1-4-4 Mogoin gol area

(1) General

The Mogoin gol area is located approximately 35 km northwest of Erdenet as presented in Fig.2. Fig.II-2-40 presents its area is composed of mountainous topography at 1,240 to 1,600 mASL of which comparative altitude is approximately 360 m. Mount Shar Chuluut, which altitude is approximately 1,560 m, is located at north in the area. Needle-leaf trees grow at north slope in the area. Vegetation in the area makes its outcrops badly exposed. There are two silicified alteration zones including secondary quartzite. These zones represent Mogoin gol prospects and silicified alteration zones disperse at north and south in the area. Khujiriin gol prospect is located in the west of the Mogoin gol prospect.

The Mogoin gol prospect was discovered 1967 and geological mapping program was conducted at a scale of 1 to 50,000 in 1971. Further geological mapping program was conducted at a scale of 1 to 25,000 in 1981. Secondary quartzite zones including trace of copper in early Permian volcaniclastics which was intruded by Selenge complex were discovered within the area of 1.5 km by 0.5 km, and 4 km by 2 km respectively. Copper grade ranges 0.034 to 0.074% and molybdenum grade ranges 0.002 to 0.018%. High FE anomaly over 6% was detected through IP survey. Though 2 drill holes at the length of up to 100 m were drilled, significant copper mineralizations were not observed. Rhyolite porphyry, trachyrhyolite porphyry, andesite and dacite porphyry were described in their log sheets and these are likely to be Erdenet porphyry intrusive complex.

As a result of airborne geophysics in the first year, a circular structure having approximately 14 km in diameter was detected within the area. The area is situated at the western rim of the structure and lower magnetic anomaly zones are observed in the area. Geology in the area is composed of mainly early Permian volcanics, late Permian granites and Jurassic acidic stocks.

(2) Geology

Geology in the prospected area is presented at Fig. II-1-41(1) and (2), schematic stratigraphic section in the area is presented at Fig. II-1-42. Geological map of IP survey area is also presented in Fig.II-1-43. Stratigraphy and geological structure is as follows;

(i) Stratigraphy

As presented in Fig. II-1-41 and Fig.II-1-42, geology in the area is composed of upper Permian alkali volcanics, upper Triassic to lower Jurassic volcanics, Permian to Triassic granites, Jurassic stocks, dykes and Quarternary. White silicified alteration zones accompanied by copper oxides are distributed at north of Mount Shar Chuluut and south in the area.

Upper Permian is composed of volcanics of the lower Permian Khanigol Formation($\alpha\beta$P2) which is composed of mainly trachyandesite($\alpha\beta$anP2) and tuff($\alpha\beta$tfP2) in dark gray, brownish gray and greenish gray. Its strikes shows nearly east-west and dips is 55 to 70N. Trachyandesite(α β anP2) is distributed at center in the area and intercalated tuffs. Tuffs(α β ltP2) are distributed from center to north of the area, and include flattened green volcanic glasses and secondary altered minerals produced by silicification, sericitization, chloritization and epidotization. Upper Triassic to lower Jurassic Mogod suite is composed of volcanics(α β T2-J1) which are composed of alternation of mainly trachyandesite, partly basalt(α β anT2-J1), tuffbreccias and lapilli tuffs(α β ltT2-J1) and fine tuffs(α β tfT2-J1). Mogod suite is distributed at south in the area. Its strikes indicates nearly NE-SW and dips is 20 to 45SE. Mogod suite covers lower Khanigol Formation unconformablly. Trachyandesite(α β anT2-J1) indicates brownish gray to dark gray and its phenocryst includes plagioclase. Tuffbreccias and lapilli tuffs(α β ltT2-J1), which is composed of trachyandesite, tuffs, shales and granites, show brownish gray to yellowish gray and its lapillis are in subangular to round shape.

Serenge complex is main source of granites in the area and is composed of early Triassic diorites(δ 1T1s), granodiorite(γ δ 2T1s), syenitegranite(ξ γ 2T1s), diorite(δ 3T1s), granodiorite(γ δ 3T1s) and granodiorite porphyry(γ δ π 3T1s). Diorites(δ 1T1s) is medium to fine with dark gray to gray in color and is distributed in north and west. Dating result of δ 1T1s indicates 208Ma, i.e. late Triassic, of K-Ar age for sub-alkalic diorite(MA2035) as presented in Appendix 12. Granodiorite(γ δ 2T1s) is medium with pinkish gray to gray in color and is distributed in mainly north and northeast. Syenitegranite(ξ γ 2T1s) is distributed in north. Diorite(δ 3T1s) is distributed in center and produces small stock. Granodiorite(γ δ 3T1s) is distributed north in the stocky form. Granodiorite porphyry(γ δ π 3T1s) is pale gray to gray in color accompanied by plagioclase in phenocryst and is distributed in the stocky form at center.

Rhyolite porphyry to granite porphyry(γ π J1), quartz trachyte(λ J1) and diorite to gabbro(δ J1) are distributed as stocks and dykes. Rhyolite porphyry to granite porphyry(γ π J1) is pale pinkish gray in color accompanied by K-feldspar in phenocryst and is distributed as stock. Dating result of γ π J1 indicates 210Ma, i.e. late Triassic, of K-Ar age for alkalic rhyolite porphyry(MA222) as presented in Appendix 12. Quartz trachyte(λ J1) is distributed in south as stocks and dykes. Dykes are composed of gray to dark gray andesite(D α) and intrude into upper Permian Khanigol Formation, early Triassic granites and upper Triassic to lower Jurrasic Mogod suite in south, center and north.

Quarternary(Qac) is composed of colluvial consisting stream sediments and slope sediments along stream and valley. Swamps having 200 m width is produced along a river. Rock facies are clay, silt, sand and gravel.

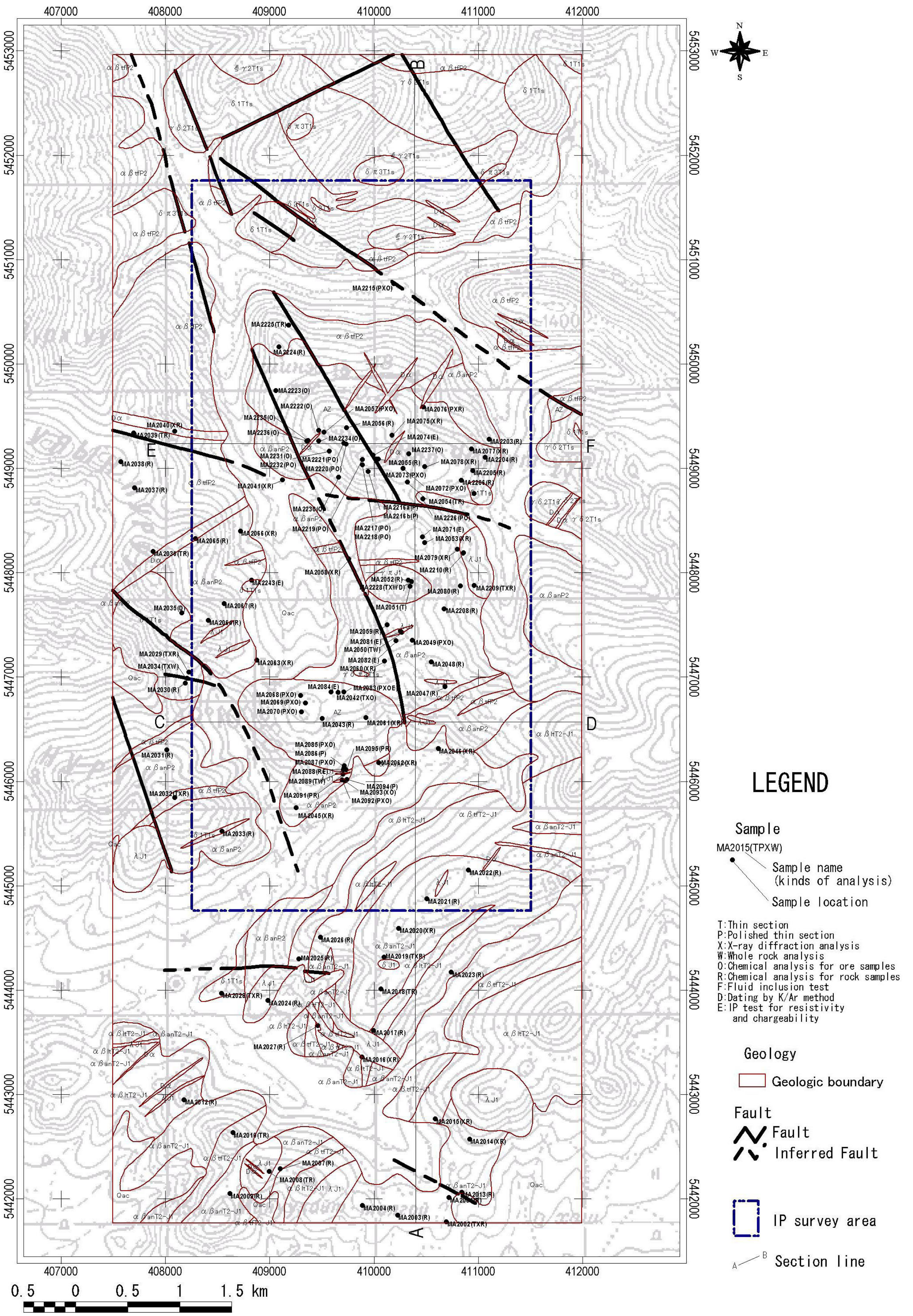


Fig.II-1-40 Survey location and sample locations map of the Mogoin gol area

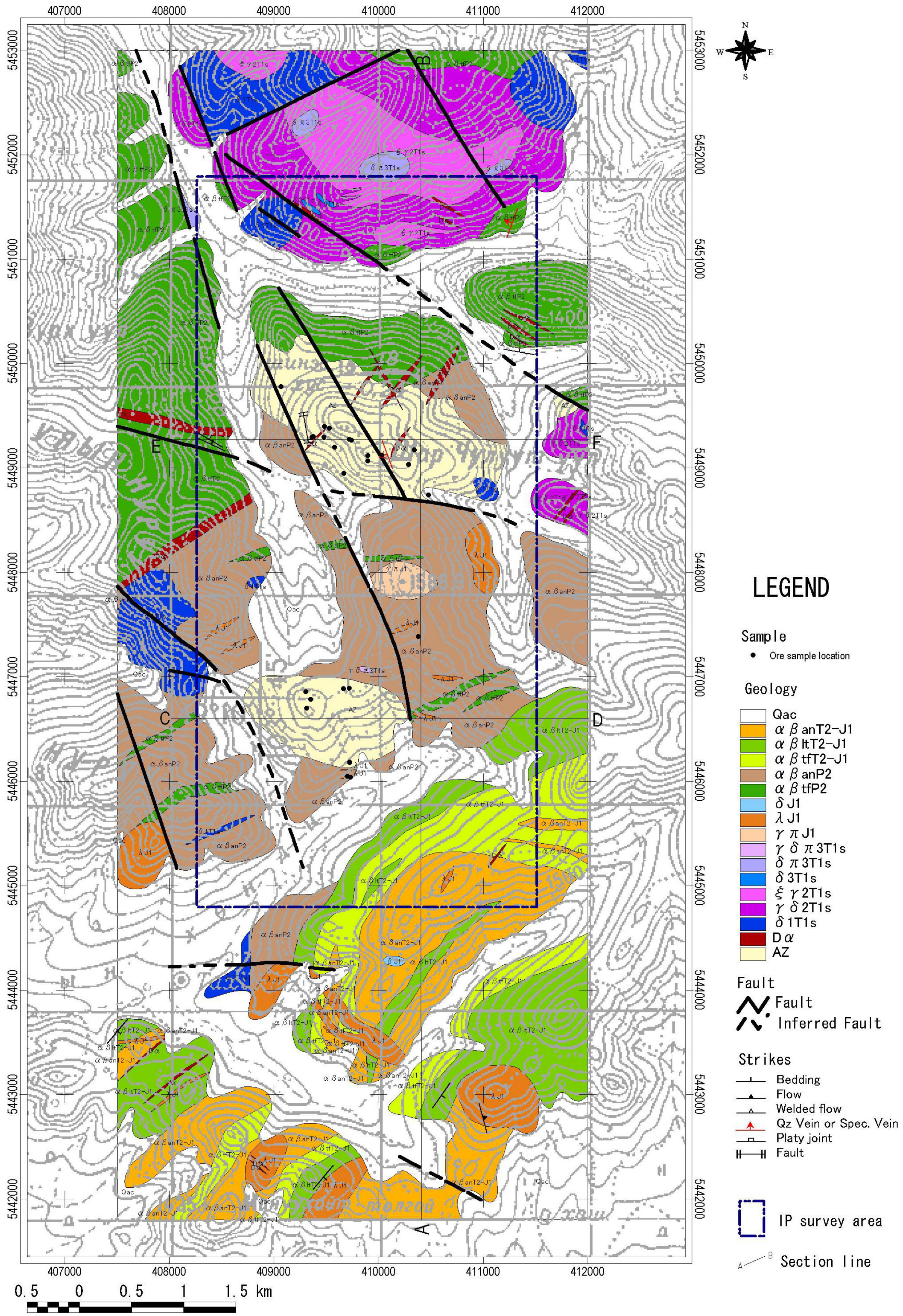


Fig.II-1-41(1) Geological map, geological section and mineral showing of the Mogoin gol

