PART II : DETAILED DISCUSSIONS

Chapter 1 Existing data analysis

1-1 Organizations owning existing data

The existing data on mining information including geology, ore deposits and mine properties in this area, was collected. The organizations from which the data was collected are SEGEMAR, Mining Direction (Direccion de Mineria) of provincial governments, CORMINE S.E.P., Minera Andacollo Gold S.A., and Minera el Desquite.

In SEGEMAR, information was collected from its head office in Buenos Aires, the General Roca branch in Rio Negro province, and the Comodoro Rivadavia branch in Chubut province. The General Roca branch covers Neuquen and Rio Negro provinces.

Among the Mining Direction of provincial governments, the Neuquen province has office in Zapala City. The Rio Negro province has branch office within SEGEMAR's General Roca branch. The Chubut province has branch office in Esquel City.

CORMINE S.E.P. is a public mining corporation established by Neuquen provincial government. Its head office is located in Zapala City. Minera Andacollo Gold S.A. is a private company operating Andacollo gold mine in Neuquen province with its office in Andacollo. Minera el Desquite is a private company exploring for gold at Joya del Sol deposits in Chubut province. Its office is located in Esquel City (See I-3-3). In addition, many existing data were collected by the Project Finding Survey executed in fiscal year 1998.

1-2 Compilation and analysis of existing dada

The list of existing data collected from the above-mentioned organizations is shown in Appendix-1. Data of known deposits are mainly based on Zappettini (1998) and Zanettini et al (1999). The list of the known deposits in the area is shown in Table II-1-1. The distribution of the known deposits is shown in Fig. I-3-4 and Fig. I-3-5.

Fig. II-1-1 is a compiled map based on the existing data. It classifies the known deposits by type and shows the distribution of the magmatic arcs of each period. The distribution of the magmatic arcs has been arranged from the GIS data-set by Zappettini (1998). Fig. II-1-1 also shows the distribution of hydrothermal alteration zones extracted by the satellite image analyses.

The known deposits are divided into five types of gold and auriferous base metals deposits, placer gold deposits, non-auriferous base metals deposits, sedimentary deposits and other deposits. The sedimentary deposits are deposits of copper, uranium, barite, celestite, etc. that are hosted in the sedimentary rocks of Jurassic to Cretaceous. The other deposits are deposits of iron, manganese and graphite. Fluorite deposits in Rio Negro province are also

shown in Fig. II-1-1 although it is outside of the survey area.

The relations between the igneous activities and the mineralization of each period have already been explained (See I-3-2). The magmatic arcs of Permian to Triassic in Fig. II-1-1 were formed when the Patagonia terrane (Fig. I-3-1) collided with the Gondowana continent. The magmatic arcs of Jurassic to Cretaceous comprise two types; one of them was formed when the Atlantic Ocean opened and the Gondowana continent broke up in Jurassic, and another was formed in Cretaceous by the plate subduction from the Pacific Ocean side. The magmatic arcs of Tertiary were formed when the Andean orogeny was maximized by the plate subduction from the Pacific Ocean side. The magmatic arcs of the Tertiary are subdivided into Paleogene volcanic rocks, Neogene volcanic rocks and Tertiary granitoids.

Among the known mineralization in the area, gold and auriferous base metals vein deposits and porphyry copper deposits are important. Representative gold deposit, auriferous base metals deposit and porphyry copper deposit are Joya del Sol deposit of auriferous quartz veins, Andacollo deposit and Campana Mahuida deposit respectively. The following is the results of the consideration through the existing data analysis based on Fig. II-1.1.

1) Andacollo district

The deposits of gold and auriferous base metals from Andacollo to Varvarco in the northwest of Neuquen province concentrate around the boundaries between the magmatic arcs of Permian to Triassic and Paleogene. Intrusive rocks including Tertiary dacite porphyry are distributed near Andacollo deposit (CORMINE, 1998a), though they are not shown in Fig. II-1.1 because of their small sizes. These mineralizations are considered to be formed in Paleogene or later periods. As this district is one of model districts, it is desired to conduct the field survey for comprehension of the geology and the mineralization, and for preparing the exploration guideline.

Many alteration zones were also extracted by the satellite image analyses in Paleogene to Neogene magmatic arcs near these deposits. Some unknown deposits are expected in these alteration zones.

