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Goseong Cu-Au-Ag Project Technical Summary

Geology

Andesitic volcaniclastics of the Goseong Formation and coeval andesitic lavas and tuffs of the Jusasan Andesiste, form an elliptical-shaped, inward-dipping, moat infilling sequence in a maar setting. The volcano-sedimentary sequence has been intruded sequentially by diorite (75-71Ma), quartz monzodiorite (63-59Ma) stock and andesite porphyry (58Ma) domes.

Mineralization

Mineralization at Goseong is identified as alkalic porphyry Cu-Au in a transitional epithermal setting. The veins are Cu-Au-Ag ± Pb-Zn-Bi-Co-As bearing hydrothermal fissure-filling structures and composed of multiple generations of quartz, accompanied by early chlorite, epidote, magnetite, specular hematite and late calcite. The principle economic minerals are chalcopyrite, electrum and several Ag-bearing sulphosalts, accompanied by galena, sphalerite, arsenopyrite, pyrite, pyrrhotite, marcasite, cubanite, digenite, tetrahedrite and cobaltite. Mineralization deposited at temperatures of 211-383ºC from moderately saline (2.0-12.5 wt% NaCl) hydrothermal fluids, which cooled after mixing with an influx of cooler, oxidizing meteoric water (Lee, 1992). Hypogene specular hematite is a characteristic feature at Jinheung and Bonghwasan and, together with hypogene jarosite, is good evidence of fluid mixing of oxygenated waters with bicarbonate waters. Sulphur isotopes of 3.9-6.3 $\delta^{34}S$ indicate an igneous source. Depth of formation was estimated at 850-1300m. Mineralization was dated at 85-81Ma.

The intrusion of quartz diorite and andesite porphyry may have generated a hydrothermal brine fluid that evolved from the thermal leaching of evaporate facies, found within the underlying Chinju and Hasandong Formations (Cycle 1). Low-sulphidation style epithermal Au-Ag-Te mineralization is recognised nearby at Tongyoung, along with high-sulphidation epithermal acid-sulphate style pyrophyllite clay deposits at Kwangdo and Mireugdo.

Alteration

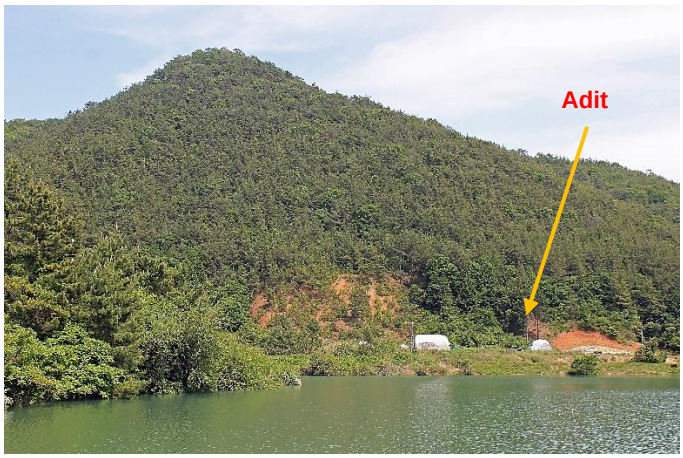
An early inner propyllitic alteration assemblage is developed proximal to the early quartz vein stage, consisting of green-yellow epidote, dark green-black, Fe-rich chlorite, and an iron-oxide alteration assemblage comprising early magnetite replaced by specular hematite (Lee, 1992). A relatively weak outer phyllic alteration assemblage (pale green sericite-pyrite) surrounds this inner propyllitic zone. Kaolin was deposited late during the mineralization stage and could possibly indicate replacement of adularia that formed in response to localised boiling.

Advanced argillic alteration assemblages are observed locally, including alunite at Samjeon and hypogene hematite and jarosite at Jinheung-Bonghwasan, suggesting hydrothermal fluids mixed with cooler, oxygenated bicarbonate waters.

