

Table II-2-4 Assay results of Area B (1)

Ser. No.	Sample No.	Area	Coordinates		Descriptions	Assay results						Remarks and sampling width (m)	
			N	E		Au (g/t)	Ag (g/t)	Cu (ppm)	Mo (ppm)	Pb (ppm)	Zn (ppm)		S (%)
1	J704	B	1445.80	4736.84	sili. dolerite with py.	< 0.1	0.3	297	< 1	7	142	19.45	float, w.0.2
2	J709	B	1445.11	4736.11	quartz vein with py. and cp.	< 0.1	0.8	5,019	13	4	6,222	11.45	w.0.3
3	J712	B	1445.14	4734.12	qz. veinlet with py. cp. in basalt	< 0.1	0.5	5,104	< 1	3	69	6.22	w.1.2
4	J713	B	1445.33	4735.19	basalt with py. dissim.	< 0.1	0.2	25	< 1	5	84	0.48	w.0.2
5	M735	B	1444.39	4735.43	qz. vein with py. cp.	< 0.1	0.5	1,819	< 1	< 1	586	14.69	w.0.3
6	M738	B	1444.85	4734.90	dole. with py. cp. dissim. & stwk.	< 0.1	4.0	28,017	1	8	981	7.56	w.0.2
7	M739	B	1444.85	4734.90	dole. with py. cp. dissim. & stwk.	< 0.1	5.5	59,041	< 1	4	1,231	11.28	w.0.1
8	M740	B	1444.85	4734.90	dole. with py. cp. dissim. & stwk.	< 0.1	4.2	37,207	4	2	546	7.36	w.0.1
9	M742	B	1444.30	4733.85	qz. veinlet with py. cp. in dole.	< 0.1	0.9	11,603	< 1	< 1	53	12.72	w.0.2
10	M744	B	1444.20	4734.35	sili. dolerite with py. dissim.	< 0.1	12.6	1,828	7	28	5,095	3.38	w.0.2
11	P710	B	1446.55	4737.15	quartz vein	< 0.1	0.3	378	< 1	2	4,869	14.20	w.0.2
12	P711	B	1446.53	4737.05	sheared dole. with py veinlet	< 0.1	0.6	4,091	< 1	5	154	13.80	w.0.2
13	P712	B	1446.53	4737.03	qz. veinlet with py. cp.	< 0.1	31.2	101,016	7	52	20,240	21.52	w.0.1
14	P713	B	1446.52	4737.98	qz. vein with py.	< 0.1	0.7	950	2	3	75	16.65	w.0.1
15	P714	B	1447.04	4737.05	dolerite with py. dissemination	< 0.1	0.4	528	< 1	2	115	8.86	w.1.0
16	P718	B	1445.99	4737.42	qz. vein with py. cp. mal. az.	< 0.1	2.7	12,702	< 1	5	126	6.13	w.0.1
17	P719	B	1446.05	4737.10	quartz vein with py.	< 0.1	1.9	8,525	< 1	6	173	10.93	w.0.1
18	P723	B	1445.70	4736.12	qz. stockwork with py. in dolerite	< 0.1	< 0.1	204	< 1	< 1	65	22.41	w.0.2
19	P724	B	1445.70	4736.12	qz. stockwork with py. in dolerite	< 0.1	< 0.1	63	< 1	< 1	50	19.25	w.0.2
20	U728	B	1447.32	4737.34	qz. vein with py.	< 0.1	< 0.1	23	4	4	109	15.46	w.0.3

Table II-2-4 Assay results of Area B (2)

Ser. No.	Sample No.	Area	Coordinates		Descriptions	Assay results							Remarks and sampling width (m)
			N	E		Au (g/t)	Ag (g/t)	Cu (ppm)	Mo (ppm)	Pb (ppm)	Zn (ppm)	S (%)	
21	U729	B	1447.32	4737.34	qz. vein with py.	< 0.1	0.4	152	1	16	218	6.53	w.0.1
22	U731	B	1447.33	4737.37	qz. vein with py.	< 0.1	< 0.1	110	< 1	2	76	19.35	w.0.6
23	U732	B	1447.33	4737.37	qz. veinlet in dolerite	< 0.1	0.3	31	< 1	5	291	10.56	w.0.1
24	U733	B	1447.33	4737.37	qz. stockwork with py. in dole.	< 0.1	0.5	879	< 1	3	147	5.76	w.0.3
25	U734	B	1447.47	4737.29	qz. vein with py.	< 0.1	< 0.1	374	< 1	< 1	213	14.85	w.1.0
26	U735	B	1447.47	4737.29	qz. stockwork with py.	< 0.1	< 0.1	61	< 1	2	69	18.30	w.1.0
27	U736	B	1447.47	4737.29	qz. vein with py. cp.	< 0.1	2.0	1,579	10	3	62	19.71	w.0.7
28	U737	B	1447.47	4737.29	qz. vein with py. cp.	< 0.1	4.6	26,642	21	1	300	21.92	w.0.6
29	U739	B	1447.47	4737.29	qz. veinlet with py. cp.	< 0.1	26.4	124,513	< 1	2	1,234	25.12	w.0.63
30	U743	B	1448.14	4738.70	qz. vein with py.	< 0.1	0.5	775	< 1	4	1,094	21.74	w.1.0
31	U744	B	1448.14	4738.70	qz. vein with py.	< 0.1	1.8	7,088	4	5	4,438	6.84	w.0.1
32	U745	B	1446.55	4737.15	qz. stockwork with py. in dole.	< 0.1	< 0.1	360	< 1	3	127	2.42	w.1.0
33	U746	B	1446.55	4737.15	qz. stockwork with py. in dole.	< 0.1	< 0.1	13	< 1	4	109	20.85	w.1.0
34	U748	B	1446.55	4737.15	qz. vein with py. in dole.	< 0.1	0.2	44	< 1	4	539	6.24	w.1.0
35	U749	B	1446.55	4737.15	qz. stockwork in dolerite	< 0.1	< 0.1	11	6	2	163	3.51	w.0.15
36	U750	B	1446.55	4737.15	qz. stockwork in dolerite	< 0.1	< 0.1	64	4	2	72	0.33	w.0.3
37	U751	B	1446.53	4737.05	sheared dolerite with py. dissm.	< 0.1	0.3	581	1	4	494	4.09	w.1.0
38	U752	B	1446.53	4737.05	sheared dolerite with py. dissm.	< 0.1	0.3	398	< 1	6	168	2.16	w.1.0
39	U753	B	1446.53	4737.05	sheared dolerite with py. dissm.	< 0.1	0.1	249	< 1	5	360	4.78	w.1.0
40	U754	B	1446.53	4737.05	sheared dolerite with py. dissm.	< 0.1	0.3	245	< 1	5	97	1.11	w.1.0

Table II-2-4 Assay results of Area B (3)

Ser. No.	Sample No.	Area	Coordinates		Descriptions	Assay results						Remarks and sampling width (m)	
			N	E		Au (g/t)	Ag (g/t)	Cu (ppm)	Mo (ppm)	Pb (ppm)	Zn (ppm)		S (%)
41	U755	B	1447.47	4737.29	qz. veins with py. cp. in dole.	< 0.1	0.2	518	< 1	7	181	3.90	w. 1.0
42	U756	B	1447.47	4737.29	qz. veins with py. cp. in dole.	< 0.1	< 0.1	328	< 1	3	100	12.87	w. 1.0
43	U757	B	1447.47	4737.29	qz. veins with py. cp. in dole.	< 0.1	0.2	227	< 1	4	178	3.24	w. 1.0
44	U758	B	1447.47	4737.29	qz. veins with py. cp. in dole.	< 0.1	0.3	29	< 1	6	158	2.99	w. 1.0
45	U759	B	1447.47	4737.29	qz. veins with py. cp. in dole.	< 0.1	0.2	116	< 1	7	158	2.01	w. 1.0
46	U760	B	1447.47	4737.29	qz. veins with py. cp. in dole.	< 0.1	0.4	325	< 1	6	160	4.57	w. 1.0

へ衝上断層に沿ってクワム層の上にのし上がっている。

斑れい岩 (Gb) は、衝上断層に沿う様に、地区東部と西部に分布し、オフィオライト系列の岩石の最下部をなす。一部、小規模に地区北西部にも分布する。斑れい岩は、一般に淡緑灰色、中粒の岩石で、有色鉱物は主に輝石で角閃石の場合もある。南西部の衝上断層付近の斑れい岩は、破碎され風化した角閃石斑れい岩である。一方、西部の衝上断層付近では斑れい岩は層状構造を示し、集積岩である。顕微鏡観察によると集積組織を示し、集積鉱物として自形性の斜長石が粗粒の間隙充填鉱物の単斜輝石中にみられる。この層状斑れい岩から北へ向かって塊状の斑れい岩となり、粗粒玄武岩の分布域に向かうにしたがって斑れい岩中に粗粒玄武岩の脈岩が見られるようになる。

粗粒玄武岩 (Do) は中央部から北部にかけて広く分布し、急冷相の縞が多く観察できる露頭もあることから、典型的なオフィオライト系列岩石のシーティドダイク・コンプレックスに相当すると考えられる。本岩は、暗緑灰色塊状の岩石で本地区の急峻な山岳部の崖を形成する。一般に緑泥石等により変質しているところが多いが、新鮮な露頭では等粒状の岩石で輝石及び斜長石からなる。特に、地区西部では数 cm の急冷相の縞が 1 m 前後の間隔で見られるところがあり、その方向は E-W でほぼ垂直である。更に、粗粒玄武岩の分布域内で粗粒玄武岩が数 cm から 10 cm 前後の角礫状をなす露頭が随所で見られ、断層等の構造運動の影響が考えられる。新鮮な粗粒玄武岩は、顕微鏡観察では等粒状で、単斜輝石と斜長石のオフィティックな組織を示す。一方、著しく変質した岩石では、原岩の組織はほとんどとどめず、二次的な石英、緑泥石、緑れん石の集合物からなる。

玄武岩 (Ba) は、地区西部で衝上断層と断層に挟まれて分布するが、それ以外ではほぼ山岳部の地形的により高いところに分布し中央部及び北部で見られる。一般に、直径 50 cm から 1 m の顕著な枕状構造を示す、暗褐色で無斑晶の岩石である。顕著な枕状構造を示す岩石でも、枕状構造の輪郭を残すがその内部が角礫状に破碎した岩石も随所で見られる。一般に、やや変質し緑泥石を伴い。顕微鏡観察では、無斑晶で主に斜長石からなる間粒状組織の石基を持ち、変質鉱物として緑泥石をかなり含む

クワム層 (P₁Km) は、地区南部に分布し、淡灰色の塊状、無層理の砂岩を主体とし、それに灰色～褐色の泥岩を伴う。泥岩は層理を示すが、その走行・傾斜は一定の傾向を示さずクワム層の構造は不明である。衝上断層付近のクワム層は、一般に破碎されている。

本地区の地質構造は、地区南部をほぼ N-W 方向で横断する北傾斜の衝上断層で特徴付けられ、この断層によりオフィオライト系列の岩石がクワム層の上にのしあげている。更に、この両者を切って NW-SE から NNW-SSE の断層が見られる。本地区に分布するオフィオライト系列の岩石は、オフィオライトのサクセッションの一部を成し、下部の層状斑れい岩からシーティドダイク・コンプレックスをへて玄武岩質の枕状溶岩までが分布する。しかし、枕状溶岩の分布は粗粒玄

武岩中に散在して分布し、本地区の上限はシーティドダイク・コンプレックスと枕状溶岩の境界付近と思われる。

2-2-2 鋳 化 作 用

本地区には、主に粗粒玄武岩中及び一部玄武岩中に多くの鋳微地が見られる。鋳微地の分布は、地区ほぼ中央部のカランガン川の北側支流を中心にその東方及び南西方に広がり、ほぼ衝上断層に沿って、主に粗粒玄武岩中に分布する。これら鋳微地の産状は主に三つのタイプに分けられ、黄鉄鋳、黄銅鋳を伴う石英脈、黄鉄鋳、黄銅鋳を伴う不規則な細脈が集合する網状帯、黄鉄鋳、黄銅鋳の鋳染帯である。主要な鋳微地には番号を付け (B-1 ~ B-15)、記載を行い、鋳石研磨片、鋳石分析、X線回折の試料を採取した。鋳微地の分布及びその特徴をそれぞれFig. II-2-4及びTable II-2-5に示す。更に、特徴的な鋳微地に置いてスケッチを行った。これをFig. II-2-5及び Fig. II-2-6 に示す。

本調査で確認した鋳微地の内で一番規模の大きいのは、カランガン川北側支流の上流域にあるB-14 (Sketch 4) である。弱い黄鉄鋳、黄銅鋳の鋳染を伴う暗緑灰色の粗粒玄武岩中に幅 6 mに渡って幅 10 cm前後、最大 70 cm、の石英脈が走行N 15° W、ほぼ傾斜垂直で多く分布し、走行延長 16 mに渡って見られる。これらの石英脈は、異なった割合で黄鉄鋳、黄銅鋳を伴う。鋳石研磨片の顕微鏡観察によると黄鉄鋳を多量に含み、それに黄銅鋳が伴い、まれにキューバ鋳が伴う。黄鉄鋳には、二つの形成時期が考えられ、前期のものは黄銅鋳に交代されているもので、後期のものは黄銅鋳を交代しているもので少量見られる。母岩の粗粒玄武岩のX線回折の結果、変質鋳物として緑泥石、石英、少量のカリ長石が認められた。石英脈の内、硫化物に富む石英脈の品位は、試料採取幅 60 cmでCu 2.66 %、Ag 4.6 g/tである。しかしながら母岩及び石英脈を含めて幅 6 mの鋳化帯より採取した試料の品位は、Cu 0.03 % 前後と低いく、高品位部が局所的であることを示す。

上記の鋳微地B-14の延長方向約 150 m南方にB-13 (Sketch 3) が存在し、B-14と連続する可能性が考えられる。本鋳微地では、暗緑灰色のやや緑泥石化した粗粒玄武岩中に約 40 mに渡って幅 10 から60 cmの硫化物に富む石英脈が4条見られる。母岩の変質鋳物はX線回折によると石英、緑泥石に富み、それにモンモリロン石、カリ長石が伴う。本鋳微地では、黄銅鋳は少なく黄鉄鋳に富み、Cuの品位も高いものはえられなかった。

B-13及びB-14と同じ沢中流の西側支流にB-10 (Sketch 2) 及びB-11 (Sketch 1) が存在する。B-10は、暗緑灰色、緑泥石化した粗粒玄武岩中に4か所で幅 5 ~ 30 cmの黄鉄鋳を伴う石英ストックワーク脈で、研磨片では多量の黄鉄鋳に伴い少量の黄銅鋳、閃亜鉛鋳が見られる。Znは最大 0.48 %のものが得られたが、Cuの高い品位は得られなかった。一方、B-11では、幅 10 m、長さ 15 mの規模で角礫化した粗粒玄武岩中に、石英細脈を伴う黄鉄鋳の鋳染帯が見られる。鋳染帯の

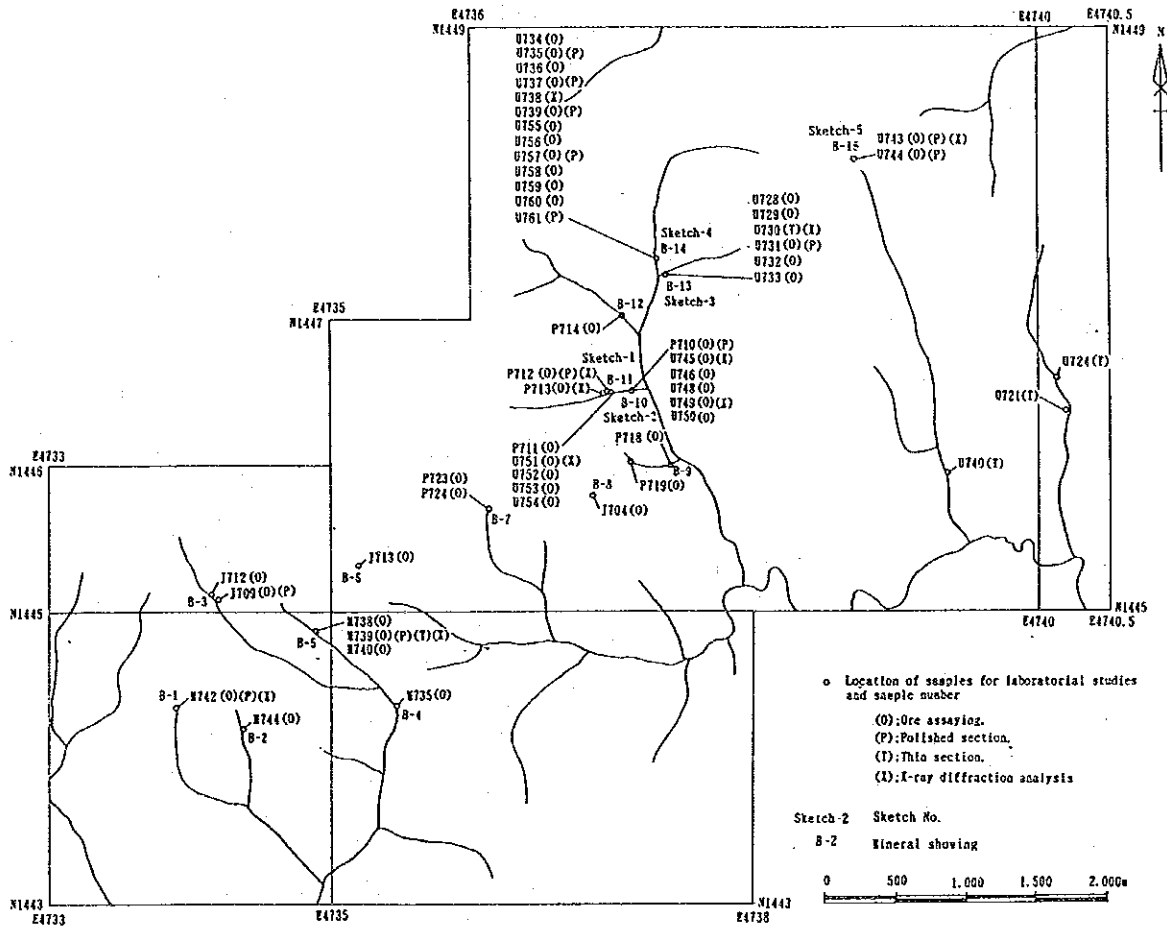


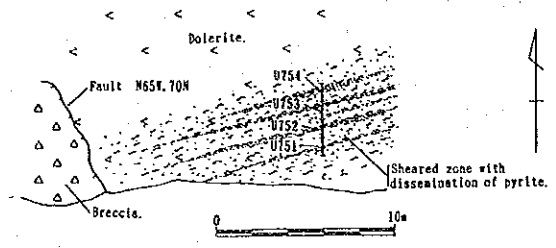
Fig. II-2-4 Locations of mineral showings and laboratorial work samples

Table II-2-5 Occurrences of mineralization in Area B (1)

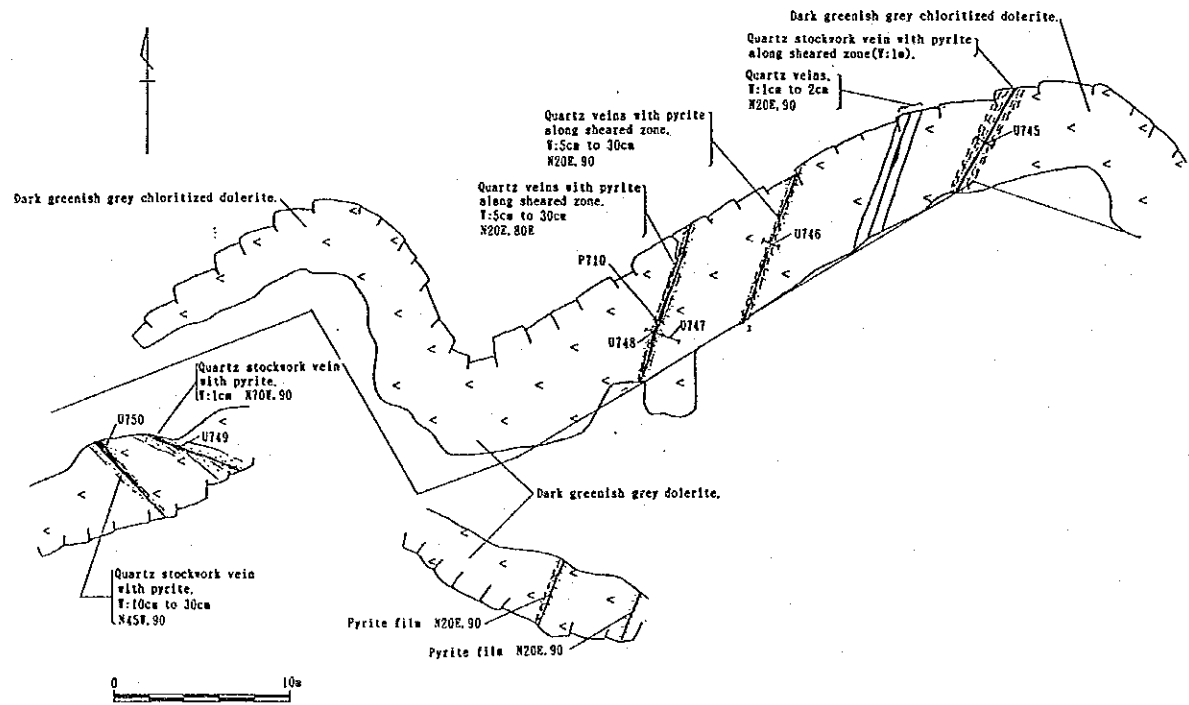
Mineral Showing No.	Area	Description of Mineralization	Host rock	Alteration	Sample No.	Assay Results					
						Sampling width(m)	Au(g/t)	Ag(g/t)	Cu(ppm)	Zn(ppm)	S(%)
B-1	B	quartz veinlets with chalcopyrite and pyrite, vein width:1 ~8cm, mineralized zone:3m×3m.	dolerite.	chloritization argillization	M742	0.2	<0.1	0.9	11,603	53	12.72
B-2	B	dissemination of pyrite, mineralized zone:3m×5m.	dolerite.	silicification chloritization argillization	M744	0.2	<0.1	12.6	1,628	5,095	3.38
B-3	B	quartz vein with pyrite and chalcopyrite, vein width:30cm, N50°, 42N.	basalt.	chloritization	J709 J712	0.3 1.2	<0.1 <0.1	0.8 0.5	5,019 5,104	6,222 69	11.45 6.22
B-4	B	quartz vein with pyrite and chalcopyrite, vein width:30cm, N80E, 85S.	dolerite.	chloritization	M735	0.3	<0.1	0.5	1,819	586	14.69
B-5	B	veinlets and dissemination of pyrite and chalcopyrite, mineralized zone:length20m, height5m	dolerite.	chloritization	M738 M739 M740	0.2 0.1 0.1	<0.1 <0.1 <0.1	4.0 5.5 4.2	28,017 59,041 37,207	981 1,231 546	7.56 11.28 7.36
B-6	B	dissemination of pyrite.	basalt.	chloritization	J713	0.2	<0.1	0.2	25	84	0.48
B-7	B	quartz stockwork vein with pyrite, mineralized zone:length15m, width2m (float:max20cm)	dolerite.	silicification chloritization	P723 P724	0.2 0.2	<0.1 <0.1	<0.1 <0.1	204 63	65 60	22.41 19.25
B-8	B	dissemination of pyrite.	dolerite.	silicification chloritization	J704	0.2	<0.1	0.3	297	142	19.45
B-9	B	vein and dissemination of pyrite and chalcopyrite, N40E, 40S.	dolerite.	chloritization argillization	P718 P719	0.1 0.1	<0.1 <0.1	2.7 1.9	12,702 8,525	126 173	6.13 10.93
B-10	B	quartz stockwork vein with pyrite, vein width:5 to 30cm, N20E, 80E, vein width:10 to 30cm, N45W, 90. (Sketch-2)	dolerite.		P710 U745 U746 U748 U749 U750	0.2 1.0 1.0 1.0 0.15 0.3	<0.1 <0.1 <0.1 <0.1 <0.1 <0.1	0.3 <0.1 <0.1 0.2 <0.1 <0.1	378 360 13 44 11 64	4,869 127 109 539 163 72	14.20 2.42 20.85 6.24 3.51 0.33

