exploration result	Ref
1995-1998	core drilling	Heikki Pankka	mineralized zone identified	1, 2, 5, 6, 8, 9, 10
	Core drilling (reconnaissance drilling): 28 diamond-drill holes, total 1737 m. In the mineralised zones, copper grades up to 0.15 %, cobalt at 0.05-0.2 %.			
	Intersections			
	HoleID	M52/4611/96/R414		
	From-To	10,4-11,4		
	Length	1m		
	gold	3ppm		
	HoleID	M52/4611/96/R414		
	From-To	15,4-17,4		
	Length	2m		
	gold	4,7ppm		
	HoleID	M52/4611/96/R414		
	From-To	30,3-31,2		
	Length	0,9m		
	gold	10,2ppm		
	HoleID	M52/4611/96/R418		
	From-To	73,7-77,4		
	Length	3,7m		
	cobalt	0,2%		
	HoleID	M52/4611/98/R436		
	From-To	5-6		
	Length	1m		
	gold	13,4ppm		

1993-1998	detailed geophysics	Heikki Pankka	geophysical anomaly	2, 8
	IP, magnetic and VLF-R			

1989-1989	regional geochemistry	NA	NA	
	Regional till geochemical survey			

1983-1984	core drilling	Heikki Pankka	mineralized zone identified	4, 7, 8
	Core drilling 5 diamond-drill holes, in total 568 m.			

1983-1983	detailed geophysics	Heikki Pankka	geophysical anomaly	2, 8
	Ground magnetic, slingram, and VLF-R. The occurence gives response on airborne and ground electric and magnetic surveys.			

1983-1983	excavation	Heikki Pankka	mineralized zone identified	1, 2, 5, 6, 8, 9, 10
	In total 5 trenches (250 m); two lodes were identified			

1982-1982	regional geophysics	NA	key geological features	1, 2, 5, 6, 8, 9, 10
	Low-altitude airborne mahnetic, electromagnetic and radiometric survey			

GEOLOGY

Host rock: Mafic tuff, Sericite quartzite, Intermediate tuff
Wall rock: Dolerite

Mafic tuff (Host rock)

Rock type: Host rock
Proportion: major
Grain size: NA
Color: NA
References: 2, 5, 6, 9, 10, 11, 13

Ore minerals:

Mineral	Proportion	Mineral texture
Chalcopyrite	minor	
Cobaltite	minor	
Cobaltpentlandite	minor	
Ilmenite	minor	
Magnetite	minor	
Pyrite	major	
Pyrrhotite	minor	
Rutile	minor	
Scheelite	present	

Other minerals:

Mineral	Proportion	Mineral texture
Actinolite	present	Alteration product
Albite	present	
Biotite	present	Alteration product
Chlorite	present	Alteration product
Chloritoid	present	Alteration product
K-Feldspar	present	Alteration product
Quartz	present	
Sericite	present	Alteration product
Talc	present	Alteration product
Tremolite	present	Alteration product

Alteration:	Distribution:	Degree:	Relation to mineralization:
silicification	Disseminated	Weak	Post
albitic alteration	Pervasive	Strong	Pre
Comments: Locally intense Albitization of clastic sediments and spilitisation of volcanic units when the 2.206 Ga mafic sills and dykes heated the evaporite-bearing sequence and put hot brines into circulation.			
biotite alteration	Disseminated	Moderate	Syn
sulphidation	Disseminated	Weak	Syn
carbonate alteration	Disseminated	Moderate	Syn
sericitic alteration	Disseminated	Moderate	Syn
chloritic alteration	Disseminated	Weak	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		

Geological age:

Geological era:	Max age - Minage (Ma):	Inferred age (Ma):	Age of mineralization:
Paleoproterozoic (2500-1600 Ma)	1800-2070		Y
Comments: Mineralisation between 2.07-1.8 Ga.			
Paleoproterozoic (2500-1600 Ma)	1600-2500		N

Sericite quartzite (Host rock)

Rock type: Host rock
Proportion: minor
Grain size: NA
Color: NA
References: 2, 5, 6, 9, 10, 11, 13

Metamorphic description:

Other minerals:

Mineral	Proportion	Mineral texture
Albite		
Quartz		
Sericite	present	

Type:	Facies:	Degree:	Relation to mineralization:	Min P- Max P (kbar)	MIn T- Max T (°C)
Regional	greenschist metamorphic facies	low metamorphic grade	NA		

Geological age:

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

Intermediate tuff (Host rock)

Rock type: Host rock
Proportion: major
Grain size: NA
Color: NA
References: 2, 5, 6, 9, 10, 11, 13

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

Geological age:

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

Dolerite (Wall rock)