2) Campana Mahuida district

Campana Mahuida and Pino Andino in the middle west of Neuquen province are porphyry copper deposits. Although andesite porphyry related with mimeralization of Campana Mahuida deposit is not shown in Fig. II-1.1 because it does not have the outcrop, an age of 74Ma of late Cretaceous was determined by K-Ar radiometric dating for the secondary biotite (Sillitoe, 1976). It is considered to be related with the plate subduction from the Pacific Ocean side as precedence of the Andean events (see I-3-2). These deposits have been found out to be small in size and low grades through the previous drilling surveys (Méndez et al., 1995;

Table II-1-1 Data of all known mineral occurrences of the survey area.

No.	Name	Lat(D)	Lat(M)	Lon(D)	Lon(M)	Metal	Form	Strike	Dip	Host rock	Data	Reference
1	Mallin de los Caballos	36	3	69	51	Cu,Ag,Au	stratiform	N40E	32NW	Ksc		Plan Cordillerano C., 1969
2	Grupo Liu Cullín	36	6	69	48	Cu	stratiform	N20E		Ksc		Plan Cordillerano C., 1969
3	Sin Nombre	36	12	69	47	Cu	stratiform	N20E	3NW	Ksc		Zanettini, 1995
4	Sin Nombre	36	14	69	53	Cu	stratiform	N45W		Ksc		Zanettini, 1995
5	El Mayán	36	15	70	1	Fe	vein	N90E	90	Ksc		Mendez et al., 1995
6	Sin Nombre	36	16	70	3	Fe	vein	N	90	Ta1		Mendez et al., 1995
7	Piedra Parada	36	17	69	59	Fe	vein	N90E	90	Ksc		Mendez et al., 1995
8	Juan Carlos	36	19	69	43	Pb,Zn	vein	N25W	90	Ta2		La Rocque, 1964
9	Amelia	36	21	70	2	Fe	vein	N	90	Ta2		La Rocque, 1964
10	Pedro Pablo	36	27	69	55	Fe	vein	N	90	Ta1		La Rocque, 1964
11	César	36	29	69	45	Cu	stratiform	N20E	80NW	Ksc		Plan Cordillerano C., 1969
12	Arroyo Caimucó	36	31	69	46	Cu	stratiform	N20E	80NW	Ksc		Plan Cordillerano C., 1969
13	Varvarco	36	52	70	37	Au,Cu	vein	N30E	30NW	PTR	2.04% Cu, 0.11% Pb, 0.21% Zn, 16.97g/t Au, 302.25g/t Ag, average of 6 samples from vein and fracture zone	Zanettini y Deza, 1989; CORMINE, 1996
14	Sin Nombre	36	53	70	38	Cu	vein	N45W	90	PTR		Zanettini y Deza, 1989
15	Butalón Norte	36	59	70	39	Au	stockwork			PTR	0.05g/t Au, 0.51g/t Ag, average of 176 rock samples	Zanettini y Lopez, 1988; CORMINE, 1996
16	Aquihuecó	37	4	70	31	Cu	vein	N30W	40SW	PTR		Plan Cordillerano C., 1969
17	La Premia	37	8	70	37	Au	vein	N	90	C		Zollner, 1949
18	Sorpresa	37	9	70	36	Au	vein	N	90	C		Llambia y Maivicini, 1978
19	Erica	37	10	70	36	Au	vein	N75E	90	C	199,916t, 7.77g/t Au	Angelelli, 1984; CORMINE, 1998
20	Arroyo Huaraco	37	11	70	40	Au	placer			Qa		Zollner y Amos, 1973
21	Gpo. San Cayetano	37	12	70	37	Au	vein	N70E	90	C, Ta1		Angelli, 1984
22	Sofia	37	12	70	38	Au,Pb,Zn	vein	N70E	90	C	79,836t, 14.72g/t Au	Angelli, 1984; CORMINE, 1998
23	Los Maitenes	37	13	70	40	Cu,Au	stockwork			Kg	0.4g/t Au, 55m depth drilling	Plan Cordillerano C., 1969; CORMINE, 1996
24	Gripo Duranzo	37	13	70	40	Au	placer			Qa		Zollner y Amos, 1973