Table II-2-5 Occurrences of mineralization in Area B (2)

Mineral Showing No.	Area	Description of Mineralization	Host rock	Alteration	Sample No.	Assay Results					
						Sampling width(m)	Au(g/t)	Ag(g/t)	Cu(ppm)	Zn(ppm)	S(%)
B-11	B	dissemination of pyrite and quartz vein with pyrite. mineralized zone: width 10m, length 15m, N85E, 72S. (Sketch-1)	dolerite.	chloritization	P711	0.2	<0.1	0.6	4,091	154	13.80
					P712	0.1	<0.1	31.2	101,016	20,240	21.52
					P713	0.1	<0.1	0.7	950	75	16.65
					U751	1.0	<0.1	0.3	581	494	4.09
					U752	1.0	<0.1	0.3	398	168	2.16
					U753	1.0	<0.1	0.1	249	360	4.78
					U754	1.0	<0.1	0.3	245	97	1.11
B-12	B	dissemination of pyrite.	dolerite.		P714	1.0	<0.1	0.4	528	115	8.86
B-13	B	quartz vein with pyrite. (Sketch-3) vein width: 30cm, length: 3m, NS, 70W. vein width: 10cm, length: 10m, N30E, 90. vein width: 10cm, length: 20m, N20E, 70N. vein width: 60cm, length: 20m, N20E, 70N.	dolerite.	chloritization	U728	0.3	<0.1	<0.1	23	109	15.46
					U729	0.1	<0.1	0.4	152	218	6.53
					U731	0.6	<0.1	<0.1	110	76	19.35
					U732	0.1	<0.1	0.3	31	291	10.56
					U733	0.3	<0.1	0.5	879	147	5.76
B-14	B	quartz vein and stockwork vein with pyrite and chalcopyrite. vein width: 10cm, max 70cm. N15W, 90. mineralized zone: width 6m, length 16m. (Sketch-4)	dolerite.	chloritization silicification	U734	1.0	<0.1	<0.1	374	213	14.85
					U735	1.0	<0.1	<0.1	61	69	18.30
					U736	0.7	<0.1	2.0	1,579	62	19.71
					U737	0.6	<0.1	4.6	26,642	300	21.92
					U739	0.03	<0.1	26.4	124,513	1,234	25.12
					U755	1.0	<0.1	0.2	518	181	3.90
					U756	1.0	<0.1	<0.1	328	100	12.87
					U757	1.0	<0.1	0.2	227	178	3.24
					U758	1.0	<0.1	0.3	29	158	2.99
					U759	1.0	<0.1	0.2	116	158	2.01
B-15	B	quartz vein with pyrite. (Sketch-5) mineralized zone: 1m x 6m, N30W, 90.	dolerite.	silicification chloritization	U560	1.0	<0.1	0.4	325	160	4.57
					U743	1.0	<0.1	0.5	775	1,094	21.74
					U744	0.1	<0.1	1.8	7,088	4,438	6.84



Sketch 1



Sketch 2

Fig. II-2-5 Occurrences of mineralization (Sketch 1, 2)

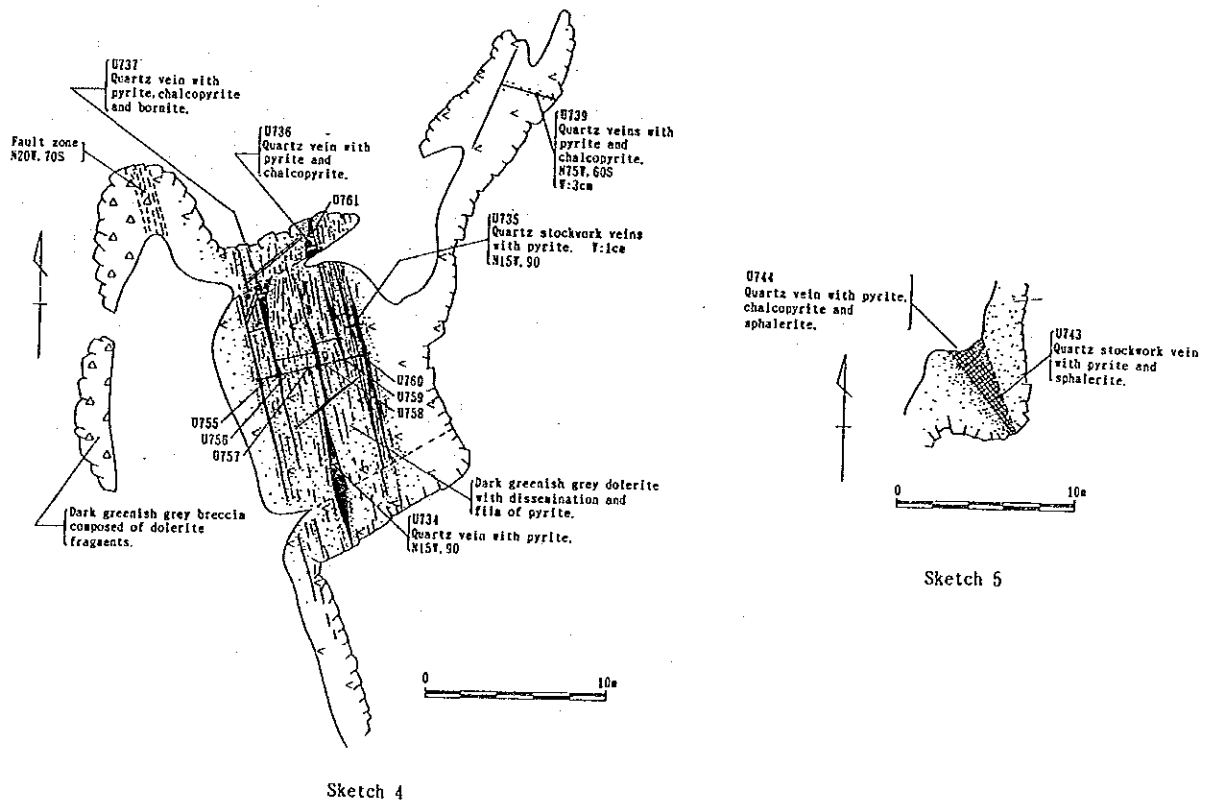
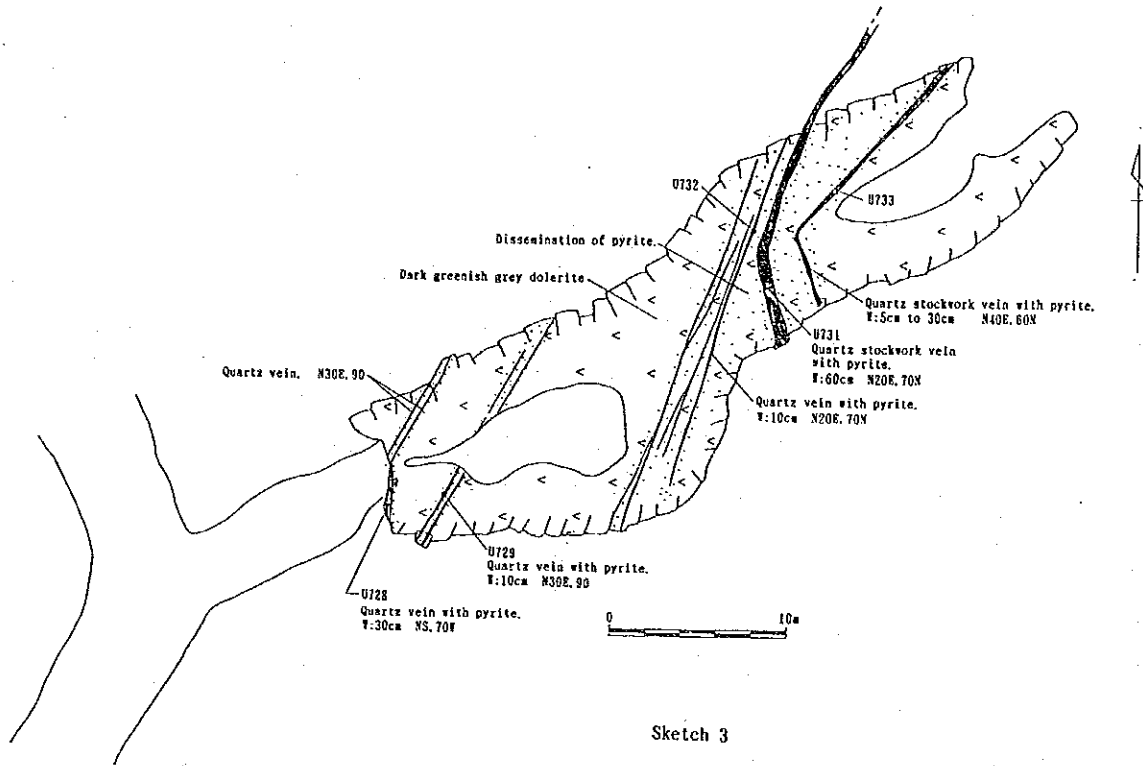


Fig. II-2-6 Occurrences of mineralization (Sketch 3, 4, 5)

硫化物濃集部では、幅 20 cm で Cu 0.41 %を示す。硫化鉱物の濃集する幅 10 cmの石英脈では Ag 31.2 g/t、Cu 10.10 %、Zn 2.02 %の高品位の値が得られた。

南西部に置ける顕著な鉱徴地はB-5 である。この鉱徴地は、幅 20 m、高さ 5 mの露頭で、緑泥石化及び珪化し、全体的に弱く黄鉄鉱に鉱染した粗粒玄武岩中の所々に幅 1 cm から数mmの黄鉄鉱、黄銅鉱の細細が網状に発達し散在する。この網状帯から幅 10~20 cm で採取した3試料は、Ag 4.0~5.5 g/t、Cu 2.8 ~5.9 %、Zn 0.05~0.12 %の品位を示す。これに類似した鉱徴地はその南西方にあるB-1 及びB-2 である。これらから幅 20 cmで採取した試料は、それぞれ Cu 1.1 % 及び Cu 0.1 % の品位を示す。B-3 及びB-4 は幅 30 cmの黄鉄鉱-黄銅鉱-石英脈でそれぞれ品位は Cu 0.5 % 及び Cu 0.2 % である。

本地区の鉱化作用は以下の様にまとめられる。

本地区の主要な鉱徴地は、B-3、B-6 が玄武岩質枕状溶岩中に存在するがそれ以外はすべて粗粒玄武岩中に存在し、NW-SE からNNW-SSE の断層付近に多く分布する傾向がある。黄鉄鉱及び黄銅鉱を伴う鉱染、網状帯、石英脈の産状が見られ、石英脈では、複数の脈が集合しやや規模の大きい鉱徴地をなすもの (B-14)、網状帯では黄鉄鉱、黄銅鉱の濃集する部分がやや広く散在するものがある。鉱石分析の結果、数 mの範囲で採取した試料からは高いCu値は得られなかったが、数10 cm の局所的な試料では高品位のCu値が得られ、Cuに伴いAgも高い。顕微鏡観察によると、鉱物組み合わせは単純で、主に黄鉄鉱、黄銅鉱からなり、これに閃亜鉛鉱を伴うものがある。銅鉱物として黄銅鉱以外にまれに銅藍、斑銅鉱、キューバ鉱を伴うものがある。変質鉱物は緑泥石が主でそれにカリ長石、曹長石、モンモリロン石を伴う。

この様に鉱徴地が散在しており鉱化帯の規模が不明瞭であるが、B-13及びB-14付近のように近接して鉱徴地が認められる箇所では両者が連続している可能性も考えられるので、今後これらの鉱化帯の規模を把握するための調査が望まれる。

第 3 章 考 察

3-1 地 化 学 探 査 準 精 査

第3年次にキナバル地区及びラブク地区で実施した広域地化学探査の結果抽出されたJ地区～T地区の10地区に対し地化学探査による準精査を実施した。本調査の結果では以下が考えられる。

(1) J 地 区

J地区の土壤地化学探査の結果では、Auは最大値で4 ppb、Cuは最大値 133 ppm、平均値11.1 ppmと低く、他の金属元素においても低い値を示す。本地区中央部西方のミラリ川西岸においてAu、Cu、Hg、Sbの異常帯が重複する地帯が見られるが、これら異常帯のしきい値は、他の地区と比較して低い。因子分析の結果、明らかに鉱化作用を反映していると思われる因子は抽出できなかった。地表踏査及び地化学探査の結果、本地区に大規模な鉱化作用の存在する可能性は低いと考えられる。

(2) K 地 区

K地区の超塩基性岩体の分布域には赤褐色のラテライト質の土壤が分布するが、黄緑色のサブロライト質の土壤が本地区中央部で2カ所で見られ、3試料の鉱石分析を行った結果、それぞれ、Ni 0.50%、1.50%、1.44%の値が得られた。土壤地化学探査の結果、Ni及びFeともに高濃度を示し、深度50 cmの試料では、最大値がそれぞれ、Ni 8,636 ppm、Fe 47.01%、深度150 cmの試料では、最大値がそれぞれ、Ni 10,136 ppm、Fe 47.29%、平均値は、それぞれNi 2,627 ppm、Fe 24.32%である。全般的に見ると深部で採取した試料の方が高い値を示す。Ni及びFeの異常帯の分布は、深度50 cmの試料、深度150 cmの試料ともに、ほぼ重複して、超塩基性岩体の東部、中央部、西部に分布する。通常、カンラン石のNiの含有量は、0.3～0.4%であるので、Ni 0.5%以上を示す試料を風化作用などの過程でNiが濃集した可能性がある試料と考えられる。一般にラテライト型のニッケル鉱床は、その基盤岩周辺で最もニッケルが濃集するが、本調査の結果でも深部の方が高い値を示し、鉱石分析でも高い値を示す試料があることから、引き続きさらに深い箇所に対する調査が望まれる。

(3) L 地 区

L地区の河床堆積物による地化学探査の結果、Tiの濃度は、最大値 12.40%、平均値 0.83%で、第3年次の調査で得られたような高濃度の試料(Ti 51.07%)は得られなかった。FeおよびTiの異常帯は重複して斑れい岩の地域に分布する。Ti 10.00%以上の値を示す試料は、1試料しか得られなかった。FeとTiは、よい相関を示し、斑れい岩の分布域において、通常の斑れい岩よりFe、Tiともにかかなり高い値を示すことから斑れい岩中にチタン鉄鉱の濃集部が存在するか、斑れい岩や玄武岩より供給されたチタン鉄鉱が河床堆積物中で洗われ濃集した可能性が考えられ

る。地化学探査の結果では、規模の大きい濃集部が認められないことから、大規模な鉱床の賦存する可能性は低い。

(4) M 地 区

M地区の土壤地化学探査の結果では、Auは最大値で 57 ppb、Cuは最大値 498 ppm、平均値 10.7 ppmで全般に低い値を示す。本地区北東部のスグット川に沿う地域において As、Au、Cu、Hg、S の異常帯が甚しく重複して見られ、それ以外には著しい異常帯の分布は見られない。因子分析の結果も鉱化作用と関係すると思われる因子の因子得点の高い地域は、上記の異常帯の重複する地域にみられる。異常帯が段丘堆積物の分布域と密接な関係を示すことから、上流に位置するマムート鉱床などより供給された鉱化作用を伴う砂、礫の影響が推定される。本地区北東部のスグット川に沿う地域以外には、鉱化作用と関係付けられる地化学的現象は見られないことから、本地域に大規模な鉱化帯の存在する可能性は低いと判断される。

(5) N 地 区

N地区の超塩基性岩体の分布域一帯には、赤褐色のラテライト質の土壤が分布する。本地域の北部において風化の著しい超塩基性岩の試料を 2個採取し鉱石分析を行った結果、Niの含有量はそれぞれ、0.80%、1.32%であった。土壤地化学探査の結果、Ni及び Fe ともに高濃度を示し、深度 50 cmの試料では、最大値は、それぞれ、Ni 13,114 ppm、Fe 46.17%であり、深度 150 cmの試料では、最大値がそれぞれ、Ni 14,497 ppm、Fe 43.29%を示す。K地区と比較してもNiは全般に高い濃度を示す。Ni、Fe、Coの異常帯の分布は、深度 50 cmの試料、深度 150 cmの試料ともに、ほぼ重複して、中央部の超塩基性岩体の分布に沿って見られ、特にその岩体の北部で著しい。通常、かんらん石のNiの含有量は、0.3~0.4%であるので、Ni 0.5%以上を示す試料は、風化作用などの過程でNiが濃集した可能性がある試料と考えられる。一般に深度 150 cmの試料の方が深度 50 cmの試料より高いNi含有量を示す。ラテライト型のニッケル鉱床は、その基盤岩周辺で最もニッケルが濃集するが、本調査の結果でも深部の方が高い値を示し、鉱石分析でも高い値を示す試料があることから、引き続きさらに深い箇所に対する調査が望まれる。

(6) P 地 区

P地区の河床堆積物地化学探査の結果、Crは最大値 10.73%、平均値 2.85%と高濃度を示す。Crの異常帯はNi及び Co の異常帯と重複して本地域南西部及び北東部に見られる。これらの区域に対する今後の調査が望まれる。但し、クロム鉄鉱の転石も確認できなかったことからすると、大規模なクロム鉱床の賦存する可能性は低いようである。

(7) Q 地 区

Q地区の地化学探査の結果では、土壤および河床堆積物ともにAu、Co、Cr、Cu、Hg、Ni等の元素が高濃度を示す。異常帯の分布は、土壤および河床堆積物ともに本地区中央部のピナンドアン(Pinanduan)川流域に沿って、Au、Cu、Niが重複して見られる。Crの異常帯は、本地区南部で見

られる。因子分析の結果では、本地区の鉍化作用に関係すると思われる因子（土壌試料：第4因子Au-Cu、河床堆積物試料：第4因子Au-Cu-Hg）が抽出された。これらの因子の高因子得点部は、ピナンドアン川に沿って分布する。本地区では、過去に銅及びニッケルを対象に探査が行われているが、顕著なものが確認出来なかったことから放置されていた。更に、本地区南西部の沢で採取したゴッサンの試料からAu 4.1 g/tの分析値が得られた。今回の調査により銅およびニッケル加えて金の鉍化作用の可能性も考えられることから、今後の調査が望まれる。

(8) R 地区

Q地区の地化学探査の結果、土壌及び河床堆積物ともに鉍化作用に関連すると思われるAs、Au、Cu、Hg、Ni、Pb、Sなどの指示元素の濃度は、低い値を示す。異常帯の分布は、東部の超塩基性岩の分布域に集中する。土壌試料においては、Au、Cu、Ni、Sが近接ないしは重複して分布し、河床堆積物試料では、Cr、Cu、Hg、Ni、Znがほぼ重複して分布する。因子分析の結果、鉍化作用に関連すると思われる因子の高因子得点部は、本地区東部に分布する。鉍化作用に関連すると思われる指示元素の濃度が低いこと、地表踏査で顕著な鉍化帯及び変質帯が確認できなかったことなどより、本地区に大規模な鉍床の賦存する可能性は低いと考えられる。

(9) S 地区

S地区の地化学探査の結果、土壌及び河床堆積物ともに鉍化作用に関連すると思われる、As、Au、Cu、Hg、Pb、Sなどの指示元素の濃度は低い。Cr及びNiで比較的高い濃度を示す試料が存在するが、これらの試料は東部の超塩基性岩類の分布域に限られる。東部の超塩基性岩の分布域にAs、Cu、Hg、Znの異常帯がみられるが、そのしきい値はいずれも低い値を示す。因子分析の結果では、鉍化作用に関連付けられる因子は抽出されなかった。鉍化作用に直接関連すると思われる指示元素の濃度が低いこと、地表踏査では顕著な鉍化帯及び変質帯が確認できなかったことから、本地区に鉍床の賦存する可能性は低いと判断される。

(10) T 地区

T地区では、南部の上流域に鉍化帯及び変質帯を確認した。閃緑斑岩の貫入する付近の泥岩は珪化し黄鉄鉍の鉍染を伴い、石英の細脈が発達する場合がある。貫入岩も程度の異なる変質作用を受けており、白色粘土化したものからほぼ新鮮なものまである。上流域では、硫化物を伴い、著しく酸化しゴッサン化した転石も見られる。転石も含めて鉍石分析を行った結果、3試料より高品位（Au 9.0 g/t Ag 278.3 g/t、Au 18.4 g/t Ag 115.7 g/t、Au 15.4 g/t Ag 931.4 g/t）の分析値が得られた。これらの試料の研磨片を観察した結果では、銀鉍物として紅銀鉍、含銀四面銅鉍、輝銀鉍などが同定された。金に比較して銀の含有が高いこと、低温で生成したと考えられる銀鉍物を伴うことより判断すると、確認された鉍化帯は斑岩型銅鉍床の縁辺部あるいは最上部の可能性も考えられる。

地化学探査の結果、As、Au、Hg、S等の元素は、他の堆積岩の分布する地域に比べて高い値を示す。異常帯は、南部でAs、Au、Cu、Hg、S、Znが重複して分布し、それ以外の地域では、小規模のものが散在する。因子分析の結果、本地区の鉍化作用に関連すると思われる因子（第2因子As-Au-Pb）が抽出され、この因子の高因子得点を持つ試料が本地区南部に集中して分布する。

地化学探査及びそれに伴う地表踏査の結果、本地域南部に、金の鉍化作用が存在することが、確認された。さらに、この鉍化帯は、本地域南部から南方につながって延長している可能性があり、今後、南方延長部を含めた精査が望まれる。

3-2 地質調査

セガマ地区のB地区で地質調査を行った。本地区の地質は、白亜紀より第三紀にかけての斑れい岩、粗粒玄武岩、玄武岩のオフィオライト系列の岩石及び漸新世～中新世中期のクワム層より構成され、オフィオライト系列の岩石が北から南へ衝上断層に沿ってクワム層の上にのし上がっている。本地区に分布するオフィオライト系列の岩石は、オフィオライトのサクセッションの断片で、典型的な例から比較すると下部は層状斑れい岩から粗粒玄武岩のシーティドダイク・コンプレックスをへて玄武岩質の枕状溶岩までが分布し、本地区の上限はシーティドダイク・コンプレックスと枕状溶岩の境界付近と考えられる。

主要な鉍徴地はほとんど粗粒玄武岩中に見られ、それらの産状は、黄鉄鉍、黄銅鉍を伴う石英脈、黄鉄鉍、黄銅鉍を伴う不規則な細脈が集合する網状帯、黄鉄鉍・黄銅鉍の鉍染帯の三タイプに分けられる。従って、本地区の鉍化作用のタイプは枕状溶岩に伴う塊状硫化物の鉍床（キプロス型鉍床）の本体である可能性は低いと考えられる。もっとも規模の大きい鉍化帯は、本地区中央部に見られ、幅 6 mにわたって、幅 1 m～数cmの黄鉄鉍および黄銅鉍を伴う石英脈が分布する。銅の分析値は、6 mにおける平均品位は 0.03 % と低い。石英脈ごとの分析では、脈幅 60 cmでCu 2.66 % のものが得られた。その他、ストックワーク帯および鉍染帯の試料では、数十cmの試料採取幅で Cu 2～10 %、Ag 4.0～31.2g/t の値が得られた。鉍徴地が連続的にNE-SW 方向に配列して分布する点、局所的に銅品位の高い部分が存在する点から、今後さらに、詳しい調査が望まれる。

