6) Geology and geological structure

The basement of this district is Proterozoic metamorphic rocks, Permian granitic rocks and Permian to Triassic volcanic rocks of the Choiyoi group. Unconformabaly overlying them, Neogene Tertiary andesitic rocks of the Cajón Negro formation is widely distributed (Fig. II-3-2-7a). Because of topographical characteristics, there are many remaining stratovolcanoes which have depressions considered to be craters.

7) Mineralization and alteration

Arroyo Manzano deposit of copper and zinc dissemination is known in Permian granitic rocks in the northwestern part of this district.

8) Characteristics of the satellite image

There are concentrations of lineaments tending to the NE-SW and the NW-SE. Hydrothermal alteration zones were extracted around the place where these lineaments are entangled. Circular structure was extracted near the central part of the stratovolcanoes, although it is unclear whether the circular structure corresponds to a caldera or not. Horse's hoof shaped lineaments are identified around the stratovolcano, the cause is considered to be collapse of the stratovolcano.

9) Laboratory work results

No laboratory work was done for this district.

10) Assessment

In this survey, concrete assessment is not possible because the hydrothermal alteration zones were not surveyed for reasons of bad accessibility. However, it is suggested that this district has a possibility of epithermal type mineralization rather than porphyry Cu type mineralization because the erosion did not develop for young volcanoes of Neogene Tertiary.

3-2-8 Carreri Malal district

1) Location

This district is located about 50 km to the west of Zapala city, in the west of Neuquen province (Fig. II-3-1). The area is lat. 38° 54' 36" to 38° 59' 24" S and long. 70° 32' 24" to 70° 38' 24" W (Fig. II-3-2-8a), and bout 100 m^2. The representative coordinate is lat. 38° 57' 56.1" S and long. 70° 36' 44.2" W at Carreri Malal deposits.

2) Topography and vegetation

This district is located in upper stream of Rio Carrerri that originates from the southeast slope of Cerro Atravesada of 2,540 m above sea level. Rio Carreri forms a broad U-shaped valley. It has falls made of granite around Carreri Malal. The ore deposits of several veins are located in the area of 1,600 to 1,700 m above sea level. This district has a cold and humid climate typical of the Patagonian Andes. It is moderately dry in summer, cold and humid and sometimes snows in winter. The vegetation is sparse. Araucaria woods spread along the stream.

3) Access

It is about 30 minutes drive on No. 235 national road from the Zapala city to the entrance of farm byroad, then about 2 hours drive on farm road and exploration road. The farm road has locked gates and the exploration road has no bridges to go across rivers in several times. Even 4-wheel vehicle can not drive last 1 to 2 km to the Carrerri Malal deposits, so a walk of about 1 hour is required.

4) Previous surveys

According to Aparicio (1960), ore grade assay of lead, zinc and silver was done for 8 ore samples from around the Carrerri Malal.

Danieli et al. (1979) studied the genetic comparison between Andacollo deposits in the northern part of Neuquen province and Carreri Malal deposits of Cerro Atravesada, and concluded that both belong to the mesothermal polymetallic vein type mineralization. The possibility was mentioned that the Carrerri Malal deposits were formed by mineralization in twice. The first one was before the climax of Hercynian orogeny, then it was affected by cataclastic movement, and the second one was hydrothermal activities of Eocene to Oligocene.

