

Isoaho-1

Alternative Names: Rytisuo 6, Isoaho 1

Occurrence type: occurrence

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

Easting EUREF: 599461,387

Northing EUREF: 7351572,967

Easting YKJ: 3599674

Northing YKJ: 7354648

Discovery year: 1975

Discovered by: Outokumpu Oy

Province: Kuusamo-Kuolajärvi (Co, Au)

District: Kuusamo (Co, Au)

Comments: One of the Juomasuo satellite deposits. Found by Outokumpu, by following a radioactive glacial erratic boulder train.

References: 3

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, 5, 6, 7, 8, 10, 11

Dimension

Expression: exposed

Area (ha): NA

Form: discordant

Dip azim: NA

Shape: NA

Dip: NA

Length (m): NA

Plunge azim: NA

Width (m): NA

Plunge dip: NA

Thickness (m): NA

Orientation method: NA

Depth (m): NA

Holder history

Current holder: Latitude 66 Cobalt Oy

Years: 2020-2027

Holding type: Exploration permit

Previous holders:

Company	Years	Holding type	Comments
Latitude 66 Cobalt Oy	2019	Application for exploration permit	NA
Polar Mining Oy	2010-2010	Claim reservation (old law)	NA
Polar Mining Oy	2003	NA	NA
Otakumpu Oy	1992-2003	NA	NA

EXPLORATION ACTIVITY

Outokumpu Oy

Years	Activity type	Geologist	Exploration result	Ref
1992-1992	detailed geology	Osmo Inkkinen, Jyrki Korteniemi	key geological features	2
	<i>MSc thesis</i>			
1992-1992	excavation	Osmo Inkkinen	mineralized zone identified	

Geological Survey of Finland

Years	Activity type	Geologist	Exploration result	Ref
1988-1988	regional geochemistry	NA	geochemical anomaly	
	<i>Country-wide till-geochemical survey</i>			
1986-1986	regional geophysics	Erkki Vanhanen	key geological features	1, 2, 4, 5, 6, 7, 10
	<i>Low-altitude airborne magnetic, electromagnetic and radiometric survey</i>			
1986-1991	detailed geophysics	Erkki Vanhanen	geophysical anomaly	2
	<i>Ground IP, VLF-R, slingram, radiometric and magnetic survey. Response on IP and radiometric methods.</i>			
1986-1991	detailed geology	Erkki Vanhanen	key geological features	1, 2, 4, 5, 6, 7, 10
1986-1991	excavation	Erkki Vanhanen	mineralized zone identified	1, 2, 4, 5, 6, 7, 10

Outokumpu Oy

Years	Activity type	Geologist	Exploration result	Ref
1975-1977	detailed geology	Osmo Inkkinen	key geological features	10
1975-1977	core drilling	Osmo Inkkinen	mineral occurrences	2, 10
	<i>Core drilling (reconnaissance drilling): 5 diamond-drill holes.</i>			
	Intersections			
	HoleID	NA		
	From-To	NA		
	Length	3m		
	gold	4ppm		

Figures

Exploration trench in early 1990s



Site photograph of the Isoaho 1 deposit, Kuusamo; exploration trench viewed from west to east.

(from Korteniemi 1993)

Exploration trench in 2003



Exploration trench at Isoaho.
Photo Pasi Eilu 13/06/2003.

GEOLOGY

Host rock: Sericite quartzite, Mafic volcanic rock, Mafic tuff

Sericite quartzite (Host rock)

Rock type: Host rock

Proportion: major

Grain size: NA

Color: NA

References: 2, 4, 5, 6, 7, 9, 10, 11

Ore minerals:

Mineral	Proportion	Mineral texture
Pyrite	major	
Pyrrhotite	major	

Other minerals:

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

Alteration:	Distribution:	Degree:	Relation to mineralization:
silicification	NA	NA	Post
albitic alteration	Pervasive	Strong	Pre
<i>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.</i>			
biotite alteration	Disseminated	NA	Syn
sulphidation	NA	NA	Syn
carbonate alteration	Disseminated	NA	Syn
sericitic alteration	Disseminated	NA	Syn
chloritic alteration	Disseminated	NA	Syn

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	Syn		
<i>Comments: Peak regional metamorphism at lower-amphibolite facies: staurolite porphyroblasts in Al-rich rocks, during D1?. This was followed by retrograde greenschist-facies metamorphism: sericitisation of staurolite, during D2?, related to NW-trending shear zones and gold mineralisation?: Quartz-albite-sericite-biotite ± chlorite, staurolite.</i>					

Geological age:

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

Mafic volcanic rock (Host rock)

Rock type: Host rock

Proportion: minor

Grain size: NA

Color: NA

References: 2, 4, 5, 6, 7, 9, 10, 11

Comments: Dominated by mafic metavolcanic and intermediate metasedimentary rocks both subhorizontal in their present position and cross cut by minor dolerites.

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	Syn		
<i>Comments: Peak regional metamorphism at lower-amphibolite facies: staurolite porphyroblasts in Al-rich rocks, during D1?. This was followed by retrograde greenschist-facies metamorphism: sericitisation of staurolite, during D2?, related to NW-trending shear zones and gold mineralisation?</i>					

Geological age:

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

Mafic tuff (Host rock)

Rock type: Host rock

Proportion: minor

Grain size: NA

Color: NA

References: 2, 4, 5, 6, 7, 9, 10, 11

Metamorphic description:

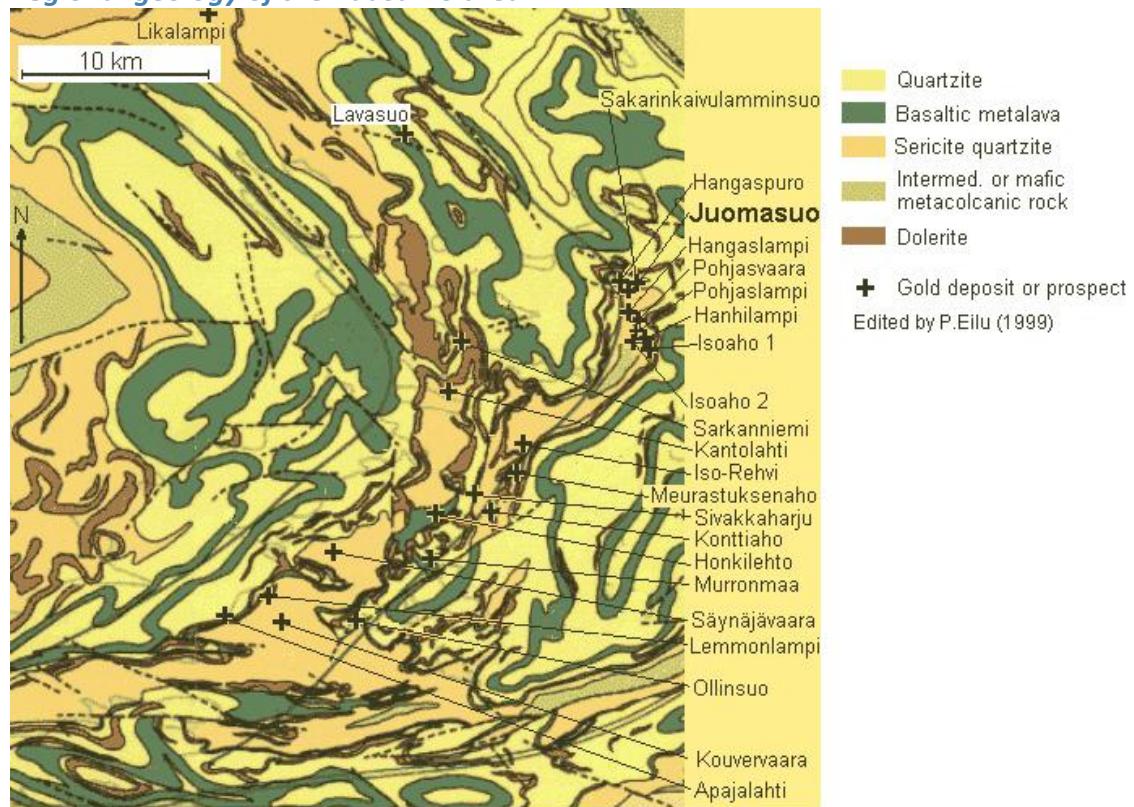
Type:	Facies:	Degree:	Relation to mineralization:	Min P- Max P (kbar)	Min T- Max T (°C)
Regional	amphibolite metamorphic facies	medium metamorphic grade	Syn		
<i>Comments: Peak regional metamorphism at lower-amphibolite facies: staurolite porphyroblasts in Al-rich rocks, during D1?. This was followed by retrograde greenschist-facies metamorphism: sericitisation of staurolite, during D2?, related to NW-trending shear zones and gold mineralisation?</i>					