第Ⅲ部 結論及び提言

第 1 章 結 論

第4年次に当たる本調査では、第3年次にキナバル地区及びラブク地区に対し実施した広域地化学探査の結果抽出された有望地10か所に対し、土壌及び河床堆積物による地化学探査の準精査を行った。これに加えて第3年次に実施したセガマ地区のB地区における地化学探査の準精査の結果確認された鉍化帯に対して地質調査及び鉍微地調査を行った。

地化学探査の準精査を実施した10地区に対する調査の結果では以下の結論が得られた。

- J地区：大規模な銅の鉍化帯の賦存する可能性は低い。広域調査で確認された地化探異常帯は、上流より供給された鉍化作用を伴う沖積層中の砂、礫の影響が考えられる。
- K地区：超塩基性岩類の分布域に発達するラテライト質土壌では、ニッケルの濃集が認められ、ニッケル鉍床賦存の可能性を示す。鉍石分析の結果では最大値 1.50 % のニッケル品位を示す。また、深部の方が高いニッケルの濃度を示す傾向が認められる。
- L地区：チタン鉄鉍の濃集は認められるが、余り顕著でないことから、開発の対象となるチタン鉍床賦存の可能性は低いと判断される。
- M地区：地化探異常帯は段丘堆積物による影響が考えられることから、斑岩型銅鉍床の賦存の可能性は低い。異常帯は、上流より供給された砂、礫の影響が考えられる。
- N地区：K地区よりも高いニッケルの濃集が見られ、深部でのニッケル鉍床賦存の可能性が高いと判断される。
- P地区：異常帯の分布が小範囲に限られており、大規模なクロム鉍床賦存の可能性は低い。
- Q地区：Au、Cu、Niの異常帯が確認され、ゴッサン転石の鉍石分析の結果でもAu 4.1 g/tを示す。この地区に対するこれまでの調査でも銅の鉍化帯が確認されており、金及び銅の鉍化帯賦存の可能性が考えられる。
- R地区：顕著な異常帯が確認できなかったこと及び地表調査で鉍微地が認められなかったことから、大規模な金又は銅鉍床賦存の可能性は低いことを示す。
- S地区：全般に指示元素の濃度が低く、鉍微地も確認できなかったことから大規模な金鉍床賦存の可能性は低いことを示す。
- T地区：顕著な地化学異常帯が確認され、その異常帯分布域に金銀の鉍化帯が確認された。転石も含めた試料の鉍石分析の結果、Au 9.4~18.4 g/t及びAg 115.7~931.4 g/tと高い値を示しており、その可能性は高いと判断される。

準精密調査を実施した10地区のうち、その可能性が高い地区としては、K地区、N地区、Q地区及びT地区が挙げられる。このうち最もその可能性の高い地区は、T地区である。

セガマ地区のB地区に対し実施した地質調査の結果、鉍化帯は粗粒玄武岩中に賦存する脈状、網状及び鉍染状の銅の鉍化帯で、典型的なキプロス型銅鉍床と異なる産状を示す。確認された鉍化帯が方向性を持って散在すること、局所的にCu 2~10 %の高い品位を示すことから、その可能性は高いと判断される。

第2章 将来への提言

本調査で実施した準精密調査では、試料採取密度を原則として1 km² 当たり4試料として実施した。このため本調査では鉱化帯の概要が確認できたのみであるので、キナバル地区及びラブク地区で確認された有望な異常帯及び鉱化帯に対しては、これらの鉱化帯の全貌を解明するための調査を実施すべきである。セガマ地区のB地区で実施した地質調査の結果も加えると、将来優先的に調査を実施すべき箇所及び調査手法として以下が提言される。

- ①ラブク地区最南端のT地区 : 地質精査、トレンチ、物理探査 (IP法)
- ②ラブク地区テルピド西方のN地区 : 地質精査、ピット、トレンチ
- ③ラブク地区のカラマック川中流のQ地区 : 地質精査、物理探査 (IP法)
- ④セガマ地区ダヌン川上流のB地区 : トレンチによる地質精査
- ⑤キナバル地区ラナウ東方のK地区 : 地質精査、ピット、トレンチ

これらの箇所の内T地区は金鉱床を、N地区及びK地区はニッケル鉱床、Q地区は銅及び金鉱床、B地区では銅鉱床がそれぞれ対象となる。将来調査を実施する場合の優先順位としては、上記の順位が提言される。尚、これらの調査を実施した後、確認された有望箇所に対しては、引き続きボーリング調査による探査が必要である。

References

- Akiyama Y. (1984): A case history - exploration, evaluation and development of the Mamut porphyry copper deposit, Geol. Soc. Malaysia, Bull. 17, pp.217-225
- Chung S.K. (1971): Geological Map of the Upper Segama Valley and Darvel Bay Area. Geological Survey of Malaysia.
- Chung S.K. (1984): Annual Report 1982, Geological Survey of Malaysia, Ministry of Primary Industry.
- Collenette P. (1965): Prospecting in Sabah by Borneo Mining Limited 1959 - 1963. Borneo Reg., Geological Survey of Malaysia Annual Report for 1964, pp.57-61
- David T.C. Lee (1988): Gunung Pock area, Semporna Peninsula, Sabah Malaysia, Explanation of Sheet 4/118/10. Report 9, Geological Survey of Malaysia.
- Fitch F.M. (1961): The geology and mineral resources. of the Semporna Peninsula, Northern Borneo. Geological Survey Memoir 14, Geological Survey Dept., Malaysia.
- Guilbert J.M. & Park C.F. Jr. (1986): The Geology of Ore Deposits. W.H. Freeman and Company/New York.
- Heng E.H. (1985): Geological Map of Sabah, Third Edition, Geological Survey of Malaysia
- JICA and MMAJ (1988): Report on the mineral exploration in Sabah, Malaysia. Consolidated Report.
- Kurz H. (1988): Exploratory data analysis: recent advances for the interpretation of geochemical data. Journal of Geochemical Exploration, vol. 30 pp. 309-322.
- Hail N.S. (1968): The northwest Borneo geocyncline in its geotectonic setting. Geolo. Soc. Malaysia Bull. 1, p. 59
- Lewis D.E. (1964): Case History of a Geochemical Anomalous Copper Zone at Pinanduan, Sabah, Malaysia. Borneo Reg. Malaysia Geol. Survey Ann. Rept, 1964 pp.163-175.
- Lim P.S. (1981): Wullersdorf Area, Sabah Malaysia. Report 15, Geological Survey of Malaysia.
- Leong K.M. (1976): Mineral distribution map of Sabah, 1st edition. Geological Survey of Malaysia.
- Newton-Smith J. (1967): Bidu Bidu Hill area, Sabah, East Malaysia, Exploration of Sheet 5-117-2 and part 5-117-1. Geological Survey of Malaysia.
- Willson R.A.M. (1964): Annual Report of the Geological Survey, Borneo, Malaysia, Geological Survey of Malaysia.

List of figures

Fig. 1	Location map of the project area	
Fig. I-1	Geologic map of Sabah, Malaysia	13
Fig. I-2	Distribution of mineral occurrences in the project area	15
Fig. I-3	Recommendation for future work.....	27
Fig. II-1-1	Location map of semi-detailed survey areas	30
Fig. II-1-2	Geologic map and cross sections of Area J	39
Fig. II-1-3	Location map of geochemical samples in Area J	40
Fig. II-1-4	Distribution of geochemical anomalous zones in Area J	43
Fig. II-1-5	Distribution of factor scores in Area J	47
Fig. II-1-6	Geologic map and cross sections of Area K	50
Fig. II-1-7	Location map of geochemical samples in Area K	52
Fig. II-1-8	Distribution of geochemical anomalous zones in Area K	54
Fig. II-1-9	Geologic map and cross sections of Area L	56
Fig. II-1-10	Location map of geochemical samples in Area L	58
Fig. II-1-11	Distribution of geochemical anomalous zones in area L	60
Fig. II-1-12	Geologic map and cross sections of Area M	63
Fig. II-1-13	Location map of geochemical samples in Area M	67
Fig. II-1-14	Distribution of geochemical anomalous zones in Area M	70
Fig. II-1-15	Distribution of factor scores in Area M	73
Fig. II-1-16	Geologic map and cross sections of Area N	77
Fig. II-1-17	Location map of geochemical samples in Area N	79
Fig. II-1-18	Distribution of geochemical anomalous zones in Area N	81
Fig. II-1-19	Geologic map and cross sections of Area P	83
Fig. II-1-20	Location map of geochemical samples in Area P	85
Fig. II-1-21	Distribution of geochemical anomalous zones in Area P	87
Fig. II-1-22	Distribution of factor scores in Area P	91
Fig. II-1-23	Geologic map and cross sections of Area Q	94
Fig. II-1-24	Location map of geochemical samples in Area Q	96
Fig. II-1-25	Distribution of geochemical anomalous zones of soil in Area Q	99
Fig. II-1-26	Distribution of factor scores of soil in Area Q	103
Fig. II-1-27	Distribution of geochemical anomalous zones of stream sediments in Area Q	108
Fig. II-1-28	Distribution of factor scores of stream sediments in Area Q	111

Fig. II-1-29	Geologic map and cross sections of Area R	115
Fig. II-1-30	Location map of geochemical samples in Area R	119
Fig. II-1-31	Distribution of geochemical anomalous zones of soil in Area R	123
Fig. II-1-32	Distribution of factor scores of soil in Area R	125
Fig. II-1-33	Distribution of geochemical anomalous zones of stream sediments in Area R	130
Fig. II-1-34	Distribution of factor scores of stream sediments in Area R	133
Fig. II-1-35	Geologic map and cross sections of Area S	136
Fig. II-1-36	Location map of geochemical samples in Area S	137
Fig. II-1-37	Distribution of geochemical anomalous zones of soil in Area S	140
Fig. II-1-38	Distribution of factor scores of soil in Area S	143
Fig. II-1-39	Distribution of geochemical anomalous zones of stream sediments in Area S	147
Fig. II-1-40	Distribution of factor scores of stream sediments in Area S	151
Fig. II-1-41	Geologic map and cross sections of Area T	155
Fig. II-1-42	Location map of geochemical samples in Area T	159
Fig. II-1-43	Distribution of geochemical anomalous zones in Area T	162
Fig. II-1-44	Distribution of factor scores in Area T	165
Fig. II-2-1	Location map of Area B	168
Fig. II-2-2	Geologic map and cross section of Area B	169
Fig. II-2-3	Schematic lithological succession of Area B	170
Fig. II-2-4	Locations of minerale showings and laboratorial work samples	179
Fig. II-2-5	Occurrences of mineralization (Sketch 1, 2)	182
Fig. II-2-6	Occurrences of mineralization (Sketch 3, 4, 5)	183

L i s t o f t a b l e s

Table I-1	Summary of work amounts	5
Table I-2	Work amounts of laboratorial studies	5
Table I-3	Statistics of temperature and rainfall	9
Table II-1-1	Descriptions of thin sections of the semi-detailed geochemical survey areas	33
Table II-1-2	Descriptions of polished sections of the semi-detailed geochemical survey areas	34
Table II-1-3	Results of X-ray diffraction analyses in the semi-detailed geochemical survey areas	35

Table II-1-4	List of ore samples and assay results of the semi-detailed geochemical survey areas	36
Table II-1-5	Statistics of soil geochemical survey in Area J	41
Table II-1-6	Results of factor analyses for soil samples in Area J	45
Table II-1-7	Statistics of soil geochemical survey in Area K	53
Table II-1-8	Statistics of stream sediments geochemical survey in Area L	59
Table II-1-9	Statistics of soil geochemical survey in Area M	69
Table II-1-10	Results of factor analyses for soil samples in Area M	72
Table II-1-11	Statistics of soil geochemical survey in Area N	80
Table II-1-12	Statistics of stream sediments geochemical survey in Area P	86
Table II-1-13	Results of factor analyses for stream sediments samples in Area P	89
Table II-1-14	Statistics of soil geochemical survey in Area Q	97
Table II-1-15	Results of factor analyses for soil samples in Area Q	101
Table II-1-16	Statistics of stream sediments geochemical survey in Area Q	106
Table II-1-17	Results of factor analyses for stream sediments samples in Area Q	110
Table II-1-18	Statistics of soil geochemical survey in Area R	121
Table II-1-19	Results of factor analyses for soil samples in Area R	124
Table II-1-20	Statistics of stream sediments geochemical survey in Area R	128
Table II-1-21	Results of factor analyses for stream sediments samples in Area R	132
Table II-1-22	Statistics of soil geochemical survey in Area S	138
Table II-1-23	Results of factor analyses for soil samples in Area S	142
Table II-1-24	Statistics of stream sediments geochemical survey in Area S	146
Table II-1-25	Results of factor analyses for stream sediments samples in Area S	149
Table II-1-26	Statistics of soil geochemical survey in Area T	160
Table II-1-27	Results of factor analyses for soil samples in Area T	164
Table II-2-1	Descriptions of thin sections of Area B	171
Table II-2-2	Descriptions of polished sections of Area B	172
Table II-2-3	Results of X-ray diffraction analyses in Area B	173
Table II-2-4	Assay results of Area B	174
Table II-2-5	Occurrences of mineralization in Area B	180

P l a t e s

Plate II-2-1	Geologic map and cross section of Area B	1 sheet	1:10,000
--------------	--	---------	----------

A p p e n d i c e s

Appendix 1	List of soil geochemical samples in Area J	A1
Appendix 2	Analytical results of soil geochemical samples in Area J	A9
Appendix 3	Distribution map of elements in Area J	A15
Appendix 4	List of soil geochemical samples in Area K	A25
Appendix 5	Analytical results of soil geochemical samples in Area K	A39
Appendix 6	Distribution map of elements in Area K	A47
Appendix 7	List of stream sediment geochemical samples in Area L	A53
Appendix 8	Analytical results of stream sediment geochemical samples in Area L .	A57
Appendix 9	Distribution map of elements in Area L	A61
Appendix 10	List of soil geochemical samples in Area M	A65
Appendix 11	Analytical results of soil geochemical samples in Area M	A83
Appendix 12	Distribution map of elements in Area M	A95
Appendix 13	List of soil geochemical samples in Area N	A109
Appendix 14	Analytical results of soil geochemical samples in Area N	A121
Appendix 15	Distribution map of elements in Area N	A127
Appendix 16	List of stream sediment geochemical samples in Area P	A131
Appendix 17	Analytical results of stream sediment geochemical samples in Area P .	A137
Appendix 18	Distribution map of elements in Area P	A143
Appendix 19	List of soil geochemical samples in Area Q	A147
Appendix 20	Analytical results of soil geochemical samples in Area Q	A153
Appendix 21	Distribution map of elements in Area Q	A157
Appendix 22	List of stream sediment geochemical samples in Area Q	A171
Appendix 23	Analytical results of stream sediment geochemical samples in Area Q .	A175
Appendix 24	List of soil geochemical samples in Area R	A179
Appendix 25	Analytical results of soil geochemical samples in Area R	A187
Appendix 26	Distribution map of elements in Area R	A193
Appendix 27	List of stream sediment geochemical samples in Area R	A217
Appendix 28	Analytical results of stream sediment geochemical samples in Area R .	A223
Appendix 29	List of soil geochemical samples in Area S	A229
Appendix 30	Analytical results of soil geochemical samples in Area S	A233
Appendix 31	Distribution map of elements in Area S	A237
Appendix 32	List of stream sediment geochemical samples in Area S	A243
Appendix 33	Analytical results of stream sediment geochemical samples in Area S .	A247
Appendix 34	List of soil geochemical samples in Area T	A249
Appendix 35	Analytical results of soil geochemical samples in Area T	A261
Appendix 36	Distribution map of elements in Area T	A269

Appendix 1

List of soil geochemical samples in Area J

Area: Middle Stream of S. Sugut (Area J)

Ser. No.	Sample No.	Coordinates		1/50,000 Topo. Sheet	Rock of Basement	Geol. Unit	Depth (cm)	Color	G. *1	S. *2	T. *3	H. *4	Vegetation
		N	E										
1	KJ001	1581.42	4660.57	Merungin	—	Q ₂	30	B.	M	S	F	W	Grass
2	KJ002	1581.55	4661.05	Merungin	sandstone	P ₂ Cr	30	B.	M	S	M	W	Secondary forest
3	KJ003	1580.95	4660.48	Merungin	sandstone	P ₂ Cr	30	B.	M	S	F	W	Secondary forest
4	KJ004	1581.00	4661.00	Merungin	sandstone	P ₂ Cr	30	B.	R	S	F	W	Grass
5	KJ005	1581.52	4661.50	Merungin	sandstone	P ₂ Cr	30	B.	R	S	M	W	Secondary forest
6	KJ006	1580.85	4661.68	Merungin	sandstone	P ₂ Cr	30	B.	R	S	F	W	Secondary forest
7	KJ007	1581.42	4662.00	Merungin	sandstone	P ₂ Cr	30	B.	R	S	F	W	Grass
8	KJ008	1581.04	4662.05	Merungin	sandstone	P ₂ Cr	30	B.	M	S	F	W	Secondary forest
9	KJ009	1581.37	4662.60	Merungin	sandstone	P ₂ Cr	30	B.	R	S	F	W	Secondary forest
10	KJ010	1580.99	4662.47	Merungin	sandstone	P ₂ Cr	30	D. B.	M	S	M	W	Secondary forest
11	KJ011	1581.37	4663.00	Merungin	sandstone	P ₂ Cr	30	B.	R	S	F	W	Secondary forest
12	KJ012	1580.92	4662.96	Merungin	sandstone	P ₂ Cr	30	Y. B.	R	S	F	W	Secondary forest
13	KJ013	1581.40	4663.42	Merungin	sandstone	P ₂ Cr	30	B.	R	S	F	W	Secondary forest
14	KJ014	1581.53	4664.05	Merungin	sandstone	P ₂ Cr	30	Y. B.	R	S	F	W	Secondary forest
15	KJ015	1581.00	4664.00	Merungin	sandstone	P ₂ Cr	30	G. B.	R	S	F	W	Secondary forest
16	KJ016	1581.50	4664.45	Merungin	sandstone	P ₂ Cr	30	Y. B.	R	S	F	W	Secondary forest
17	KJ017	1581.00	4664.44	Merungin	sandstone	P ₂ Cr	30	Y. B.	R	S	F	W	Secondary forest
18	KJ018	1581.74	4665.00	Merungin	sandstone	P ₂ Cr	40	Y. B.	R	C	M	W	Secondary forest
19	KJ019	1581.38	4665.00	Merungin	sandstone	P ₂ Cr	30	Y. B.	R	C	M	W	Secondary forest
20	KJ020	1581.55	4665.49	Merungin	sandstone	P ₂ Cr	30	Y. B.	R	C	M	W	Secondary forest
21	KJ021	1581.65	4665.95	Merungin	sandstone	P ₂ Cr	40	Y. B.	R	C	M	W	Secondary forest
22	KJ022	1581.07	4666.02	Merungin	mudstone	P ₂ Cr	30	Y. B.	R	C	M	W	Secondary forest
23	KJ023	1581.46	4666.40	Merungin	—	P ₂ Cr	40	Y. B.	R	C	F	W	Secondary forest
24	KJ024	1581.00	4666.55	Merungin	mudstone	P ₂ Cr	40	Y. B.	R	C	F	W	Secondary forest
25	KJ025	1581.75	4666.73	Merungin	mudstone	P ₂ Cr	30	Y. B.	R	C	M	W	Secondary forest
26	KJ026	1581.40	4666.68	Merungin	mudstone	P ₂ Cr	30	Y. B.	R	C	M	W	Secondary forest
27	KJ027	1581.40	4667.06	Merungin	—	P ₂ Cr	40	Y. B.	R	C	F	W	Secondary forest
28	KJ028	1581.09	4667.10	Merungin	mudstone	P ₂ Cr	40	Y. B.	R	C	F	W	Secondary forest
29	KJ029	1581.47	4667.63	Merungin	sandstone	P ₂ Cr	30	B.	R	S	F	W	Secondary forest
30	KJ030	1580.47	4666.48	Merungin	sandstone	P ₂ Cr	30	B.	R	S	M	W	Secondary forest

*1Gravel: Many (M), Few (F), Rare or none (R)

*2Grain size: Sandy (S), Clayey (C)

*3Topography: Steep (S), Moderate (M), Flat (F)

*4Humidity: Dry (D), Wet (W)

Ser. No.	Sample No.	Coordinates		1/50,000 Topo. Sheet	Rock of Basement	Geol. Unit	Depth (cm)	Color	G. *1	S. *2	T. *3	H. *4	Vegetation
		N	E										
31	KJ031	1579.99	4660.55	Merungin	mudstone	P ₂ Cr	30	B.	R	C	M	W	Secondary forest
32	KJ032	1580.55	4660.92	Merungin	sandstone	P ₂ Cr	30	B.	F	S	M	W	Secondary forest
33	KJ033	1580.43	4661.57	Merungin	sandstone	P ₂ Cr	30	B.	F	S	M	W	Secondary forest
34	KJ034	1580.00	4661.52	Merungin	sandstone	P ₂ Cr	30	B.	R	C	M	W	Secondary forest
35	KJ035	1580.46	4661.99	Merungin	sandstone	P ₂ Cr	30	B.	M	S	M	W	Secondary forest
36	KJ036	1579.99	4662.01	Merungin	sandstone	P ₂ Cr	30	B.	M	S	M	W	Secondary forest
37	KJ037	1580.48	4662.52	Merungin	mudstone	P ₂ Cr	30	B.	F	C	M	W	Secondary forest
38	KJ038	1580.07	4662.47	Merungin	mudstone	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
39	KJ039	1580.55	4663.06	Merungin	mudstone	P ₂ Cr	30	B.	F	C	M	W	Secondary forest
40	KJ040	1580.07	4663.15	Merungin	mudstone	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
41	KJ041	1580.92	4663.43	Merungin	sandstone	P ₂ Cr	30	R.	R	S	F	W	Secondary forest
42	KJ042	1580.48	4663.53	Merungin	mudstone	P ₂ Cr	40	B.	R	C	M	W	Secondary forest
43	KJ043	1580.47	4664.05	Merungin	mudstone	P ₂ Cr	30	B.	R	C	F	W	Secondary forest
44	KJ044	1580.63	4664.55	Merungin	—	P ₂ Cr	40	B.	R	C	M	W	Secondary forest
45	KJ045	1580.18	4664.40	Merungin	mudstone	P ₂ Cr	40	Y.B.	R	C	F	W	Secondary forest
46	KJ046	1580.05	4664.85	Merungin	mudstone	P ₂ Cr	40	B.	R	C	M	W	Secondary forest
47	KJ047	1580.94	4664.99	Merungin	—	P ₂ Cr	50	Y.B.	R	C	F	W	Secondary forest
48	KJ048	1580.42	4665.17	Merungin	—	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
49	KJ049	1580.94	4665.45	Merungin	—	P ₂ Cr	50	Y.B.	R	C	F	W	Secondary forest
50	KJ050	1580.42	4665.51	Merungin	sandstone	P ₂ Cr	30	Y.B.	R	C	M	W	Secondary forest
51	KJ051	1580.02	4665.58	Merungin	—	P ₂ Cr	40	D.B.	F	S	M	W	Secondary forest
52	KJ052	1580.42	4666.02	Merungin	—	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
53	KJ053	1580.02	4666.05	Merungin	—	P ₂ Cr	40	R.B.	F	S	M	W	Secondary forest
54	KJ054	1580.57	4666.57	Merungin	—	P ₂ Cr	40	Y.B.	R	C	F	W	Secondary forest
55	KJ055	1580.00	4666.53	Merungin	—	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
56	KJ056	1580.46	4666.97	Merungin	sandstone	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
57	KJ057	1579.99	4667.01	Merungin	—	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
58	KJ058	1580.80	4667.53	Merungin	—	P ₂ Cr	40	Y.B.	R	C	F	W	Secondary forest
59	KJ059	1579.43	4660.41	Merungin	sandstone	P ₂ Cr	30	B.	F	S	M	W	Secondary forest
60	KJ060	1579.04	4660.60	Merungin	sandstone	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest

*1Gravel: Many (M), Few (F), Rare or none (R)

*2Grain size: Sandy (S), Clayey (C)

*3Topography: Steep (S), Moderate (M), Flat (F)

*4Humidity: Dry (D), Wet (W)

Ser. No.	Sample No.	Coordinates		1/50,000 Topo. Sheet	Rock of Basement	Geol. Unit	Depth (cm)	Color	G. *1	S. *2	T. *3	H. *4	Vegetation
		N	E										
61	KJ061	1579.95	4660.96	Merungin	sandstone	P ₂ Cr	30	B.	R	S	F	W	Secondary forest
62	KJ062	1579.54	4661.00	Merungin	—	P ₂ Cr	50	Y.B.	R	C	M	W	Secondary forest
63	KJ063	1579.08	4661.05	Merungin	—	P ₂ Cr	40	Y.B.	R	C	F	W	Secondary forest
64	KJ064	1579.33	4661.32	Merungin	—	P ₂ Cr	40	Y.B.	R	C	F	W	Secondary forest
65	KJ065	1579.55	4661.54	Merungin	sandstone	P ₂ Cr	30	Y.B.	R	C	F	W	Secondary forest
66	KJ066	1579.23	4661.72	Merungin	sandstone	P ₂ Cr	40	B.	R	C	F	W	Secondary forest
67	KJ067	1579.58	4661.96	Merungin	sandstone	P ₂ Cr	30	L.B.	R	C	F	W	Secondary forest
68	KJ068	1579.08	4662.15	Merungin	sandstone	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
69	KJ069	1579.62	4662.58	Merungin	mudstone	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
70	KJ070	1579.08	4662.50	Merungin	sandstone	Q ₂	40	B.	R	C	F	W	Secondary forest
71	KJ071	1579.58	4663.03	Merungin	sandstone	P ₂ Cr	30	Y.B.	F	C	M	W	Secondary forest
72	KJ072	1579.01	4662.99	Merungin	sandstone	P ₂ Cr	40	R.B.	R	S	M	W	Secondary forest
73	KJ073	1579.91	4663.58	Merungin	mudstone	P ₂ Cr	50	Y.B.	R	C	M	W	Secondary forest
74	KJ074	1579.49	4663.56	Merungin	sandstone	P ₂ Cr	40	Y.	F	S	M	W	Secondary forest
75	KJ075	1579.01	4663.53	Merungin	—	P ₂ Cr	40	R.B.	R	S	M	W	Secondary forest
76	KJ076	1579.95	4663.97	Merungin	mudstone	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
77	KJ077	1579.58	4664.08	Merungin	mudstone	P ₂ Cr	40	B.	R	C	M	W	Secondary forest
78	KJ078	1579.00	4664.10	Merungin	sandstone	P ₂ Cr	40	D.B.	M	S	M	W	Secondary forest
79	KJ079	1579.50	4664.44	Merungin	sandstone	P ₂ Cr	40	D.B.	R	S	M	W	Secondary forest
80	KJ080	1579.00	4664.50	Merungin	—	P ₂ Cr	40	Y.B.	R	S	F	W	Secondary forest
81	KJ081	1579.25	4664.72	Merungin	—	P ₂ Cr	40	Y.	R	S	M	W	Secondary forest
82	KJ082	1579.57	4665.02	Merungin	sandstone	P ₂ Cr	40	R.B.	F	C	M	W	Secondary forest
83	KJ083	1579.00	4665.02	Merungin	sandstone	P ₂ Cr	40	Y.B.	R	S	M	W	Secondary forest
84	KJ084	1579.86	4665.25	Merungin	—	P ₂ Cr	40	R.B.	R	C	M	W	Secondary forest
85	KJ085	1579.20	4665.30	Merungin	—	P ₂ Cr	40	D.B.	R	C	F	W	Secondary forest
86	KJ086	1579.55	4665.52	Merungin	—	P ₂ Cr	40	R.B.	F	S	S	W	Secondary forest
87	KJ087	1579.01	4665.50	Merungin	—	P ₂ Cr	40	Y.	R	S	S	W	Secondary forest
88	KJ088	1579.57	4666.00	Merungin	—	P ₂ Cr	40	R.B.	R	S	S	W	Secondary forest
89	KJ089	1579.00	4666.00	Merungin	—	P ₂ Cr	40	Y.B.	R	S	F	W	Secondary forest
90	KJ090	1579.58	4666.49	Merungin	—	P ₂ Cr	40	Y.B.	R	S	F	W	Secondary forest

*1Gravel: Many (M), Few (F), Rare or none (R)
 *2Grain size: Sandy (S), Clayey (C)
 *3Topography: Steep (S), Moderate (M), Flat (F)
 *4Humidity: Dry (D), Wet (W)

Ser. No.	Sample No.	Coordinates		1/50,000 Topo. Sheet	Rock of Basement	Geol. Unit	Depth (cm)	Color	G. *1	S. *2	T. *3	H. *4	Vegetation
		N	E										
91	KJ091	1578.42	4660.47	Merungin	—	P ₂ Cr	40	Y.B.	R	C	F	W	Secondary forest
92	KJ092	1578.40	4661.05	Merungin	sandstone	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
93	KJ093	1578.75	4661.27	Merungin	—	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
94	KJ094	1578.20	4661.35	Merungin	sandstone	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
95	KJ095	1578.93	4661.58	Merungin	sandstone	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
96	KJ096	1578.45	4661.59	Merungin	sandstone	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
97	KJ097	1578.05	4661.52	Merungin	sandstone	P ₂ Cr	40	Y.B.	R	C	M	W	Secondary forest
98	KJ098	1578.87	4661.78	Merungin	—	P ₂ Cr	30	D.B.	R	C	M	W	Secondary forest
99	KJ099	1578.23	4661.82	Merungin	—	P ₂ Cr	40	Y.B.	F	C	F	W	Secondary forest
100	KJ100	1578.66	4661.95	Merungin	mudstone	P ₂ Cr	30	Y.B.	F	C	F	W	Secondary forest
101	KJ101	1578.08	4662.00	Merungin	—	P ₂ Cr	40	Y.B.	R	C	F	W	Secondary forest
102	KJ102	1578.54	4662.50	Merungin	—	Q ₂	40	B.	R	C	F	W	Secondary forest
103	KJ103	1577.95	4662.60	Merungin	—	Q ₂	40	D.B.	R	S	F	W	Secondary forest
104	KJ104	1578.57	4663.00	Merungin	—	P ₂ Cr	40	R.B.	F	S	M	W	Secondary forest
105	KJ105	1578.00	4663.00	Merungin	—	P ₂ Cr	40	R.B.	F	S	M	W	Secondary forest
106	KJ106	1578.48	4663.47	Merungin	—	P ₂ Cr	40	Y.B.	R	S	F	W	Secondary forest
107	KJ107	1578.36	4664.01	Merungin	—	P ₂ Cr	40	Y.	R	S	F	W	Secondary forest
108	KJ108	1578.62	4664.43	Merungin	—	P ₂ Cr	40	Y.	R	S	F	W	Secondary forest
109	KJ109	1577.98	4664.43	Merungin	sandstone	P ₂ Cr	40	Y.B.	R	S	F	W	Secondary forest
110	KJ110	1578.77	4664.79	Merungin	sandstone	P ₂ Cr	40	Y.B.	R	S	M	W	Secondary forest
111	KJ111	1578.52	4664.99	Merungin	sandstone	P ₂ Cr	40	Y.B.	R	S	F	W	Secondary forest
112	KJ112	1577.98	4665.00	Merungin	—	P ₂ Cr	40	Y.B.	R	S	F	W	Secondary forest
113	KJ113	1578.36	4665.52	Merungin	—	P ₂ Cr	40	Y.	R	S	M	W	Secondary forest
114	KJ114	1577.92	4660.48	Merungin	—	P ₂ Cr	40	Y.B.	R	C	F	W	Secondary forest
115	KJ115	1577.50	4660.51	Merungin	—	P ₂ Cr	30	B.G.	F	S	F	W	Secondary forest
116	KJ116	1577.01	4660.50	Merungin	sandstone	P ₂ Cr	30	B.	F	S	F	W	Secondary forest
117	KJ117	1577.88	4660.95	Merungin	—	P ₂ Cr	30	Y.B.	R	C	F	W	Secondary forest
118	KJ118	1577.43	4660.99	Merungin	—	P ₂ Cr	30	Y.B.	R	S	F	W	Secondary forest
119	KJ119	1577.02	4661.03	Merungin	sandstone	P ₂ Cr	30	B.G.	F	S	F	W	Secondary forest
120	KJ120	1577.73	4661.25	Merungin	sandstone	P ₂ Cr	40	Y.B.	R	C	F	W	Secondary forest

*1Gravel: Many (M), Few (F), Rare or none (R)

*2Grain size: Sandy (S), Clayey (C)

*3Topography: Steep (S), Moderate (M), Flat (F)

*4Humidity: Dry (D), Wet (W)

Ser. No.	Sample No.	Coordinates		1/50,000 Topo. Sheet	Rock of Basement	Geol. Unit	Depth (cm)	Color	G. *1	S. *2	T. *3	H. *4	Vegetation
		N	E										
121	KJ121	1577.25	4661.32	Merungin	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	Secondary forest
122	KJ122	1577.53	4661.53	Merungin	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	Secondary forest
123	KJ123	1576.98	4661.55	Merungin	—	P ₂ Cr	30	B.G.	F	S	F	W	Secondary forest
124	KJ124	1577.79	4661.73	Merungin	—	P ₂ Cr	40	Y.B.	R	C	F	W	Secondary forest
125	KJ125	1577.30	4661.78	Merungin	—	P ₂ Cr	30	B.G.	F	S	F	W	Secondary forest
126	KJ126	1577.57	4662.07	Merungin	—	Q ₂	30	D.B.	R	C	F	W	Secondary forest
127	KJ127	1577.10	4662.02	Merungin	—	Q ₂	30	B.	R	C	F	W	Secondary forest
128	KJ128	1577.43	4662.55	Merungin	—	Q ₂	40	D.B.	R	C	F	W	Secondary forest
129	KJ129	1577.05	4662.50	Merungin	—	Q ₂	30	L.B.	R	C	F	W	Secondary forest
130	KJ130	1577.57	4662.98	Merungin	—	P ₂ Cr	40	D.B.	R	S	F	W	Secondary forest
131	KJ131	1577.00	4662.92	Merungin	—	Q ₂	40	Y.B.	R	S	F	W	Secondary forest
132	KJ132	1578.00	4663.45	Merungin	sandstone	P ₂ Cr	40	R.B.	R	S	M	W	Secondary forest
133	KJ133	1577.57	4663.50	Merungin	sandstone	P ₂ Cr	40	Y.B.	F	S	M	W	Secondary forest
134	KJ134	1577.97	4664.00	Merungin	—	P ₂ Cr	40	Y.B.	R	S	M	W	Secondary forest
135	KJ135	1577.57	4663.98	Merungin	sandstone	P ₂ Cr	40	R.B.	F	C	M	W	Secondary forest
136	KJ136	1576.99	4664.02	Merungin	sandstone	P ₂ Cr	40	R.B.	F	S	M	W	Secondary forest
137	KJ137	1577.56	4664.48	Merungin	sandstone	P ₂ Cr	40	R.B.	F	S	M	W	Secondary forest
138	KJ138	1577.00	4664.55	Merungin	sandstone	P ₂ Cr	40	Y.B.	F	S	M	W	Secondary forest
139	KJ139	1577.56	4665.02	Merungin	—	P ₂ Cr	40	R.B.	R	S	F	W	Secondary forest
140	KJ140	1576.54	4660.55	Merungin	—	P ₂ Cr	30	B.G.	R	S	F	W	Secondary forest
141	KJ141	1576.38	4661.00	Merungin	—	P ₂ Cr	30	B.G.	R	S	F	W	Secondary forest
142	KJ142	1576.76	4661.28	Merungin	—	P ₂ Cr	30	B.G.	F	S	F	W	Secondary forest
143	KJ143	1576.48	4661.53	Merungin	—	Q ₂	30	B.G.	M	S	F	W	Secondary forest
144	KJ144	1576.73	4661.80	Merungin	—	Q ₂	30	B.G.	M	C	F	W	Secondary forest
145	KJ145	1576.45	4662.02	Merungin	—	Q ₂	30	B.G.	M	C	F	W	Secondary forest
146	KJ146	1576.28	4662.43	Merungin	—	Q ₂	40	L.B.	R	C	F	W	Secondary forest
147	KJ147	1576.47	4662.98	Merungin	sandstone	P ₂ Cr	40	D.B.	M	S	F	W	Secondary forest
148	KJ148	1576.98	4663.53	Merungin	—	P ₂ Cr	40	D.B.	F	S	F	W	Secondary forest
149	KJ149	1576.62	4663.54	Merungin	sandstone	P ₂ Cr	40	R.B.	M	S	F	W	Secondary forest
150	KJ150	1576.60	4664.00	Merungin	sandstone	P ₂ Cr	40	R.Y.	F	S	M	W	Secondary forest

*1Gravel: Many (M), Few (F), Rare or none (R)

*2Grain size: Sandy (S), Clayey (C)

*3Topography: Steep (S), Moderate (M), Flat (F)

*4Humidity: Dry (D), Wet (W)

Appendix 2

Analytical results of soil geochemical
samples in Area J

List of Geochemical Analysis(1)

Ser. No.	Sample No.	Location (km)	As ppm	Au ppb	Ba ppm	Co ppm	Cr ppm	Cu ppm	Hg ppb	K %	Mg %	Mn ppm	Mb ppm	Na %	Ni ppm	Pb ppm	S %	Sb ppm	Sr ppm	Ti %	U ppm	V ppm	Zn ppm
1	KJ001	4660.570	1581.420	2	138	26	401	12	93	.59	.83	834	1	.62	285	7	.023	2.9	37	.24	2.0	2	123
2	KJ002	4661.050	1581.550	1	180	7	36	12	55	.65	.46	584	1	.24	16	12	.024	2	42	.33	2.8	2	51
3	KJ003	4660.480	1580.950	1	83	4	166	9	65	.30	.20	100	1	.08	44	12	.012	2	22	.25	1.8	2	35
4	KJ004	4661.000	1581.000	1	196	11	56	19	56	1.05	.61	789	1	.55	31	20	.018	2	54	.29	1.8	2	59
5	KJ005	4661.500	1581.520	1	150	3	52	16	75	.94	.49	101	1	.16	16	13	.013	2	27	.31	2.2	2	42
6	KJ006	4661.680	1580.950	6	99	1	51	9	63	.43	.29	97	1	.07	14	9	.012	2	25	.30	2.0	2	32
7	KJ007	4662.000	1581.420	1	97	2	77	9	72	.42	.27	40	1	.09	44	11	.014	2	22	.27	2.2	2	35
8	KJ008	4662.050	1581.040	1	121	7	84	8	55	.49	.34	413	1	.15	28	11	.014	2	27	.27	2.0	2	33
9	KJ009	4662.600	1581.370	1	139	2	71	12	62	.73	.39	75	1	.10	17	15	.014	2	30	.30	2.0	2	38
10	KJ010	4662.470	1580.990	1	163	9	68	12	65	.47	.28	444	1	.13	28	8	.016	2	31	.23	1.8	2	29
11	KJ011	4663.000	1581.370	1	97	1	40	9	62	.41	.25	33	1	.08	6	14	.014	2	31	.30	1.8	2	20
12	KJ012	4662.960	1580.920	1	100	1	35	9	62	.48	.24	110	1	.06	8	13	.012	2	26	.27	2.0	2	24
13	KJ013	4663.420	1581.400	2	1	82	1	40	80	.41	.26	28	1	.08	6	3	.013	2	22	.30	2.0	2	24
14	KJ014	4664.050	1581.530	4	1	80	1	6	82	.28	.18	23	1	.06	6	11	.013	2	28	.29	2.2	2	17
15	KJ015	4664.000	1581.000	6	196	9	44	14	59	.89	.61	634	1	.24	21	17	.018	1.0	42	.31	2.2	2	49
16	KJ016	4664.450	1581.500	8	118	3	42	11	46	.68	.34	124	1	.10	18	5	.011	2	21	.29	2.2	2	36
17	KJ017	4664.440	1581.000	2	1	98	1	9	82	.51	.28	45	1	.08	8	8	.016	2	21	.29	2.2	2	25
18	KJ018	4665.000	1581.740	3	179	1	42	11	66	.65	.29	127	1	.13	12	7	.012	2	16	.29	2.0	2	27
19	KJ019	4665.000	1581.380	9	1	106	1	5	51	.37	.26	26	1	.09	7	15	.012	2	30	.29	2.2	2	27
20	KJ020	4665.490	1581.550	1	160	2	32	5	55	.48	.20	65	1	.15	12	11	.017	5	18	.24	1.4	2	25
21	KJ021	4665.950	1581.650	6	141	1	39	4	86	.55	.23	42	1	.09	12	9	.015	2	17	.24	1.4	2	25
22	KJ022	4666.020	1581.070	1	177	1	44	4	80	.58	.22	46	1	.15	10	10	.022	2	15	.30	2.0	2	20
23	KJ023	4666.400	1581.460	1	114	1	78	10	106	.68	.27	41	1	.19	16	9	.018	2	18	.31	2.2	2	19
24	KJ024	4666.550	1581.000	1	75	1	34	4	65	.20	.18	25	1	.10	5	7	.017	2	19	.23	1.8	2	18
25	KJ025	4666.730	1581.750	1	135	1	39	8	75	.38	.28	40	1	.08	12	9	.023	2	27	.25	2.0	2	35
26	KJ026	4666.680	1581.400	1	325	3	47	9	63	1.57	.42	68	1	.34	21	19	.013	2	31	.34	2.2	2	47
27	KJ027	4667.060	1581.400	4	77	1	47	3	80	.25	.15	22	1	.13	5	6	.017	6	16	.32	1.6	2	10
28	KJ028	4667.100	1581.090	5	72	2	34	5	71	.26	.13	26	1	.06	6	7	.011	2	16	.25	1.6	2	9
29	KJ029	4667.630	1581.470	3	82	1	98	5	85	.28	.17	28	1	.14	10	4	.013	2	17	.34	2.0	2	14
30	KJ030	4668.480	1580.470	7	1	78	3	5	52	.33	.25	42	1	.04	6	13	.013	2.5	23	.27	1.8	2	21
31	KJ031	4668.550	1579.990	6	192	5	72	17	104	1.04	.48	139	1	.25	22	17	.020	2	53	.38	2.4	2	56
32	KJ032	4669.920	1580.550	3	156	4	51	12	74	.85	.52	182	1	.14	14	9	.015	2	23	.32	2.4	2	42
33	KJ033	4661.570	1580.430	2	227	7	85	21	70	1.59	.66	81	1	.45	36	20	.015	4	60	.29	2.8	2	46
34	KJ034	4661.990	1580.000	2	170	5	73	15	83	.67	.34	304	1	.25	22	14	.021	4	47	.16	2.0	2	53
35	KJ035	4661.990	1580.460	1	144	6	51	11	70	.98	.49	97	1	.34	30	8	.019	2	50	.25	2.8	2	80
36	KJ036	4662.010	1579.990	1	274	9	87	24	54	1.86	.97	305	1	.73	45	14	.020	2	67	.26	2.8	2	22
37	KJ037	4662.520	1580.480	1	220	10	82	20	68	1.19	.73	433	1	.64	38	17	.025	2	67	.19	2.2	2	73
38	KJ038	4662.470	1580.070	1	159	4	141	14	61	.75	.38	284	1	.11	35	15	.017	1.0	56	.26	2.2	2	35
39	KJ039	4663.060	1580.550	3	2	186	8	17	75	1.19	.62	210	1	.55	33	16	.025	2	56	.16	2.4	2	67
40	KJ040	4663.150	1580.070	1	83	1	97	7	82	.47	.28	31	1	.05	14	12	.016	2	23	.25	2.0	2	67
41	KJ041	4663.430	1580.920	2	75	3	37	8	120	.79	.20	34	1	.05	7	8	.018	1.7	41	.29	1.6	2	15
42	KJ042	4663.530	1580.480	2	191	7	37	15	53	.79	.47	918	1	.32	18	8	.018	1.7	41	.29	2.0	2	39
43	KJ043	4664.050	1580.470	1	128	3	91	12	76	.70	.42	65	1	.11	25	13	.019	2	27	.31	1.8	2	35
44	KJ044	4664.550	1580.660	1	113	4	55	12	52	.50	.27	103	1	.07	13	12	.015	7	22	.26	1.8	2	28
45	KJ045	4664.400	1580.180	4	108	1	40	9	63	.38	.27	40	1	.07	10	14	.014	7	17	.25	2.0	2	30
46	KJ046	4664.850	1580.050	1	148	5	45	10	49	.60	.41	374	1	.49	19	12	.020	2	42	.32	2.2	2	31
47	KJ047	4664.990	1580.940	1	64	1	137	6	93	1.05	.18	38	1	.07	30	13	.018	2	18	.22	2.0	2	18
48	KJ048	4665.170	1580.420	2	219	5	58	18	74	1.07	.26	242	1	.16	23	18	.020	2	35	.34	2.6	2	46
49	KJ049	4665.450	1580.940	1	90	1	43	7	87	.47	.26	26	1	.10	10	7	.017	2	29	.28	2.0	2	26
50	KJ050	4665.510	1580.420	3	103	1	37	8	79	.32	.29	92	1	.08	11	13	.021	2	21	.23	1.8	2	30