25	Helena	37	15	70	38	Pb,Zn,Au,Ag	vein	N70E	70SE	PTR		Zollner y Amos, 1973
26	Arroyo Colo	37	15	70	41	Au	placer			Qa		Zollner y Amos, 1973
27	Gpo. Milla Michicó	37	16	70	40	Au,Pb,Zn,Ag	vein	N68	72NW	PTR		Angelelli, 1984
28	Gpo. Arroyo Nuevo	37	17	70	40	Au	placer			Qa		Zollner y Amos, 1973
29	Sin Nombre	37	19	70	38	Au	vein	N	90	J, JK		Mendez et al., 1995
30	Gpo. Cura-Mallín	37	19	70	41	Cu,Pb,Zn	vein	N45W	70NE	Ta2		Barrionuevo y Nie, 1955
31	Cerro Mayal	37	21	70	24	Au,Fe	vein	N60E	85NW	Ta1	0.10% Cu, 0.11g/t Au, 0.87g/t Ag, average of 23 rock samples	Zollner y Amos, 1973; CORMINE, 1996
32	Arroyo Butalón	37	21	70	31	Cu	vein	N45W	70SW	J, JK		Mendez et al., 1995
33	Arroyo Mayal	37	22	70	23	Au	placer			Qa		Zollner y Amos, 1973
34	General Paz	37	22	70	32	Pb	vein	N	85NW	J, JK		Angelelli, 1984
35	Sin Nombre	37	22	70	40	Au	vein	N45W	90	J, JK		Mendez et al., 1995
36	Atahualpa	37	23	70	34	Pb	vein	N25E	80NW	J, JK		Angelelli, 1984
37	Cerro Caicayen	37	26	70	27	Cu,Fe	stockwork			J, JK	porphyry Cu, 0.64% Cu, 0.06g/t Au, 0.78g/t Ag, average of 98 rock samples	Zappettini, 1998; CORMINE, 1996
38	Don Oscar	37	27	70	26	Fe	irregular vein	N	90	J, JK		Elizade, 1961
39	Tres Chorros	37	27	70	27	Cu	vein	N5E	90	J, JK		Barrionuevo y Nie, 1955
40	Mallín Quemado	37	28	70	27	U,Cu	stratiform	N25E		Ki		Angelli, 1950
41	La Chupapay	37	28	70	32	U	stratiform	N20E		Ki		La Rocque, 1964
42	Sin Nombre	37	30	70	23	Cu	vein	N	90	J, JK		Mendez et al., 1995
43	Huantraico	37	31	69	32	Fe	stratiform			Tb2		Zappettini, 1998
44	Naunauco	37	34	70	15	Cu	vein	N75E	90	Ki		Elizade y Gonzalez L.., 1958
45	Sin Nombre	37	36	70	11	Fe	vein	N	90	Ki		Mendez et al., 1995
46	Cerro del Diablo	37	38	70	26	Pb,Zn	vein	N50E	90	Ki		Angelelli, 1950
47	Cerro del Diablo	37	38	70	27	Cu	vein	N15E	80NW	Ki, Ta1		Angelelli, 1950
48	Pichi Huemul	37	39	70	24	Fe,Cu,Pb	vein	N65E	45SE	Ki		Llambia y Maivicini, 1978
49	Aurelia	37	39	70	26	Cu	vein	N15E	80NW	Ki, Ta1		Angelelli, 1950
50	Augusta	37	42	70	20	Fe,Mn,Cu	vein	N	N50E	Ki, Ta1		Angelelli, 1984
51	Mallín Largo	37	42	70	28	Fe	vein	N70E	50SE	Ki		Angelelli, 1984
52	Sin Nombre	37	43	70	15	Fe	irregular vein	N	90	Ki, Ta1		Mendez et al., 1995
53	Sin Nombre	37	43	70	19	Fe	irregular vein	N	90	Ki		Mendez et al., 1995
54	Cerro Negro	37	43	70	20	Fe,Pb,Zn,Cu	vein	N40E	70NW	Ki, Ta1		Mendez et al., 1995
55	Adnana	37	44	70	17	Fe,Mn	irregular vein	N	90	Ki, Ta1		Angelelli, 1984
56	Sin Nombre	37	44	70	20	Pb	vein	N	90	Ta1		Mendez et al., 1995
57	Bajada de la Greda	37	44	70	28	Fe,Mn	vein	N50W	90	Ki, Ta1		Mendez et al., 1995
58	Adnana 1	37	46	70	11	Fe,Mn	irregular vein	N	90	Ki, Ta1		Angelelli, 1984
59	Sin Nombre	37	46	70	28	Fe	irregular vein	N	90	Ki, Ta1		Mendez et al., 1995
60	Agua del Toro	37	47	70	10	Fe	vein	N	90	Ki		La Rocque, 1964

Table II-1-1 Data of all known mineral occurrences of the survey area.