Geological age:

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

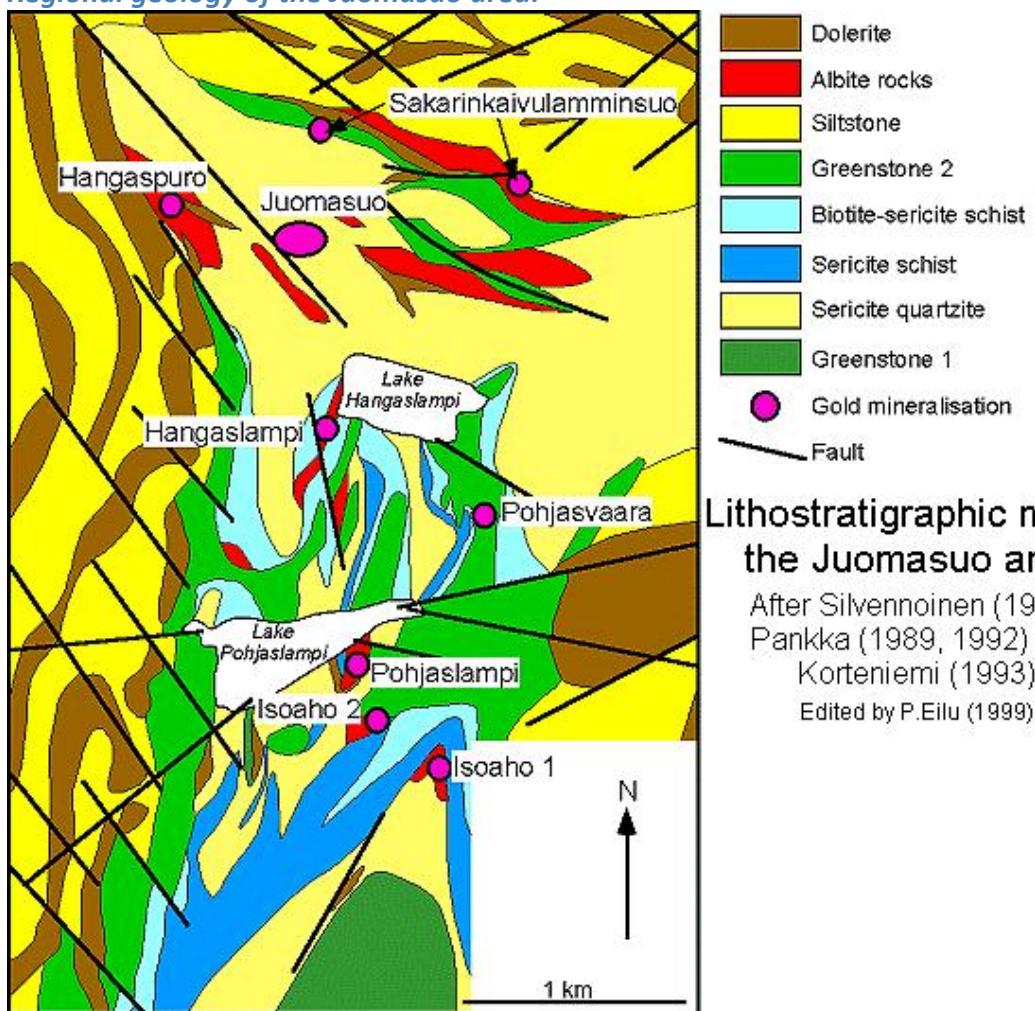
Figures

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 of the Juomasuo area:

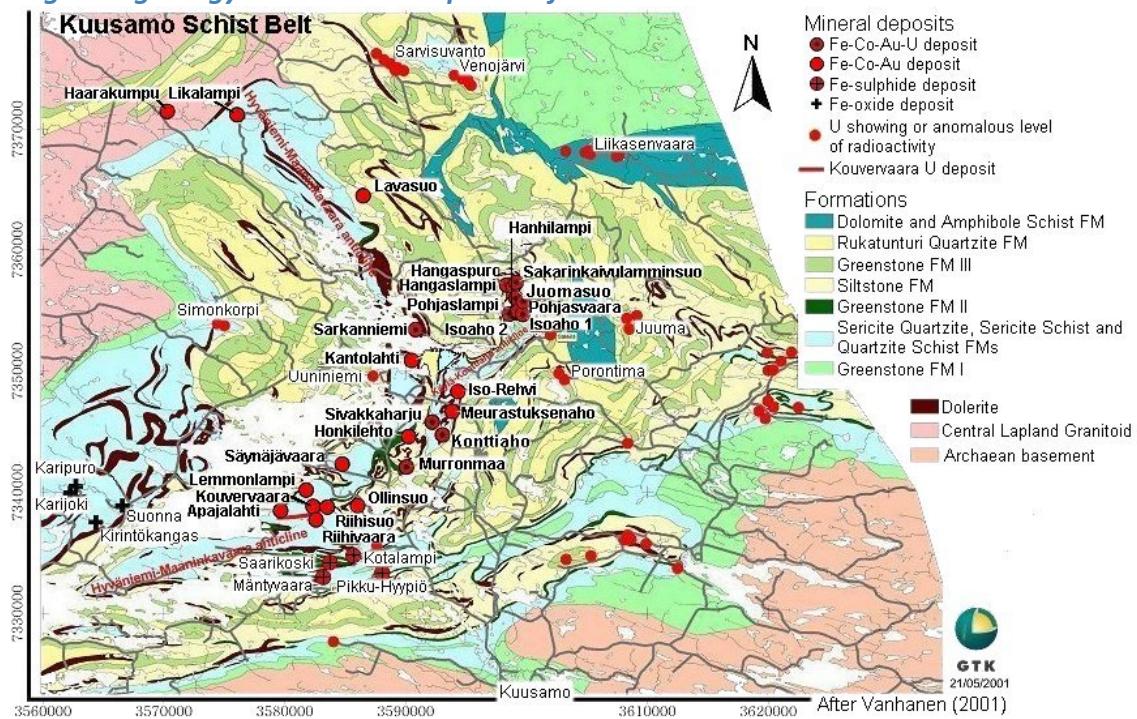


Lithostratigraphic map of the Juomasuo area.

After Silvennoinen (1972),
Pankka (1989, 1992) and
Korteniemi (1993).

Edited by P. Eilu (1999)

Regional geology and mineral deposits of the Kuusamo area:



Gold-mineralized sericite quartzite:



Isoaho, Kuusamo. Gold-mineralised sericite quartzite.
 Mineral assemblage probably quartz - albite - sericite - pyrite ± biotite and pyrrhotite.
 Field of view 12 cm. Photo Jari Väätäinen.

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