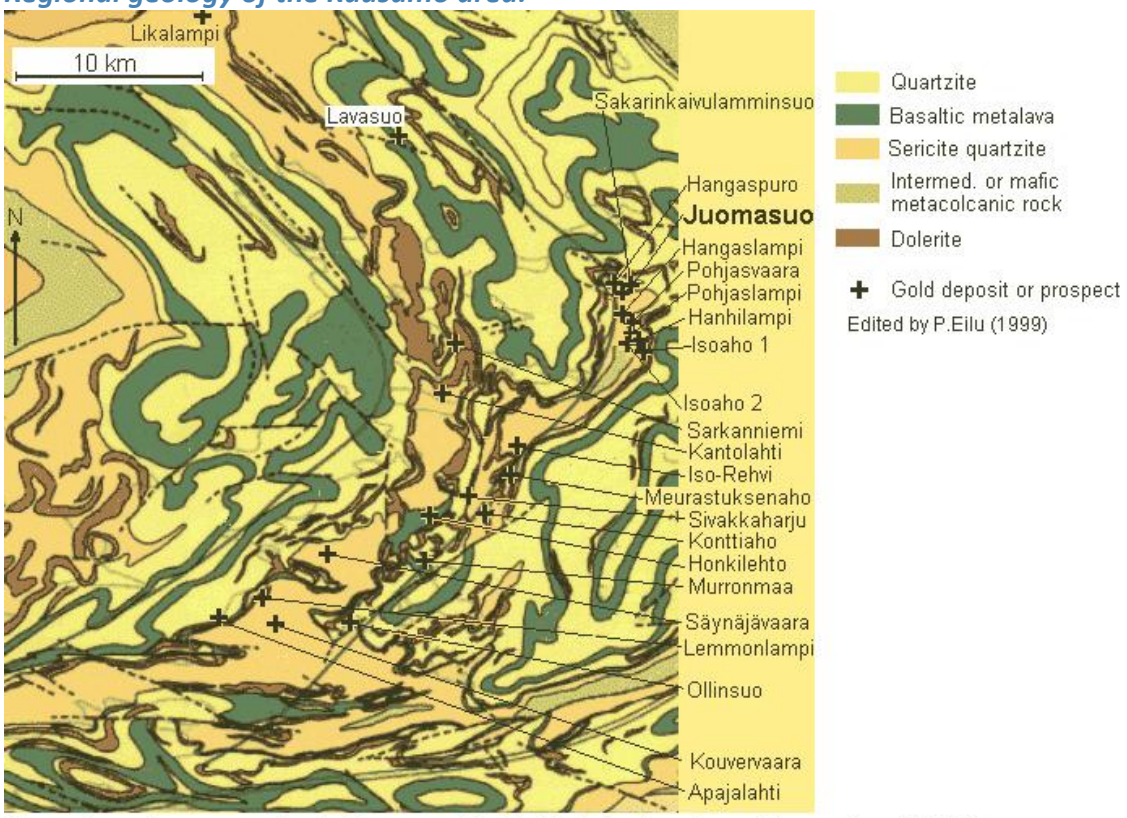
Rock type: Wall rock
Comments: The 2050 Ma, differentiated dolerites cut across the metavolcanic rocks, but predate gold mineralisation (although also the dykes are altered). Metamorphic mineral assemblage in the dolerite: albite-actinolitic hornblende-epidote-opaques ± titanite, quartz

Other minerals:

Mineral	Proportion	Mineral texture
Actinolite	major	
	Actinolitic hornblende	
Albite	major	
Epidote	minor	
Quartz	minor	
Titanite	minor	

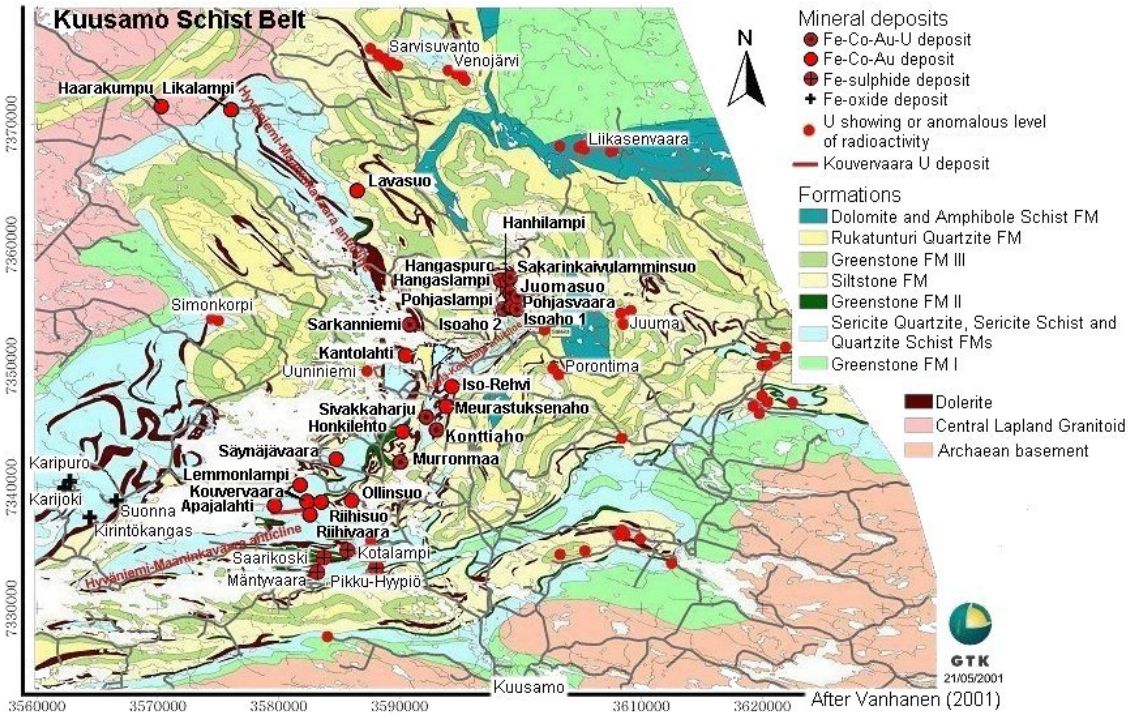
Figures

Regional geology of the Kuusamo area:



Deposits and prospects in the Kuusamo Schist Belt. Geology from Silvennoinen (1992).
Solid and dashed, curved lines indicate boundaries between lithological units, faults and shear zones

Regional geology and mineral deposit of the Kuusamo area:



Proximal alteration and gold mineralisation in mafic tuff or tuffite. Mineral assemblage probably chlorite - quartz - sericite - pyrrhotite - pyrite. Quartz-calcite veins. Sample length

13 cm. Photo Reijo Lampela, GTK:

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