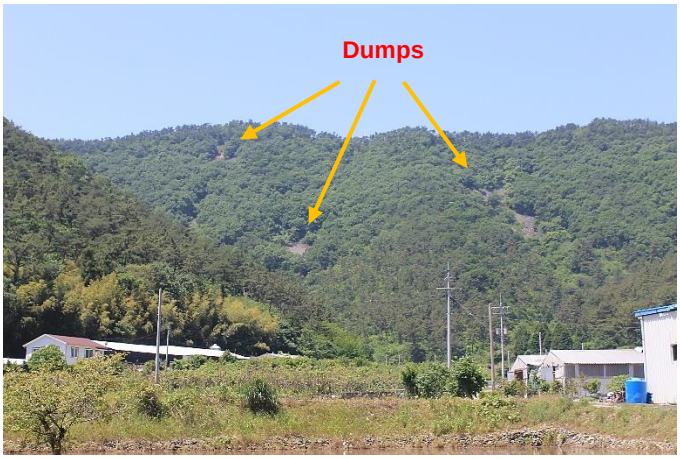
Resources

Historical underground sampling by the KMPC reports combined remaining historical mine “reserves” in the Jinheung, Samsan-Jaeil, Samsan, Sambong and Buyeong mines of 616,485 tonnes at 5.45% Cu, 1.53g/t Au and 349g/t Ag. These combined resources contain metals of 33,624t of copper, 30,294oz gold and 6.92 million ounces of silver. Historical drilling (59 holes for 6282m) is insufficient to estimate additional resources.

Critical metals of germanium, hafnium, gallium, selenium, tellurium, cobalt and bismuth are associated with the mineralization.

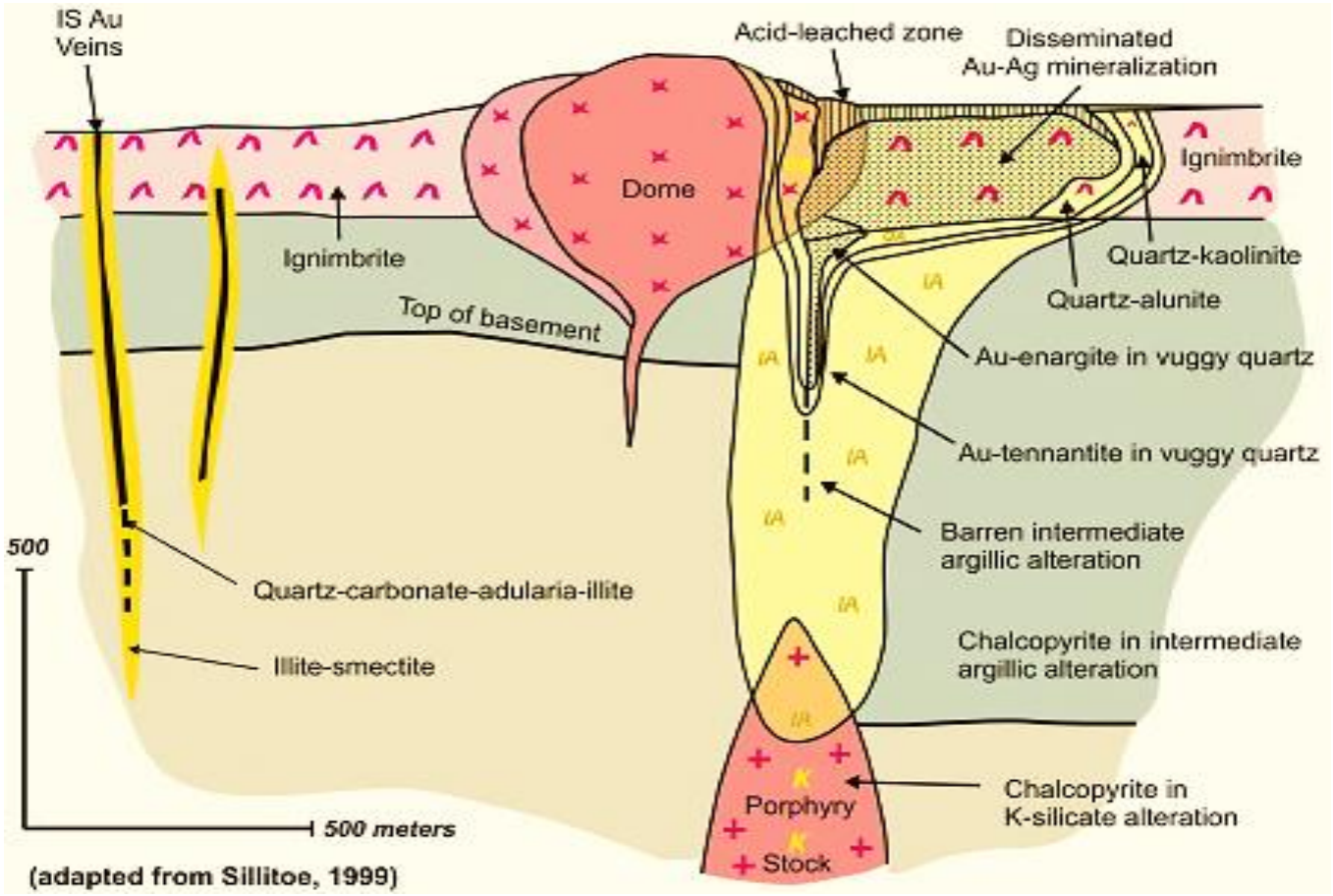


Samjeon Mine looking east



Seongji Mine dumps looking northeast

Geological Map, Goseong district. The historical mines and major vein systems are highlighted. Interpreted geological features are also shown.