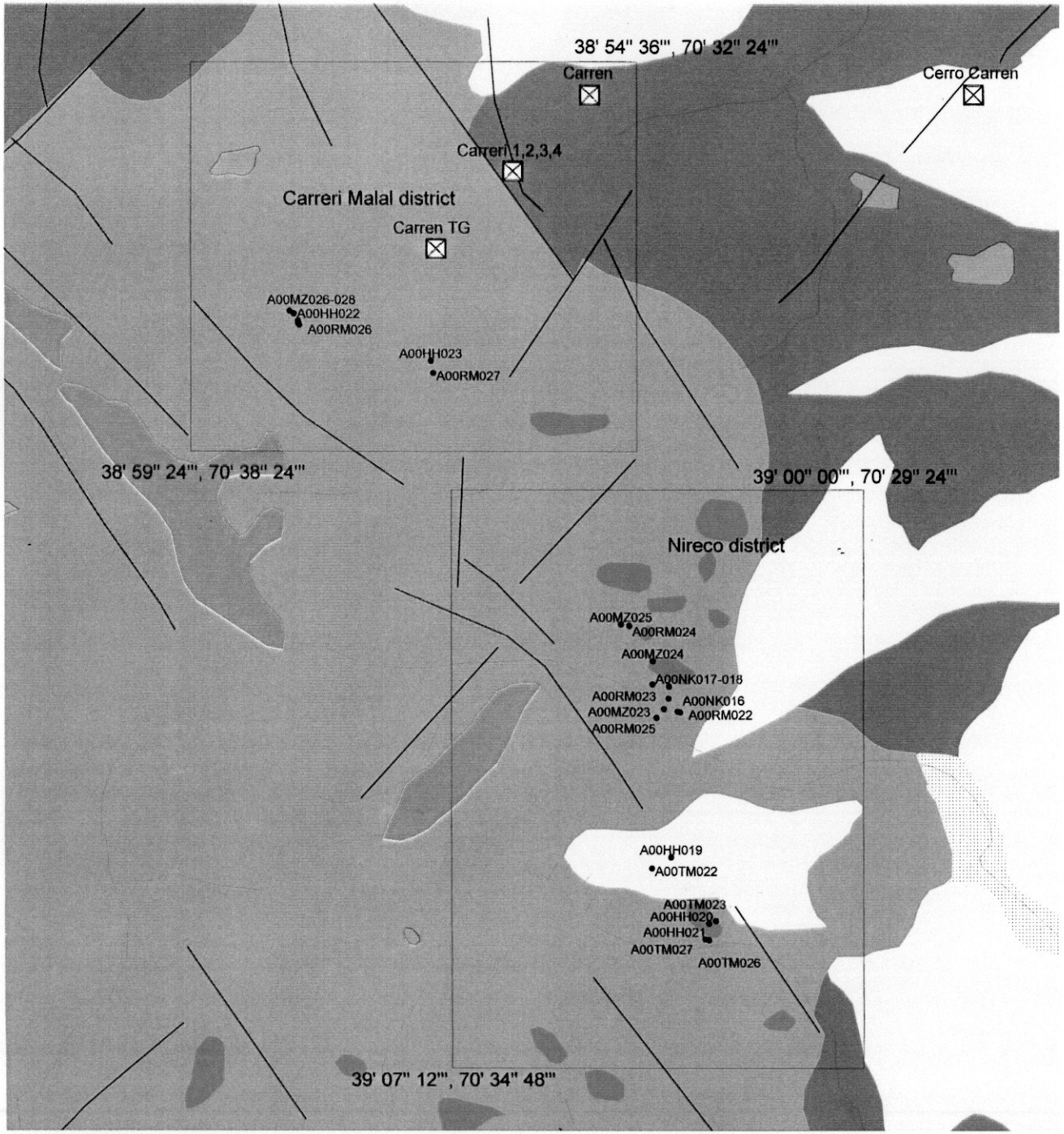
JICA and MMAJ (1984) reported the geochemical anomalies of lead, zinc and copper by medium of soil samples in Carrerri district. And 222 ± 1.1 Ma of middle Triassic was reported by K-Ar radiometric dating for tonalite in about 10km south of Carrerri district.

Ingeoma (1993) reported the chemical analysis results of copper and gold for 476 soil samples and 88 rock samples around Cerro Atravesada. However, particularly noticeable values were not obtained.

R. T. Z. Mining Exploration Ltd. took 335 stream sediments samples and 27 rock samples in Cochico, Carreri and Cachil areas, and made a chemical analysis in 1996. Any results giving expectation were not obtained.

5) Mining properties

Several private companies own the properties including Carreri TG and Carreri II TG.



N

Known deposit
Sampling point
Lineament
Circular structure
River
Lake

Legend

Quaternary sediments
Pliocene to Pleistocene basalt
Tertiary sedimentary rocks
Tertiary volcanic rocks
Tertiary granitoids
Jurassic to Cretaceous sedimentary rocks
Jurassic to Cretaceous volcanic rocks
Jurassic to Cretaceous granitoids
Permian to Triassic igneous rocks
Carboniferous sedimentary rocks
Proterozoic metamorphic rocks
Alteration zone

2 0 2 4 Kilometers

Fig. II-3-2-8a Geologocal map with sampling points of the Carreri Malal and Nireco districts.

6) Geology and geological structure

The geology of this district comprises, in ascending order, the Chachil plutonic complex and volcanic rocks of the Choiyoi group of Permian to Triassic, Cuyo group of Jurassic sedimentary rocks and Cajon Negro formation of Neogene andesitic rocks (Fig. II-3-2-8a).

Chachil plutonic complex is composed of granite, granodiorite and tonalite. Choiyoi group is made up of rhyolitic to andesitic lavas and its pyroclastics. Cuyo group consists of black shale, sandstone and limestone.

7) Mineralization and alteration

Carreri Malal vein deposits are hosted along the contact zone between granitic batholith of Chachil plutonic complex and Choiyoi group of Triassic. The veins strike NW-SE and dip vertical. Silicified breccia dykes of 10 cm to 1.5 m width intruded into granite in three places, and it has relation with the mineralization of lead, zinc, copper and silver. Limonitization on the wall of granite exposure is frequently observed. Disseminated galena, pyrite, chalcopyrite, bornite, malachite and pyrrhotite were observed in silicified and mineralized floats. Galena is dominant quantitatively. Quartz and calcite were observed as gangue. Alteration of granite is weak. Chloritization of mafic minerals and argillization of plagioclase were only confirmed.