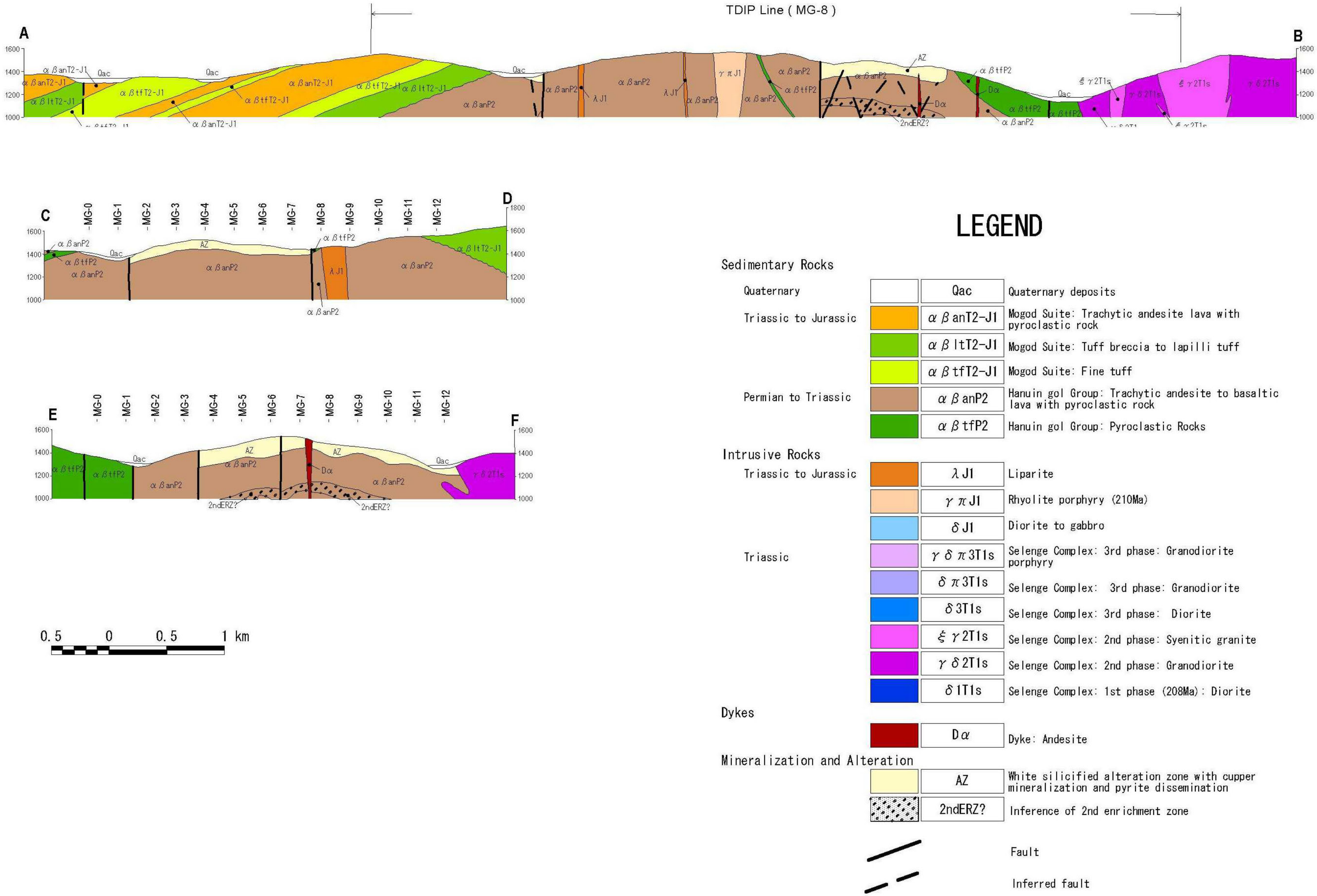


Fig.II-1-41(2) Geological map, geological section and mineral showing of the Mogoin gol area

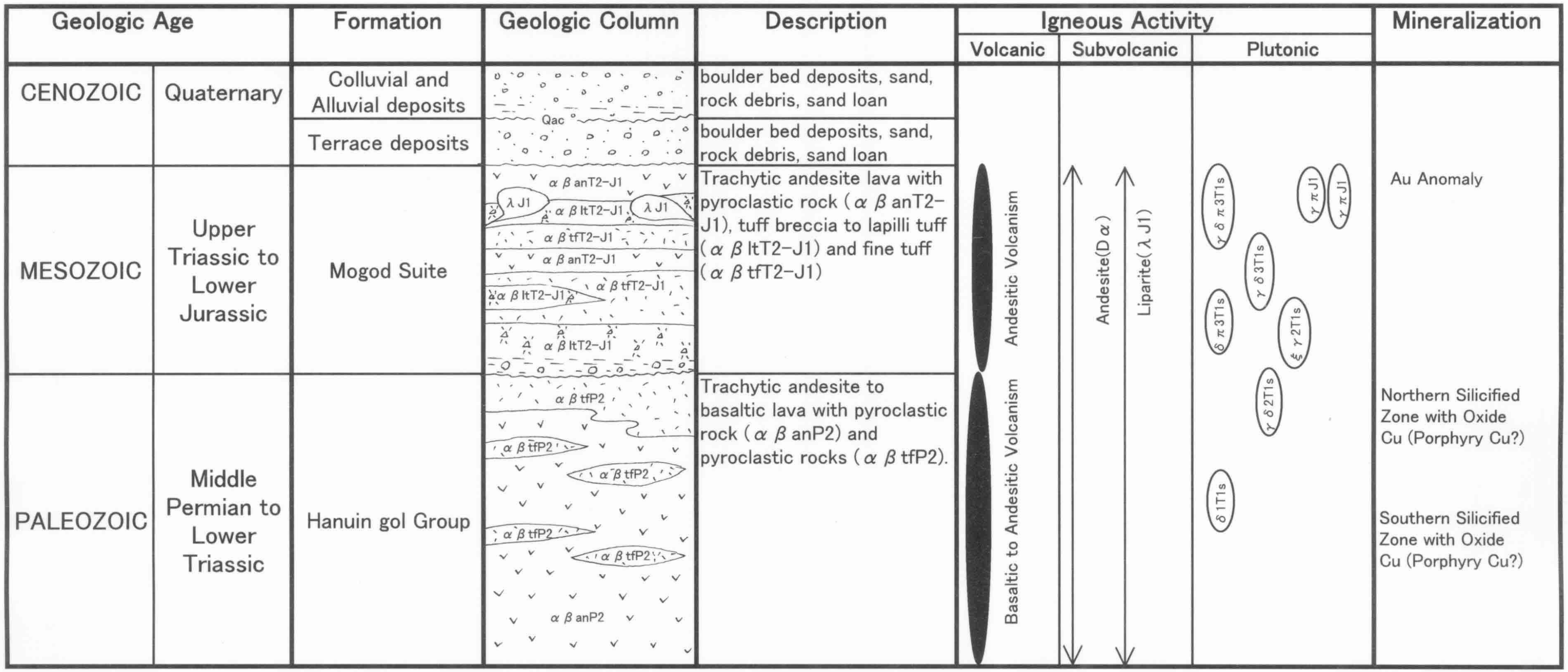


Fig.II-1-42 Generalized stratigraphic columnar section in the Mogoin gol area

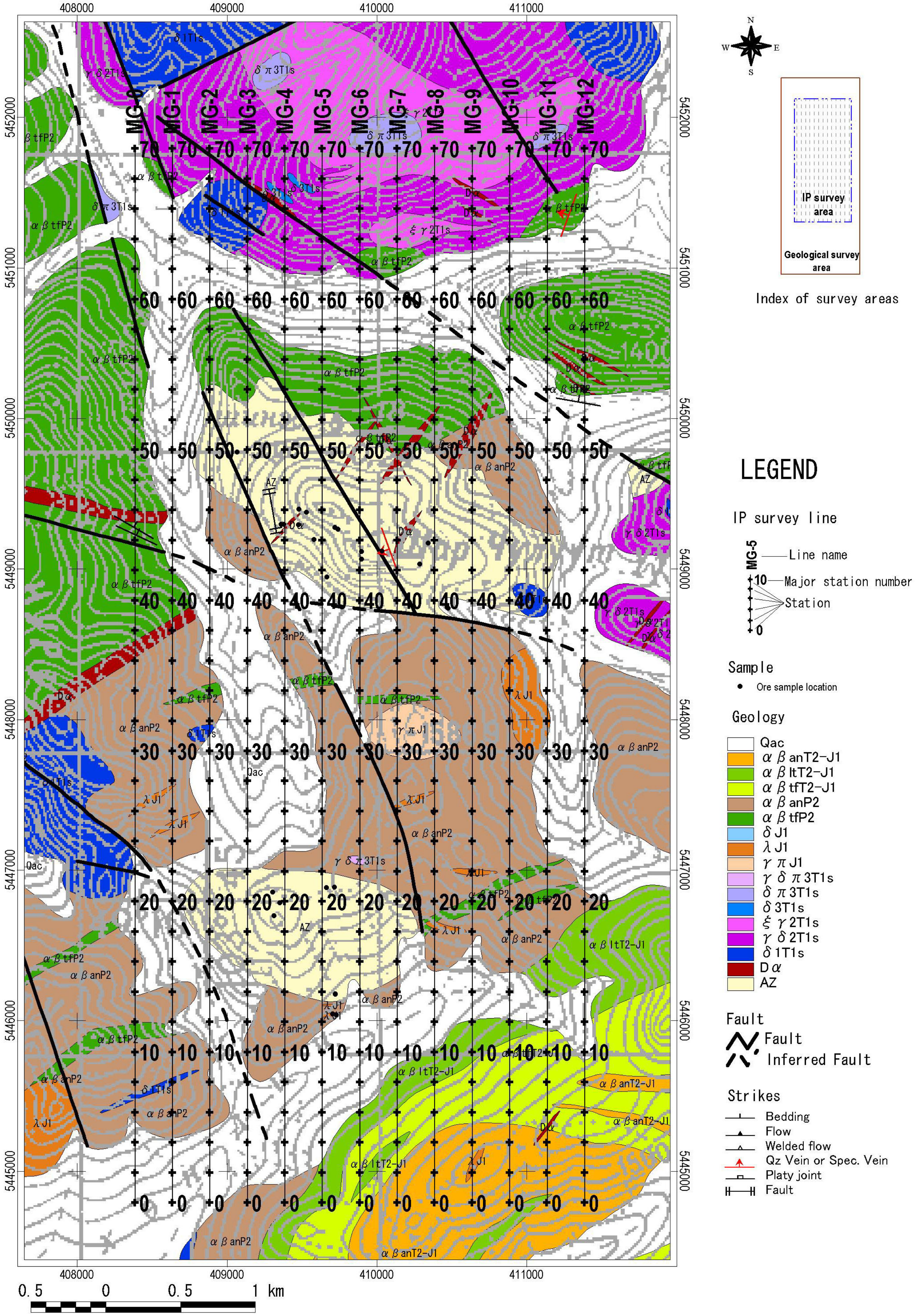


Fig.II-1-43 Geological map, geological section of IP survey area in the Mogoin gol area

(ii) Geological structure

As presented in Fig. II-1-41, lower Permian Khanigol Formation shows east-west strikes and north dips while upper Triassic to lower Jurassic Mogod suite shows northeast-southwest strikes and southeasterly dip. Granular sand of lowest Mogod suite is accompanied by round granular of granodiorite and covers underlying Khanigol Formation with unconformity. Andesite dykes are distributed around white silicified alteration zone in north. At the center of alteration zone, strikes of dykes show NE-SW and NW-SE while NW-SE at northeast and EW and NE-SW at west.

Since remarkable linear structure coinciding with these strikes of dykes were observed in satellite imagery in the area and faults were also observed through prospecting, these structures were regarded as faults. Main strikes of faults are dominantly NNW-SSE, NW-SE and EW in north, NW-SE and EW in the center, NE-SW and EW in south.

(2) Mineralizations

There are existing documents such as geologic maps 1981 and 1985 and geophysical interpretation maps for Mogoin gol prospect.

As presented in Fig. II-2-44, mineralizations observed in the area are composed of north white silicified alteration zone, south white silicified alteration zone accompanied by secondary quartzite and magnetite zone resulted from intrusion by liparite and diorite. Azurite and/or malachite in particle rim or spotty-shaped are observed in these white silicified alteration zones.

(i) North silicified alteration zone

Geology and mineralizations in north silicified alteration zone are presented in Fig. II-2-44 and route mapping in this zone is presented in Fig. II-2-45. Followings are geological descriptions.

Upper Permian alkali volcanics, Permian to Triassic granites, Jurassic stock and dykes are distributed in the zone and its surrounding. This zone is located at the top of or around Mount Shar Chuluut meaning yellow rock mountain, which is north of upper Permian alkali volcanics, and extends over the area of 1.2 km north-south and 2 km east-west. Specularite veinlets having N28W strike and 61W dip and up to 11 mm of its width are sometimes observed in the zone. This zone includes 2 silicified outcropped peaks around Mount Shar Chuluut and its surrounding areas include lots of silicified floats and small outcrops. Alteration zones are composed of silicification, sericitization, pyritization and partly copper oxides. Silicified breccia zones are also observed. White silicified zones observed at the top of or near Mount Shar Chuluut include following showings.

Mainly azurite and rare malachite showings were observed at the points of (409364E, 5449294N), (409723E, 5449273N), (409955E, 5449000N), (409899E, 5449063N), (410382E, 5449171N) and (410601E, 5449020N). Mineralization at each point represents spotty or film in silicified rocks. Disseminations of pyrite are pervasively observed as box-works in silicified rocks at the top of Mount

Shar Chuluut and its surrounding area. Of these showings, box-works up to 10mm are observed at the points of (409723E, 5449273N), (409582E, 5449194N), (409380E, 5449295N), (409577E, 5449161N) and (410585E, 5449017N). Specularite/hematite veinlets or stockworks are observed at the points of (409670E, 5448944N), (409582E, 5449194N), (410382E, 5449171N), (409577E, 5449161N) and (410585E, 5449017N) and limonites were often observed along rock fracturings. A specularite veinlet having N20W striking and 73W dipping, which was discovered last year program, exists at the point of (410036E, 5449118N).