Conceptual Geological Model, Goseong district. The observed mineralization and geology is consistent with alkalic porphyry Cu in a transitional epithermal environment.

Geological Environment:

- Mudstone, siltstone (*Goseong Formation*)
- Andesite lavas, tuffs, lapilli tuff (*Jusasan Andesite*)
- Andesite – Sedimentary basement Contact **– Hishikari Model is applicable**
- **Post-collapse Maar geological setting**

Multi-phase, evolved intrusion:

- Monzonite / Quartz diorite stocks
- Andesite porphyry dome

Au-Ag-Cu Mineralization:

- Chalcopyrite, pyrite, pyrrhotite, arsenopyrite
- Bi, Co, Pb, Zn ± In-Ga-Ge
- Cu-Au-Ag ± Te-Se

Inner Propyllitic alteration assemblage:

- Actinolite-tourmaline- magnetite-chlorite (Fe)

Outer Propyllitic alteration assemblage:

- Chlorite-epidote-hematite-carbonate

Argillic Clay alteration assemblage:

- Illite, hematite

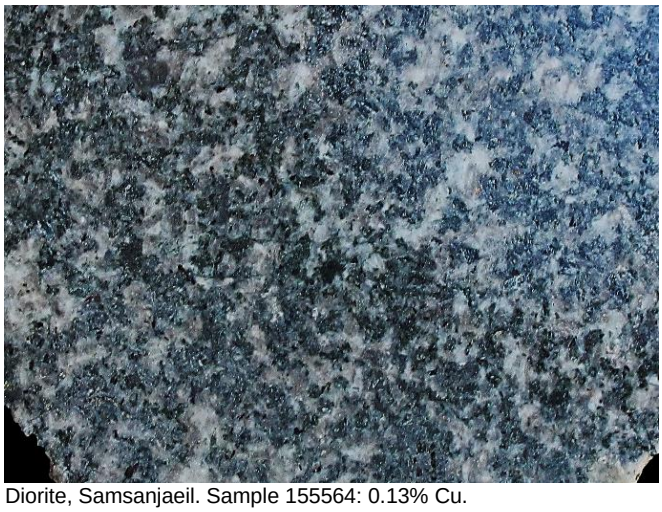
Advanced Argillic alteration assemblage:

- Alunite, quartz, jarosite, hematite

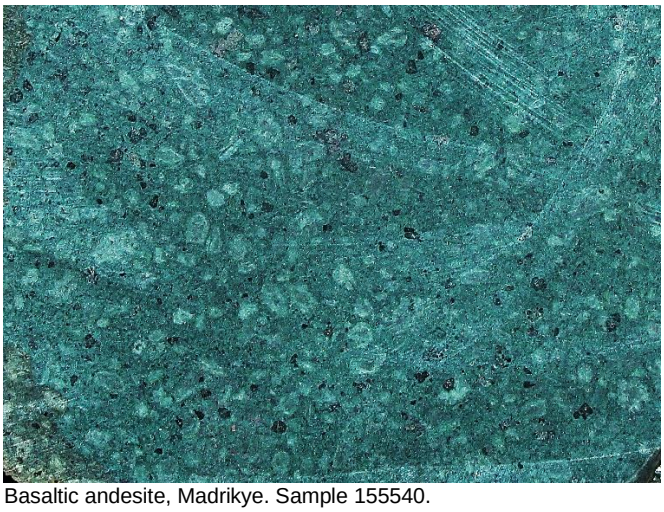
Analogues:

- Dinkidi (Luzon)
- Hishikari (Japan)

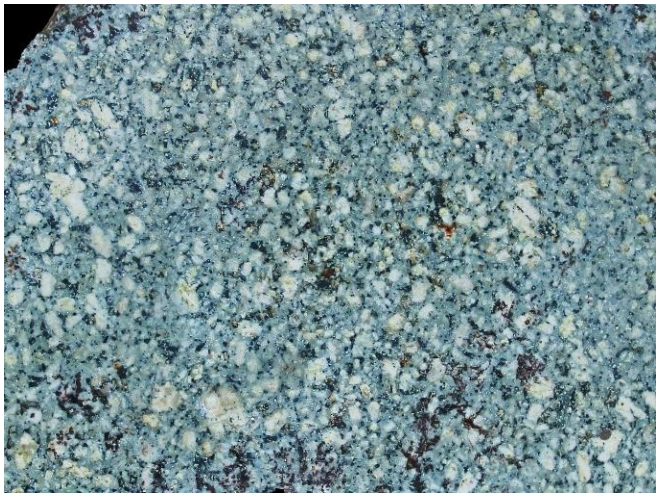
Igneous Rocks



Diorite, Samsanjaeil. Sample 155564: 0.13% Cu.