8) Characteristics of the satellite image

The geology of this district is interpreted that Chachil plutonic complex is as αP (Paleozoic plutonic to hypabyssal), Choiyoi group is as TRi (lower Triassic volcanics) and Jurassic sedimentary rocks are as Jms (middle Jurassic). Colors tone of the false color image range from brown to whitish brown. The structure due to topographical undulations is rough, and water systems are dendritic or crisscross with moderate to high densities. Ridges are quasi-clear to clear with moderate to high resistance. Bedding planes develop well in sedimentary rocks but are few in Choiyoi group. Intrusive rocks are massive. Dominant lineaments are in NW-SE direction, which is consistent with the strike of veins. NE-SW lineaments are also recognized, although they are few. A small-sized alteration zone of ZA020 is extracted that shows bright reddish purple color on the ratio image.

9) Laboratory work results

Small amount of chlorite, sericite and mixed layer of sericite-montmorillonite were identified by powdery X-ray diffraction for granite sample of A00HH022 and altered rock sample of A00HH023 (Appendix-5).

Chemical analysis results revealed that 7.6 g/t Ag, 4,250 ppm Mn, 1,795 ppm Pb and 652 ppm Zn for sample A00MZ026, and 2,010 ppm Mn for sample A00MZ027 (Appendix-6). And

Sample A00MZ028 revealed 321 g/t Ag, 15.35% Fe, 9.92% Pb and 2.43 % Zn (Appendix-9).

10) Assessment

Although the polymetallic vein deposits is hosted in this district, it is considered that the hydrothermal alteration is not developed and the scale of mineralization is not significant. While ore shows high grade for silver, lead, iron and manganese, the gold grade is low. Therefore, it is judged that there is no necessity to include this district in Phase-2 survey.

3-2-9 Nireco district

1) Location

This district is located about 47 km to the west-southwest of Zapala city, in the west of Neuquen province (Fig. II-3-1). The area is lat. 39° 00' 00" to 39° 07' 12" S and long. 70° 29' 24" to 70° 34' 48" W (Fig. II-3-2-8a), and about 140 km^2. The hydrothermal alteration zones of ZA021 to ZA030 were extracted by satellite image analysis (Fig. II-2-9). The representative cordinate is lat. 39° 04' 56.0" S and long. 70° 31' 56.4" W at alteration zone of ZA028.

2) Topography and vegetation

This district is located in the mountains of northern Patagonia. Mountains about 1,800 m above sea level run south to north. The survey sites of ZA026 and ZA027 are located on the northwest bank and ZA028 and ZA029 on the southeast bank of Rio Nireco. Topography is steep slopes between the river level to 1,900m above sea level. However, upper parts higher than 1,900m above sea level are relative flat plateau. Short grasses are dominant in vegetation.

3) Access

It is about 60 km and 1.5 hour drive from the Zapala city to the last point accessible by 4-wheel vehicle. The route from Zapala city is No. 235 national road to west, unpaved road to south and another unpaved byroad to west along Rio Nireco. From the last point of drive, it is 4 km to ZA026 and ZA028 respectively. Walking time is 2.5 hours to ZA027 and 1 hour from ZA027 to ZA026. And it is 1.5 hour to ZA028 and 1 hour from ZA028 to ZA029.

4) Previous surveys

Geological mapping was done by the Subsecretaria de Mineria (Leanza, 1985). After that, a geological survey was executed to explore manganese deposits accompanied by the chert layer.

5) Mining properties

No mining properties are petitioned in this district.

6) Geology and geological structure

In the western side, there is distribution of Permian granite and Permian to Triassic volcanic rocks of the Choiyoi group. In the eastern side, Cuyo group of Jurassic sedimentary rocks is distributed. They are unconformably overlain by Campos Basalticos de Zapala of Pliocene to Pleistocene basalt that forms lava plateaus.

In ZA026 and ZA027, there is distribution of silicified pyroclastic rocks showing a disturbance structure, and overlying fresh quartz andesite and dacite. Ridges and valleys orient to the NW in the area where Choiyoi group is distributed in ZA028 and ZA029. Basalt is lavas and its pyroclastics partially altered, it forms plateaus in the high altitude, about 1800 m above the sea.

7) Mineralization and alteration

In ZA026, leached and silicified alteration was observed in the protruding andesitic rocks. Groundmass shows light gray color, and mafic minerals are well leached and a small amount of altered plagioclase is remained. Kaolinite was identified by POSAM measurement for samples of A00RM024 and A00MZ025. Coating limonite is on the surface of rocks, but remarkable mineralization was not observed.