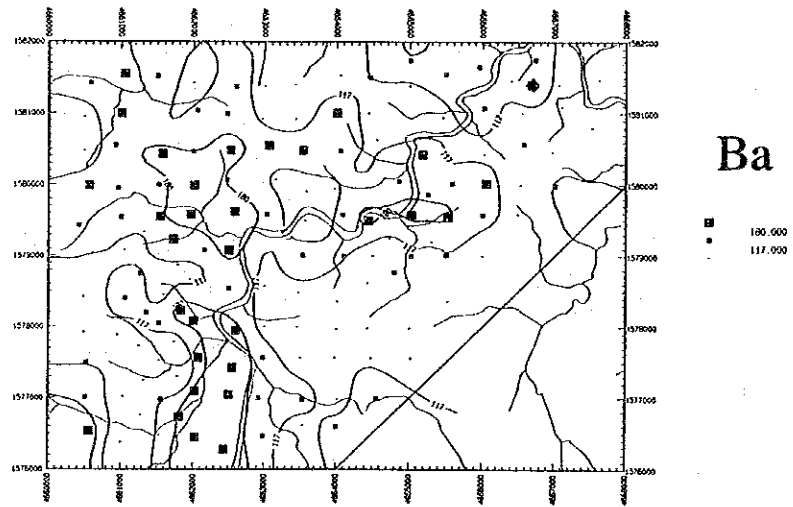
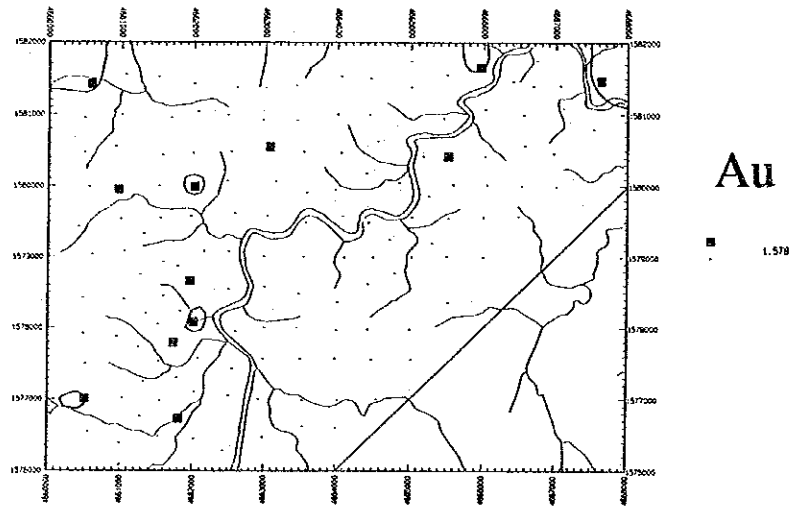
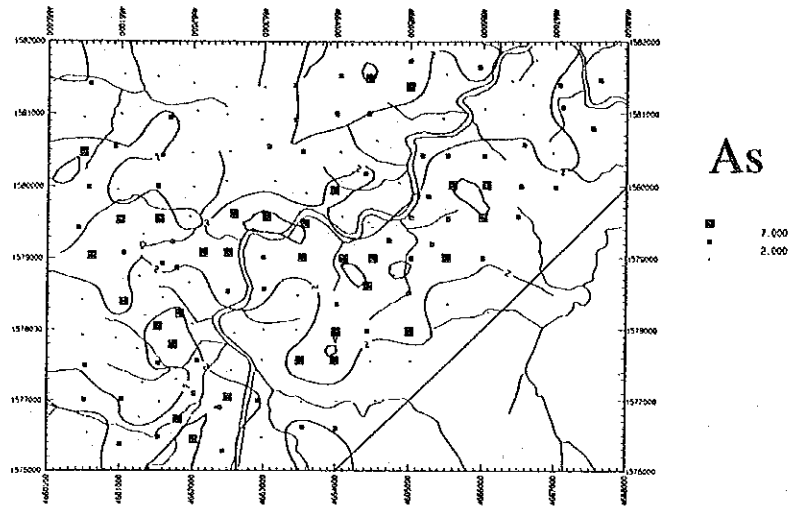
List of Geochemical Analysis (3)

Ser. No.	Sample No.	Location (km)	As	Au	Ba	Co	Cr	Cu	Hg	K	Mg	Mn	Mo	Na	Ni	Pb	S	Sb	Sr	Ti	U	W	Zn
		X-coord Y-coord	ppm	ppb	ppm	ppm	ppm	ppm	pob	%	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm
101	KJ101	4662.000 1578.080	1	4	226	6	33	28	97	1.74	.70	553	1	.27	22	15	.020	.5	54	.38	2.8	2	67
102	KJ102	4662.500 1578.540	6	1	132	17	97	16	96	.42	.25	944	1	.12	39	19	.021	>	34	.34	1.8	>	48
103	KJ103	4662.500 1577.950	1	1	247	24	272	18	90	.92	.87	753	1	.66	189	9	.015	4.7	34	.25	1.8	>	47
104	KJ104	4663.000 1578.570	4	1	104	4	58	17	82	.60	.40	325	1	.07	25	17	.017	>	62	.32	1.8	>	36
105	KJ105	4663.000 1578.000	1	1	83	2	38	11	66	.54	.32	78	1	.05	11	14	.013	>	22	.24	1.8	>	34
106	KJ106	4663.470 1578.480	1	1	106	2	44	10	66	.54	.35	38	1	.06	7	15	.014	.6	28	.30	2.0	>	35
107	KJ107	4664.010 1578.360	5	1	92	1	48	9	66	.51	.36	40	1	.05	11	13	.013	4.6	20	.26	2.0	>	33
108	KJ108	4664.430 1578.620	9	1	92	2	45	9	66	.55	.36	30	1	.06	7	15	.013	2.7	26	.27	2.0	>	28
109	KJ109	4664.430 1577.980	3	1	79	4	30	5	58	.31	.28	37	1	.08	10	8	.009	1.6	24	.22	1.8	>	41
110	KJ110	4664.790 1578.770	1	1	126	4	39	12	80	.79	.51	188	1	.17	17	10	.010	1.3	25	.26	2.2	>	26
111	KJ111	4664.990 1578.520	6	1	91	4	42	9	64	.37	.29	256	1	.18	15	16	.012	.2	24	.21	2.0	2	28
112	KJ112	4665.000 1577.980	8	1	86	2	61	9	66	.39	.31	63	1	.05	13	8	.017	3.8	20	.28	2.2	>	34
113	KJ113	4665.520 1578.360	1	1	89	2	49	6	59	.35	.23	102	1	.05	10	14	.014	.8	10	.28	2.2	>	28
114	KJ114	4660.480 1577.920	1	1	87	2	41	7	83	.37	.32	61	1	.05	7	15	.013	.3	27	.32	1.8	>	33
115	KJ115	4660.510 1577.500	2	1	117	1	44	9	62	.54	.41	45	1	.06	12	13	.011	.6	27	.31	2.0	>	34
116	KJ116	4660.500 1577.010	3	2	173	5	50	13	46	.95	.62	520	1	.09	20	14	.018	1.7	45	.35	2.2	>	49
117	KJ117	4660.950 1577.880	1	1	100	1	41	10	66	.60	.37	57	1	.07	9	13	.014	1.7	23	.28	2.0	>	36
118	KJ118	4660.990 1577.430	1	1	114	4	44	8	68	.54	.36	57	1	.06	15	20	.016	1.7	29	.28	2.0	>	32
119	KJ119	4661.030 1577.020	3	1	82	4	29	6	52	.25	.20	118	1	.03	9	14	.015	>	21	.21	1.6	>	23
120	KJ120	4661.250 1577.730	1	1	62	1	33	5	89	.23	.20	39	1	.03	5	13	.012	1.7	23	.23	1.8	>	23
121	KJ121	4661.320 1577.250	1	1	82	3	43	7	68	.36	.30	63	1	.05	10	9	.009	1.6	25	.27	1.8	>	29
122	KJ122	4661.530 1577.530	4	1	98	2	44	8	68	.39	.24	139	1	.06	11	19	.013	1.6	32	.30	2.0	>	32
123	KJ123	4661.550 1576.980	1	1	134	9	56	27	60	1.04	.69	134	1	.12	35	12	.010	.9	32	.42	2.0	>	60
124	KJ124	4661.730 1577.790	9	1	67	3	39	7	61	.19	.14	69	1	.03	13	13	.013	1.2	21	.22	2.0	>	30
125	KJ125	4661.780 1577.300	1	1	26	1	25	3	79	.08	.08	37	1	.01	9	7	.007	.3	37	.27	1.4	>	15
126	KJ126	4662.070 1577.570	3	1	183	6	45	13	128	.54	.41	463	1	.38	23	10	.016	3	37	.25	1.6	>	36
127	KJ127	4662.020 1577.100	5	1	246	11	49	19	91	.76	.53	651	1	.51	31	22	.021	2.6	51	.28	1.8	>	48
128	KJ128	4662.550 1577.430	1	1	277	20	216	24	89	1.02	1.19	658	1	.70	188	21	.021	6.7	65	.26	2.0	>	54
129	KJ129	4662.500 1577.050	9	1	243	15	224	25	98	.83	1.00	555	1	.59	164	13	.020	6.7	56	.24	2.0	>	56
130	KJ130	4662.980 1577.570	1	1	142	4	49	12	62	.61	.43	327	1	.22	26	17	.024	2.5	34	.25	2.0	>	38
131	KJ131	4663.450 1578.000	3	1	153	10	66	14	62	.51	.38	405	1	.22	45	18	.013	.6	29	.25	1.8	>	38
132	KJ132	4663.500 1577.570	1	1	109	1	30	8	55	.50	.34	113	1	.04	10	13	.010	1.0	25	.30	2.0	>	32
133	KJ133	4664.000 1577.970	7	1	88	5	25	11	73	.49	.30	98	1	.04	11	16	.009	2.0	22	.25	2.0	>	29
134	KJ134	4664.000 1577.970	10	1	82	1	24	7	79	.42	.27	53	1	.04	7	15	.012	2.0	22	.25	2.0	>	34
135	KJ135	4663.980 1577.570	10	1	107	4	29	12	64	.63	.35	155	1	.05	14	12	.014	2.0	27	.28	1.8	>	38
136	KJ136	4664.020 1576.990	1	1	95	3	32	8	62	.43	.28	309	1	.03	10	13	.013	2.0	24	.26	1.8	>	26
137	KJ137	4664.480 1577.560	1	1	112	1	36	11	60	.72	.41	79	1	.10	15	19	.011	1.7	22	.29	2.0	>	31
138	KJ138	4664.550 1577.000	1	1	160	6	47	14	58	.87	.45	448	1	.13	19	20	.013	1.4	29	.29	2.2	>	42
139	KJ139	4665.020 1577.560	1	1	281	4	50	12	59	.46	.36	80	1	.06	25	15	.012	2.0	21	.27	2.0	>	37
140	KJ140	4660.550 1576.540	1	1	95	4	47	15	69	.79	.54	417	1	.13	19	26	.017	2.0	31	.29	2.2	>	44
141	KJ141	4661.000 1576.380	4	1	78	2	32	6	61	.35	.25	74	1	.04	9	19	.010	1.8	20	.22	1.8	>	30
142	KJ142	4661.280 1576.760	1	1	82	3	19	4	43	.12	.11	397	1	.05	10	8	.011	2.0	20	.19	1.6	>	18
143	KJ143	4661.530 1576.480	6	1	114	4	30	11	57	.61	.42	250	1	.08	18	20	.016	1.1	28	.30	2.4	>	37
144	KJ144	4661.800 1576.730	7	2	187	16	180	13	67	.53	.42	474	1	.34	166	9	.014	1.9	33	.28	2.2	>	40
145	KJ145	4662.020 1576.450	9	1	261	28	240	22	144	.88	.90	782	1	.52	324	17	.012	1.9	43	.31	2.0	>	54
146	KJ146	4662.430 1576.280	4	1	294	23	240	22	91	.97	.78	815	1	.58	204	17	.015	4.4	50	.52	2.0	>	57
147	KJ147	4662.980 1576.470	1	1	129	11	98	25	62	.41	.38	781	1	.09	46	18	.018	2.0	23	.31	2.0	>	39
148	KJ148	4663.530 1576.980	1	1	145	7	39	11	48	.58	.39	285	1	.29	23	17	.013	1.2	28	.23	1.6	>	35
149	KJ149	4663.540 1576.620	4	1	99	23	97	26	81	.50	.33	958	1	.04	38	21	.014	3.8	17	.38	1.8	>	37
150	KJ150	4664.000 1576.600	2	1	131	1	75	18	42	.97	.51	129	5	.10	29	30	.009	4.1	21	.33	2.6	>	45

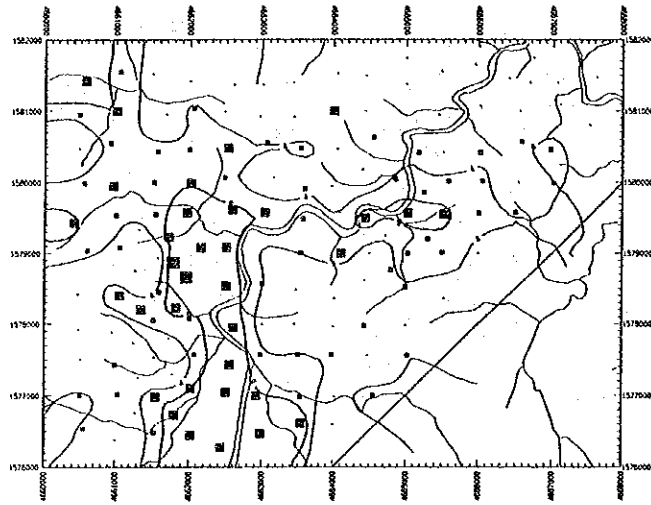
Appendix 3

Distribution map of elements in Area J

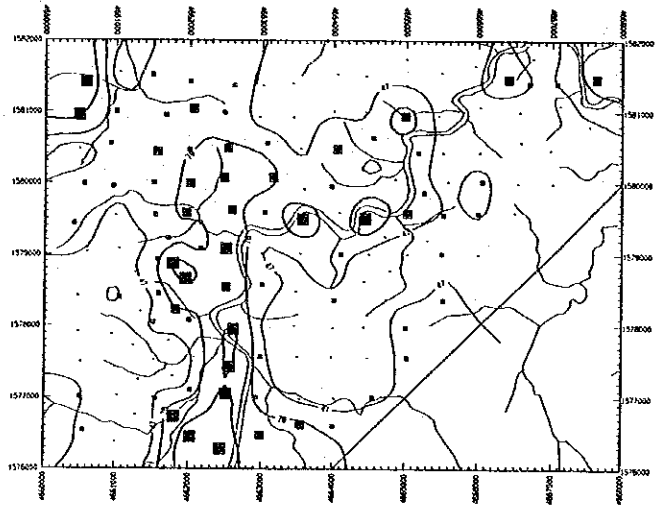
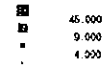
Soil



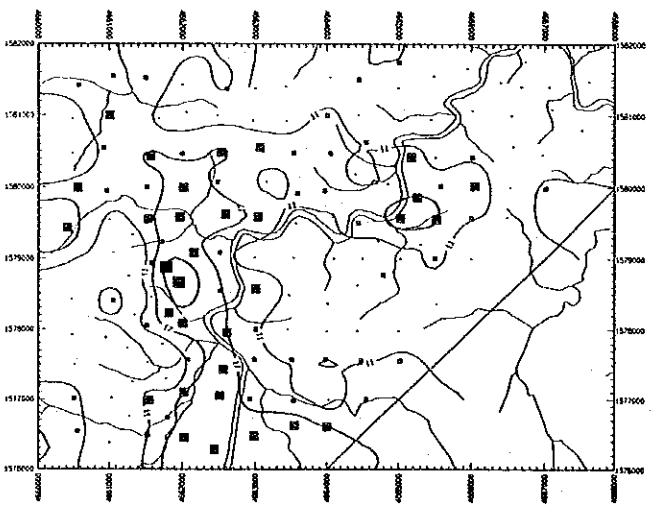
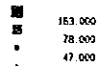
Soil



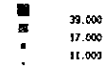
Co



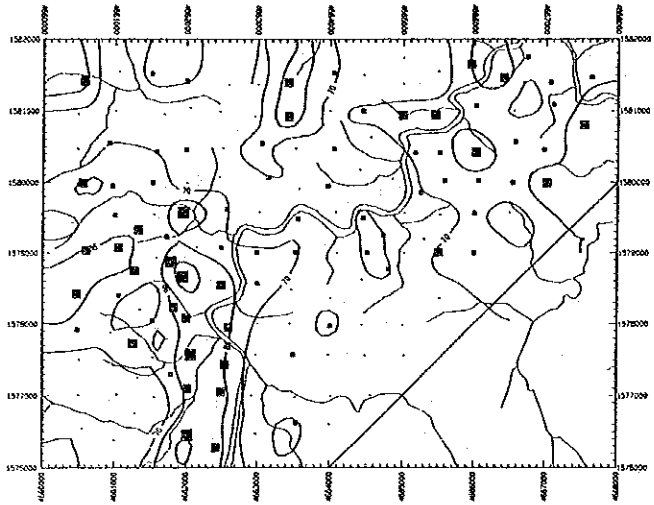
Cr



Cu

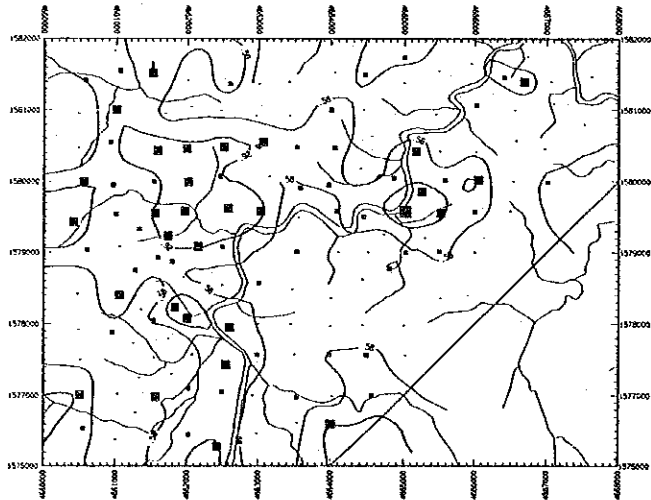


Soil



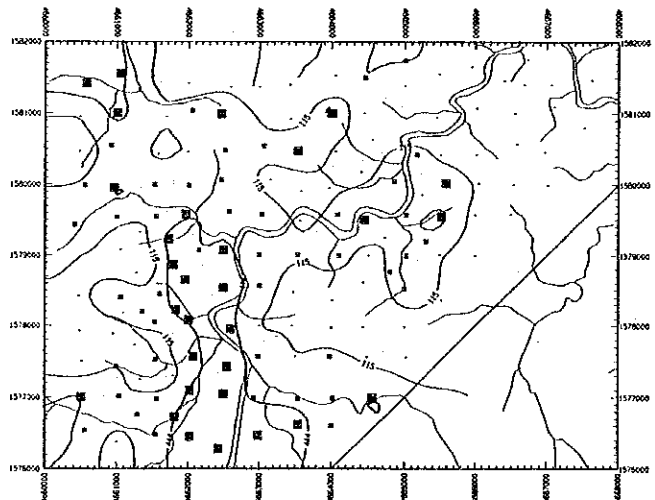
Hg

■ 124.000
■ 86.000
■ 70.000



K

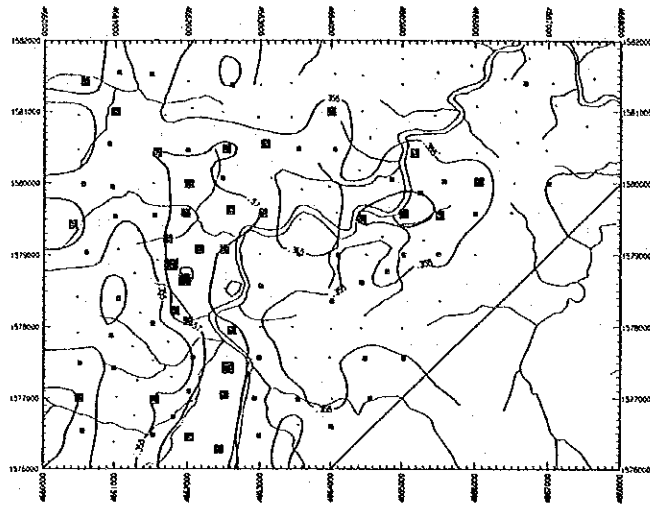
■ 2.249
■ .920
■ .580



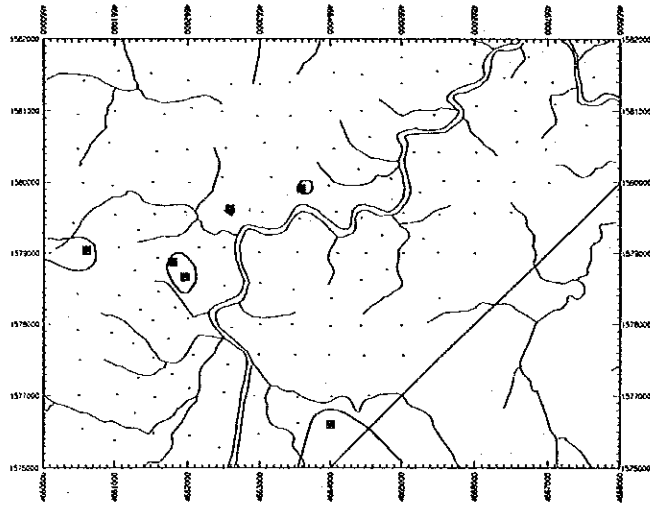
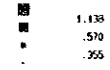
Mn