Brecciated parts of silicified rocks were observed over 20 m width at (409380E, 5449295N), over 10 m width at (410255E, 5448848N), over 5 m wudth at (409744E, 5449262N) and over 10 m width at (410585E, 5449017N).

Permian volcanics (tuffs) are distributed west side (409190E, 5450401N) and east side (410588E, 5449801N) on the north slope of northern Mount Shar Chuluut. Volcanics are silicified intermediately with disseminated pyrite currently box-worked. On the north of the center (410200E, 5449755N), relatively fresh Permian volcanics (andesite) are distributed, however even floats of volcanics were not observed further north of these outcrops due to dense cover of soils. On the north in the area Mogoin gol river flows west in the direction of east-west. The zone along the river with 200 m width is covered by Quarternary and a swamp having no current surface water is formed in the result of this.

Quartz, K-feldspar, kaolin, pyrophyrite and alunite were detected by XRD in the strongly altered areas as presented in Appendix 3. Quartz, albite, sericite and chlorite were detected in the vicinity of them. Vein-type and spotty azurite, disseminated pyrite, vein-type and spotty goethite, hematite and limonite were observed at polished sections as presented in Appendix 2. Alteration minerals observed in polished sections include mainly silicified or stockworking quartz, sericite and kaolin, and chlorite, epidote, andalusite and carbonates were seldom observed. Mineralized rocks returned 0.001 to 0.026%Cu, 0.001 to 0.001%Mo, 0.001 to 0.021%Pb, 0.001% to 0.004%Zn and 0.38 to 12.72%Fe as presented at Table II-1-1 and Appendix 5. Assays of rocks returned 4 to 165ppmCu, 6 to 35ppmMo, 1 to 98ppmPb, 4 to 244ppmZn and 0.47 to 9.13%Fe as presented in Appendix 6.

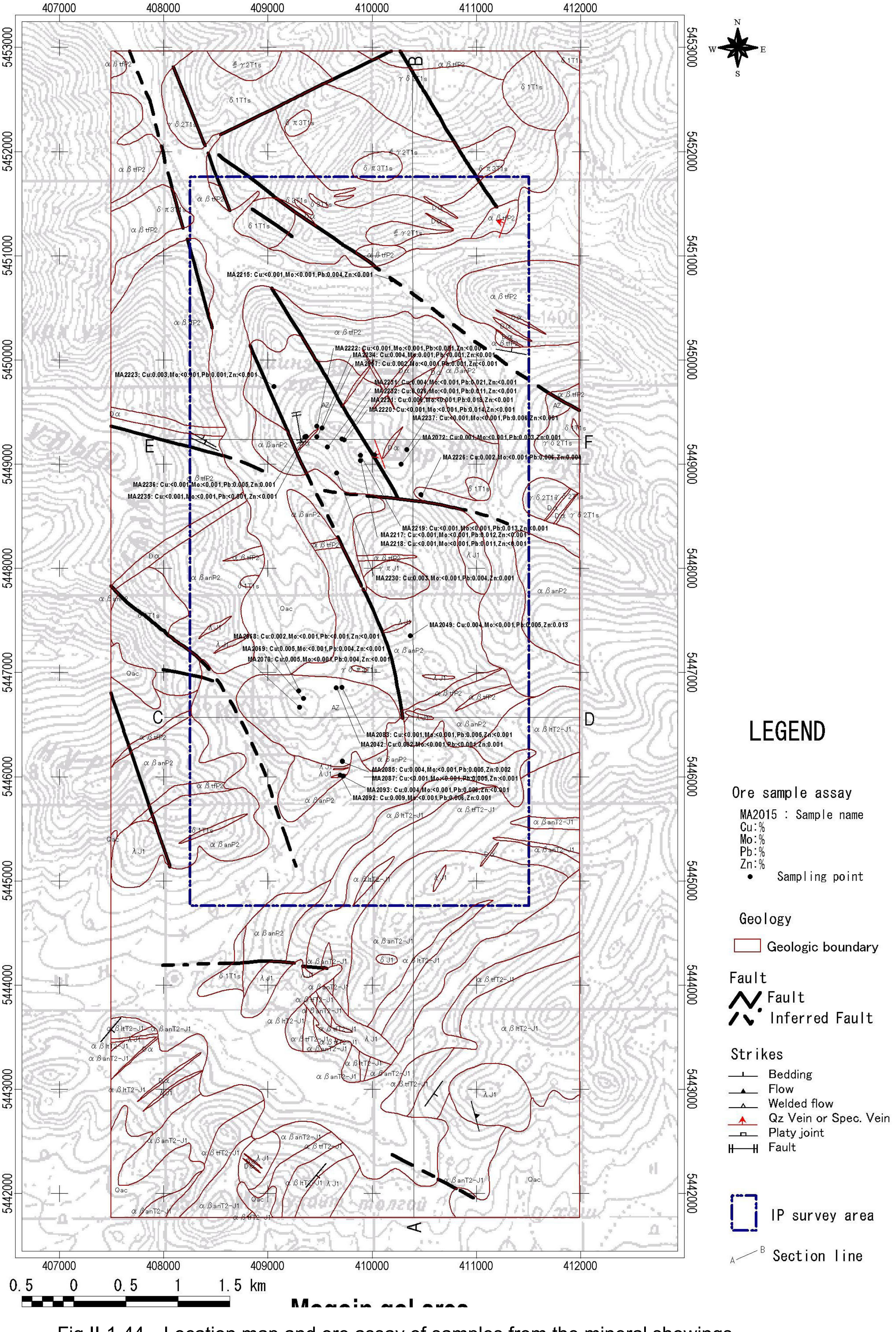


Fig.II-1-44　Location map and ore assay of samples from the mineral showings

Fig.II-1-45　Route map in the North Alteration Zone of the Mogoin gol area

Table II-1-1 Ore assay analitical data in the North alteration zone of the Mogoin gol area

Ser. No.	Sample No.	Area	Coordinates		Description	Au	Ag	Cu	Fe	Mo	Ni	Pb	Zn
			N	E		(g/t)	(ppm)	(%)	(%)	(%)	(%)	(%)	(%)
1	MA2057	North sulicified zone in Mogoin gol area	5449375	409532	Silicified rock with pyrite holes, limonite, hematite, dissemination and films in fractures	<0.01	<5	0.002	3.92	<0.001	0.001	0.001	<0.001
2	MA2072	North sulicified zone in Mogoin gol area	5449030	410288	Iron oxide rock with pyrite holes	<0.01	<5	0.001	11.00	<0.001	<0.001	0.003	0.001
3	MA2073	North sulicified zone in Mogoin gol area	5449118	410036	Specularite vein	<0.01	<5	0.001	10.97	<0.001	<0.001	<0.001	<0.001
4	MA2217	North sulicified zone in Mogoin gol area	5449063	409899	White, Silicified rock with pyrite holes, azulite spots	<0.01	<5	<0.001	4.04	<0.001	<0.001	0.012	<0.001
5	MA2218	North sulicified zone in Mogoin gol area	5449063	409899	Silicified rock, white, pyrite holes, azulite spots	<0.01	<5	<0.001	0.38	<0.001	<0.001	0.011	<0.001
6	MA2219	North sulicified zone in Mogoin gol area	5449113	409899	Silicified rock with speculalite veins and spots	<0.01	<5	<0.001	3.39	<0.001	<0.001	0.013	<0.001
7	MA2220	North sulicified zone in Mogoin gol area	5449262	409744	Silicified rock with pyrite dissemination	<0.01	<5	<0.001	8.63	<0.001	<0.001	0.014	<0.001
8	MA2221	North sulicified zone in Mogoin gol area	5449273	409723	Silicified rock including pyrite dissemination with azulite spots	<0.01	<5	0.006	7.66	<0.001	<0.001	0.018	<0.001
9	MA2222	North sulicified zone in Mogoin gol area	5449394	409482	Silicified rock with pyrite dissemination	<0.01	<5	<0.001	1.81	<0.001	<0.001	<0.001	<0.001
10	MA2223	North sulicified zone in Mogoin gol area	5449776	409070	Silicified rock with pyrite holes	<0.01	<5	0.003	0.70	<0.001	<0.001	0.001	<0.001
11	MA2230	North sulicified zone in Mogoin gol area	5448944	409670	Silicified rock with limonite	<0.01	<5	0.003	10.37	<0.001	<0.001	0.004	0.001
12	MA2231	North sulicified zone in Mogoin gol area	5449194	409582	Silicified rock with pyrite holes (d: max 10mm)	<0.01	<5	0.004	4.68	<0.001	0.001	0.021	<0.001
13	MA2232	North sulicified zone in Mogoin gol area	5449194	409582	Specularite vein in silicified rock	<0.01	<5	0.026	12.71	<0.001	<0.001	0.011	<0.001
14	MA2234	North sulicified zone in Mogoin gol area	5449292	409480	Secondary quartzite	<0.01	<5	0.004	1.10	0.001	0.001	<0.001	<0.001
15	MA2235	North sulicified zone in Mogoin gol area	5449295	409380	Breccia silicified with many pyrite holes	<0.01	<5	<0.001	4.84	<0.001	<0.001	<0.001	<0.001
16	MA2236	North sulicified zone in Mogoin gol area	5449294	409364	Altered rock with many azulite films	<0.01	<5	<0.001	4.89	<0.001	<0.001	0.005	0.001
17	MA2237	North sulicified zone in Mogoin gol area	5449171	410345	Secondary quartzite with many azulite spots and malacite, speculalite	<0.01	<5	<0.001	1.20	<0.001	<0.001	0.006	<0.001
18	MA2238	North sulicified zone in Mogoin gol area	5449171	410345	Secondary quartzite with many azulite spots and malacite, speculalite	<0.01	<5	0.001	1.61	<0.001	<0.001	0.009	0.001

(ii) South silicified alteration zone

In the south of Mogoin gol area white silicified alteration zone consisting of silicified rocks and secondary silicified rocks was distributed in upper Permian alkali volcanics. White secondary silicified rocks and silicified rocks are composed of granular quartz showing sugary texture. These rocks sometimes include azurite, malachite, specularite, hematite and goethite partly. There are existing 2 trenches and 2 drillholes penetrating approximately 100 m each in the white silicified alteration zone. 2 trenches are presented in Fig.II-1-46.

The zone extends 800 m north-south and 1400 m east-west. There are 2 streams running on the south and west side of the zone and the area is vastly covered by Quarternary. Mineralizations and alterations observed in the zone are followings.

The points of the areas observed azurite and malachite are around (409720E, 5446885N), (409732E, 5446036N) and (409750E, 54460N). At each point mainly azurite and minor malachite were observed as spot and film in secondary silicified rocks. Pyrites are judged from tiny box-works in silicified and secondary silicified rocks and indicate intermediate to weak dissemination. Hematite and specularite are vastly distributed around the point of (409316E, 5446694N) including outcrops and floats. Around the hematite and specularite zone goethites were frequently observed in fractures of rocks. In the white silicified alteration zone drillholes were confirmed at the points of (409457E, 5446692N) and (409722E, 5446180N). There is a trench exacavated on the east adjacent to the drill collar(409722E, 5446180N). Though the trench(Fig.II-1-46) was ruined, floats including many goethites and hematites were observed.

Resulting from XRD of specimens collected from strongly alteration zone, as presented in Appendix 3, quartz, sericite and kaoline were predominantly observed and biotite, topaz and andalusite were appreciated. Unaltered rocks and chloritized rocks were observed around the strongly alteration zone. Azurite, specularite, hematite and limonite were observed in polished sections as presented in Appendix 2. Alteration minerals include mainly quartz, sericite, andalusite and kaoline and minor muscovite and biotite. Mineralized ore returned less than 0.001 to 0.009%Cu, less than 0.001%Mo, less than 0.001 to 0.006%Pb, less than 0.001 to 0.002%Zn and 0.59 to 23.16%Fe as presented in Appendix 5. Rocks returned 2 to 39ppmCu, less than 1 to 5 ppmMo, 31 to 60ppmPb, 6 to 12ppmZn and 0.79 to 12.37%Fe as presented in Appendix 6.

(iii) Magnetite zone

Andesite and tuffs bearing abundant magnetite were observed around liparite dykes and stocks and diorite body. Magnetite was formed resulting from intrusion of liparite and diorite into andesite and tuffs.

Resulting from XRD of specimen(MA2049) collected from strongly alteration zone, as presented in Appendix 3, quartz and chlorite were predominantly observed in the strongly magnetitized zone.

Unaltered rocks and chloritized rocks were observed around the strongly magnetitized zone. Magnetite was observed in polished section as presented in Appendix 3. Alteration minerals include mainly quartz, biotite, sericite and actinolite. A mineralized rock returned 0.004%Cu, 0.005%Pb, 0.013%Zn and 8.05%Fe as presented in Appendix 5.

(3) Distribution of alteration minerals

Minerals identified by XRD are presented in Appendix 3. Following alteration mineral assemblies were detected in the area and distribution of them are presented in Fig. II-2-47.