61	La Y	37	48	70	38	Pb,Zn,Ag	vein	N40E	75SE	Ki		Plan Cordillerano C., 1969
62	La Rosa	37	49	70	12	Fe	vein	N	90	Ki		La Rocque, 1964
63	Africana	37	49	70	17	Fe,Mn	irregular vein	N90E	90	Ki, Ta1		Elizalde, 1961
64	Santa Lucida	37	50	70	19	Fe,Mn	irregular vein	N90E	90	Ki, Ta1		Elizalde, 1961
65	Santa Olga	37	50	70	20	Fe	vein	N	90	Ki		Angelelli, 1984
66	Grupo la Cecilia	37	51	69	57	Sr,Ba	stratiform			J, JK	evaporite, 50t, 90% $SrSO_4$	Zappettini, 1998
67	Santa Laura	37	51	70	13	Mn	vein	N40E	90	Ki, Ta1		Elizalde, 1961
68	Don Agustin	37	56	70	32	Pb	vein	N80E	90	J, JK		La Rocque, 1964
69	Pino Andino Norte	37	56	70	33	Cu,Au	stockwork			J, JK		Zanettini, 1995
70	Palo Quemado	38	0	69	48	U,V,Cu	disseminatio n			Ksc		Zappettini, 1998
71	Maria Teresa	38	1	69	52	U,V,Cu	disseminatio n			Ksc		Zappettini, 1998
72	Pino Andino Sur	38	1	70	33	Au	stockwork			J, JK, Ta1	porphyry Cu, 0.3% Cu, 0.14g/t Au, 6-30m depths of drill core	Zanettini, 1995; CORMINE, 1998
73	La Rosita	38	3	70	33	Ba	stratiform			J, JK, Ta1		Zappettini, 1998
74	Gpo.Cacque	38	12	70	35	Pb,Ag,Mn	vein	N75W	75SW	J, J K, Kg		Angelelli, 1984
75	Lastenia	38	12	70	36	Pb Ag Zn	vein			J, J K, Kg		Zappettini, 1998
76	Campana Mahuida	38	13	70	32	Cu,Au,Mo	stockwork			J, J K, Kg	porphyry Cu, 4,637,782.3t, 0.73% oxide Cu; 22,890,977t, 0.6% sulfides Cu	Zanettini, 1976; Mendez et al., 1995
77	Amelia, Belen, Teresa	38	13	70	35	Pb,Ag,Zn,B a	vein			J, J K, Kg		Zappettini, 1998
78	Agustina y Otras	38	14	70	29	Pb Ag Zn	vein			Ki, Ta1		Zappettini, 1998
79	Grupo Huayelon	38	15	70	29	Pb,Ag,Zn,C u	vein	N77E	90	Ki, Ta2		Angelelli, 1984
80	Candelaria	38	15	70	33	Fe	stratiform	N15W	10NE	J, JK		Angelelli, 1984
81	4 de Noviembre	38	20	70	3	Ba	stratiform			J, JK		Zappettini, 1998
82	Caferino Namuncurá	38	27	70	53	Pb,Ag	irregular			Ta2		Zanettini, 1995
83	Grupo Mallin Quemado	38	33	70	6	Ba	stratiform			J, JK		Zappettini, 1998
84	Barada Molina	38	40	69	57	Cu	disseminatio n			J, JK		Zappettini, 1998
85	Litrán	38	41	70	47	Fe	vein	N	90	PTR		La Rocque, 1964
86	Arroyo Manzano	38	43	70	45	Cu,Zn,Fe	stockwork			PC2, CPg		Plan Cordillerano C., 1969
87	Mallin Chileno	38	48	70	48	Fe	vein	N35E	90	PC2		Elizalde, 1961
88	Cerro Carren	38	55	70	28	Fe,Mn	vein	N37W	90	J, JK		Elizalde, 1961
89	Carren	38	55	70	33	Pb,Ag,Cu,F e	vein	N50E	90	J, JK		Angelelli, 1984
90	Carreri 1,2,3,4	38	56	70	34	Pb,Ag,Zn,C u	vein			CPg		Zappettini, 1998
91	Carren TG	38	57	70	35	Pb,Ag,Zn,C u	vein	N35W	90	CPg		Angelelli, 1984