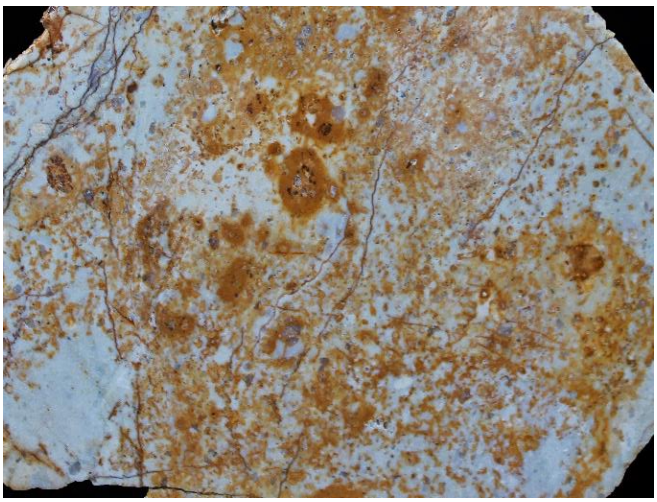


Basaltic andesite, Madrikye. Sample 155540.

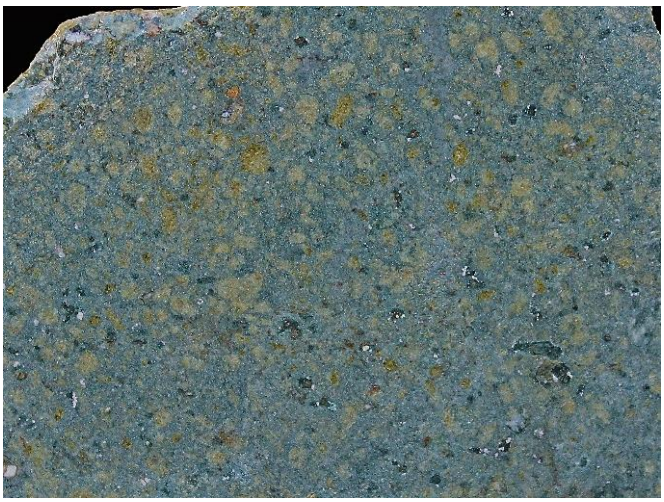


Crowded monzonite porphyry dyke, Samsanjaeil 2. Sample 155569.

Disseminated sulphide in andesite porphyry, Samjeon. Sample 155570: 0.14% Ba.

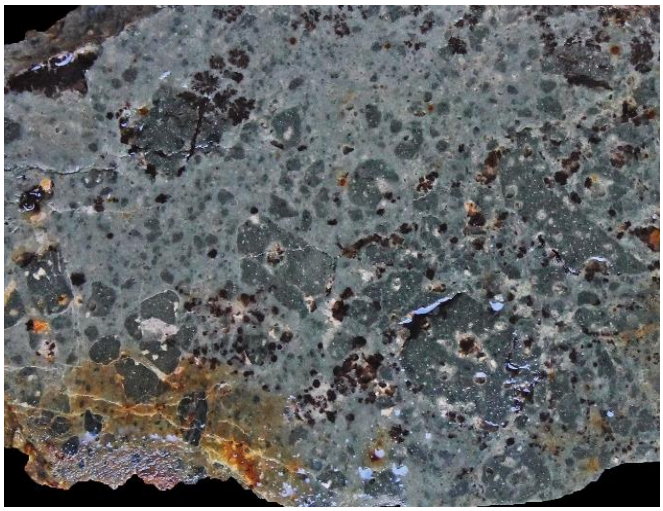


Pyrophyllite-dickite altered, spherulitic rhyodacite/quartz porphyry. Sample 155557.

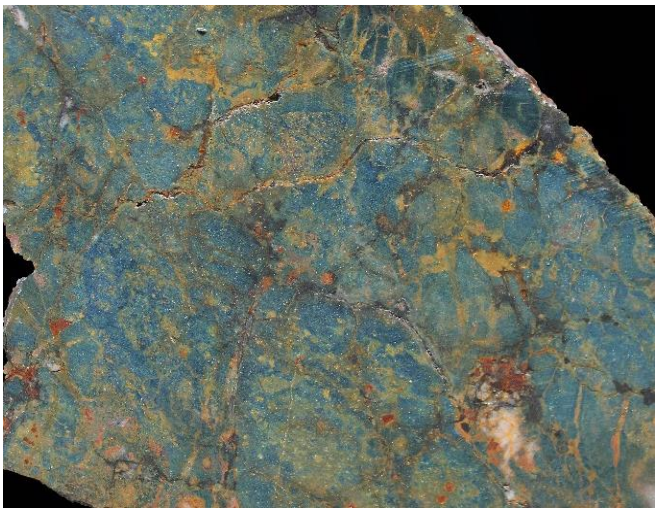


Epidote-chlorite-pyrite altered porphyritic andesite, Bonghwasan. Sample 155555.