■ 444.000
■ 115.000

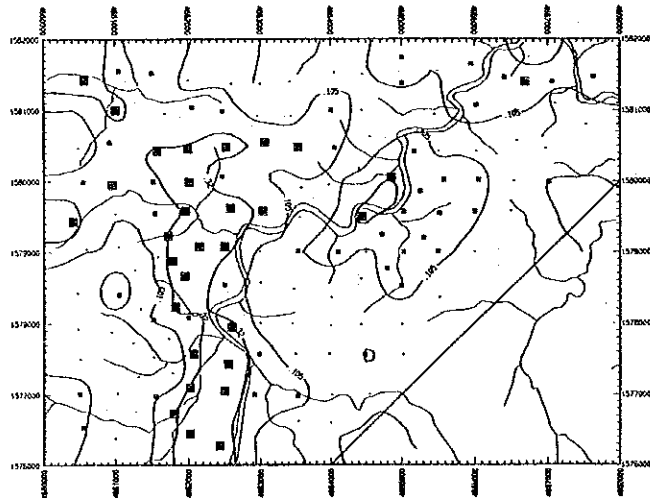
Soil



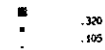
Mg



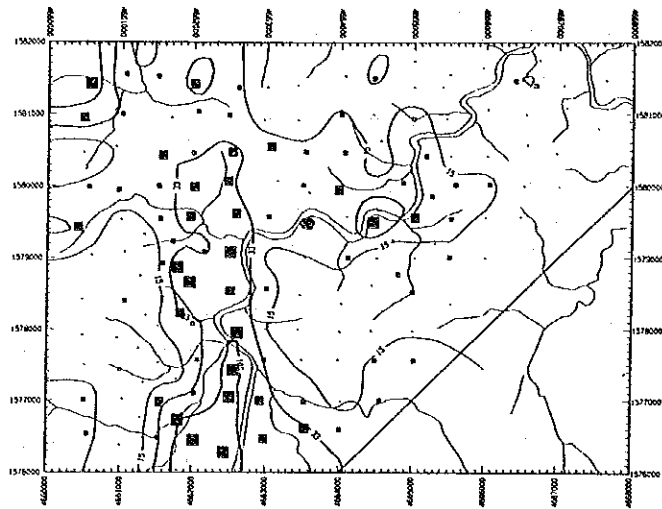
Mo



Na

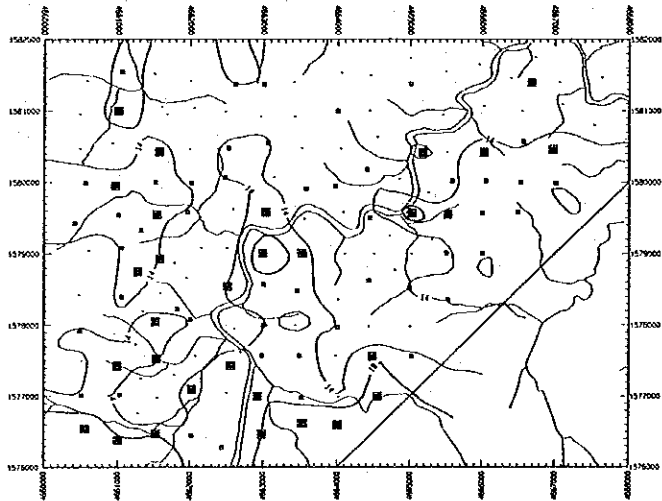


Soil



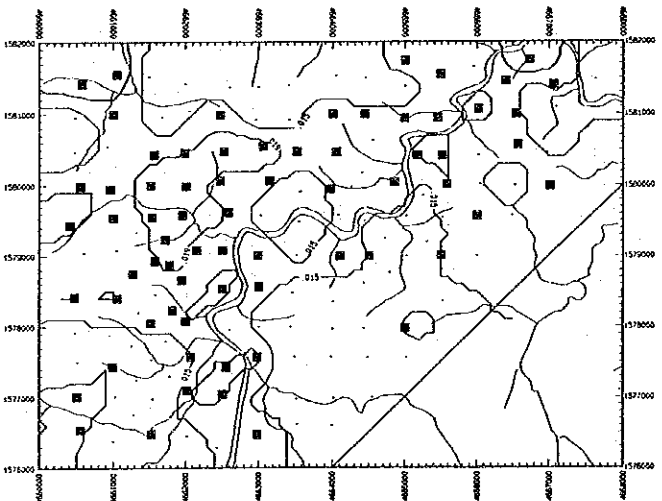
Ni

- 129,000
- 33,000
- 15,000



Pb

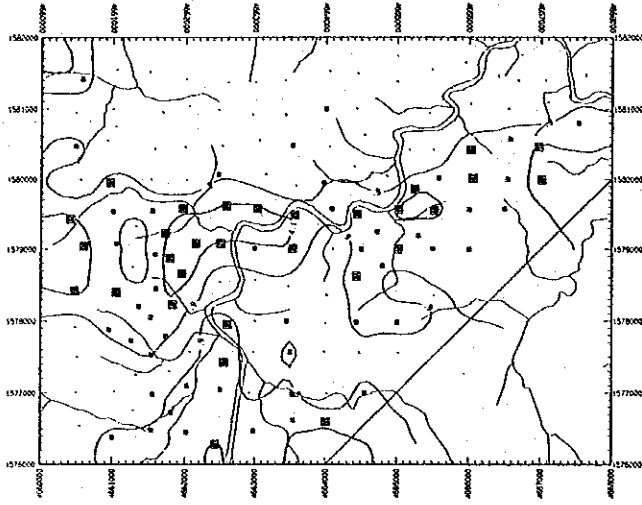
- 18,000
- 14,000



S

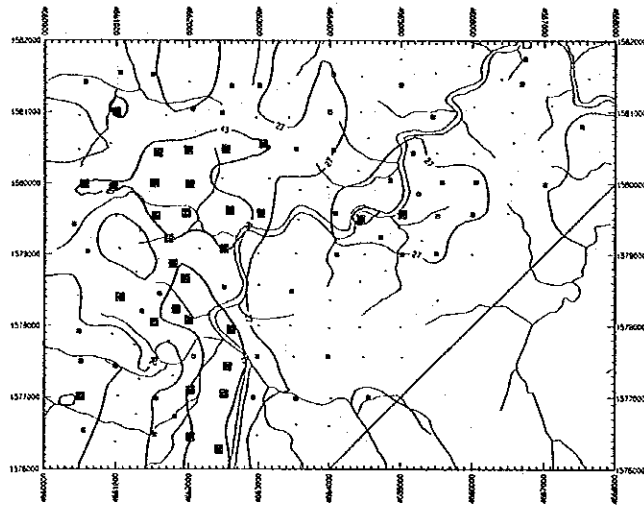
- .019
- .015

Soil



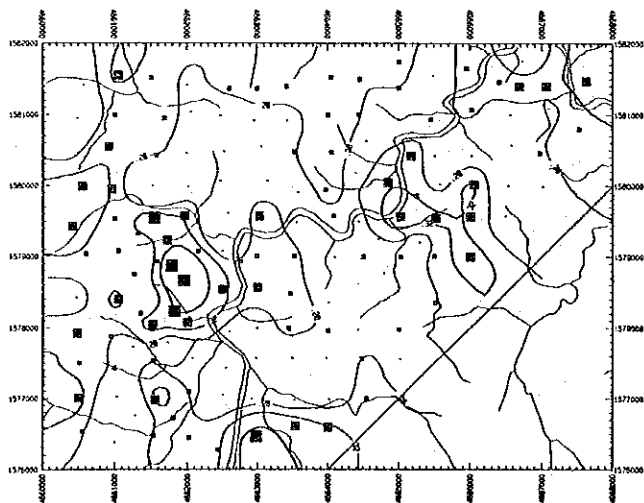
Sb

■ 4.100
● 900



Sr

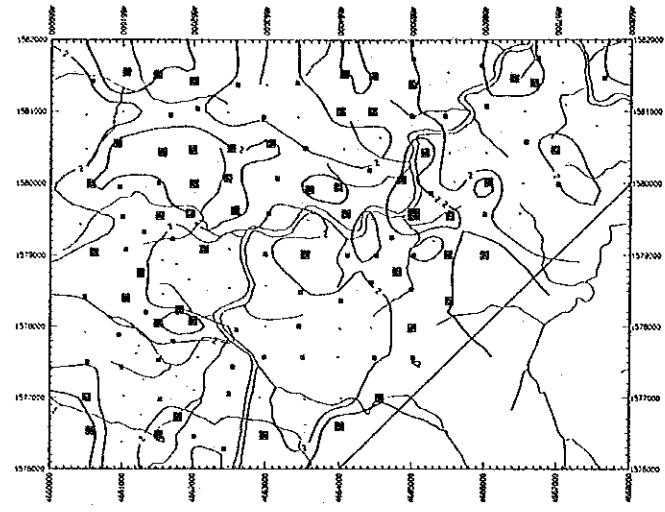
■ 43.000
● 27.000



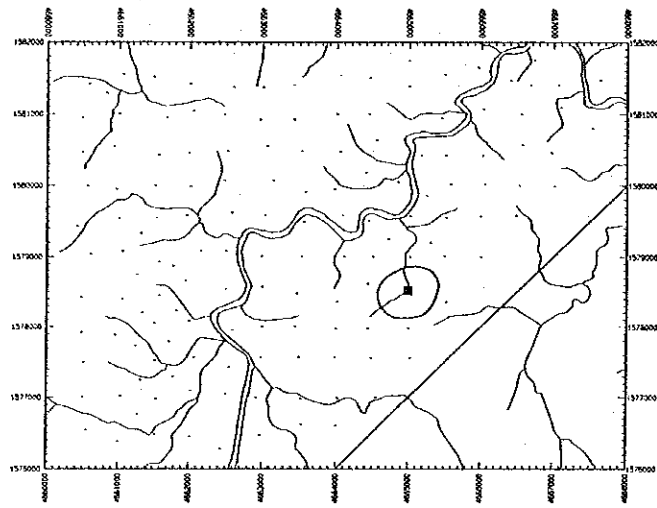
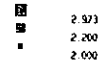
Ti

■ .428
● .320
● .790

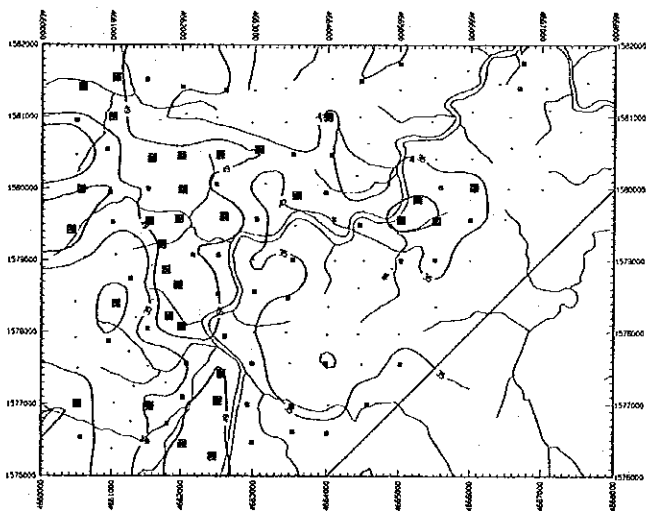
Soil



U



W



Zn



Appendix 4

List of soil geochemical samples in Area K

Area: East of Ranau (Area K)

Ser. No.	Sample No.	Coordinates N	Coordinates E	Rock Name	Geolo. Unit	Horizon of Soil	Depth (cm)	Color	Soil Profile	G. #1	S. #2	T. #3	H. #4	Vegetation
1	KK001	1562.50	4639.43	Perido. boulder	Pr	B	50	B.	A B	R	C	F	W	pri. forest
2	KK002	1562.00	4639.45	---	Pr	B	50	D.B.	B	F	C	S	W	pri. forest
3	KK003	1562.50	4640.05	---	Pr	C	50	D.B.	A B C	F	C	S	W	pri. forest
4	KK004	1562.00	4640.09	---	Pr	B	50	B.	B	R	C	S	W	sec. forest
5	KK005	1562.48	4640.53	---	Pr	B	50	B.	A B	R	C	F	W	sec. forest
6	KK006	1562.79	4641.02	---	Pr	B	50	B.	B	R	C	S	W	sec. forest
7	KK007	1562.35	4641.02	---	Pr	B	50	B.	A B	R	C	F	W	sec. forest
8	KK008	1561.99	4641.00	---	Pr	B	50	B.	B	R	C	F	W	sec. forest
9	KK009	1562.69	4641.45	---	Pr	B	50	B.	B	R	C	M	W	sec. forest
10	KK010	1562.30	4641.50	---	Pr	B	50	B.	B	R	C	S	W	sec. forest
11	KK011	1562.00	4641.50	---	Pr	B	50	B.	A B	R	C	F	W	sec. forest
12	KK012	1562.75	4642.02	Perido. boulder	Pr	B	50	Gr.G.	A B	M	C	M	W	sec. forest
13	KK013	1562.30	4641.92	---	Pr	B	50	B.	B	F	C	F	W	sec. forest
14	KK014	1562.00	4642.00	---	Pr	B	50	B.	B	R	C	M	W	sec. forest
15	KK015	1562.77	4642.49	Perido. boulder	Pr	C	50	Gr.G.	A B C	M	C	M	W	sec. forest
16	KK016	1562.48	4642.55	Perido. boulder	Pr	B	50	Gr.G.	A B	M	C	M	W	sec. forest
17	KK017	1562.75	4639.75	---	Pr	B	50	B.	A B	R	C	F	W	pri. forest
18	KK018	1562.20	4642.50	---	Pr	B	50	B.	A B	R	C	M	W	sec. forest
19	KK019	1562.75	4640.33	---	Pr	B	50	B.	B	R	C	F	W	pri. forest
20	KK020	1562.25	4639.75	---	Pr	C	50	D.B.	A B C	M	C	S	W	pri. forest

*1 Gravel: many (M), few (F), rare or none (R). *2 Grain size: sandy (S), clay (C). *3 Topography: steep (S), moderate (M), flat (F). *4 Humidity: dry (D), wet (W).

Ser. No.	Sample No.	Coordinates		Rock Name	Geolo. Unit	Horizon of Soil	Depth (cm)	Color	Soil Profile			G. *1	S. *2	T. *3	H. *4	Vegetation
		N	E						50	100	150 (cm)					
21	KK021	1562.23	4640.30	—	Pr	C	50	D.B.	A	B	C	M	C	F	W	sec. forest
22	KK022	1562.25	4640.74	—	Pr	B	50	B.	A	B		R	C	F	W	sec. forest
23	KK023	1561.68	4639.65	—	Pr	B	50	B.		B		F	C	S	W	sec. forest
24	KK024	1561.73	4640.26	—	Pr	B	50	B.		B		R	C	F	W	sec. forest
25	KK025	1561.70	4640.72	—	Pr	B	50	B.		B		R	C	M	W	sec. forest
26	KK026	1561.75	4641.27	—	Pr	B	50	B.	A	B		R	C	M	W	sec. forest
27	KK027	1561.70	4641.72	—	Pr	B	50	B.	A	B		R	C	M	W	sec. forest
28	KK028	1561.70	4642.25	—	Pr	B	50	B.	A	B		R	C	S	W	sec. forest
29	KK029	1561.23	4639.70	—	Pr	B	50	R.B.	A	B		R	C	S	W	sec. forest
30	KK030	1561.88	4645.14	—	Pr	B	50	D.B.	A	B		R	C	S	W	sec. forest
31	KK031	1561.29	4644.35	harzburgite	Pr	B	50	B.	A	B		R	C	S	W	sec. forest
32	KK032	1561.40	4644.75	—	Pr	B	50	B.		B		R	C	S	W	sec. forest
33	KK033	1561.45	4639.45	—	Pr	B	50	B.		B		F	C	S	W	sec. forest
34	KK034	1561.47	4640.10	—	Pr	B	50	B.		B		R	C	S	W	sec. forest
35	KK035	1561.94	4640.45	—	Pr	B	50	B.		B		R	C	F	W	sec. forest
36	KK036	1561.42	4640.42	—	Pr	B	50	B.		B		R	C	M	W	sec. forest
37	KK037	1561.00	4640.45	—	Pr	B	50	R.B.		B		R	C	S	W	sec. forest
38	KK038	1561.40	4641.00	—	Pr	B	50	B.		B		R	C	S	W	sec. forest
39	KK039	1560.99	4640.99	—	Pr	B	50	R.B.		B		R	C	S	W	sec. forest
40	KK040	1561.42	4641.50	—	Pr	B	50	B.		B		R	C	M	W	sec. forest

*1 Gravel: many (M), few (F), rare or none (R). *2 Grain size: sandy (S), clay (C). *3 Topography: steep (S), moderate (M), flat (F).

*4 Humidity: dry (D), wet (W).

Ser. No.	Sample No.	Coordinates N	Coordinates E	Rock Name	Geolo. Unit	Horizon of Soil	Depth (cm)	Color	Soil Profile	G. *1	S. *2	T. *3	H. *4	Vegetation
41	KK041	1561.48	4642.00	—	Pr	B	50	B.	50 100 150 (cm)	R	C	S	W	sec. forest
42	KK042	1561.24	4642.30	—	Pr	B	50	B.	B	R	C	F	W	sec. forest
43	KK043	1561.99	4642.48	—	Pr	B	50	B.	A B	R	C	S	W	sec. forest
44	KK044	1561.55	4642.58	—	Pr	B	50	D.B.	B	R	C	S	W	sec. forest
45	KK045	1561.00	4642.19	—	Pr	B	50	R.B.	A B	R	C	F	W	sec. forest
46	KK046	1561.28	4642.72	—	Pr	B	50	R.B.	A B	F	C	M	W	sec. forest
47	KK047	1560.69	4642.02	dunite	Pr	B	50	R.B.	B	R	C	F	W	sec. forest
48	KK048	1561.45	4643.02	dunite	Pr	B	50	B.	B	R	C	M	W	sec. forest
49	KK049	1561.07	4643.07	—	Pr	B	50	B.	B	F	C	M	W	sec. forest
50	KK050	1561.27	4643.22	—	Pr	B	50	B.	B	F	C	S	W	sec. forest
51	KK051	1562.15	4642.28	—	Pr	B	50	R.B.	B	F	C	M	W	sec. forest
52	KK052	1561.38	4643.52	—	Pr	B	50	D.B.	A B	R	C	S	W	sec. forest
53	KK053	1561.03	4643.51	—	Pr	B	50	D.B.	B	F	C	S	W	sec. forest
54	KK054	1561.22	4643.79	—	Pr	B	50	B.	B	F	C	S	W	sec. forest
55	KK055	1561.20	4640.23	—	Pr	B	50	R.B.	B	R	C	S	W	sec. forest
56	KK056	1561.36	4644.08	harzburgite	Pr	B	50	D.B.	B	R	C	F	W	sec. forest
57	KK057	1561.52	4644.52	harzburgite	Pr	B	50	R.B.	B	R	C	M	W	sec. forest
58	KK058	1561.08	4644.43	—	Pr	B	50	B.	A B	F	C	F	W	sec. forest
59	KK059	1561.55	4644.98	—	Pr	B	50	B.	B	R	C	F	W	sec. forest
60	KK060	1561.25	4644.98	—	Pr	B	50	R.B.	A B	R	C	F	W	sec. forest

*1 Gravel: many (M), few (F), rare or none (R). *2 Grain size: sandy (S), clay (C). *3 Topography: steep (S), moderate (M), flat (F).
 *4 Humidity: dry (D), wet (W).

Area: East of Ranau (Area K)

Ser. No.	Sample No.	Coordinates		Rock Name	Geolo. Unit	Horizon of Soil	Depth (cm)	Color	Soil Profile				G. #1	S. #2	T. #3	H. #4	Vegetation
		N	E						50	100	150	(cm)					
61	KK061	1561.23	4640.73	—	Pr	B	50	D.B.	B				R	C	S	W	sec. forest
62	KK062	1561.52	4645.32	—	Pr	B	50	D.B.	A B				R	C	M	W	sec. forest
63	KK063	1561.23	4645.34	sandstone boulder	P ₂ Cr	B	50	L.B.	B				R	S	S	W	sec. forest
64	KK064	1561.20	4641.26	—	Pr	B	50	D.B.	A B				R	C	S	W	sec. forest
65	KK065	1561.53	4645.64	—	P ₂ Cr	B	50	L.B.	B				R	C	F	W	sec. forest
66	KK066	1561.23	4641.74	—	Pr	B	50	D.B.	A B				F	C	M	W	sec. forest
67	KK067	1560.13	4644.75	—	Pr	B	50	B.	A B				R	C	F	W	sec. forest
68	KK068	1560.15	4645.28	sandstone	P ₂ Cr	B	50	Y.B.	A B				R	C	F	W	sec. forest
69	KK069	1560.89	4639.53	—	P ₂ Cr	B	50	Y.B.	A B				R	S	S	W	sec. forest
70	KK070	1560.55	4639.50	—	P ₂ Cr	B	50	Y.B.	A B				R	S	M	W	sec. forest
71	KK071	1560.94	4639.89	—	Pr	C	50	L.B.	B C				M	C	S	W	sec. forest
72	KK072	1560.47	4639.99	—	P ₂ Cr	B	50	L.B.	A B				R	S	M	W	sec. forest
73	KK073	1560.30	4640.50	—	P ₂ Cr	B	50	L.B.	A B				R	C	M	W	sec. forest
74	KK074	1560.54	4641.22	—	Pr	B	50	L.B.	A B				F	S	M	W	sec. forest
75	KK075	1560.92	4641.50	—	Pr	B	50	R.B.	B				R	C	M	W	no vegeta.
76	KK076	1560.40	4641.63	—	Q ₁	B	50	D.B.	B				R	C	M	W	no vegeta.
77	KK077	1560.67	4641.70	—	Pr	B	50	B.	B				R	C	M	W	no vegeta.
78	KK078	1561.10	4641.95	—	Pr	B	50	B.	B				R	C	M	W	no vegeta.
79	KK079	1560.37	4641.99	—	Pr	B	50	B.	B				R	C	M	W	no vegeta.
80	KK080	1560.70	4642.28	—	Pr	B	50	R.B.	B				R	C	M	W	no vegeta.

*1 Gravel: many (M), few (F), rare or none (R). *2 Grain size: sandy (S), clay (C). *3 Topography: steep (S), moderate (M), flat (F).
 ** Humidity: dry (D), wet (W).

Area: East of Ranau (Area K)

Ser. No.	Sample No.	Coordinates		Rock Name	Geolo. Unit	Horizon of Soil	Depth (cm)	Color	Soil Profile				Vegetation			
		N	E						50	100	150	(cm)		G. *1	S. *2	T. *3
81	KK081	1560.40	4642.53	—	Pr	B	50	R.B.	B			R	C	M	W	no vegeta.
82	KK082	1560.98	4642.42	—	Pr	B	50	B.	A B			R	C	F	W	sec. forest
83	KK083	1560.78	4642.46	—	Pr	B	50	D.B.	A B			R	S	M	W	sec. forest
84	KK084	1560.58	4642.56	—	Pr	B	50	R.B.	B			R	C	F	W	sec. forest
85	KK085	1561.00	4642.72	—	Pr	B	50	R.B.	A B			R	C	F	W	sec. forest
86	KK086	1560.77	4642.73	—	Pr	B	50	R.B.	A B			R	C	M	W	sec. forest
87	KK087	1560.52	4642.88	—	Pr	B	50	D.B.	A B			R	C	M	W	sec. forest
88	KK088	1560.78	4643.18	—	Pr	B	50	D.B.	A B			R	C	F	W	sec. forest
89	KK089	1561.02	4644.03	—	Pr	B	50	B.	A B			R	C	F	W	sec. forest
90	KK090	1560.57	4643.20	—	Pr	B	50	R.B.	A B			R	C	F	W	sec. forest
91	KK091	1560.30	4643.15	—	Pr	B	50	R.B.	A B			R	C	F	W	sec. forest
92	KK092	1561.05	4644.77	—	Pr	B	50	B.	A B			R	C	M	W	sec. forest
93	KK093	1560.23	4644.55	—	Pr	B	50	B.	A B			R	C	F	W	sec. forest
94	KK094	1559.99	4644.37	—	Pr	B	50	B.	A B			R	C	F	W	sec. forest
95	KK095	1561.05	4645.00	—	Pr	B	50	B.	A B			R	C	F	W	sec. forest
96	KK096	1560.40	4645.07	—	P ₂ Cr	B	50	B.	A B			R	C	F	W	sec. forest
97	KK097	1561.00	4645.33	—	P ₂ Cr	B	50	D.B.	A B			R	C	S	W	sec. forest
98	KK098	1560.28	4645.55	—	P ₂ Cr	B	50	R.B.	A B			R	C	F	W	sec. forest
99	KK099	1559.90	4644.05	harzburgite	Pr	B	50	B.	B			R	C	F	W	sec. forest
100	KK100	1560.69	4643.60	—	Pr	C	50	Gr.B.	A B			F	C	M	W	sec. forest

*1 Gravel: many (M), few (F), rare or none (R). *2 Grain size: sandy (S), clay (C). *3 Topography: steep (S), moderate (M), flat (F). *4 Humidity: dry (D), wet (W).

Ser. No.	Sample No.	Coordinates		Rock Name	Geolo. Unit	Horizon of Soil	Depth (cm)	Color	Soil Profile			G. #1	S. #2	T. #3	H. #4	Vegetation
		N	E						50	100	150 (cm)					
101	KK101	1560.15	4645.80	sandstone	P ₂ Cr	B	50	B.	A	B		R	C	F	W	sec. forest
102	KK102	1559.39	4644.60	—	P ₂ Cr	B	50	B.		B		R	C	F	W	sec. forest
103	KK103	1560.75	4643.85	—	Pr	B	50	Gr.B.	A	B		R	C	M	W	sec. forest
104	KK104	1560.00	4645.00	—	P ₂ Cr	B	50	B.	A	B		R	C	F	W	sec. forest
105	KK105	1560.25	4644.20	—	Pr	B	50	B.		B		R	C	M	W	sec. forest
106	KK106	1560.65	4644.25	—	Pr	B	50	D.B.		B		R	C	F	W	sec. forest
107	KK107	1560.02	4645.55	—	P ₂ Cr	B	50	B.	A	B		R	C	F	W	sec. forest
108	KK108	1560.43	4644.58	harzburgite	Pr	B	50	R.B.	A	B		R	C	F	W	sec. forest
109	KK109	1560.00	4645.98	—	P ₂ Cr	B	50	Y.B.		B		R	C	F	W	sec. forest
110	KK110	1560.75	4644.64	—	Pr	B	50	R.B.		B		R	C	F	W	sec. forest
111	KK111	1560.63	4644.92	—	Pr	B	50	R.B.	A	B		R	C	F	W	sec. forest
112	KK112	1560.74	4645.15	—	P ₂ Cr	B	50	B.		B		R	C	F	W	sec. forest
113	KK113	1560.45	4643.66	perid. boulder	Pr	C	50	Gr.G.	A	B		F	C	S	W	sec. forest
114	KK114	1560.48	4643.93	dunite	Pr	B	50	D.B.	A	B		R	C	S	W	sec. forest
115	KK115	1560.23	4643.65	—	Pr	B	50	D.B.	A	B		R	C	F	W	sec. forest
116	KK116	1560.25	4643.97	—	Pr	B	50	B.	A	B		R	C	S	W	sec. forest
117	KK117	1560.08	4643.45	perid. boulder	Pr	C	50	G.B.	A	B		F	C	M	W	sec. forest
118	KK118	1560.08	4642.92	—	Pr	B	50	B.G.	A	B		R	C	M	W	sec. forest
119	KK119	1560.13	4642.60	dunite	Pr	B	50	D.B.	A	B		R	C	F	W	sec. forest
120	KK120	1560.13	4642.17	dunite	Pr	B	50	B.		B		R	C	F	W	sec. forest

*¹ Gravel: many (M), few (F), rare or none (R). *² Grain size: sandy (S), clay (C). *³ Topography: steep (S), moderate (M), flat (F).
 *⁴ Humidity: dry (D), wet (W).