92	Sin Nombre	38	59	71	15	Au	vein	N50E	90	CPg		Mendez et al., 1995
93	Arroyo Polmar	39	5	71	0	Au	placer			Qgl		La Rocque, 1964
94	La Voluntad	39	13	70	36	Cu,Ag,Mo	stockwork			CPg	porphyry Cu, 0.10% Cu, 0.005% Mo, 0.04g/t Au, average of 538 rock samples	Angelelli, 1984; CORMINE, 1998
95	Sin Nombre	39	12	70	55	Cu,Co,Ni	vein	N20W	55NE	CPg		Mendez et al., 1995
96	El Provenir	39	13	69	49	Cu	disseminatio n			J, JK		Zappettini, 1998
97	Catatun	39	20	70	45	Pb,Zn	vein	N30E	90	J , JK		Naviones Unidas, 1970
98	Sin Nombre	39	22	71	2	Au	placer			Qgl		La Rocque, 1964
99	Río Quillén	39	23	71	8	Au	placer			Qgl		La Rocque, 1964
100	1° de Mayo	39	24	70	38	Pb,Zn	vein	N45W	72NE	PC2		Angelelli, 1984
101	Sin Nombre	39	25	70	56	Au	placer			Qa		La Rocque, 1964
102	Estancia Charahuilla	39	26	70	24	Cu,Ag,U	disseminatio n			J, JK		Zappettini, 1998
103	Cerro Caballadas	39	27	71	14	Pb,Zn,Cu	vein	N70W	80NE	CPg		Naviones Unidas, 1970
104	Sin Nombre	39	29	70	57	Au	placer			Qa		La Rocque, 1964
105	Medialuna	39	31	70	58	Au	placer			Qa		La Rocque, 1964
106	Cerro Horqueta	39	37	69	49	Cu	disseminatio n			Ki		Zappettini, 1998
107	Arroyo Metrecó	39	49	71	26	Pb	vein	N50E	90	CPg		Mendez et al., 1995
108	Area la Veranada	41	15	71	0	Au,Cu,Pb,Z n	vein			Ta1		Zappettini, 1998
109	Cerro Alcorta	41	25	71	47	Au,Ag,Cu	vein			JBa	0.47% Cu, 0.01% Pb, 88g/t Au, 407g/t Ag, 20m width quartz vein and veinlets	Giacosa, 1986
110	Rio Foyel	41	30	71	15	Au	placer			Ta1	5,000,000m^3, 175 to 200mg/m^3 Au	Zappettini, 1998; Mining Secretry, 1993
111	Innominada 3	41	31	71	8	Cu,Au	vein	N25W	90	Ta1		Dir. Min. Rio Negro, 1996
112	Cullin Mahuida	41	32	71	8	Au	vein	N	90	Ta1		Dir. Min. Rio Negro, 1996
113	Cóndor Huasi	41	37	71	5	Pb	vein	N10E	90	Ta1		Dir. Min. Rio Negro, 1996
114	Nina Petre	41	37	71	8	Pb,Zn,Cu	vein	N45W	55	Ta1		Dir. Min. Rio Negro, 1996
115	María	41	39	71	6	Pb,Zn,Cu	vein	N5E	74NW	Ta1	2% Cu, 12% Pb, 13% Zn, 3g/t Au, 45g/t Ag, vein 250m×1.6m	Dir. Min. Rio Negro, 1996; Mining Secretry, 1993
116	Alto Rio Chubut	41	50	70	45	Au	placer			T	10,000,000m^3, 175 to 500mg/m^3 Au	Zappettini, 1998; Mining Secretry, 1993
117	Quillén Curá	41	53	71	27	Pb,Cu	vein	N26E	90	T		Dir. Min. Rio Negro, 1996
118	Ñaley Cullin	41	53	71	28	Pb	vein	N52E	90	T		Dir. Min. Rio Negro, 1996
119	La Esmeralda	41	53	71	28	Pb,Cu	vein	N7W	90	T		Dir. Min. Rio Negro, 1996
120	Nahuel Pan	41	54	71	27	Pb,Cu,Fe	vein	N5E	90	T		Dir. Min. Rio Negro, 1996
121	Indio	42	3	71	1	C	manto	N17E	40SE	Ta1		Berrello, 1956