1)quartz-(kaoline)

2)quartz-andalusite

3)quartz-K-feldspar-(kaoline)

4)quartz-K-feldspar-alunite-pyrophyllite-(kaoline)

5)quartz-K-feldspar-biotite-alunite-andalusite-(kaoline)

6)quartz-K-feldspar-sericite-(kaoline)

7)quartz-K-feldspar-sericite-andalusite-(kaoline)

8)quartz-biotite-(kaoline)

9)quartz-biotite-andalusite-(kaoline)

10)quartz-biotite-chlorite-(kaoline)

11)quartz-sericite-(kaoline)

12)quartz-sericite-andalusite-(kaoline)

13)quartz-sericite-chlorite-(chlorite/smectite)

14)sericite-(kaoline)

15)sericite-chlorite

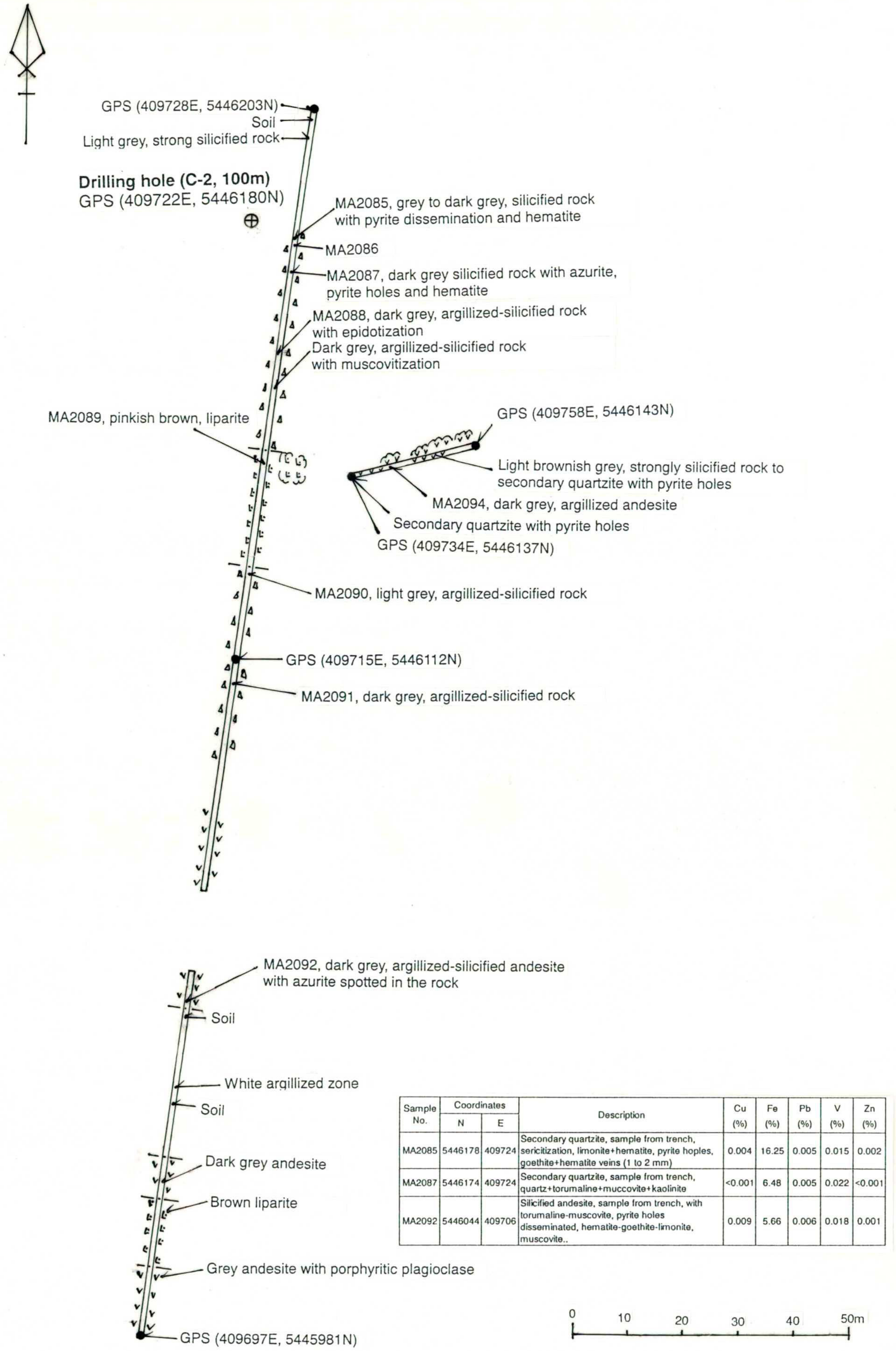
16)chlorite-epidote

17)chlorite

18)unaltered

On the north white silicified alteration zone, zonal structure of alteration is observed like quartz and quartz-sericite alteration zone, sericite-chlorite alteration zone and chlorite alteration zone from center to outward. In the quartz and quartz-sericite alteration zones, alunite, pyrophyllite, andalusite and biotite were also observed. The zonal structure of alteration minerals observed in the area is similar to that of the Erdenet deposit, which shows the zonal structure of quartz-sericite, sericite-chlorite, calcite-epidote-chlorite from center to outward and alunite, pyrophyllite, andalusite, biotite and epidote are overprinted on them.

On the south white silicified alteration zone, quartz and quartz-sericite alteration zones are situated in the center and unaltered rocks and chlorite alteration zone are distributed outward. Quartz-sericite alteration zone includes andalusite and biotite. Compared to the north silicified



Sample No.	Coordinates		Description	Cu (%)	Fe (%)	Pb (%)	V (%)	Zn (%)
	N	E						
MA2085	5446178	409724	Secondary quartzite, sample from trench, sericitization, limonite+hematite, pyrite hoples, goethite+hematite veins (1 to 2 mm)	0.004	16.25	0.005	0.015	0.002
MA2087	5446174	409724	Secondary quartzite, sample from trench, quartz+torumaline+muccovite+kaolinite	<0.001	6.48	0.005	0.022	<0.001
MA2092	5446044	409706	Silicified andesite, sample from trench, with torumaline-muscovite, pyrite holes disseminated, hematite-goethite-limonite, muscovite..	0.009	5.66	0.006	0.018	0.001

Fig.II-1-46 Trench sketch in the South Alteration Zone of the Mogoin gol area alteration zone, alteration zonal structure is not observed.

(4) Results of assays

Resulting from multi-elements factor analysis of chemical analysis for rocks mentioned in section 1-4-1, factors relating to anomalies of Au, Ag, Cu, Pb, Zn and Mo are selected as below.

1) Factor 2: Mo

2) Factor 4: Au-(Ag-Ni)

3) Factor 5: Hg-Cu-(Co-Ni)

Resulting from single-element factor analysis, anomaly maps of Mo, Au, Ag, Ni, Hg and Cu are presented in Figs. II-2-48 to II-2-54.

Cu: Specimens over 50ppmCu are defined in north white silicified alteration zone and the quartz trachyte area in south(Fig.II-2-48). Especially in north white silicified alteration zone, anomaly zone of up to 165ppmCu is found.

Mo: Specimens over 8ppmMo are defined in north white silicified alteration zone and the quartz trachyte area in south(Fig.II-2-49). Especially in north white silicified alteration zone, anomaly zone of up to 35ppmMo is found.

Au: Specimens over 7ppbAu are defined in north white silicified alteration zone and the quartz trachyte area in south(Fig.II-2-50). Especially in south, anomaly zones of up to 7ppbAu are tend to be found.

Ag: Specimens over 0.8ppmAg are defined within an area of rhyolite porphyry south of silicified alteration zone and an area of quartz trachyte stock in the south(Fig.II-2-51).

Hg: Specimens over 90ppmHg are defined in north white silicified alteration zone(Fig. II-2-52). Anomaly zones of up to 615ppmHg are found.

Pb: Specimens over 70ppmPb are defined in north white silicified alteration zone and an area of quartz trachyte stock in the south(Fig. II-2-53). Anomaly zones of up to 208ppmPb are found in north white silicified alteration zone.

Zn: Specimens over 110ppmZn are defined in north white silicified alteration zone, its surrounding area and an area of quartz trachyte stock in the south(Fig. II-2-54). Anomaly zones of up to 244ppmAn are found in north white silicified alteration zone.

Resulting from single element factor analysis as presented in Appendices 9 & 10, leaching process relating to mineralization is suggested by reduction of Al, Ba, Be, Ca, K, Mg, Mn, Na, Sr, Ti and V and enrichment relating to mineralization is appreciated as increase of Au, Hg, Cr, Cu, Fe, Mo, Pb and Zn. In the north white silicified alteration zone, Au, Hg, Cr, Cu, Fe, Mo, Pb and Zn are appreciated as increased elements while Cu and Fe in the south white silicified alteration zone. In the north white silicilfied alteration zone, behavior of elements vary with mineralization showing that mineralization-related elements increase with its mineraliazation magnitude and Al, Ba, Ca, K, Mg, Mn,

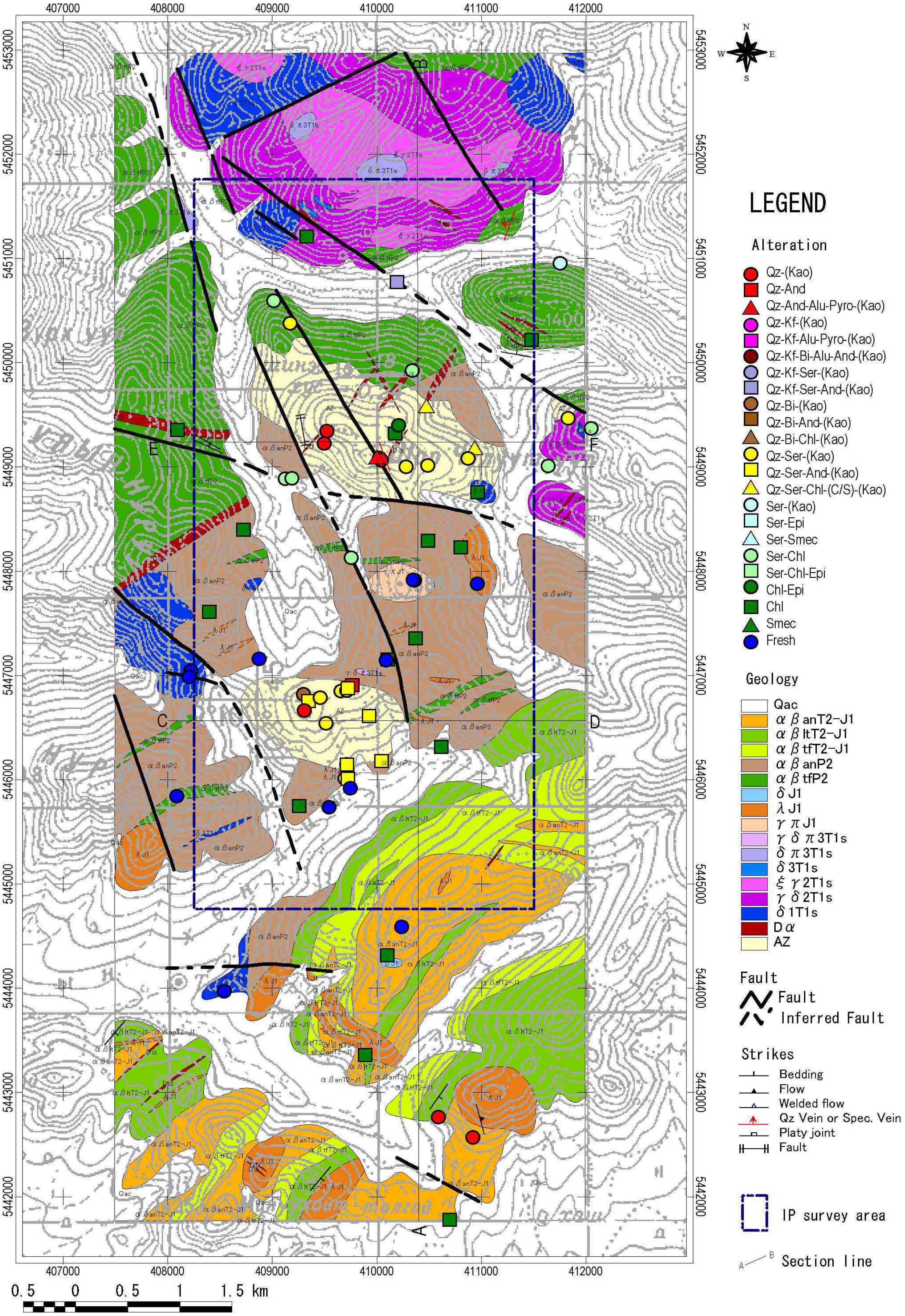


Fig.II-1-47 Distribution map of alteration mineral assemblages in the Mogoin gol area