In the lower part from the level of ZA027, reddish brown to greenish gray andesitic pyroclastic rocks are distributed with sedimentary structure, calcite veinlets and argillization of montmorillonite and sericite. Chloritization, argillization and saussuritization were observed microscopically. In ZA027, sedimentary rocks and pyroclastic rocks are strongly silicified. Quartz phenocrysts in globular or oblong forms were observed on the prominent outcrops of silicified rock. However, mineralization could not be observed.

In ZA028, silicification and whitened argillization were observed and kaolinite was identified by POSAM measurement. The size of alteration zone is about 40 m x 10 m. Original rock is considered to be tuff breccia. Although cracks develop in directions of N 20° W, N 25° E and N-S, mineralization such as quartz veins were not observed.

In ZA029, green and whitened argillization were observed. Chlorite and zeolite were identified by POSAM measurement. The size of alteration zones is as large as about 1,500 m x 500 m. Tuff is affected by propylitic alteration but mineralization such as quartz veins was not observed.

8) Characteristics of the satellite images

Concerning the false color images, it can be read that one of the major characteristics is development of NW and NE oriented lineaments, and ridges and valleys are steep. In the sedimentary rock distribution area, fold axes and sedimentary structures are clear. Dominant color tones are brown, pink and white, while the western part of the survey area looks clear green, which reflects a difference in vegetation. Blue indicates lakes and marshes distributed in valley lines. On basaltic lava plateaus, many lava domes looking orange are recognized.

Concerning the ratio image, color tones are pink, reddish purple, yellow, green, dark color and mixtures of them. In comparison with the false color image, the outcrops exposed correspond to the pink part, and dense vegetation to the yellow part. Many hydrothermal alteration zones looking bright reddish purple were extracted. Among them, ZA028 and ZA029 were extracted as independent alteration zones. Because clear reddish purple seen in these places represents the large-sized area including ZA028 and ZA029 and alteration zones are continuously observed by ground truth survey, it is reasonable to consider this part as a large-size alteration zone.

9) Laboratory work results

The followings were judged by the microscopic observations; the sample A00NK018 is strongly silicified aphanitic rhyolite, the sample A00RM025 is chloritized, argillized and saussuritized porphyritic andesite, and the sample A00TM023 is olivine basalt (Appendix-3).

In the powdery X-ray diffraction, the samples A00MZ024, A00RM022 and A00RM023 taken near the ZA027 showed a similar tendency. Their content of quartz is high, which was followed by potassium feldspar. A small amount of sericite was identified in A00RM022 and A00RM023. A00RM024 taken in ZA026 was proved to have a large amount of quartz and albite, and a small amount of potassium feldspar and very small amount of kaolin. (Appendix-5).

In the chemical analysis, noticeable values were not obtained from the samples A00NK016, A00NK017, A00MZ023 to A00MZ025 and A00RM023 taken in ZA026 and ZA027, except that A00MZ024 showed 1,030 ppm As. Concerning the samples A00HH019, A00TM022, A00TM026 and A00TM027 taken in ZA028 and ZA029, noticeable values were also not obtained except that A00HH019 showed weak anomalous values of 203 ppm As and 3.4 ppm Sb (Appendix-6).

10) Assessment

In ZA026, small-sized silicification and argillization by acid hydrothermal water was confirmed. In ZA027, small-sized silicification and argillization by neutral hydrothermal water was confirmed. In addition, relatively large-sized hydrothermal alteration zones were

confirmed in ZA028 and ZA029. Noticeable mineraliation was not recognized at all in them. However, this district has six hydrothermal alteration zones the actual conditions of which have not been surveyed (Fig. II-2-9), it is desired to conduct the survey for them in Phase-2.

3-2-10 La Voluntad district

1) Location

This area is located about 60 km to the southwest of Zapala city, in the west of Neuquen province (Fig. II-3-1). The area is lat. 39° 09' 00" to 39° 15' 00" S and long. 70° 33' 36" to 70° 39' 00" W (Fig. II-3-2-10a), and about 100 km^2. The hydrothermal alteration zones, ZA001 and ZA035 to ZA037, were extracted by satellite image analysis (Fig. II-2-9). The representative coordinate is lat. 39° 12' 50.2" S and long. 70° 36' 22.1" W at La Voluntad deposit.

2) Topography and vegetation

This district is located on a south slope of Cerro Chihuido Bayo of 2,090 m above sea level. The altitude is 1,400 to 1,800 m above sea level and has many steep cliffs. This district belongs to a cold and humid climate typical of the Patagonian Andes area. The vegetation includes steppes with low trees and araucaria woods.