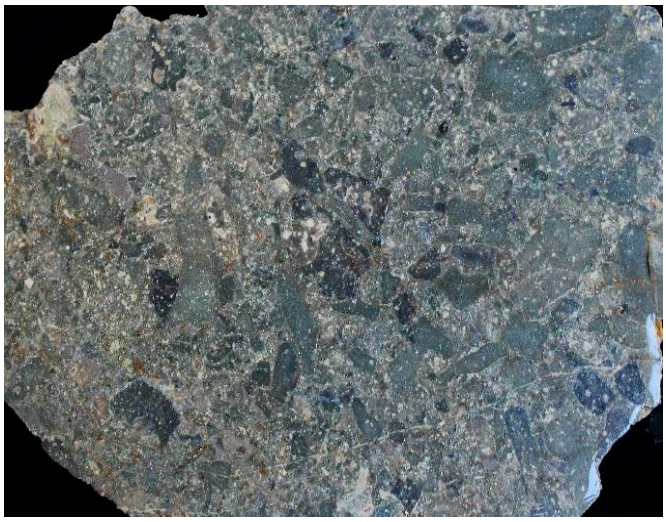
Breccias



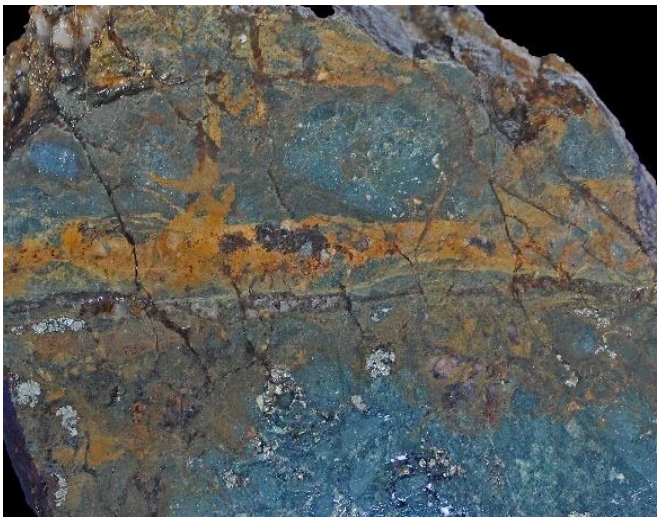
Andesite breccia pipe, Samsanjaeil No 2. Sample 155568.



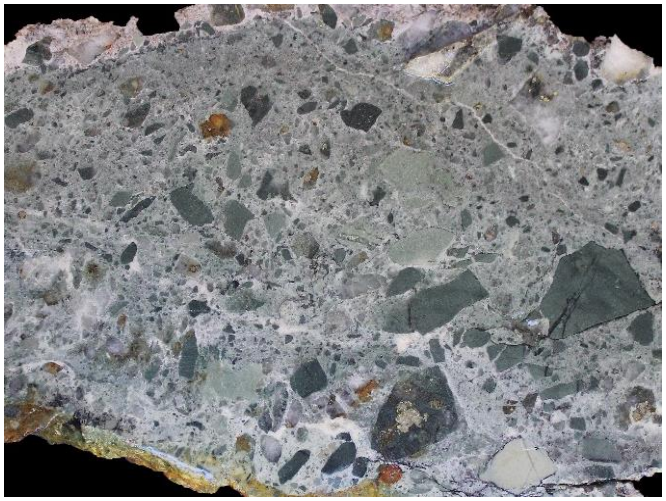
Andesite with hypogene specular hematite with jarosite and minor quartz, Jinheung. Sample 155547: 1.75g/t Au, 32g/t Ag, 0.10% Cu, 0.32% Pb, 0.29% Zn, 113ppm Bi, 176ppm As.