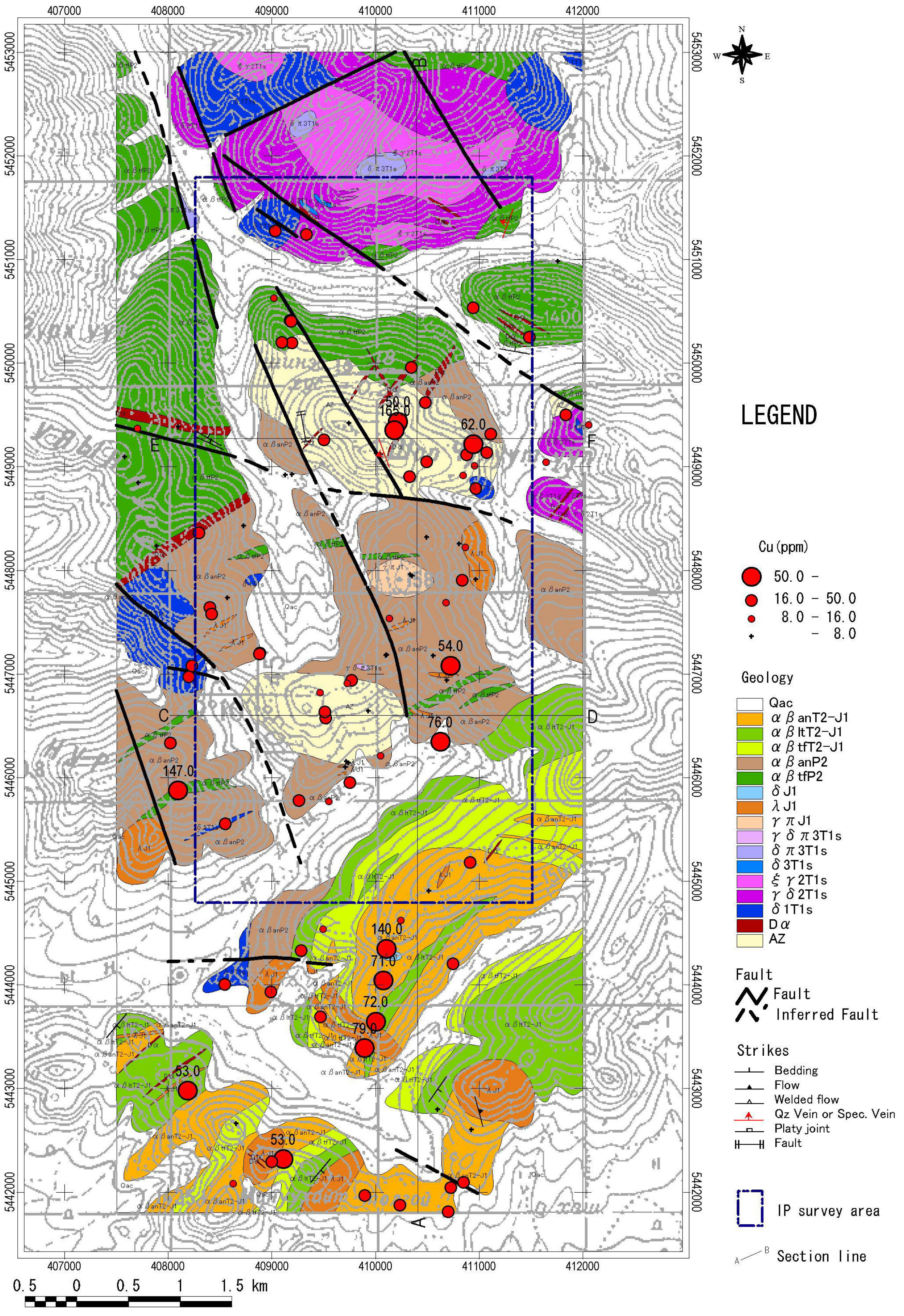


Fig.II-1-48 Distribution map of Cu anomaly in the Mogoin gol area

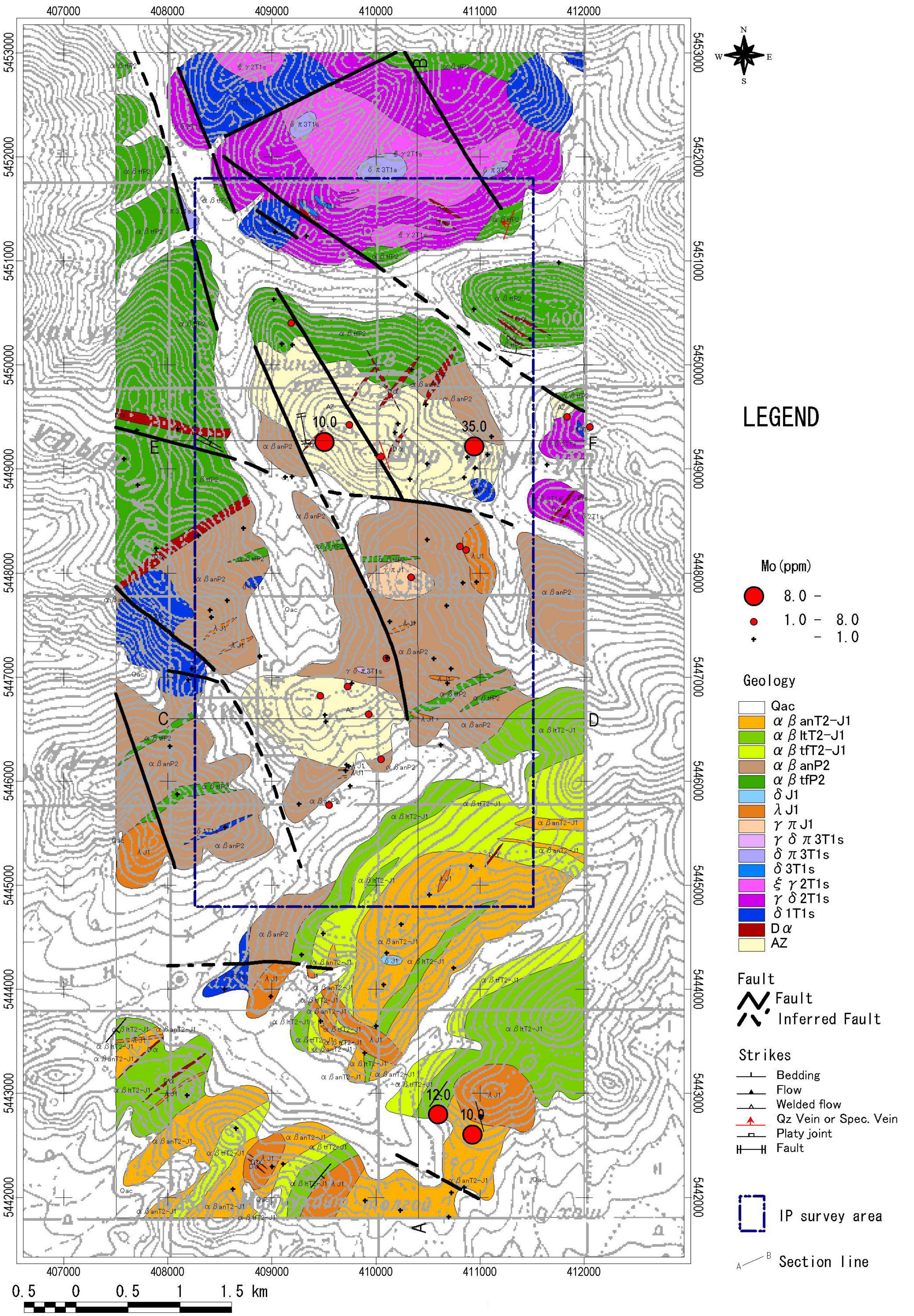


Fig.II-1-49 Distribution map of Mo anomaly in the Mogoin gol area

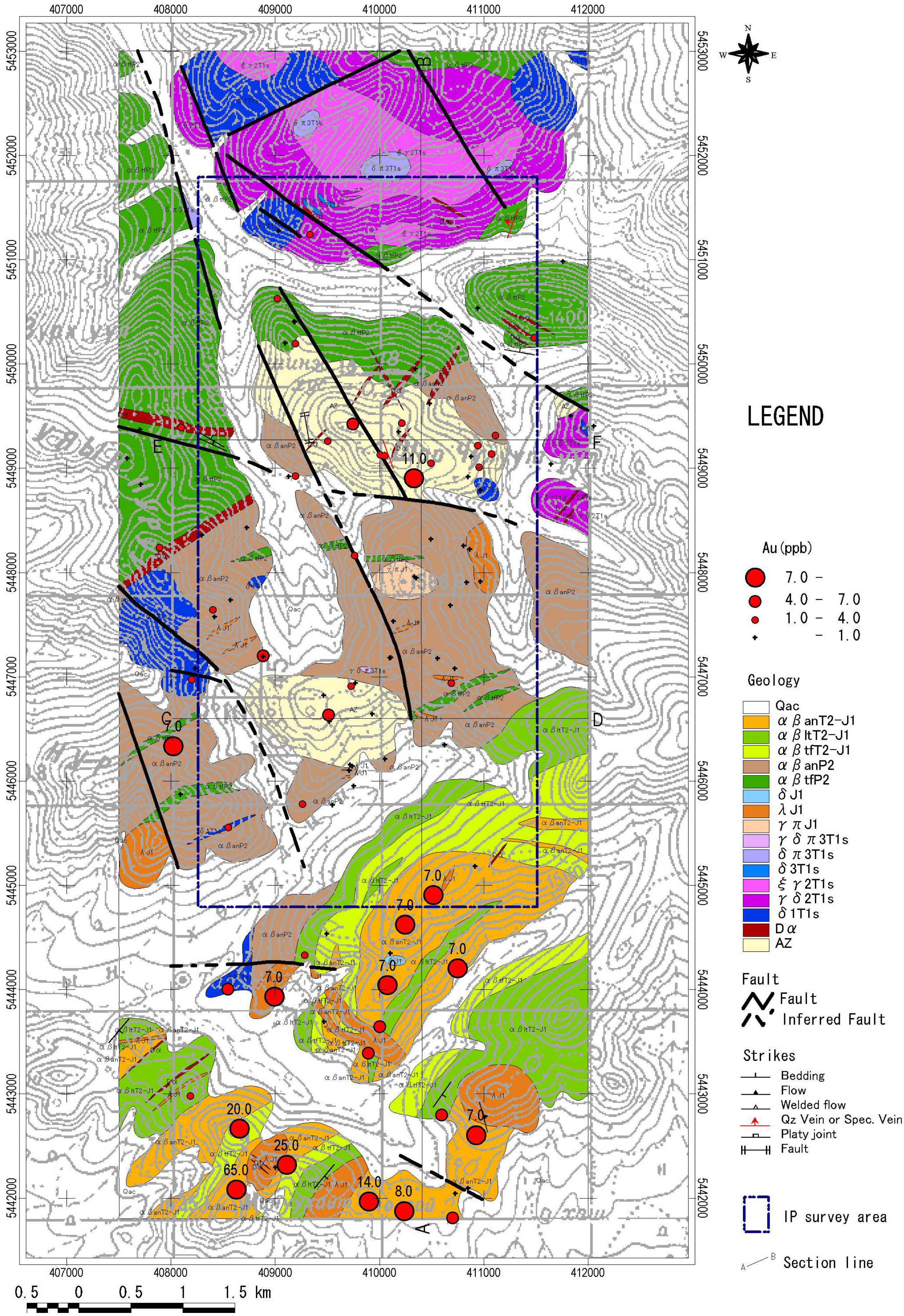


Fig.II-1-50 Distribution map of Au anomaly in the Mogoin gol area

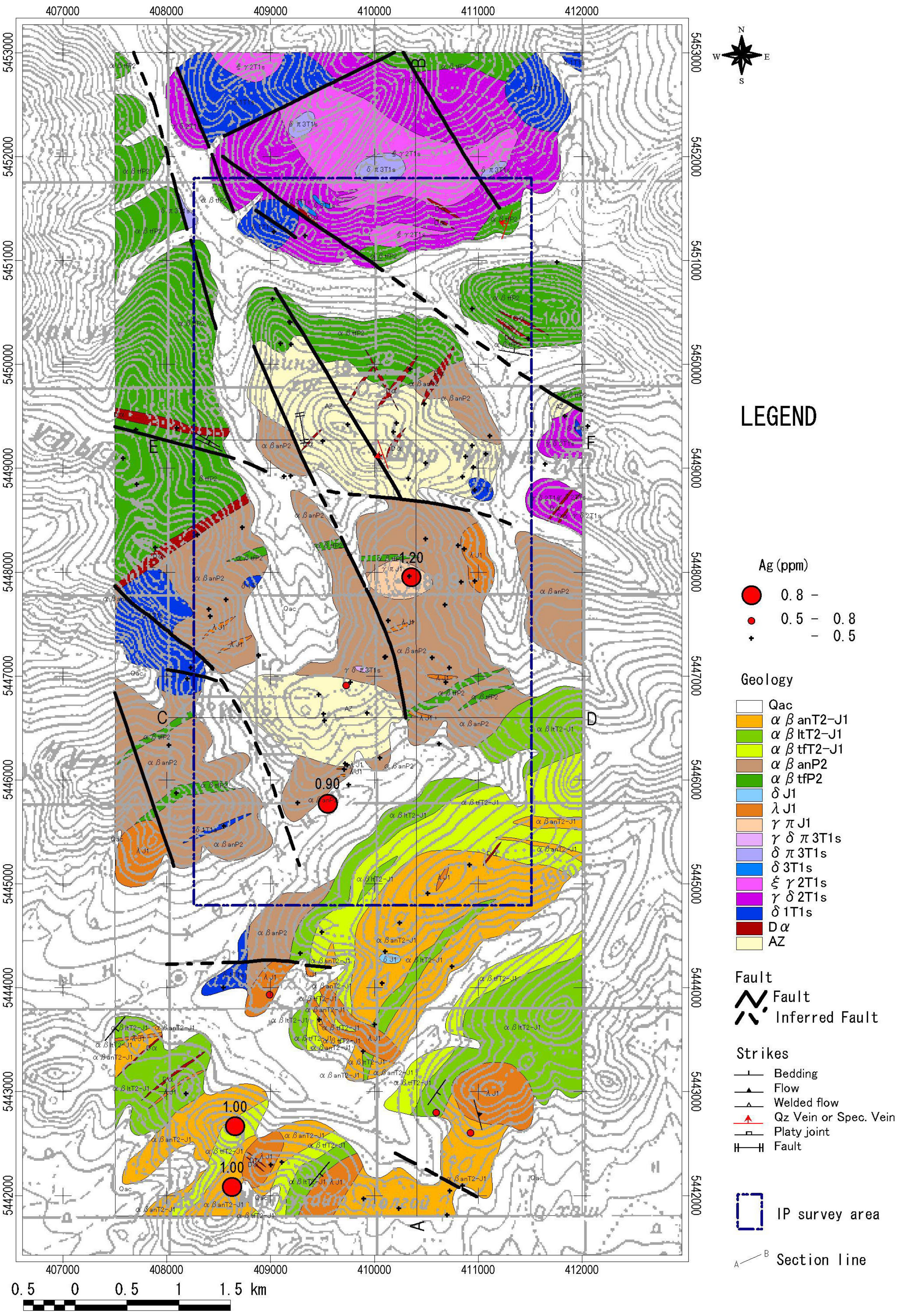


Fig.II-1-51 Distribution map of Ag anomaly in the Mogoin gol area

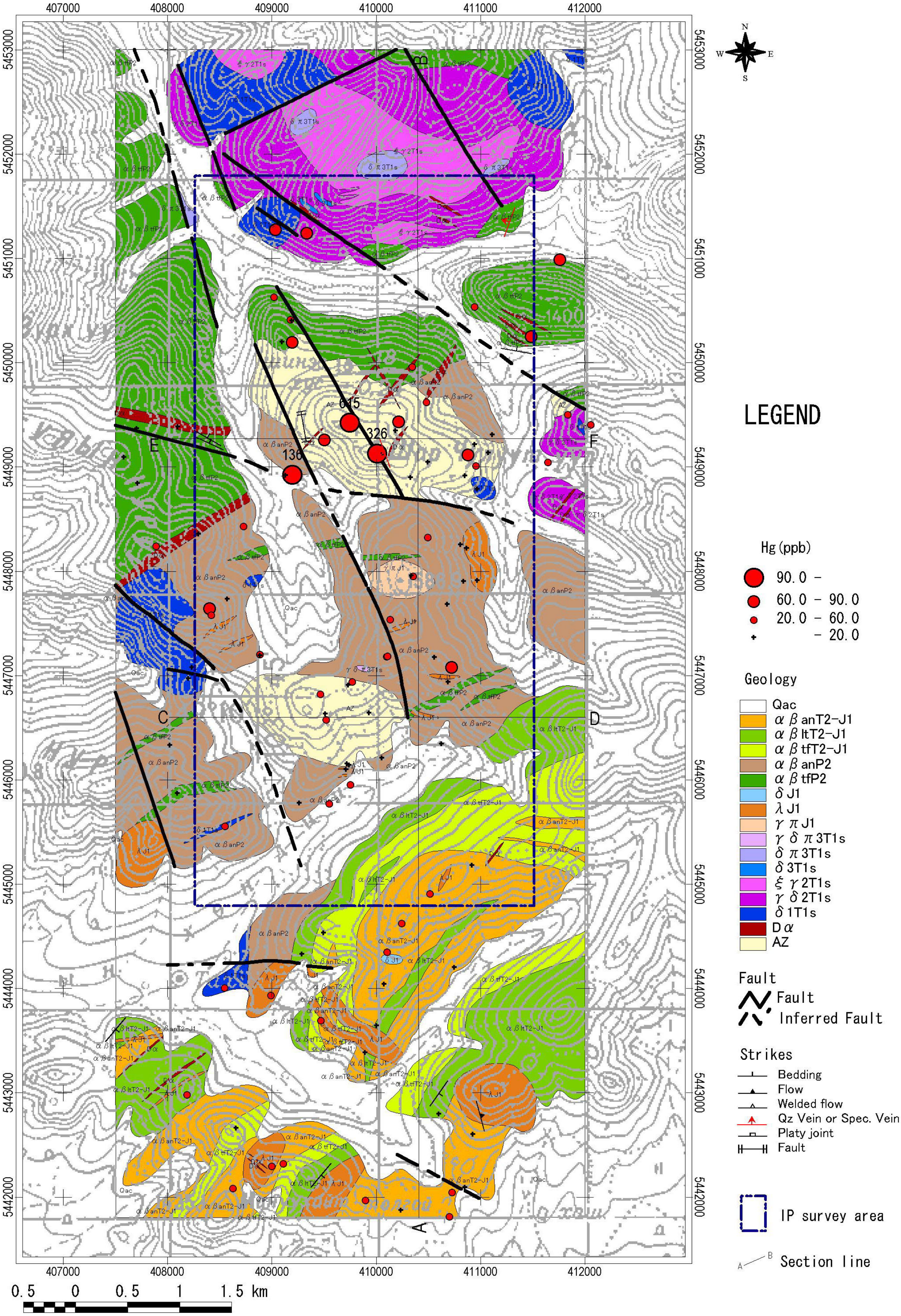


Fig.II-1-52 Distribution map of Hg anomaly in the Mogoin gol area

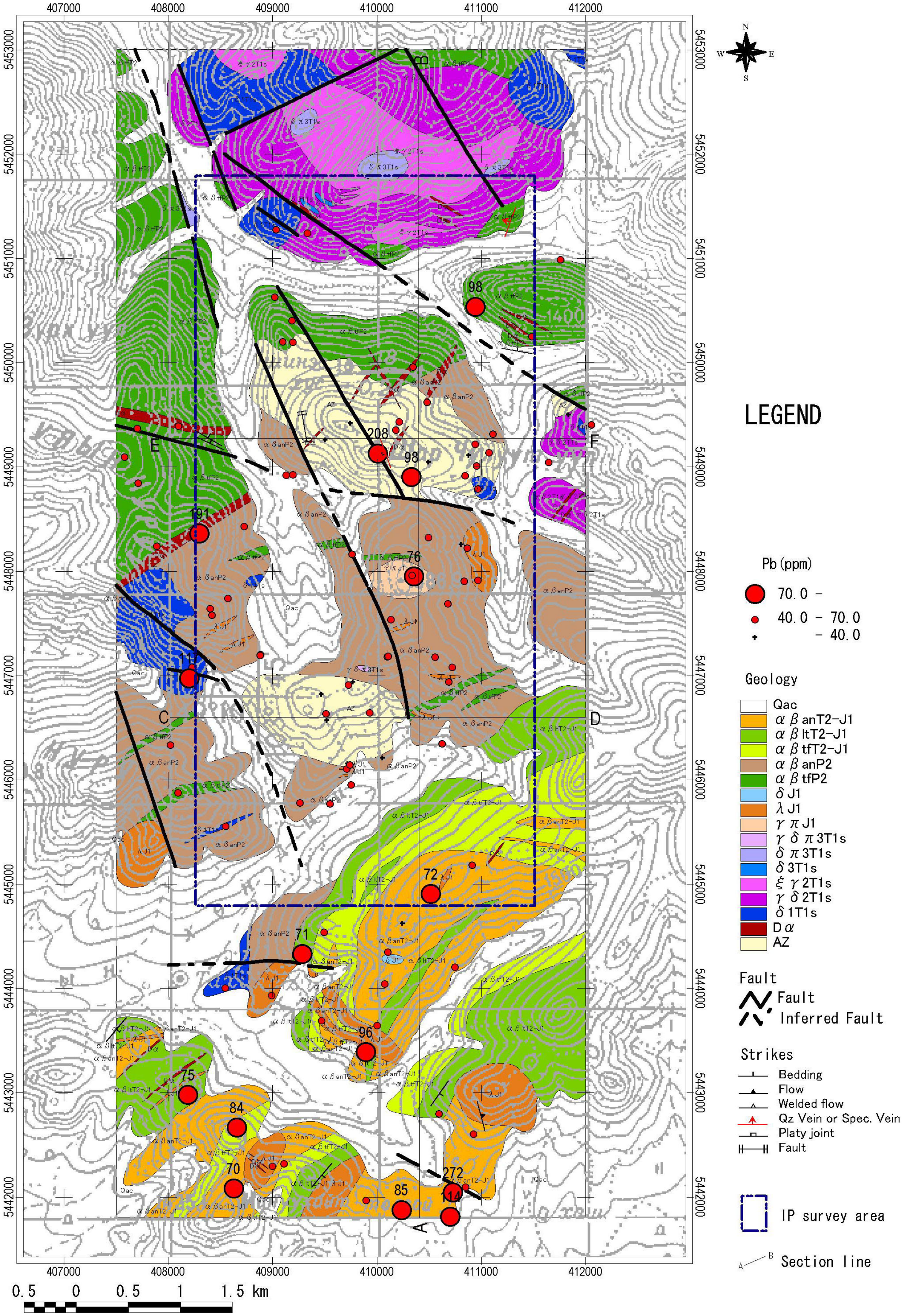


Fig.II-1-53　Distribution map of Pb anomaly in the Mogoin gol area

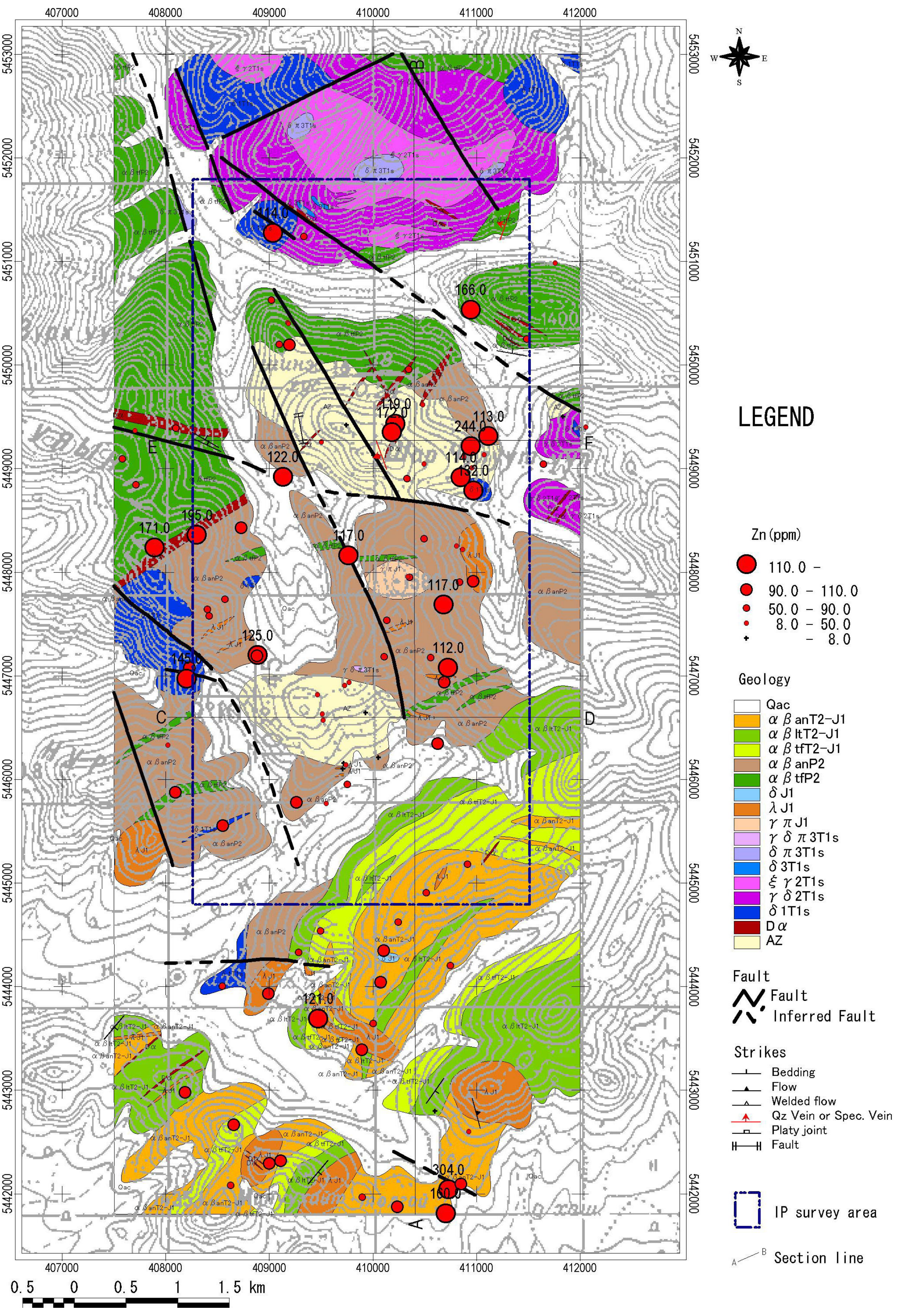


Fig.II-1-54 Distribution map of Zn anomaly in the Mogoin gol area

Na and Sr reduce with leaching. However, in the south white silicified alteration zone, behavior of elements relating to leaching and enrichment is relatively weak.

Maps resulting from factor points of each element are presented Figs.II-2-55 and II-2-56.

a) Factor 2 shows Mo-related elements and values less than -1.0 are defined in the north white silicified alteration zone(Fig. II-2-55).

b) Factor 4 shows Au-(Ag-Ni) related elements and values less than -1.0 are defined in the north white silicified alteration zone, within an area of rhyolite porphyry south of silicified zone and an area of quartz trachyte stock in the south(Fig. II-2-56).

c) Factor 5 shows Hg-Cu-Mo related elements and values less than -1.0 are defined both in the north and south white silicified alteration zones(Fig. II-2-57).

An area of overprinted 3 factors is defined within the north white silicified alteration zone and has a potential to indicate mineralization relating to porphyry copper-molybdenum deposit.

(5) Conclusions