Table II-1-1 Data of all known mineral occurrences of the survey area.

122	Roja	42	7	70	57	Au	placer			Qa		Marquez et al., 1994
123	Cerro Coihue	42	8	71	21	Cu,Au	irregular vein	N15E	90	Kg		Genini, 1987
124	Cushamen	42	9	70	30	Mo	irregular vein	N85W	90	TQb, PC2		Butron, 1995
125	Condorcanqui	42	9	71	23	Cu,Au	irregular vein	N30W	90	Ta1		Ametrano et al., 1979
126	Mata	42	10	70	45	Au	placer			Qa		Marquez et al., 1994
127	Arroyo Pedregoso	42	13	71	24	Au	placer			Qa		Marquez et al., 1994
128	Cerro Colorado	42	35	71	52	Cu	stockwork			Ta1		Sepulveda y Viera, 1978
129	Lepá	42	37	71	6	C	manto	N25W	23SW	Ta1		Borrello, 1956
130	Cerro Techado Blanco	42	42	71	52	Ag	irregular vein	N40W	80SW	Kg		Marquez, 1980
131	Cerro Riscoso	42	43	71	40	Cu,Pb	irregular			Kg		Herrero y Pansi, 1981
132	Huemules	42	48	71	28	Au,Ag,Pb	vein	N35W	90	JBa	750,000t, 9g/t Au	Viera et al., 1988; Viera and Hughes, 1999
133	Mallín del Bronce	42	48	71	30	Au,Ag	irregular			JBa		Viera et al., 1988
134	Joya del Sol	42	53	71	12	Au,Ag	vein	N15W	90	JBa	209,000 oz Au, 1,410,000 oz Ag; 5.8g/t Au, 39.5g/t Ag	Brancote Holdings PLC (1999)
135	Cerro Nahuel Pan	42	59	71	15	Au	stockwork			CP, Ka	0.1% Cu, 6.1% Pb, 0.19% Zn	Naciones Unidas, 1983; Mining Secretry, 1993
136	Cerro Poncho Blanco	43	1	72	1	Cu	vein	N20E	90	JBa		Marquez, 1980
137	Cordón Situación	43	2	71	41	Cu,Pb	stockwork			Ka		Marquez et al., 1987
138	Laguna Sunica	43	10	71	0	Au,Cu	vein			Ta1		Zappettini, 1998
139	Los Pozones	43	13	71	41	Cu,Au	vein	N	90	JBa		Marquez y Butron, 1987
140	Rio Corintos	43	14	71	9	Au	placer			Qa		Angelelli, 1984
141	Arroyo Luque	43	19	71	1	Cu,Mo	stockwork			Kg		Marquez, 1988
142	Cerro Gonzalo	43	20	71	3	Mo,Ag	breccia			Kg	670,000t, 0.05% Cu, 0.048% Mo, 5g/t Au, 92g/t Ag	Marquez, 1988; Mining Secretry, 1993
143	Cañadon Bagual Victoria	43	30	69	30	Pb,Ag,Zn	vein			JBe		Zappettini, 1998
144	Princess	43	31	71	4	Au	stockwork			JBa		Marquez et al., 1994
145	Arroyo Cascada	43	32	71	7	Au	vein	N55W	25SW	JBa		Genini, 1989
146	Cerro Cuche	43	34	71	9	Mo,Au	stockwork			Kg, JBa		Pezzuchi y Takigawa, 1983
147	Cerro Riñon y Colorados	44	3	71	38	Au	stockwork			JBa, Kg	high sulfidation breccia pipe, 7.95g/t Au, 66 samples of 2,200km^2	Parisi, 1981; SEGEMAR, 1997; Perez and Sureda, 1999
148	Cerro Bayo	44	42	71	7	Ag	vein	N25W	75SW	Kim		Ramos, 1981
149	Cordillera Sakmata	44	44	71	5	Ag,Pb	vein	N30W	70SW	Kim		Ramos, 1981
150	Doña Isabel	44	46	71	7	Pb	vein	N20W	90	Kim		Ramos, 1981
151	La Fronteriza	44	52	71	59	Pb	vein	N35W	90	JBa		Dir.Gral.Min.Geol.Chubut, 1987
152	Lago Fontana	44	52	72	1	Cu	stockwork			Kg		Ramos, 1981
153	La Ferrocarrilera	44	56	71	36	Pb,Ag	vein	N35E	60SW	Jba	708,630t, 1.63% Pb, 4.49% Zn, 0.61% Cu, 0.1g/t Au, 14g/t Ag	Ramos, 1981; Secretaria de Mineria, 1985
154	Arroyo Canogas	44	56	71	40	Au,Pb	irregular vein	N25E	90	Kim		Marquez y Parisi, 1995
155	El Solcito-El Abuelo	44	57	70	55	Fe,Cu	vein	N70W	90	JBa		Medina y Maisterrena, 1981
156	Cerro Blanco	44	57	71	32	Pb,Ag	vein	N10W	85SW	JBa		Marquez y Parisi, 1995
157	Arroyo los Alevinos, Cerro Katterfeld, Cerro Cono	44	58	71	30	Au,Ag,Cu,Pb,Zn	vein			JBa		Zappettini, 1998