3) Access

It is about 1.5 hours drive to south on No. 46 provincial road from the Zapala city, then about 1 hour drive on byroad for the previous exploration. The exploration road reaches La Voluntad deposit at the summit, but access by car is not possible due to the bad condition of the road. After getting off the car, a walk of about 30 to 40 minutes is needed to reach the La Voluntad deposit.

4) Previous surveys

DGFM carried out geological survey of the scale of 1/12,500 in 1968. They executed a geochemical survey, IP method geophysical survey and a drilling survey (3 holes: total 400 m) in 1975. In the drilling survey, an anomalous 3,500 ppm Cu by chalcopyrite, was found in two intervals near the surface. Chalcocite mineralization was also intersected in two holes, but secondary enrichment was not intersected.

Sillitoe (1976) reported 281±4 Ma (the Permian) as the K-Ar radiometric dating for tonalite porphyry of La Voluntad plutonic complex.

JICA and MMAJ (1984) reported 225±11 Ma (the Triassic) as the K-Ar radiometric dating for tonalite of La Voluntad deposit and geochemical anomalies of copper at 8 points, zinc at 2 points and molybdenum at 1 point by medium of soil.

Quantec Geofisica Limitada (1993) reported the results of IP and magnetic survey. In the IP survey of dipole intervals of 50 to 200 m and 9.5 km depth investigation, anomalies at two points were detected. It was judged that oxidized zones are thin.

According to Domingues y Garrido (1990), mineralization on surface is primary and hypogene type of porphyry Cu deposit. In tonalite, there are chalcopyrite, pyrite and chalcocite in the forms of veinlets and dissemination, which are accompanied by a small amount of covelline, bornite, arsenopyrite and molybdenite.

Minera Placer Dome Argentina S. A. (1993) reported the results of geochemical survey of 538 samples for copper, molybdenum, gold, lead and zinc. The results showed that anomalies of these elements existed along faults. Alteration zone has a spread of about 2 km x 2 km. In 1994, Placer Dome conducted drilling survey of 4 holes (total 1,170 m) but promising mineralization was not intersected.

5) Mining properties

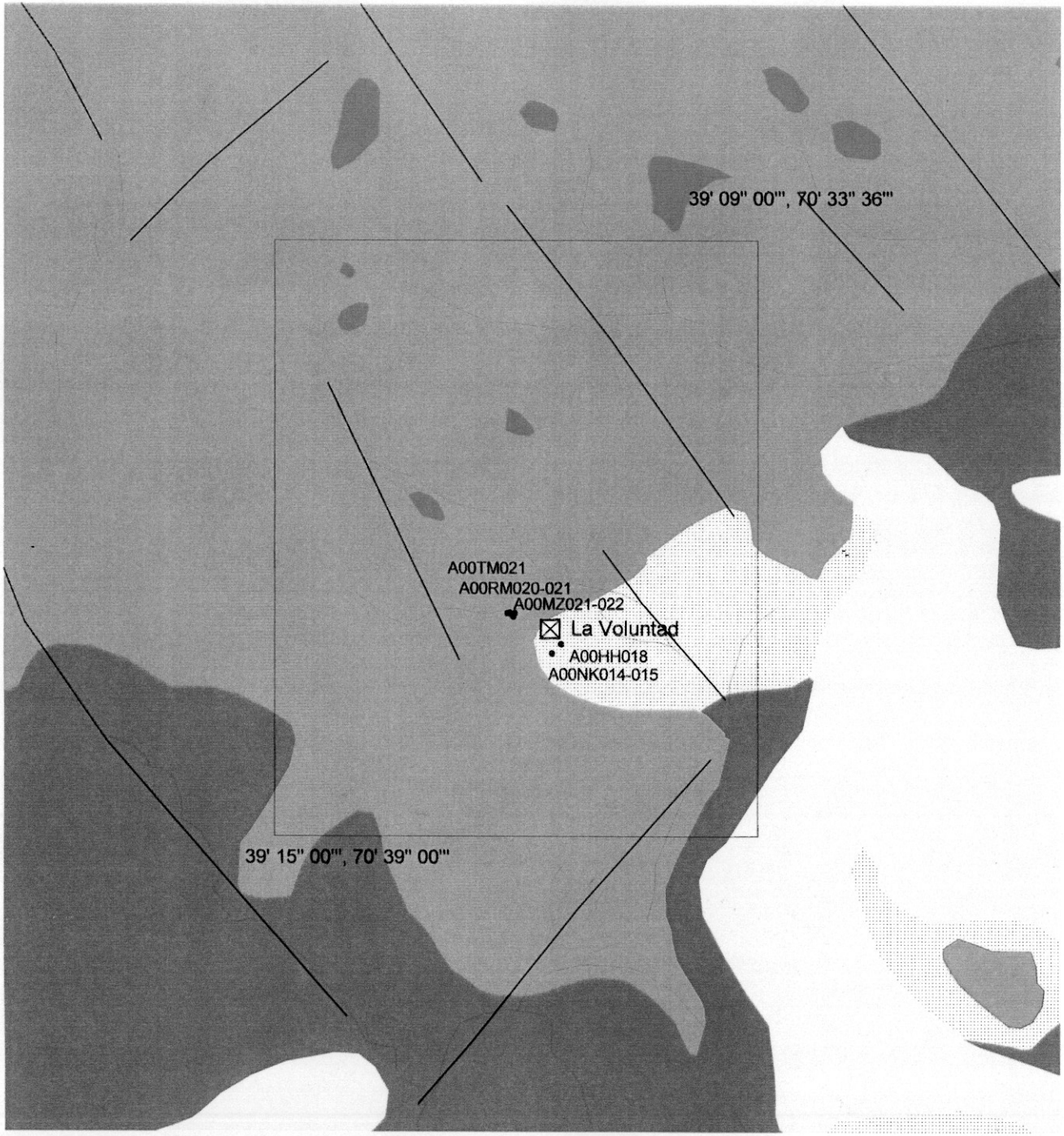
CORMINE S. E. P., a mining public corporation of Neuquen province, holds a mining property named Chachil.