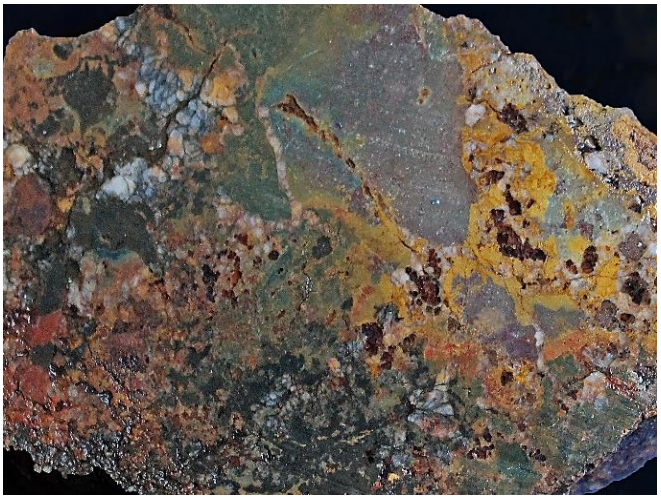
Silica-pyrite matrix in clast-supported andesite-dacite porphyry breccia, Bonghwasan, Sample 155559: 0.10% Zn



Quartz vein breccia with hypogene specular hematite, jarosite, epidote and sulphides indicating fluid mixing of oxygenated waters, Bonghwasan. Sample 155553: 7g/t Ag, 0.14% Cu, 18ppm Mo.



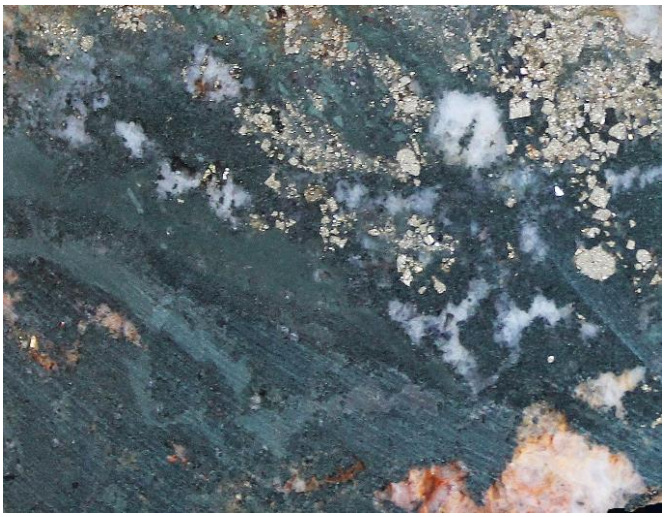
Silica-cemented mineralized clasts in andesitic volcanic breccia, Samsanjaeil. Sample 155565: 0.12g/t Au, 7g/t Ag, 0.14% Cu, 35ppm Bi, 209ppm As.



Breccia with hypogene specular hematite-jarosite and quartz infill, Jinheung. Sample 155548: 1.20g/t Au, 197g/t Ag, 0.29% Cu, 323ppm Bi, 202ppm As.

Veins

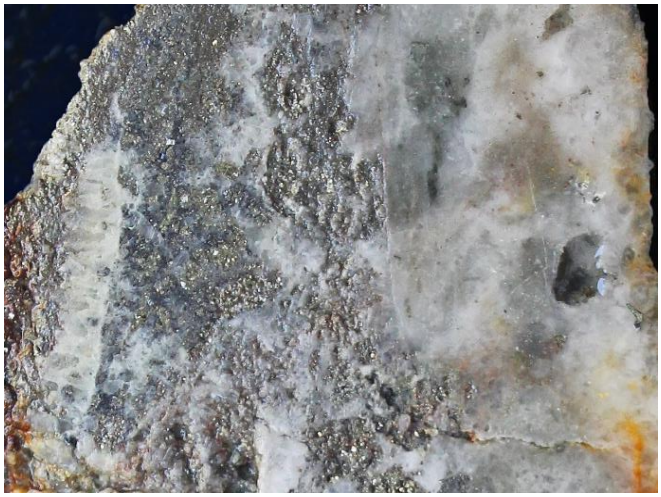
Prismatic quartz vein stockwork with specular hematite rim (ex magnetite) and central core open cavity lined by prismatic cockade quartz, Bonghwasan. Sample 155558: 0.13g/t Au, 3g/t Ag, 419ppm Cu, 12ppm Sb, 298ppm As.



Pyrrhotite with white jigsaw-mosaic sacharoidal quartz in silica-flooded andesite, Samsanjaeil. Sample 155577: 0.19g/t Au, 27g/t Ag, 0.29% Cu, 121ppm Co, 672ppm Bi, 385ppm As.