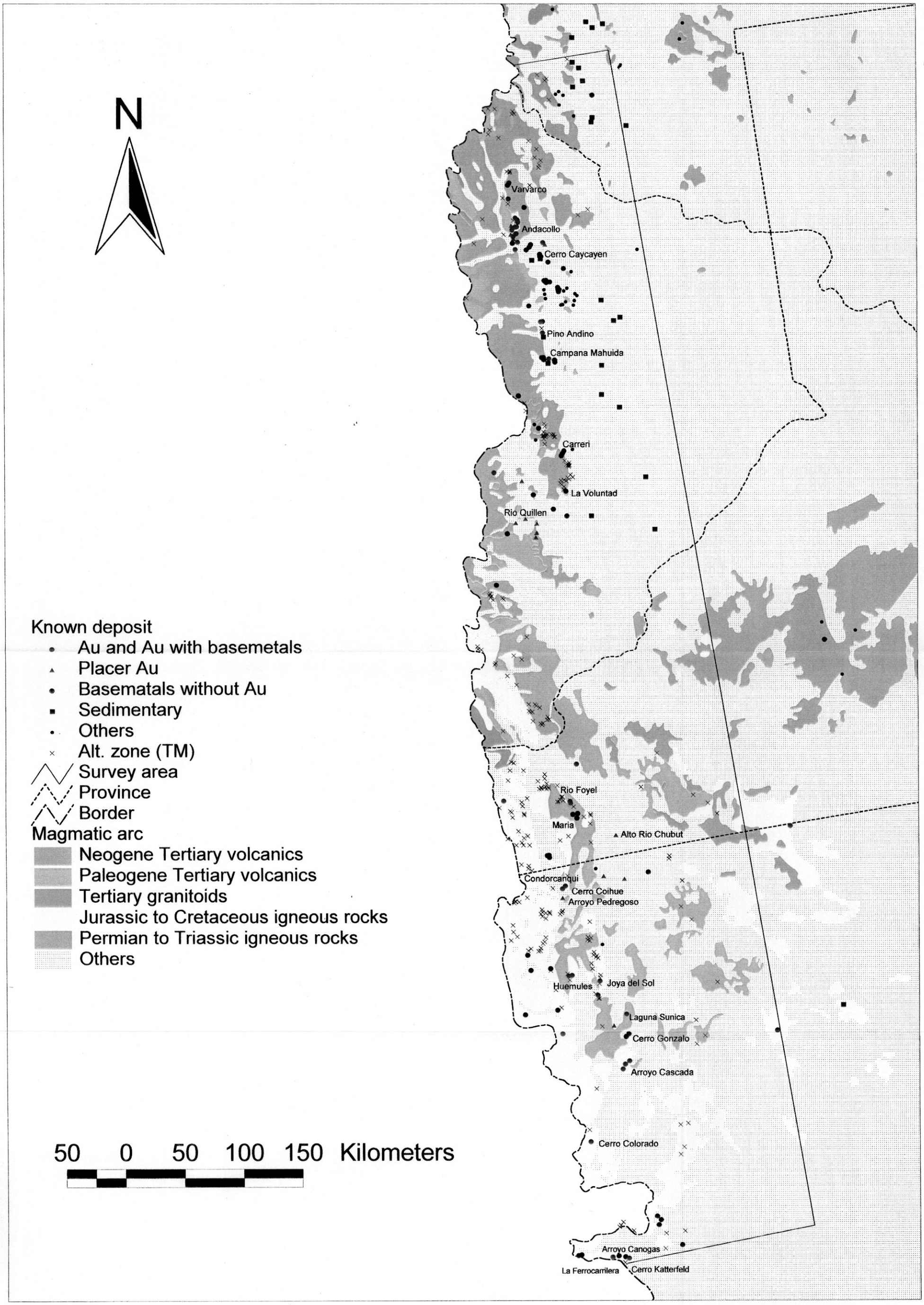

Fig. II-1-1 Compilatory result of the existing data analysis.