Geology in the area is composed of upper Permian alkali volcanics, upper Triassic to lower Jurassic volcanics, Permian to Triassic granites, Jurassic stocks, dykes and Quarternary. White silicified alteration zones accompanied by copper oxides are distributed at north of Mount Shar Chuluut and south in the area. Directions of main faults are predominantly NNW-SSE, NW-SE and EW in the north area and NW-SE and EW at center and NE-SW and EW in the south.

Mineralizations observed in the area are composed of north white silicified alteration zone, south white silicified alteration zone accompanied by secondary quartzite and magnetite zone resulted from intrusion by liparite and diorite. Azurite and/or malachite in particle rim coating or spotty-shaped are observed in these white silicified alteration zones.

North silicified alteration zone extends over the area of 1.2km north-south and 2km east-west. This zone covers the top of Mount Shar Chuluut comprising 2 silicified outcropped peaks and many silicified floats and small outcrops around the zone. Alteration zones are composed of silicification, sericitization, pyritization and partly copper oxides. Silicified breccia zones are also observed. Quartz, K-feldspar, kaolin, pyrophyrite and alunite were detected in the strongly altered areas. Quartz, albite, sericite and chlorite were detected in the vicinity of them. Assemblage of alteration minerals are quartz-K-feldspar-kaoline-pyrophyllite-alunite at center and sericite-albite-chlorite outwards. These zones indicate zonal structure. Mineralized rocks returned 0.001 to 0.026%Cu, 0.001 to 0.001%Mo, 0.001 to 0.021%Pb, 0.001% to 0.004%Zn and 0.38 to 12.72%Fe. Assays of rocks returned 4 to 165ppmCu, 6 to 35ppmMo, 1 to 98ppmPb, 4 to 244ppmZn and 0.47 to 9.13%Fe.