Area: East of Ranau (Area K)

Ser. No.	Sample No.	Coordinates		Rock Name	Geolo. Unit	Horizon of Soil	Depth (cm)	Color	Soil Profile				G. *1	S. *2	T. *3	H. *4	Vegetation
		N	E						50	100	150	(cm)					
121	KK201	1562.50	4639.43	perid. boulder	Pr	B	150	L.B.	A		B		R	C	F	W	pri. forest
122	KK202	1562.00	4639.45	—	Pr	B	150	D.B.			B		F	C	S	W	pri. forest
123	KK203	1562.50	4640.05	—	Pr	C	100	D.B.	A	E	C		F	C	S	W	pri. forest
124	KK204	1562.00	4640.09	—	Pr	B	150	B.			B		R	C	S	W	sec. forest
125	KK205	1562.48	4640.53	—	Pr	C	150	B.	A		B	C	F	C	F	W	sec. forest
126	KK206	1562.79	4641.02	—	Pr	B	150	B.			B		R	C	S	W	sec. forest
127	KK207	1562.35	4641.02	—	Pr	B	150	B.	A		B		R	C	F	W	sec. forest
128	KK208	1561.99	4641.00	—	Pr	B	150	B.			B		R	C	F	W	sec. forest
129	KK209	1562.69	4641.45	—	Pr	B	150	B.			B		R	C	M	W	sec. forest
130	KK210	1562.30	4641.50	—	Pr	B	150	B.			B		F	C	S	W	sec. forest
131	KK211	1562.00	4641.50	—	Pr	B	150	R.B.	A		B		R	C	F	W	sec. forest
132	KK212	1562.75	4642.02	perid. boulder	Pr	C	140	Gr.G.	A		B	C	M	C	M	W	sec. forest
133	KK213	1562.30	4641.92	—	Pr	B	150	R.B.			B		F	C	F	W	sec. forest
134	KK214	1562.00	4642.00	—	Pr	B	150	B.			B		R	C	M	W	sec. forest
135	KK215	1562.77	4642.49	perid. boulder	Pr	C	120	Gr.G.	A	B	C		M	C	M	W	sec. forest
136	KK216	1562.48	4642.55	perid. boulder	Pr	C	120	Gr.G.	A		B	C	M	C	M	W	sec. forest
137	KK217	1562.75	4639.75	—	Pr	B	150	Y.B.	A		B		R	C	F	W	pri. forest
138	KK218	1562.20	4642.50	—	Pr	B	150	B.	A		B		R	C	M	W	sec. forest
139	KK219	1562.75	4640.33	—	Pr	B	150	Y.B.			B		R	C	F	W	sec. forest
140	KK220	1562.25	4639.75	—	Pr	C	100	D.B.	A	B	C		M	C	S	W	pri. forest

*1 Gravel: many (M), few (F), rare or none (R). *2 Grain size: sandy (S), clay (C). *3 Topography: steep (S), moderate (M), flat (F).
 *4 Humidity: dry (D), wet (W).

Ser. No.	Sample No.	Coordinates N E	Rock Name	Geolo. Unit	Horizon of Soil	Depth (cm)	Color	Soil Profile 50 100 150 (cm)	G. #1	S. #2	T. #3	H. #4	Vegetation
141	KK221	1562.23 4640.30	—	Pr	C	150	D.B.	A B C	M	C	F	W	sec. forest
142	KK222	1562.25 4640.74	—	Pr	B	150	R.B.	A B	R	C	F	W	sec. forest
143	KK223	1561.68 4639.65	—	Pr	B	150	B.	B	F	C	S	W	sec. forest
144	KK224	1561.73 4640.26	—	Pr	B	150	B.	B	R	C	F	W	sec. forest
145	KK225	1561.70 4640.72	—	Pr	B	150	B.	B	R	C	M	W	sec. forest
146	KK226	1561.75 4641.27	—	Pr	B	150	B.	A B	R	C	M	W	sec. forest
147	KK227	1561.70 4641.72	—	Pr	B	150	B.	A B	R	C	M	W	sec. forest
148	KK228	1561.70 4642.25	—	Pr	B	150	B.	A B	R	C	S	W	sec. forest
149	KK229	1561.23 4639.70	—	Pr	B	150	B.	B	R	C	S	W	sec. forest
150	KK230	1561.38 4645.14	—	Pr	C	110	Gr.B.	A B C	F	C	S	W	sec. forest
151	KK231	1561.29 4644.35	harzburgite	Pr	B	150	D.B.	A B	R	C	S	W	sec. forest
152	KK232	1561.40 4644.75	—	Pr	B	150	B.	A B	R	C	S	W	sec. forest
153	KK233	1561.45 4639.45	—	Pr	B	150	D.B.	B	F	C	S	W	sec. forest
154	KK234	1561.47 4640.10	—	Pr	B	150	R.B.	B	R	C	S	W	sec. forest
155	KK235	1561.94 4640.45	—	Pr	B	150	B.	B	R	C	F	W	sec. forest
156	KK236	1561.42 4640.42	—	Pr	B	150	B.	B	R	C	M	W	sec. forest
157	KK237	1561.00 4640.45	—	Pr	B	150	R.B.	B	R	C	S	W	sec. forest
158	KK238	1561.40 4641.00	—	Pr	B	150	B.	B	R	C	S	W	sec. forest
159	KK239	1560.99 4640.99	—	Pr	B	150	R.B.	B	R	C	S	W	sec. forest
160	KK240	1561.42 4641.50	—	Pr	B	150	B.	B	R	C	M	W	sec. forest

*1 Gravel: many (M), few (F), rare or none (R). *2 Grain size: sandy (S), clay (C). *3 Topography: steep (S), moderate (M), flat (F).
*4 Humidity: dry (D), wet (W).

Area: East of Ranau (Area K)

Ser. No.	Sample No.	Coordinates		Rock Name	Geolo. Unit	Horizon of Soil	Depth (cm)	Color	Soil Profile			G. #1	S. #2	T. #3	H. #4	Vegetation
		N	E						50	100	150 (cm)					
161	KK241	1561.48	4642.00	—	Pr	B	150	B.		B		R	C	S	W	sec. forest
162	KK242	1561.24	4642.30	—	Pr	B	150	B.		B		R	C	F	W	sec. forest
163	KK243	1561.99	4642.48	—	Pr	B	150	B.		B		R	C	S	W	sec. forest
164	KK244	1561.55	4642.58	—	Pr	B	150	D.B.		B		R	C	S	W	sec. forest
165	KK245	1561.00	4642.19	—	Pr	B	150	B.		B		R	C	F	W	sec. forest
166	KK246	1561.28	4642.72	—	Pr	B	150	Y.B.		B		F	C	M	W	sec. forest
167	KK247	1560.69	4642.02	dunite	Pr	B	150	R.B.		B		R	C	F	W	sec. forest
168	KK248	1561.45	4643.02	dunite	Pr	B	150	B.		B		R	C	M	W	sec. forest
169	KK249	1561.07	4643.07	—	Pr	B	150	B.		B		R	C	M	W	sec. forest
170	KK250	1561.27	4643.22	—	Pr	B	150	B.		B		F	C	M	W	sec. forest
171	KK251	1562.15	4642.28	—	Pr	C	150	D.B.		B	C	F	C	M	W	sec. forest
172	KK252	1561.38	4643.52	—	Pr	B	150	B.G.	A	B		R	C	S	W	sec. forest
173	KK253	1561.03	4643.51	—	Pr	B	150	D.B.		B		F	C	S	W	sec. forest
174	KK254	1561.22	4643.79	—	Pr	B	150	B.		B		F	C	S	W	sec. forest
175	KK255	1561.20	4640.23	—	Pr	B	150	B.		B		F	C	S	W	sec. forest
176	KK256	1561.36	4644.08	harzburgite	Pr	B	150	D.B.		B		R	C	F	W	sec. forest
177	KK257	1561.52	4644.52	harzburgite	Pr	B	150	R.B.		B		R	C	M	W	sec. forest
178	KK258	1561.08	4644.43	—	Pr	C	150	B.		B	C	F	C	F	W	sec. forest
179	KK259	1561.55	4644.98	—	Pr	B	150	B.		B		R	C	F	W	sec. forest
180	KK260	1561.25	4644.98	—	Pr	B	150	R.B.		B		R	C	F	W	sec. forest

*1 Gravel: many (M), few (F), rare or none (R). *2 Grain size: sandy (S), clay (C). *3 Topography: steep (S), moderate (M), flat (F). *4 Humidity: dry (D), wet (W).

Ser. No.	Sample No.	Coordinates		Rock Name	Geolo. Unit	Horizon of Soil	Depth (cm)	Color	Soil Profile				G. #1	S. #2	T. #3	H. #4	Vegetation
		N	E						50	100	150	(cm)					
181	KK261	1561.23	4640.73	—	Pr	C	100	B.	B	C		M	C	S	W	sec. forest	
182	KK262	1561.52	4645.32	—	Pr	C	140	G.B.	A	B	C	F	C	M	W	sec. forest	
183	KK263	1561.23	4645.34	sandstone boulder	P ₂ Cr	C	100	L.B.	B	C		F	C	S	W	sec. forest	
184	KK264	1561.20	4641.26	—	Pr	B	150	D.B.	A	B		F	C	S	W	sec. forest	
185	KK265	1561.53	4645.64	—	P ₂ Cr	B	150	L.B.		B		R	C	F	W	sec. forest	
186	KK266	1561.23	4641.74	—	Pr	C	150	B.	A	B	C	R	C	M	W	sec. forest	
187	KK267	1560.13	4644.75	—	Pr	B	150	B.	A	B		R	C	F	W	sec. forest	
188	KK268	1560.15	4645.28	sandstone	P ₂ Cr	B	150	Y.B.	A	B		R	C	F	W	sec. forest	
189	KK269	1560.89	4639.53	—	P ₂ Cr	C	150	L.B.	A	B	C	F	C	S	W	sec. forest	
190	KK270	1560.55	4639.50	—	P ₂ Cr	C	150	L.B.	A	B	C	R	S	M	W	sec. forest	
191	KK271	1560.94	4639.89	—	Pr	C	150	Y.B.	B	C		M	C	S	W	sec. forest	
192	KK272	1560.47	4639.99	—	P ₂ Cr	C	150	L.B.	A	B	C	F	C	M	W	sec. forest	
193	KK273	1560.30	4640.50	—	P ₂ Cr	B	150	L.B.	A	B		R	C	M	W	sec. forest	
194	KK274	1560.54	4641.22	—	Pr	B	150	L.B.	A	B		M	S	M	W	sec. forest	
195	KK275	1560.92	4641.50	—	Pr	B	150	R.B.		B		R	C	M	W	no vegeta.	
196	KK276	1560.40	4641.63	—	Q ₁	B	150	Gr.B.		B		F	C	M	W	no vegeta.	
197	KK277	1560.67	4641.70	—	Pr	B	150	B.		B		R	C	M	W	no vegeta.	
198	KK278	1561.10	4641.95	—	Pr	C	150	Gr.B.	B	C		F	C	M	W	no vegeta.	
199	KK279	1560.37	4641.99	—	Pr	B	150	R.B.		B		R	C	M	W	no vegeta.	
200	KK280	1560.70	4642.28	—	Pr	B	150	R.B.		B		R	C	M	W	no vegeta.	

*¹ Gravel: many (M), few (F), rare or none (R). *² Grain size: sandy (S), clay (C). *³ Topography: steep (S), moderate (M), flat (F).
 *⁴ Humidity: dry (D), wet (W).

Area: East of Ranau (Area K)

Ser. No.	Sample No.	Coordinates		Rock Name	Geolo. Unit	Horizon of Soil	Depth (cm)	Color	Soil Profile			G. *1	S. *2	T. *3	H. *4	Vegetation
		N	E						50	100	150 (cm)					
201	KK281	1560.40	4642.53	---	Pr	B	150	R.B.		B		R	C	M	W	no vegeta.
202	KK282	1560.98	4642.42	---	Pr	B	150	B.		B		R	C	F	W	sec. forest
203	KK283	1560.78	4642.46	---	Pr	B	85	D.B.		B		R	C	M	W	sec. forest
204	KK284	1560.58	4642.56	---	Pr	B	150	B.		B		R	C	F	W	sec. forest
205	KK285	1561.00	4642.72	---	Pr	B	150	D.B.		B		R	C	F	W	sec. forest
206	KK286	1560.77	4642.73	---	Pr	B	150	B.		B		R	C	M	W	sec. forest
207	KK287	1560.52	4642.88	---	Pr	B	150	D.B.		B		R	C	M	W	sec. forest
208	KK288	1560.78	4643.18	---	Pr	B	150	B.		B		R	C	F	W	sec. forest
209	KK289	1561.02	4644.03	---	Pr	B	150	B.		B		R	C	F	W	sec. forest
210	KK290	1560.57	4643.20	---	Pr	B	150	B.		B		R	C	F	W	sec. forest
211	KK291	1560.30	4643.15	---	Pr	B	150	D.B.		B		R	C	F	W	sec. forest
212	KK292	1561.05	4644.77	---	Pr	B	150	B.		B		R	C	M	W	sec. forest
213	KK293	1560.23	4644.55	---	Pr	B	150	B.		B		R	C	F	W	sec. forest
214	KK294	1559.99	4644.37	---	Pr	B	150	B.		B		R	C	F	W	sec. forest
215	KK295	1561.05	4645.00	---	Pr	B	150	B.		B		R	C	F	W	sec. forest
216	KK296	1560.40	4645.07	---	P ₂ Cr	B	150	B.		B		R	C	F	W	sec. forest
217	KK297	1561.00	4645.33	harzburgite	P ₂ Cr	B	150	D.B.		B		R	C	S	W	sec. forest
218	KK298	1560.28	4645.55	---	P ₂ Cr	B	150	R.B.		B		R	C	F	W	sec. forest
219	KK299	1559.90	4644.05	harzburgite	Pr	B	150	B.		B		R	C	F	W	sec. forest
220	KK300	1560.69	4643.60	---	Pr	C	70	Gr.B.	A	B	C	F	C	M	W	sec. forest

*1 Gravel: many (M), few (F), rare or none (R). *2 Grain size: sandy (S), clay (C). *3 Topography: steep (S), moderate (M), flat (F).
*4 Humidity: dry (D), wet (W).

Ser. No.	Sample No.	Coordinates		Rock Name	Geolo. Unit	Horizon of Soil	Depth (cm)	Color	Soil Profile			G ₁ #1	S ₂ #2	T ₃ #3	H ₄ #4	Vegetation
		N	E						50	100	150 (cm)					
221	KK301	1560.15	4645.80	sandstone	P ₂ Cr	B	150	B.	A	B		R	C	F	W	sec. forest
222	KK302	1559.39	4644.60	—	P ₂ Cr	B	150	D.B.		B		R	C	F	W	sec. forest
223	KK303	1560.75	4643.85	—	Pr	C	80	Gr.B.	A	B	C	F	C	M	W	sec. forest
224	KK304	1560.00	4645.00	—	P ₂ Cr	B	150	B.	A	B		R	C	F	W	sec. forest
225	KK305	1560.25	4644.20	—	Pr	B	150	B.		B		R	C	M	W	sec. forest
226	KK306	1560.65	4644.25	dunite	Pr	B	150	D.B.		B		R	C	F	W	sec. forest
227	KK307	1560.02	4645.55	sandstone	P ₂ Cr	B	150	B.	A	B		F	C	F	W	sec. forest
228	KK308	1560.43	4644.58	harzburgite	Pr	B	150	R.B.	A	B		R	C	F	W	sec. forest
229	KK309	1560.00	4645.98	—	P ₂ Cr	B	150	Y.B.		B		R	C	F	W	sec. forest
230	KK310	1560.75	4644.64	—	Pr	B	150	R.B.		B		R	C	F	W	sec. forest
231	KK311	1560.63	4644.92	—	Pr	B	150	R.B.	A	B		R	C	F	W	sec. forest
232	KK312	1560.74	4645.15	—	P ₂ Cr	B	150	B.		B		R	C	F	W	sec. forest
233	KK313	1560.45	4643.66	perid. boulder	Pr	C	80	Gr.B.	A	B	C	F	C	S	W	sec. forest
234	KK314	1560.48	4643.93	dunite	Pr	B	150	D.B.	A	B		R	C	S	W	sec. forest
235	KK315	1560.23	4643.65	—	Pr	C	120	Gr.B.	A	B	C	F	C	F	W	sec. forest
236	KK316	1560.25	4643.97	—	Pr	C	100	Gr.B.	A	B	C	F	C	S	W	sec. forest
237	KK317	1560.08	4643.45	perid. boulder	Pr	C	90	Gr.B.	A	B	C	F	C	M	W	sec. forest
238	KK318	1560.08	4642.92	—	Pr	B	150	B.	A	B		R	C	M	W	sec. forest
239	KK319	1560.13	4642.60	dunite	Pr	C	110	Gr.B.	A	B	C	F	C	F	W	sec. forest
240	KK320	1560.13	4642.17	dunite	Pr	B	150	B.		B		R	C	F	W	sec. forest

*¹ Gravel: many (M), few (F), rare or none (R). *² Grain size: sandy (S), clay (C). *³ Topography: steep (S), moderate (M), flat (F). *⁴ Humidity: dry (D), wet (W).

Appendix 5

Analytical results of soil geochemical
samples in Area K

List of Geochemical Analysis(1)

Ser. No.	Sample No.	X-coord	Y-coord	Location (km)	Al %	Co ppm	Cr ppm	Fe %	Ni ppm
1	KK001	4639.430	1562.500		5.84	634	1051	42.90	5210
2	KK002	4639.450	1562.000		9.29	706	8574	32.76	3430
3	KK003	4640.050	1562.500		1.61	223	2972	12.21	3976
4	KK004	4640.090	1562.000		9.42	513	8787	29.85	4076
5	KK005	4640.530	1562.480		6.13	539	9241	25.77	3860
6	KK006	4641.020	1562.790		9.28	231	9412	35.73	3332
7	KK007	4641.020	1562.350		10.84	212	7627	33.59	2309
8	KK008	4641.000	1561.990		11.06	63	8541	36.64	2075
9	KK009	4641.450	1562.690		10.77	96	9035	35.95	3225
10	KK010	4641.500	1562.300		10.30	155	8006	35.63	2150
11	KK011	4641.500	1562.000		9.50	200	8500	32.37	3217
12	KK012	4642.020	1562.750		3.16	253	4001	14.38	3108
13	KK013	4641.920	1562.300		11.19	35	9026	33.75	1679
14	KK014	4642.000	1562.000		8.41	405	7324	31.76	3963
15	KK015	4642.490	1562.770		2.72	229	3209	10.82	2784
16	KK016	4642.550	1562.480		4.63	263	5469	16.00	4025
17	KK017	4639.750	1562.750		3.79	422	7107	47.01	5475
18	KK018	4642.500	1562.200		7.38	638	7521	30.04	8636
19	KK019	4640.330	1562.750		8.78	530	9788	34.54	3473
20	KK020	4639.750	1562.250		2.37	530	7484	22.85	6335
21	KK021	4640.300	1562.230		3.07	233	4341	16.00	4140
22	KK022	4640.740	1562.250		10.04	250	9473	35.15	3347
23	KK023	4639.550	1561.680		9.64	182	8478	34.94	2789
24	KK024	4640.260	1561.730		8.97	243	9812	34.07	3866
25	KK025	4640.720	1561.700		6.76	426	11023	39.97	4648
26	KK026	4641.270	1561.750		11.27	356	7619	30.08	2217
27	KK027	4641.720	1561.700		10.76	337	8015	32.49	2375
28	KK028	4642.250	1561.700		9.92	248	6794	31.16	2271
29	KK029	4639.700	1561.230		5.78	506	9268	40.25	5394
30	KK030	4645.140	1561.380		5.08	554	6159	18.45	3852
31	KK031	4644.350	1561.290		7.45	401	8074	29.24	4572
32	KK032	4644.750	1561.400		9.71	412	6377	28.62	2811
33	KK033	4639.450	1561.450		5.56	338	6793	21.73	5040
34	KK034	4640.100	1561.470		6.78	266	11064	40.68	4887
35	KK035	4640.450	1561.940		9.87	145	8332	33.49	2256
36	KK036	4640.420	1561.420		4.60	810	10092	43.10	7955
37	KK037	4640.450	1561.000		7.42	403	7748	30.48	3601
38	KK038	4641.000	1561.000		10.26	173	8410	35.03	2437
39	KK039	4640.990	1560.990		6.22	553	9867	37.77	4923
40	KK040	4641.500	1561.420		8.60	246	9281	35.32	2839
41	KK041	4642.000	1561.480		10.73	227	7689	32.63	2490
42	KK042	4642.300	1561.240		10.15	137	7357	34.15	1904
43	KK043	4642.480	1561.990		9.26	420	7987	31.11	3417
44	KK044	4642.580	1561.550		7.38	447	7547	24.56	4429
45	KK045	4642.190	1561.000		8.90	145	6865	28.11	2008
46	KK046	4642.720	1561.280		6.72	605	9453	41.09	5429
47	KK047	4642.020	1560.690		7.17	524	9180	35.19	5130
48	KK048	4643.020	1561.150		9.21	183	8170	32.94	3174
49	KK049	4643.070	1561.070		10.21	195	8693	36.61	3543
50	KK050	4643.220	1561.270		9.07	313	8768	31.79	3784

List of Geochemical Analysis (2)