CORMINE, 1998b). However, this district is one of the model districts, it is desired to conduct the field survey for comprehension of the geology and the mineralization, and for preparing the exploration guideline.

3) Rio Quillen district

Placer gold deposits including Rio Quillen deposit are distributed in the southwest of Neuquen province. Permian to Triassic magmatic arcs and Paleogene magmatic arcs are distributed in the district. The details of the mineralization are unknown, but placer gold deposits are found in several places. There are two possibilities; the gold deposits as the source of these placer gold deposits remain unfound, or the gold deposits used to be there were already eroded. Judging from the fact that hydrothermal alteration zones are not extracted around them by the satellite image analyses, the latter possibility is considered more likely. Anyway, it is desired to conduct the field survey for comprehension of the geology and the mineralization.

4) Rio Foyel district

Rio Foyel placer gold deposit is distributed in the southwest of Rio Negro province. Around it, gold and auriferous base metals deposits are distributed and hydrothermal alteration zones were also extracted by the satellite image analyses. This district is in a range of Tertiary magmatic arcs. Therefore, it is thought that the gold mineralization was generated in Paleogene or later periods. It is desired to conduct the field surveys for comprehension of the geology and the mineralization.

5) Cerro Coihue district

Condorcanqui deposit of manto type and Cerro Coihue deposit of porphyry copper deposit are distributed in the northwest of Chubut province (Zappettini, 1998). The magmatic arcs of Jurassic to Cretaceous and those of Paleogene are distributed in this district. Hydrothermal alteration zones extracted by the satellite image analyses are concordant mainly with the distribution of the former. Therefore, it is concluded that the mineralization was generated in Jurassic or later periods. As this district is one of the model districts, it is desired to conduct the field survey for comprehension of the geology and the mineralization, and for preparing the exploration guideline.

In this district, Arroyo Pedregoso placer gold deposit is distributed. In the south of this, hydrothermal alteration zones were extracted by the satellite image analyses. These hydrothermal alteration zones are located in upstream of the river running through this deposit. It is desired to conduct the field survey for comprehension of the geology and the mineralization.

6) Joya del Sol to Arroyo Cascada district

Many gold and auriferous base metals deposits are known in the middle west of Chubut province. They are concordant with the distribution of the magmatic arcs of Jurassic to Cretaceous and those of Paleogene. Hydrothermal alteration zones are extracted in both ranges by the satellite image analyses. Therefore, it is suggested that the mineralization was generated in Jurassic or later periods including Paleogene. The exploration activities in Joya del Sol and Huemules deposits have been already mentioned before (see I-3-3). As this district is one of the model districts, it is desired to conduct the field survey for comprehension of the geology and the mineralization, and for preparing the exploration guideline.

On the other hand, explorations are not currently conducted in Cerro Gonzalo porphyry copper deposit and Arroyo Cascada gold deposit. It is desired to conduct the field surveys for evaluation of the potentiality in these deposits.

7) Cerro Colorado district

Cerro Colorado gold deposit is distributed in the middle west of Chubut province along the Chilean border. Hydrothermal alteration zones are extracted in the range of the magmatic arcs of Jurassic to Cretaceous by the satellite image analyses. The summary of the exploration has been already mentioned (see I-3-3). As this district is one of the model districts for high-sulfidation gold mineralization, it is desired to conduct the field survey for comprehension of the geology and the mineralization, and for preparing the exploration guideline.

8) Cerro Katterfeld district

In the southwest of Chubut province, auriferous base metals deposits including Cerro Katterfeld are distributed in the range of the magmatic arcs of Jurassic to Cretaceous. It is considered that the gold mineralization occurred in Jurassic or later periods. it is desired to conduct the field survey for comprehension of the geology and the mineralization.