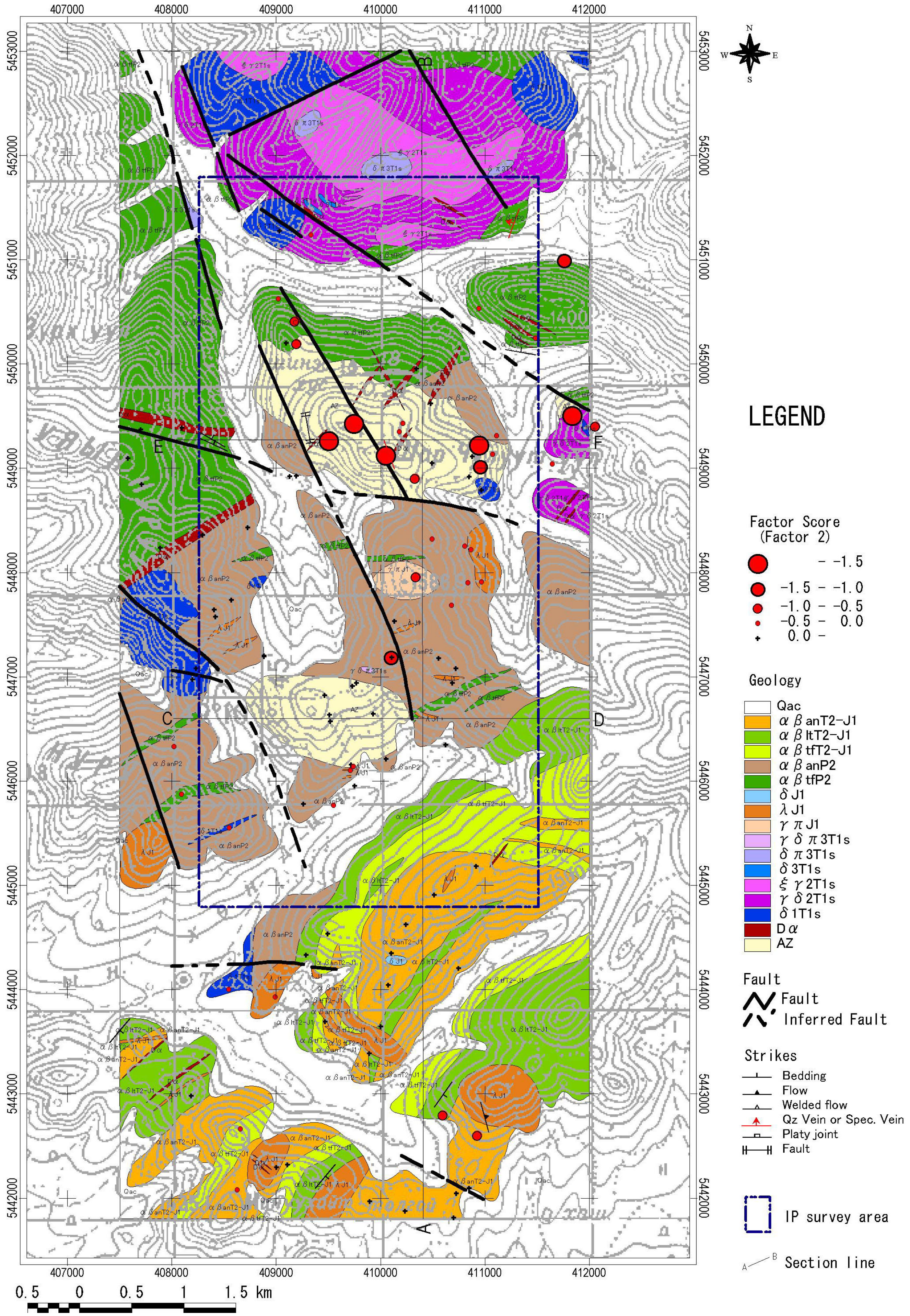


Fig.II-1-55 Distribution map of factor 2 (Mo) scores in the Mogoin gol area

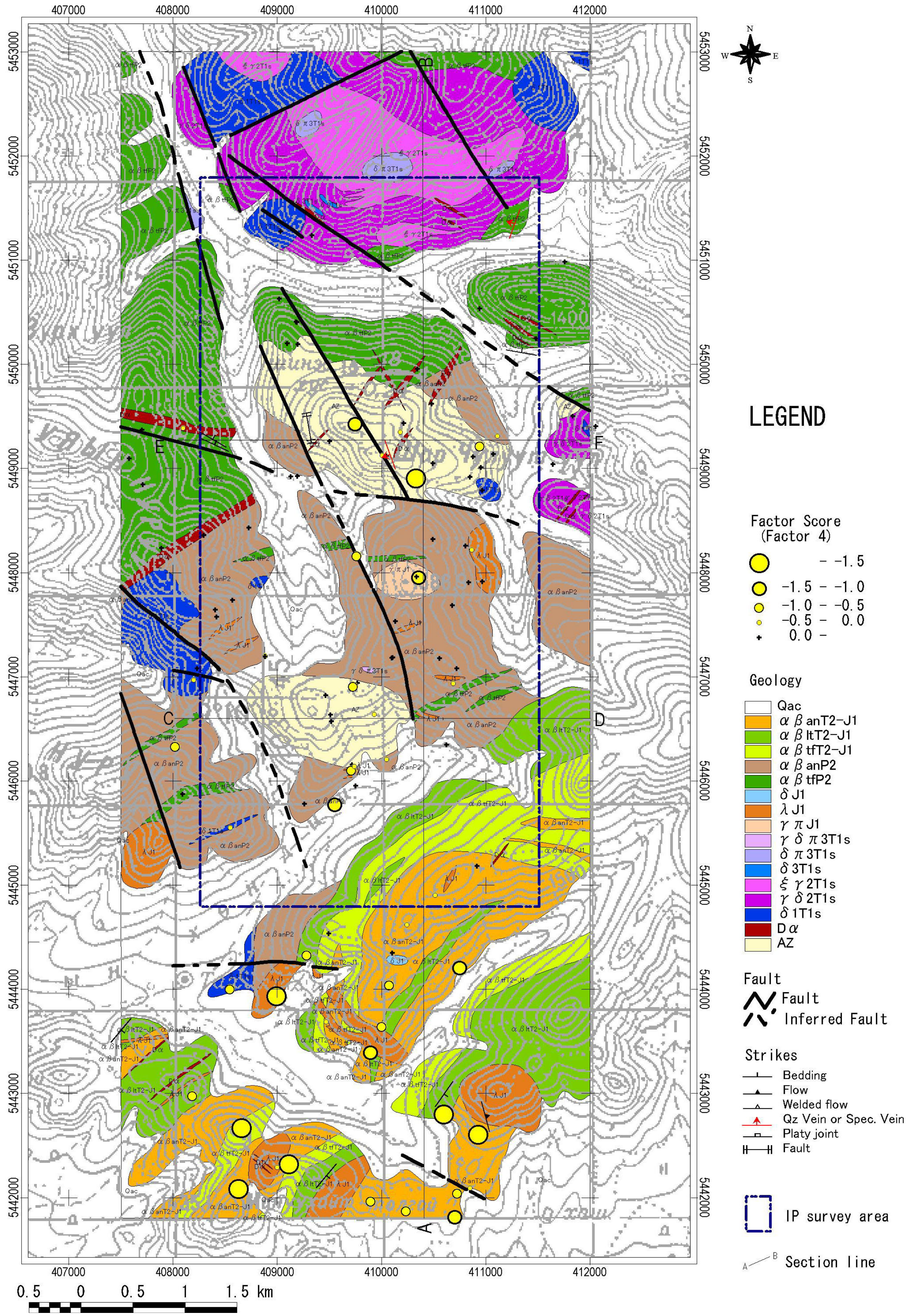


Fig.II-1-56 Factor score distribution map of Factor 4 (Au-(Ag-Ni)) scores in the Mogoin gol

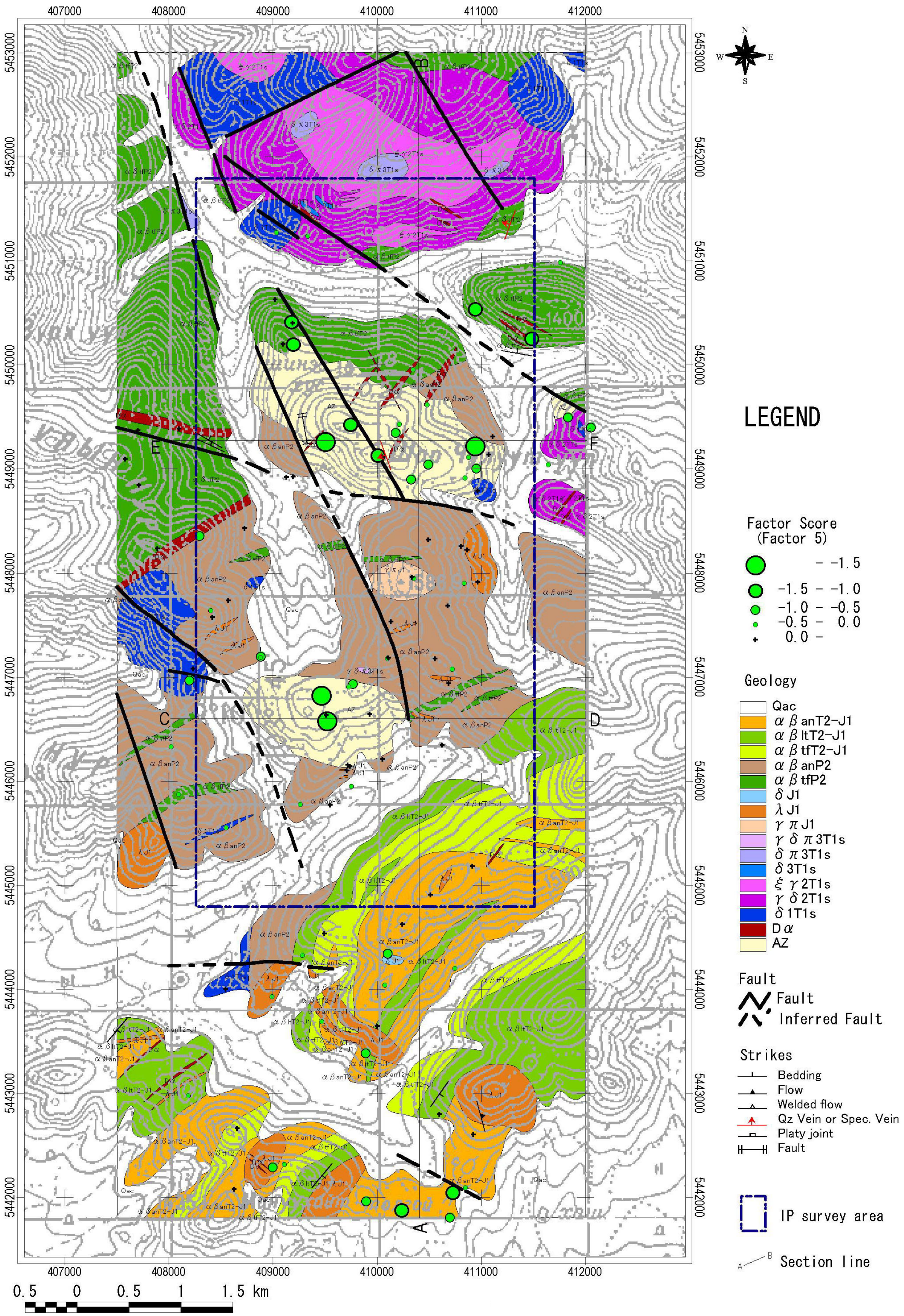


Fig.II-1-57 Factor score distribution map of Factor 5 (Hg-Cu-(Co-Ni)) scores in the Mogoin gol area

South silicified alteration zone extends over 800 m north-south and 1400 m east-west. Quartz, sericite and kaoline were predominantly observed and biotite, topaz and andalusite were appreciated in the zone. Unaltered rocks and chloritized rocks were observed around the strongly alteration zone, so zonal alteration structure was not appreciated. Mineralized ore returned less than 0.001 to 0.009%Cu, less than 0.001%Mo, less than 0.001 to 0.006%Pb, less than 0.001 to 0.002%Zn and 0.59 to 23.16%Fe. Rocks returned 2 to 39ppmCu, less than 1 to 5 ppmMo, 31 to 60ppmPb, 6 to 12ppmZn and 0.79 to 12.37%Fe.

Magnetite zone was formed resulting from intrusion of liparite and diorite into andesite and tuffs. Quartz and chlorite were predominantly observed in the zone. A mineralized rock returned 0.004%Cu, 0.005%Pb, 0.013%Zn and 8.05%Fe.

Resulting from multi-elements factor analysis for geochemistry of rocks, factors relating to mineralizations of Au, Cu and Mo are selected Factor 2 (Mo: north white silicified alteration zone), Factor 4 (Au-(Ag-Ni): north white silicified alteration zone, rhyolite porphyry and south) and Factor 5 (Hg-Cu: north white silicified alteration zone and south white silicified alteration zone) as three factors.

Single-element factor analysis indicates that Mo, Au, Ag, Ni, Hg and Cu has relatively high correlation. North white silicified alteration zone and south white silicified alteration zone have potential to host mineralization relating to porphyry copper-molybdenum deposit.