6) Geology and geological structure

La Voluntad district is located 25 km south of Carreri Malal district and these are in a same geological condition. Permian to Triassic granitoids are called La Voluntad plutonic complex. The host rock of La Voluntad deposit is granodiorite and tonalite, etc. Porphyritic granodiorite was intruded by granular granodiorite, porphyritic tonalite and microdiorite and rhyolite in old order.

7) Mineralization and alteration

Granodiorite and tonalite of La Voluntad plutonic complex are well affected by hydrothermal alteration, and also surrounding rocks are weakly altered. The central part of alteration zones is potassic where quartz veinlets develop, and is characterized by secondary biotite. Quartz veins are white to semi-clear and massive. They develop in the network form, accompanied by disseminated pyrite, hematite, chalcopyrite and malachite. Pyrite and hematite are dominant in mineralization. The vein width is about 5 to 50 cm. The strike is NNE, ENE, NNW and E-W, and the dip is 90° to 60° S. The host rock close to veins is strongly silicified with veinlets of biotite and sericite. In the potassic alteration zones, there are breccia pipes that form topographical rises and show the cataclastic structure. On lowlands around potassic zones on the summit, intensively sericitic altered granitic rocks were observed.



Known deposit
Sampling point
Lineament
Circular structure
River
Lake

Legend

Quaternary sediments
Pliocene to Pleistocene basalt
Tertiary sedimentary rocks
Tertiary volcanic rocks
Tertiary granitoids
Jurassic to Cretaceous sedimentary rocks
Jurassic to Cretaceous volcanic rocks
Jurassic to Cretaceous granitoids
Permian to Triassic igneous rocks
Carboniferous sedimentary rocks
Proterozoic metamorphic rocks
Alteration zone

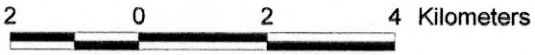


Fig. II-3-2-10a Geologocal map with sampling points of the La Voluntad district.

8) Characteristics of the satellite images

The geology of this district is interpreted as αP (Paleozoic plutonic to hypabyssal) for La Voluntad plutonic complex and TRi (Lower Triassic volcanics) for Choiyoi group surrounding the former. Color tones of the false color image are brown to whitish brown. The structure due to topographical undulations is rough, and water systems are dendritic or crisscross with moderate to high densities. Ridges are quasi-clear to clear with moderate to high resistance. Bedding planes are slightly recognized in Coiyoi group. Intrusive rocks are massive. Dominant lineaments orient to the NW-SE. Those in the NE-SW direction are also diagnosed following them. In the ratio image, hydrothermal alteration zones ZA001 and ZA035 to ZA037 are extracted as small sized reddish purple colored zones.

9) Laboratory work results

It was judged by microscopic observation that sample A00MZ022 from the potassic alteration zone is biotite granite, and sample A00NK014 from the sericitic alteration is muscovite-biotite granite (Appendix-3).

In the chemical analysis of granite accompanied by quartz-malachite veinlets, the sample A00TM021 showed 1.95 g/t Au, 15.2 g/t Ag, 6,820 ppb Hg, 2.44% Cu and 11.85% Fe (Appendix-6). The sample A00MZ021 showed 0.45 g/t Au, 15 g/t Ag, 0.9% Cu and 4.2% Fe (Appendix-9). These are well mineralizaed samples but quartz-malachite veinlets are not entirely distributed in the alteration zone.