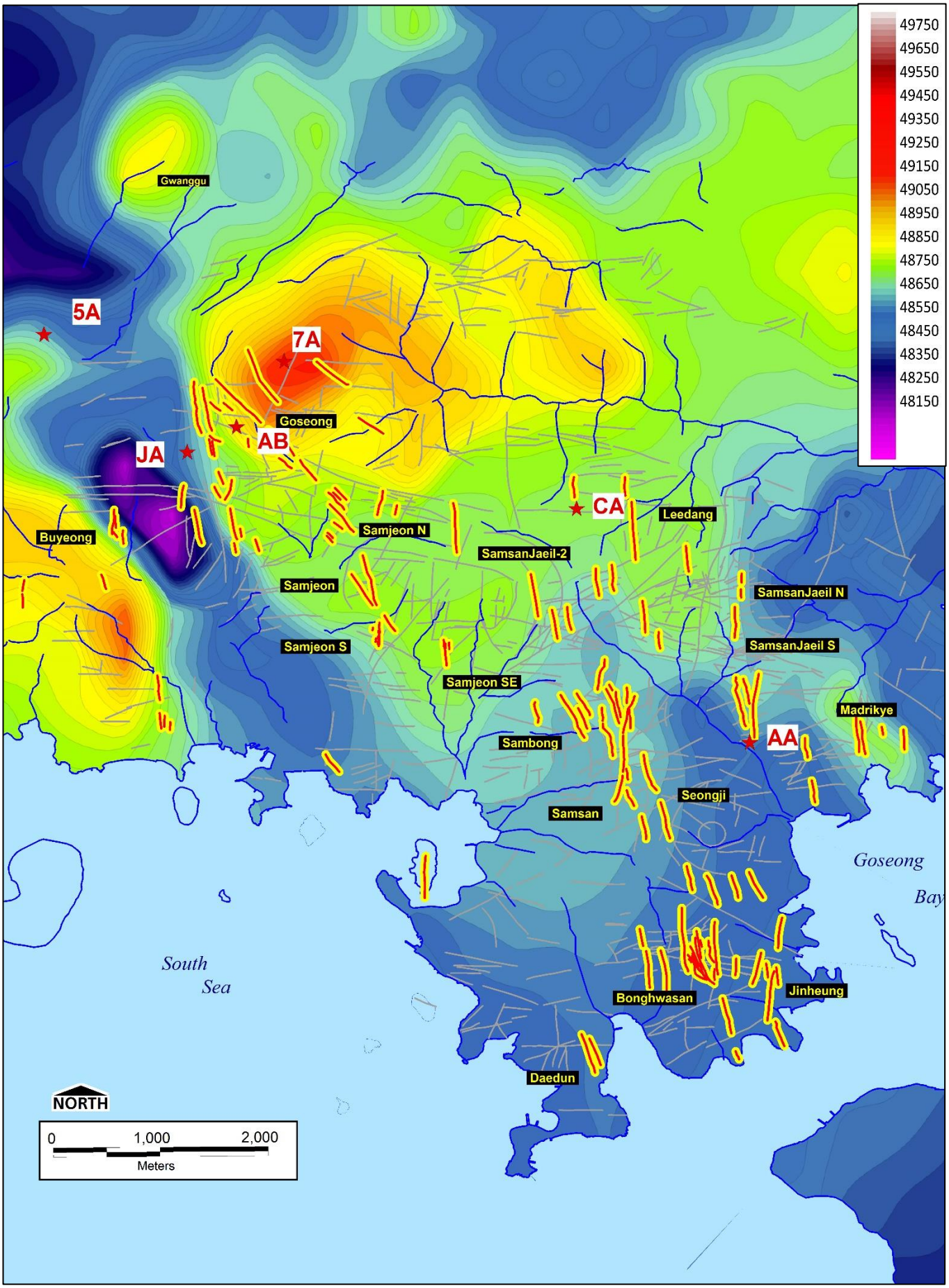
Brecciated quartz-hematite vein with epidote, re-healed with rhythmic crustiform quartz and fine gr sulphide, Bonghwasan. Sample 155545: 0.06g/t Au, 5g/t Ag, 0.28% Zn, 0.14% Pb, 353ppm Cu, 20ppm Bi, .

Epithermal quartz vein textures, including chalcedony, rhythmic banded cloudy crustiform quartz and druzy quartz lined vughs, Samjeon. Sample 155573: 1.33g/t Au, 22g/t Ag, 0.15% Cu, 108ppm Bi, 15ppm Sb, 18ppm Mo, 0.99% As.