(6) Discussion

On the north white silicified alteration zone, zonal structure of alteration indicates the structure associated with porphyry copper-molybdenum deposits. Quartz and quartz-sericite alteration zone, sericite-chlorite alteration zone and chlorite alteration zone are distrubited from center to outward. The zonal structure of alteration minerals observed in the area coincides with that of the Erdenet deposit. The zonal structure of quartz-sericite, sericite-chlorite, calcite-epidote

-chlorite are distributed from center to outward and other alterations are overprinted on them. These alterations are often observed in acid alteration zones of high sulfidation epithermal system and develops in the upper parts of mineralization and alteration zone in porphyry copper-molybdenum deposits. Maximum values of mineralized rocks returned 0.026%Cu, 0.001%Mo, 0.021%Pb and 0.004%Zn. Maximum values of rock assays returned 165ppmCu, 35ppmMo, 98ppmPb and 244ppmZn. The zones of leaching elements are also appreciated resulting from rock assays. These facts lead porphyry copper-molybdenum deposits will exist at very deeper zone if where they are.

On the south white silicified alteration zone, quartz and quartz-sericite alteration zones are situated in the center and unaltered rocks and chlorite alteration zone are distributed outward. Quartz-sericite alteration zone includes andalusite and biotite. Compared to the north silicified alteration zone, alteration zonal structure is not observed. Maximum values of mineralized ore returned 0.009%Cu, 0.006%Pb, 0.002%Zn. Maximum values of rock assays returned 39ppmCu, 5 ppmMo, 60ppmPb and 12ppmZn. Like north white alteration zone, south white silicified alteration zone is thought to have a potential to host porphyry copper-molybdenum deposits at deeper zone.

Airborne magnetics conducted in 1st year in the area is presented in Fig. II-1-58. North white silicified alteration zone was detected in low magnetic anomaly zone. Low magnetic rocks showing 0.01 to 1.00SI indicating demagnetization were detected in the north white silicified alteration zone as presented in Fig. II-1-59. At south white silicified alteration zone, fairly low magnetization such as 0.01 to 1.00SI were detected. Rocks having magnetization ranging 0.01 to 0.04SI represent rocks composed of alteration assemblage of mainly quartz-sericite-andalusite. It is likely that low magnetization anomalies observed in north and south white alteration zone are derived from demagnetizations associated with forming porphyry copper-molybdenum deposits.

Based on above mentioned results, modeling of mineralization in north white silicified alteration is described at Fig. II-1-60.

Since it has potential to host porphyry copper-molybdenum deposits in north and south white silicified alteration zones, it is necessary to conduct a drilling program for comprehending the feature of mineralizations there.

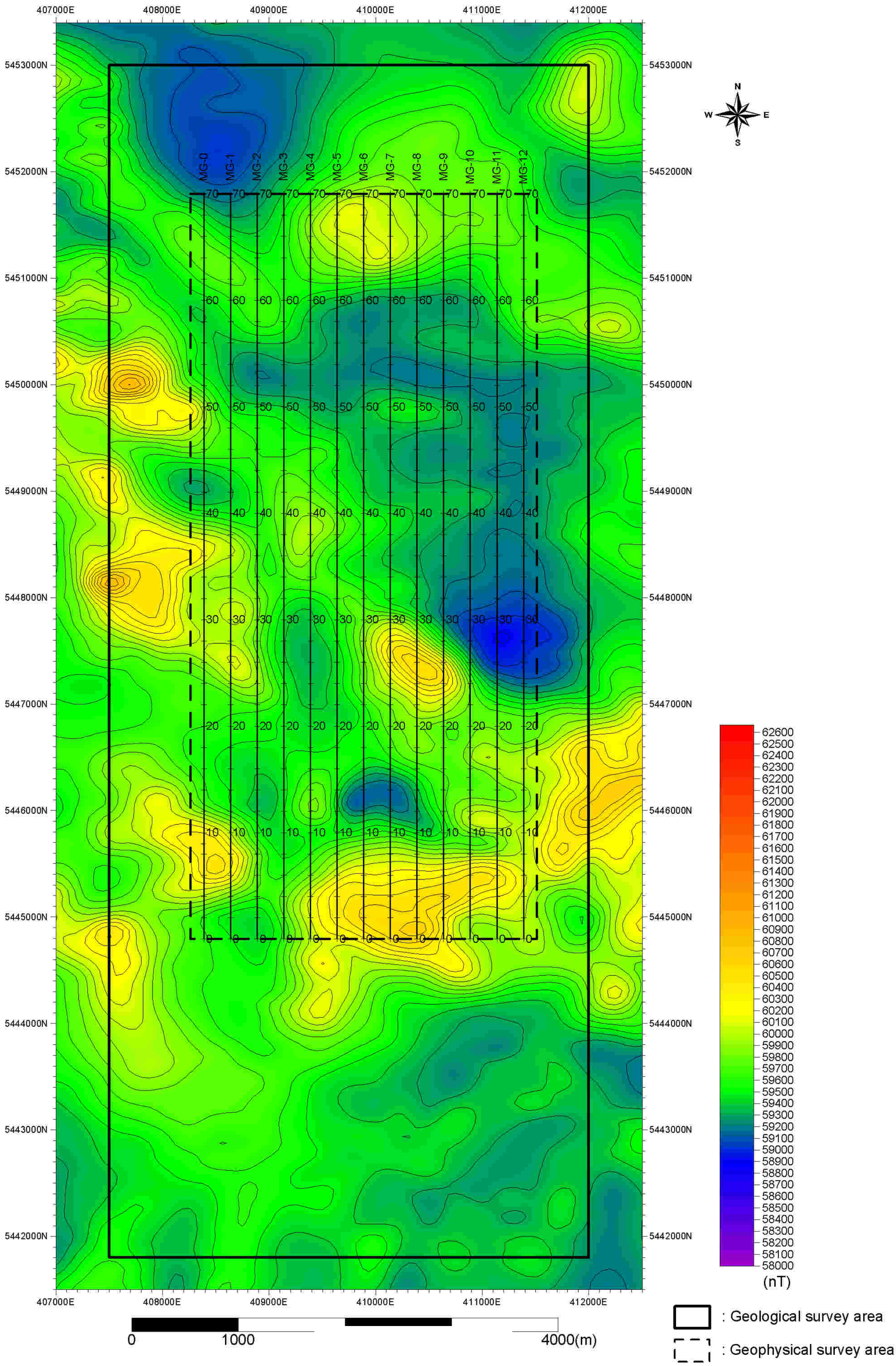


Fig.II-1-58　Airborne magnetic intensity map in the Mogoin gol area on Phase I survey

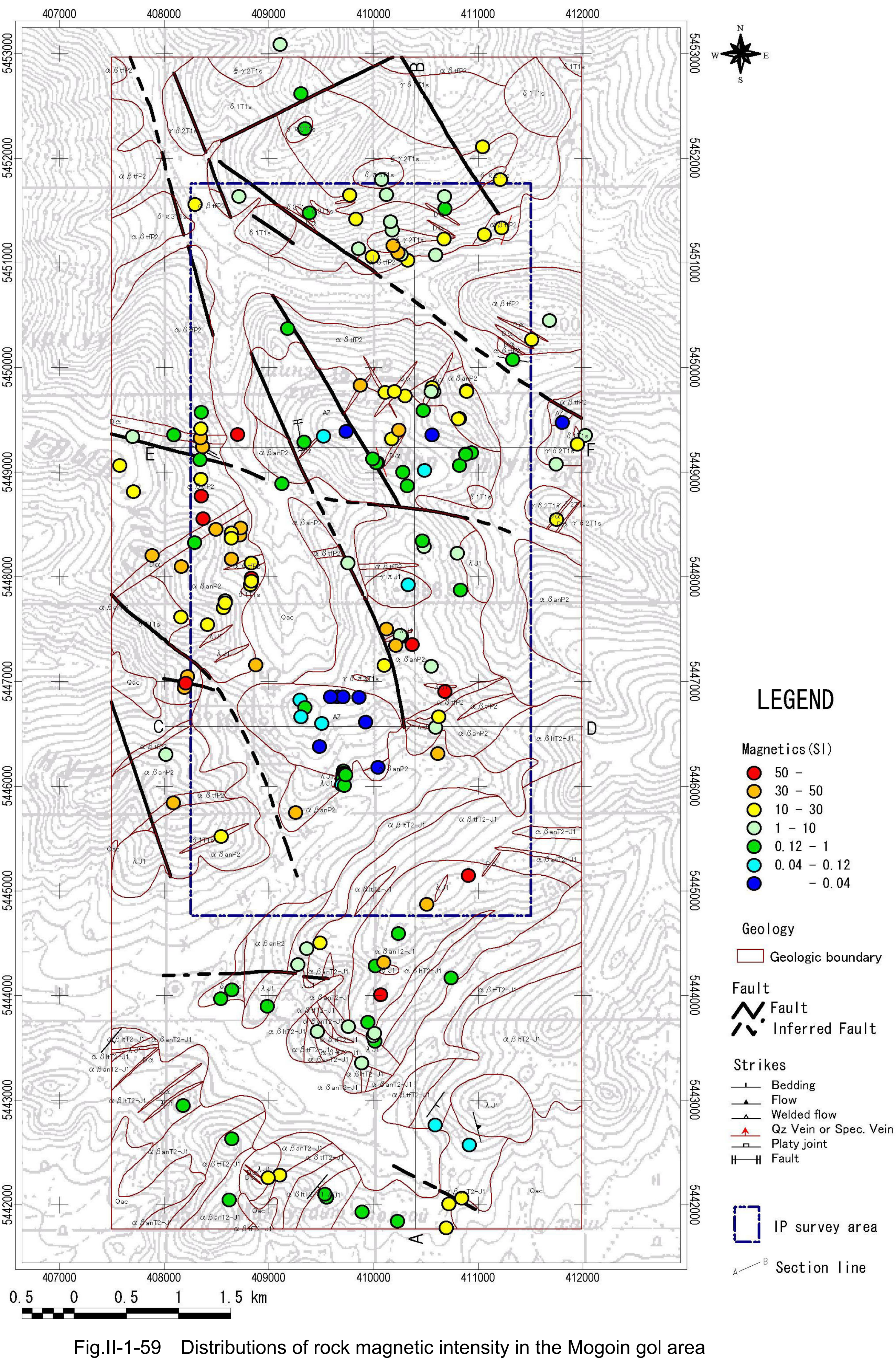


Fig.II-1-59 Distributions of rock magnetic intensity in the Mogoin gol area

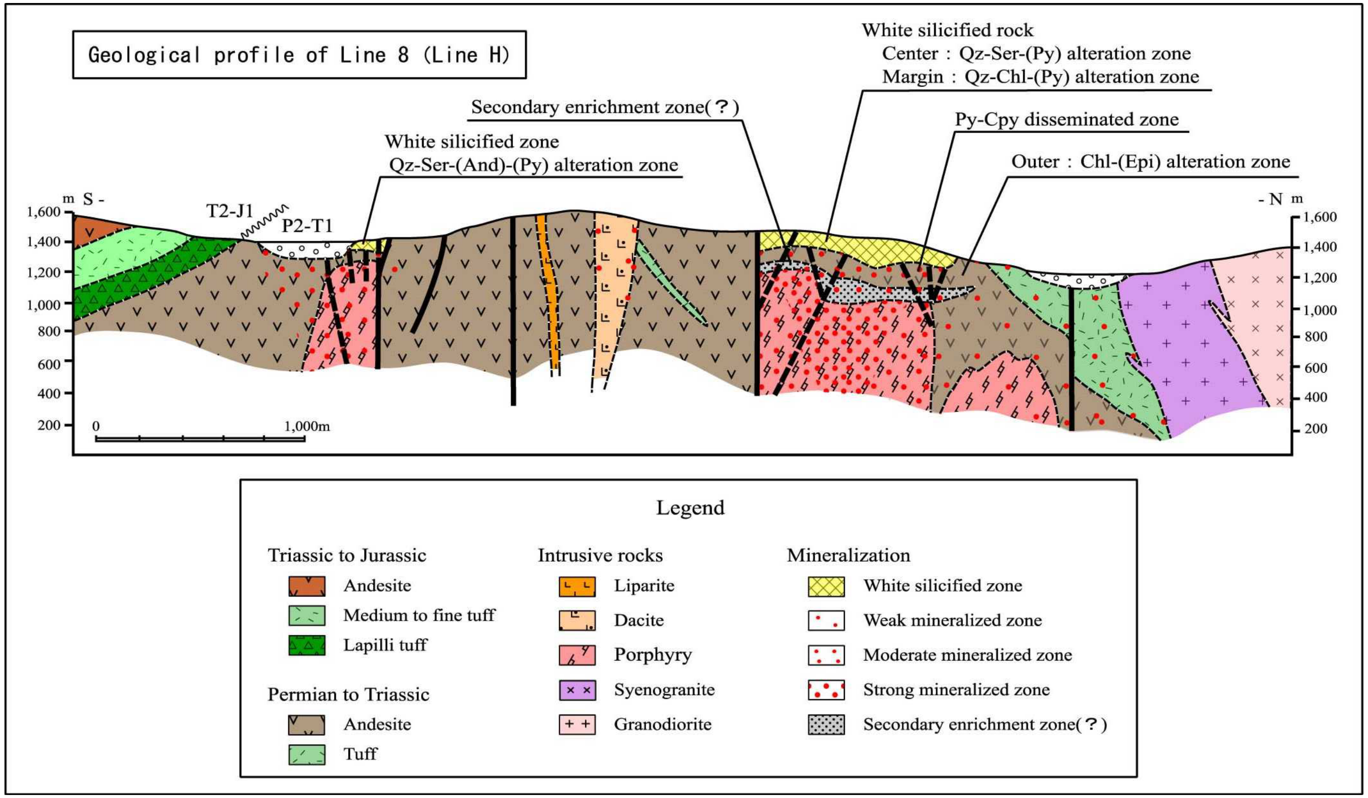


Fig.II-1-60 Genesis model of the Mogoin gol area