10) Assessment

According to Placer International Exploration Inc. (1993), La Voluntad is a porphyry Cu deposit accompanied by an epithermal system in its upper part. And it is considered from the alteration types and distributions that the upper epithermal zone had been already eroded. In this survey, copper mineralization with quartz veins were confirmed However, based on the previous surveys, porphyry Cu deposit in this district is judged to be a primary deposit of the low grade without secondary enrichment. Therefore, the potentiality is considered not to be high.

Meanwhile, four hydrothermal alteration zones extracted by the satellite image analysis in northwest part of this district (Fig. II-2-9) were not investigated in this survey. It is desired to conduct the field survey for them in Phase-2.

3-2-11 Mina Maria district

1) Location

This district is located about 40 km to the northeast of El Bolson city, in the southwest of Rio Negro province (Fig. II-3-1). The area is lat. 41° 35' 24" to 41° 43' 48" S and long. 71° 00' 36" to 71° 09' 36" W (Fig. II-3-2-11a), and about 230 km^2. The representative coordinate is lat. 41° 40' 05.0" S and long. 71° 06' 21.7" W at the adit entrance of Mina Maria.

2) Topography and vegetation

This district is located in the mountains at approximately 50 km from the border with Chile. The upper streams of Rio Chubut run southward in the mountains. The altitude is about between 1,000 and 2,000 m above sea level. Although each mountain is prefixed with Cerro, meaning "hill," the mountains are significantly different in relative height in topography. The vegetation is sparse with short grasses.

3) Access

It is 28 km drive to southeast on No. 258 national road from El Boloson city to the front of Epuyen town. The road is unpaved after this point. Then it is 45 km drive to northeast on No. 70 provincial road via El Maiten town, and 25 km drive to north on byroad along Rio Chubut to Mina Maria. The road between No. 70 provincial road and Mina Maria is in bad condition and has no bridges at the crossing points. It takes about 4 hours from El Bolson city to Mina Maria, of which about 2.5 hours is for the drive of last 25 km.