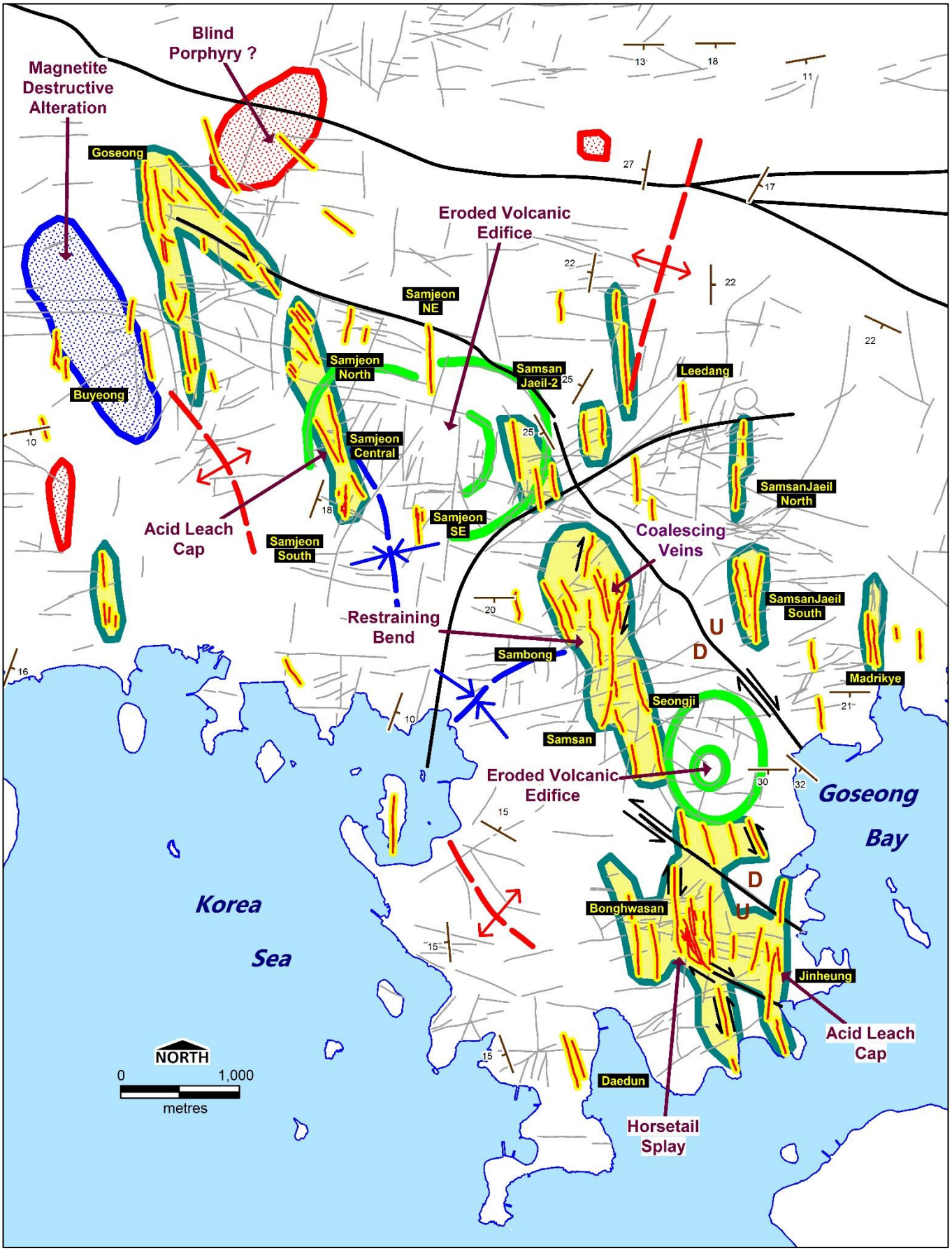


Quartz vein textures, including prismatic comb quartz, cloudy jigsaw-mosaic quartz, leached porous sulphide, and microcrystalline quartz with vugh, Samjeon, Sample: 155571: 3.42g/t Au, 437g/t Ag, 0.19% Cu, 0.23% Pb, 0.11% Bi, 44ppm Sb, 18ppm Mo, >1.00% As.

Banded epithermal quartz vein with fine dark sulphide, cloudy jigsaw-mosaic quartz, and brecciated pyrite/pyrrhotite, Samjeon. Sample 155576: 2.66g/t Au, 37g/t Ag, 0.29% Cu, 104ppm Bi, 33ppm Mo, 25ppm Sb, >1.00% As.



Colour Plot of Regional Helicopter Magnetometer Survey (Sanders Geophysics, 1975), Goseong district. Colour scale is magnetic reading in gammas. The EM Anomalies are identified as numbers/letters. The intense "bulls eye" >49,000 gamma magnetic high anomaly at Goseong corresponds to quartz diorite porphyry intrusion and EM Anomalies 7A and AB. there is a smaller magnetic high anomaly south of Buyeong. The prominent NNW trending magnetic low corridor between Goseong and Buyeong is not readily explained but coincides with EM Anomaly JA.



Exploration Target Map, Goseong district. Historical mines, major veins, bedding, faults, fracture sets and interpreted features are shown. The yellow shaded areas are the main identified Exploration Targets. A 'blind' magnetic high anomaly porphyry Cu-Au target is present at Goseong.