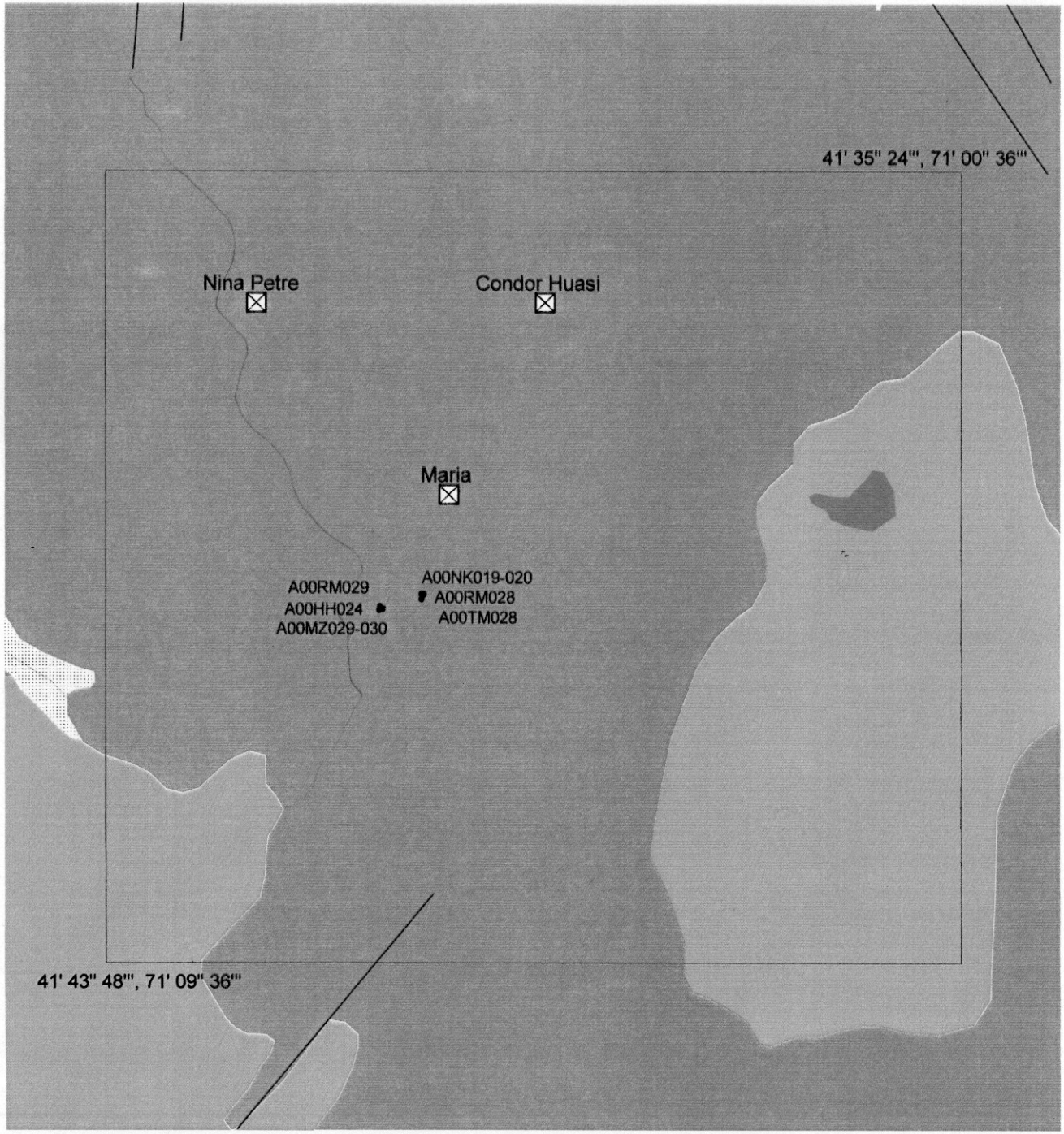
4) Previous surveys

The first description on Mina Maria was made in 1948. In 1972, the Direccion de Mineria of Rio Negro province conducted mapping in scale of 1/500 and an ore grade assays (Greco and Bernabo de Greco, 1973). According to the report, the vein is lenticular and has extension of 52 m, the average width of 1.57 m. The strike is N 10° to 30° E and dip is west in steep to vertical. Average grades are 11.75 % Pb, 12.7 % Zn, 1.80 % Cu and 45.41 g/t Ag.

Mineralization in extensions and deep parts of veins were not surveyed, nor ore reserves were not calculated. At present, exploration is not executed, and adit entrance and old cableway are left in halfway up a steep cliff. There is a pile of mined ores in front of the keeper's house near Mina Maria.

5) Mining properties

A personal mining property is established.



Known deposit
Sampling point
Lineament
Circular structure
River
Lake

Legend

Quaternary sediments
Pliocene to Pleistocene basalt
Tertiary sedimentary rocks
Tertiary volcanic rocks
Tertiary granitoids
Jurassic to Cretaceous sedimentary rocks
Jurassic to Cretaceous volcanic rocks
Jurassic to Cretaceous granitoids
Permian to Triassic igneous rocks
Carboniferous sedimentary rocks
Proterozoic metamorphic rocks
Alteration zone

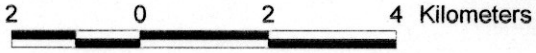


Fig. II-3-2-11a Geologocal map with sampling points of the Mina Maria district.

6) Geology and geological structure

In this district, Cretaceous granitic rocks and Ventana formation of Paleogene andesitic rocks are distributed (Fig. II-3-2-11a).

Ventana formation comprises andesite lavas and its tuff that are the host rocks of Maria deposits. According to Greco and Bernabo de Greco (1973), the andesitic rocks are products of Eocene and have compact lithofacies, show pale-green color due to propylite alteration. Andesitic tuff layers have almost horizontal structure.

Granite is medium-grained and fresh, and is accompanied by a potassium feldspar vein and tourmaline. It is intruded by basalt dykes.

7) Mineralization and alteration

Inside of adit of Maria deposits was not observed. Quartz veins and network quartz veinlets were observed near the adit entrance. The quartz veins have the width of 1 to 3 cm and strike of N 35° E at vertical. Mined ores stored in open air in front of the keeper's house are network veins in andesite, mainly made up of galena and sphalerite. It was observed that these ores were accompanied by a small amount of pyrite and chalcopyrite in addition to quartz as gangue.

8) Characteristics of the satellite images

Color tones of the false color image are green in lowlands and light pinkish gray and light blue in highlands. This means that lowlands have vegetation and highlands have no vegetation and in part a small amount of fallen snow.

The structure due to topographical undulations is fine, and water systems are somewhat radiate with moderate densities. Ridges are clear to unclear with difference in resistance. Bedding planes are not recognized. Lineaments in the NE direction are extracted. One hydrothermal alteration zone looking bright reddish purple is extracted on the ratio image.

9) Laboratory work results

The results of ore grade assays of samples from Maria deposits are shown in Appendix-9. The average values of four samples (A00NK019, A00HH024, A00MZ030 and A00RM029) are 0.16 g/t Au, 85.5 g/t Ag, 0.86 % Cu, 7.98 % Pb and 17.09 % Zn. Mineralization of lead and zinc is dominant, while that of gold is of the low grade.

The chemical analysis results for andesitic rocks that are host rocks are shown in Appendix-6. The samples A00TM028 and A00RM028 showed 1 and 7 ppm As, equal to or less than 0.2 ppm Sb, less than 10 ppb Hg. Values of the indicator elements of hydrothermal alteration are low. Therefore, it is considered that the host rocks are not altered significantly.

The sulfur isotopic composition of galena was -0.3‰ (Appendix-11). The standard of