Ser. No.	Sample No.	X-coord	Y-coord	Al %	Co ppm	Cr ppm	Fe %	Ni ppm
51	KK051	4642.280	1561.150	9.09	90	10003	38.48	2950
52	KK052	4643.520	1561.380	5.24	801	7697	20.09	4971
53	KK053	4643.510	1561.030	6.29	658	8007	24.49	4377
54	KK054	4643.790	1561.220	7.78	319	6780	26.49	5198
55	KK055	4640.230	1561.200	5.63	344	11607	42.47	5134
56	KK056	4644.080	1561.360	7.12	454	7111	25.81	5210
57	KK057	4644.520	1561.520	7.15	482	8737	36.52	4692
58	KK058	4644.430	1561.080	7.83	477	8050	29.45	4880
59	KK059	4644.980	1561.550	10.00	107	7625	32.59	1917
60	KK060	4644.980	1561.250	8.49	492	8232	29.85	4576
61	KK061	4640.730	1561.230	7.01	328	6449	22.25	3049
62	KK062	4645.320	1561.520	4.10	478	6740	19.56	4229
63	KK063	4645.340	1561.230	10.65	20	94	5.36	85
64	KK064	4641.260	1561.200	8.25	474	7540	26.55	3753
65	KK065	4645.640	1561.530	10.19	9	85	5.15	38
66	KK066	4641.740	1561.230	5.90	606	7268	17.40	3381
67	KK067	4644.750	1560.130	8.04	412	6755	28.88	2932
68	KK068	4645.280	1560.150	8.96	198	8083	32.62	3307
69	KK069	4639.530	1560.890	7.68	10	123	3.95	47
70	KK070	4639.500	1560.550	6.37	1	43	2.74	10
71	KK071	4639.890	1560.940	11.52	123	598	10.89	341
72	KK072	4639.990	1560.470	9.69	18	166	5.98	103
73	KK073	4640.500	1560.300	8.40	11	103	4.52	27
74	KK074	4641.220	1560.540	9.23	28	110	10.61	53
75	KK075	4641.500	1560.920	9.22	244	7987	32.47	2918
76	KK076	4641.630	1560.400	3.73	631	12196	26.39	4629
77	KK077	4641.700	1560.670	9.89	219	6608	30.43	2047
78	KK078	4641.950	1561.100	9.91	418	6392	27.32	3815
79	KK079	4641.990	1560.370	9.83	234	6885	29.19	2289
80	KK080	4642.280	1560.700	9.75	130	7247	34.02	2055
81	KK081	4642.530	1560.400	8.41	270	7663	30.98	3251
82	KK082	4642.420	1560.980	8.66	254	8302	34.83	3420
83	KK083	4642.460	1560.780	7.47	518	7775	23.82	3554
84	KK084	4642.560	1560.580	6.80	108	9047	41.83	4087
85	KK085	4642.720	1561.000	7.65	138	9541	40.25	3666
86	KK086	4642.730	1560.770	6.31	133	10781	42.09	4373
87	KK087	4642.880	1560.520	6.52	227	10062	41.84	4327
88	KK088	4643.180	1560.780	7.16	216	10359	38.88	4551
89	KK089	4644.030	1561.020	8.78	553	8837	29.84	3873
90	KK090	4643.200	1560.570	6.26	129	10178	42.93	4017
91	KK091	4643.150	1560.300	5.45	290	10307	38.33	4326
92	KK092	4644.770	1561.050	7.68	308	8532	37.71	4887
93	KK093	4644.550	1560.230	7.87	404	7281	29.61	3842
94	KK094	4644.370	1559.990	9.31	383	7772	31.60	3793
95	KK095	4645.000	1561.050	10.28	151	6942	30.16	2605
96	KK096	4645.070	1560.400	8.54	350	7011	31.77	4056
97	KK097	4645.330	1561.000	8.86	370	4721	18.64	2657
98	KK098	4645.550	1560.280	10.76	43	7550	32.60	1795
99	KK099	4644.050	1559.900	8.57	367	7448	35.61	3609
100	KK100	4643.600	1560.690	1.64	211	1345	11.64	3346

List of Geochemical Analysis (3)

Ser. No.	Sample No.	X-coord	Y-coord	Location (km)	Al %	Co ppm	Cr ppm	Fe %	Ni ppm
101	KK101	4645.800	1560.150		10.16	86	4784	22.31	1172
102	KK102	4644.600	1559.390		8.34	240	6045	28.80	2426
103	KK103	4643.850	1560.750		2.18	249	2822	11.76	2889
104	KK104	4645.000	1560.000		9.75	137	6421	28.08	2600
105	KK105	4644.200	1560.250		8.43	291	6754	30.58	3145
106	KK106	4644.250	1560.650		9.09	197	6927	29.42	2811
107	KK107	4645.550	1560.020		11.03	87	3594	23.37	1480
108	KK108	4644.580	1560.430		9.25	102	9568	38.33	2980
109	KK109	4645.980	1560.000		12.52	187	5215	28.25	2288
110	KK110	4644.640	1560.750		9.66	178	7850	35.39	3138
111	KK111	4644.920	1560.630		11.54	88	8925	38.24	2708
112	KK112	4645.150	1560.740		11.25	246	7762	34.29	3269
113	KK113	4643.660	1560.450		3.92	198	2223	11.18	2259
114	KK114	4643.930	1560.480		5.42	434	4005	18.60	3773
115	KK115	4643.650	1560.230		6.82	604	5351	20.32	3948
116	KK116	4643.970	1560.250		5.01	292	3082	16.70	2880
117	KK117	4643.450	1560.080		6.22	146	2060	9.11	2053
118	KK118	4642.920	1560.080		5.98	323	4988	15.30	2996
119	KK119	4642.600	1560.130		8.90	319	6463	23.05	3334
120	KK120	4642.170	1560.130		12.60	227	8662	38.82	4092

List of Geochemical Analysis (1)

Ser. No.	Sample No.	X-coord	Y-coord	Location (km)	Al %	Co ppm	Cr ppm	Fe %	Ni ppm
1	KK201	4639.430	1562.500		9.02	1543	10083	39.89	4138
2	KK202	4639.450	1562.000		10.99	584	6460	28.78	4623
3	KK203	4640.050	1562.500		4.47	359	7833	16.81	2534
4	KK204	4640.090	1562.000		12.53	433	8601	33.11	3691
5	KK205	4640.530	1562.480		6.47	495	7422	28.16	3857
6	KK206	4641.020	1562.790		9.34	263	9096	37.09	3430
7	KK207	4641.020	1562.350		10.31	152	6256	31.57	2011
8	KK208	4641.000	1561.990		10.13	101	6668	35.09	2135
9	KK209	4641.450	1562.690		9.46	139	7609	33.28	3549
10	KK210	4641.500	1562.300		10.29	117	6736	34.94	1898
11	KK211	4641.500	1562.000		9.42	280	7101	31.69	3512
12	KK212	4642.020	1562.750		3.48	160	1453	10.04	2645
13	KK213	4641.920	1562.300		10.83	32	7839	34.01	1625
14	KK214	4642.000	1562.000		7.80	362	6510	30.58	4073
15	KK215	4642.490	1562.770		2.49	194	2733	8.97	1944
16	KK216	4642.550	1562.480		2.92	133	2581	13.58	3845
17	KK217	4639.750	1562.750		2.75	1849	5187	47.29	4048
18	KK218	4642.500	1562.200		7.01	560	5981	25.15	8789
19	KK219	4640.330	1562.750		8.07	568	9179	32.54	4134
20	KK220	4639.750	1562.250		1.72	414	5203	20.49	5881
21	KK221	4640.300	1562.230		2.75	270	3155	13.17	3591
22	KK222	4640.740	1562.250		10.16	264	9049	34.62	3551
23	KK223	4639.650	1561.680		7.91	504	6487	26.28	3710
24	KK224	4640.260	1561.730		8.44	443	8421	36.14	4379
25	KK225	4640.720	1561.700		5.27	608	8580	38.48	5542
26	KK226	4641.270	1561.750		10.78	260	6361	31.49	2354
27	KK227	4641.720	1561.700		10.07	311	7492	32.51	2280
28	KK228	4642.250	1561.700		10.16	195	6741	32.52	2258
29	KK229	4639.700	1561.230		5.71	571	8963	39.79	5976
30	KK230	4645.140	1561.380		2.92	234	2900	12.14	3205
31	KK231	4644.350	1561.290		6.68	362	7279	26.18	5163
32	KK232	4644.750	1561.400		9.11	359	5824	27.83	2813
33	KK233	4639.450	1561.450		4.21	231	4580	15.65	5107
34	KK234	4640.100	1561.470		6.02	229	9276	36.11	4212
35	KK235	4640.450	1561.940		9.36	136	7262	33.35	2234
36	KK236	4640.420	1561.420		3.05	793	7560	41.75	10136
37	KK237	4640.450	1561.000		6.38	424	9152	31.08	3838
38	KK238	4641.000	1561.400		9.75	167	8042	33.68	2401
39	KK239	4640.980	1560.990		5.19	801	8380	35.78	5594
40	KK240	4641.500	1561.420		8.01	249	8583	34.78	2657
41	KK241	4642.000	1561.480		9.91	179	6862	31.16	2335
42	KK242	4642.300	1561.240		9.21	194	5187	30.80	2345
43	KK243	4642.480	1561.990		6.56	343	7503	30.06	3701
44	KK244	4642.590	1561.550		6.71	473	7287	24.51	5125
45	KK245	4642.190	1561.000		9.35	165	6880	29.47	2097
46	KK246	4642.720	1561.280		4.45	879	8942	40.83	6258
47	KK247	4642.020	1560.690		5.86	449	7444	28.18	4107
48	KK248	4643.020	1561.450		8.59	166	7618	31.19	2976
49	KK249	4643.070	1561.070		8.97	263	8515	34.52	4093
50	KK250	4643.220	1561.270		8.74	234	7643	32.33	3520

List of Geochemical Analysis (2)

Ser. No.	Sample No.	X-coord	Y-coord	Location (km)	Al %	Co ppm	Cr ppm	Fe %	Ni ppm
51	KK251	4542.280	1562.150		7.57	138	8255	35.95	2953
52	KK252	4543.520	1561.380		4.64	609	7898	19.27	5162
53	KK253	4543.510	1561.030		6.62	724	7430	24.12	4737
54	KK254	4543.790	1561.220		5.50	254	5533	19.97	4538
55	KK255	4540.230	1561.200		4.49	540	8636	38.42	5653
56	KK256	4544.080	1561.360		6.42	447	6550	23.23	4355
57	KK257	4544.520	1561.520		5.49	487	9790	35.77	4565
58	KK258	4544.430	1561.080		7.22	525	7210	27.73	5096
59	KK259	4544.980	1561.550		9.26	119	7135	31.41	2053
60	KK260	4544.980	1561.250		6.55	263	6675	19.80	4408
61	KK261	4540.730	1561.230		4.38	230	4550	16.24	4723
62	KK262	4545.320	1561.520		1.86	223	2859	12.42	3689
63	KK263	4545.340	1561.230		10.37	20	123	5.33	84
64	KK264	4541.260	1561.200		9.13	472	7054	25.90	4112
65	KK265	4545.540	1561.580		8.17	4	79	4.03	40
66	KK266	4541.740	1561.230		3.64	432	5822	25.69	3480
67	KK267	4544.750	1560.130		8.06	358	6437	29.77	3064
68	KK268	4545.280	1560.150		8.82	466	7248	31.14	4063
69	KK269	4539.530	1560.890		6.29	6	78	4.13	17
70	KK270	4539.500	1560.550		5.66	3	25	2.58	7
71	KK271	4539.890	1560.940		11.43	51	319	9.64	263
72	KK272	4539.990	1560.470		10.56	45	274	6.44	221
73	KK273	4540.500	1560.300		7.87	5	50	4.95	24
74	KK274	4541.220	1560.540		10.00	19	117	7.38	91
75	KK275	4541.500	1560.920		9.72	260	7301	33.79	2951
76	KK276	4541.630	1560.400		4.02	400	8615	27.02	5099
77	KK277	4541.700	1560.670		10.30	152	5528	27.84	1565
78	KK278	4541.950	1561.100		7.08	303	5615	21.39	3872
79	KK279	4541.990	1560.370		7.88	429	7562	33.98	2955
80	KK280	4542.280	1560.700		7.85	323	6802	32.15	3025
81	KK281	4542.530	1560.400		8.79	390	7609	32.27	3687
82	KK282	4542.420	1560.980		9.60	213	6944	33.14	2245
83	KK283	4542.460	1560.760		6.39	322	5824	20.06	2816
84	KK284	4542.560	1560.580		6.79	205	7889	41.07	5507
85	KK285	4542.720	1561.000		7.37	132	9100	40.84	3853
86	KK286	4542.730	1560.770		5.84	231	11315	42.35	5318
87	KK287	4542.880	1560.520		7.03	373	8953	39.73	5452
88	KK288	4543.180	1560.750		7.04	198	10801	40.07	4430
89	KK289	4544.030	1561.020		7.41	490	7777	26.68	3602
90	KK290	4543.200	1560.570		6.11	193	9552	42.45	5160
91	KK291	4543.150	1560.300		5.71	240	10674	42.63	3990
92	KK292	4544.770	1561.050		4.64	502	8902	37.29	9049
93	KK293	4544.550	1560.230		8.67	357	7424	30.02	3496
94	KK294	4544.370	1559.990		9.41	177	8092	31.64	3233
95	KK295	4545.000	1561.050		10.01	154	6728	30.11	2538
96	KK296	4545.070	1560.400		8.28	528	7352	31.02	5912
97	KK297	4545.330	1561.000		8.06	337	4874	17.80	2756
98	KK298	4545.550	1560.280		10.74	60	7392	34.57	2180
99	KK299	4544.050	1559.900		8.33	318	6791	32.82	3361
100	KK300	4543.600	1560.690		1.81	215	1343	10.74	3202

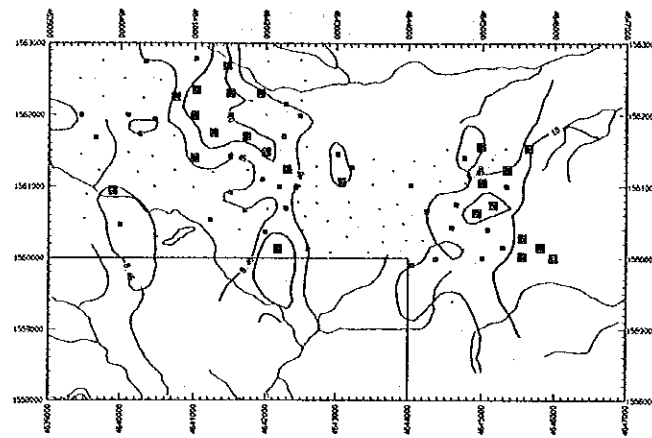
List of Geochemical Analysis (3)

Ser. No.	Sample No.	Location (km)		Al %	Co ppm	Cr ppm	Fe %	Ni ppm
		X-coord	Y-coord					
101	KK301	4645.800	1560.150	11.03	84	4938	23.66	1364
102	KK302	4644.600	1559.390	7.75	454	6835	33.91	3743
103	KK303	4643.850	1560.750	3.20	335	3218	13.57	2388
104	KK304	4645.000	1560.000	10.16	123	7649	31.18	2195
105	KK305	4644.200	1560.250	8.33	531	8485	29.86	4282
106	KK306	4644.250	1560.650	9.11	229	6666	30.68	2967
107	KK307	4645.550	1560.020	13.49	46	3641	26.63	912
108	KK308	4644.580	1560.430	8.74	135	9643	38.02	3325
109	KK309	4645.980	1560.000	9.55	248	4840	25.98	1740
110	KK310	4644.640	1560.750	9.14	226	7096	32.91	3378
111	KK311	4644.920	1560.630	8.86	125	8013	34.60	2618
112	KK312	4645.150	1560.740	9.33	243	7349	32.21	3310
113	KK313	4643.660	1560.450	2.19	184	1702	8.69	2838
114	KK314	4643.930	1560.480	3.42	241	4015	17.18	3917
115	KK315	4643.650	1560.230	2.44	216	2202	11.02	4255
116	KK316	4643.970	1560.250	4.31	197	2979	11.25	3217
117	KK317	4643.450	1560.080	3.01	206	2275	11.34	2624
118	KK318	4642.920	1560.080	4.65	408	5969	25.85	3848
119	KK319	4642.600	1560.130	4.22	242	4077	15.80	3647
120	KK320	4642.170	1560.130	9.54	306	8737	30.12	4410

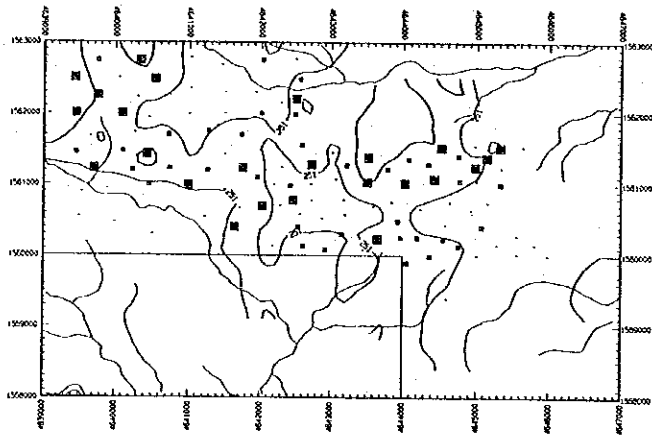
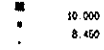
Appendix 6

Distribution map of elements in Area K

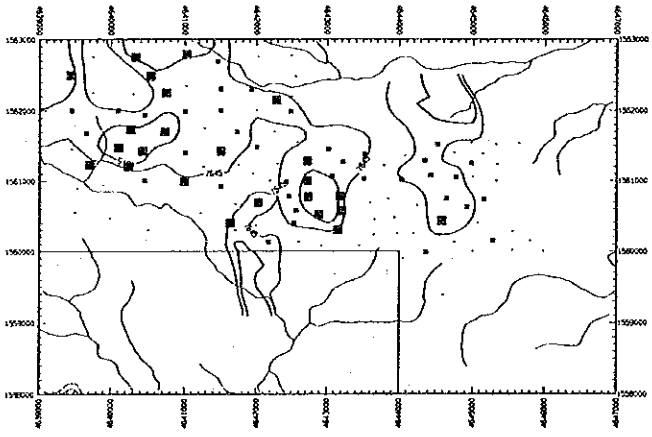
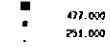
Soil 50cm



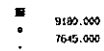
Al



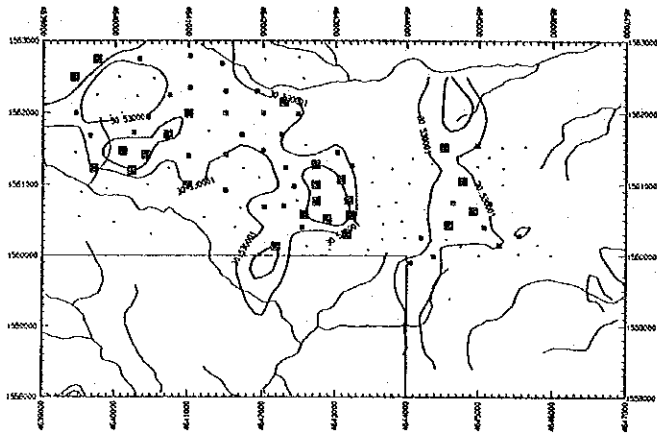
Co



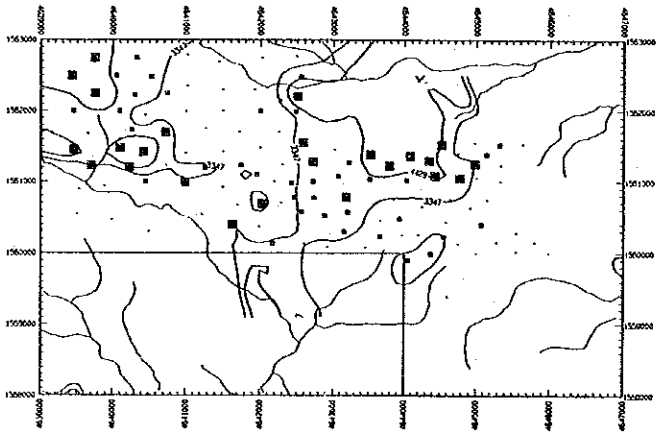
Cr



Soil 50cm



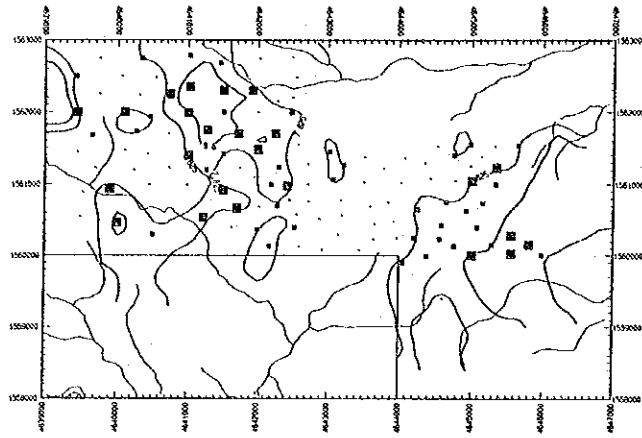
Fe



Ni

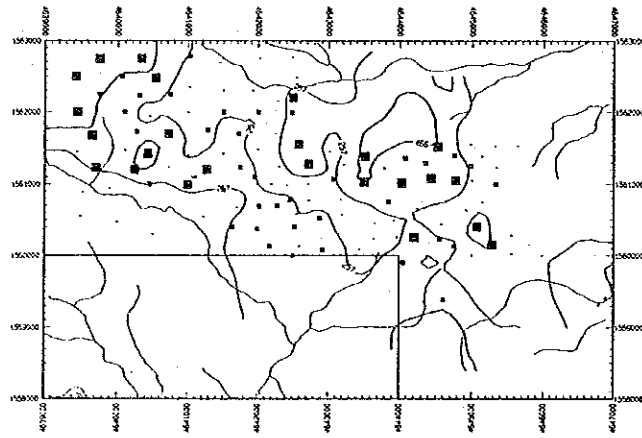


Soil 150cm



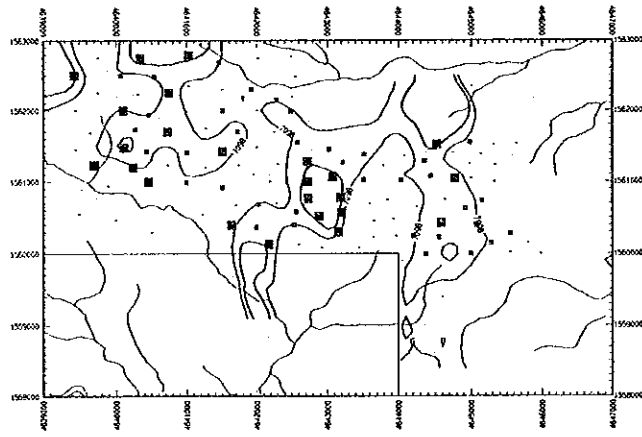
Al

■ 9.600
● 7.825



Co

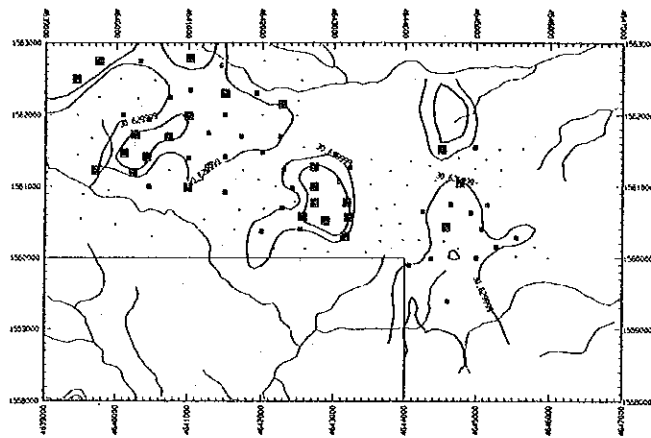
■ 456.000
● 257.000



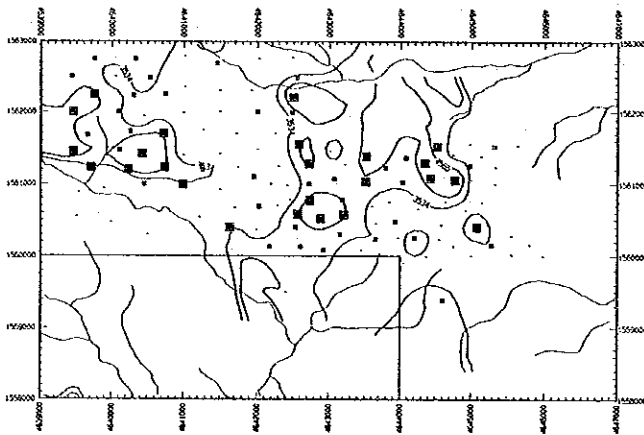
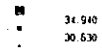
Cr

■ 6515.000
● 7090.000

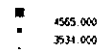
Soil 150cm



Fe



Ni



Appendix 7

List of stream sediment geochemical samples in Area L

Ser. No.	Sample No.	Coordinates		Name of Stream	Geology	Geol. Unit	Order	Width (m)	Flow *1	Size *2	Color
		N	E								
1	KL501	1511.80	4668.28	S. Karamuak	sst/mudstone	P ₂ Cr	3	4.0	3	3	Y.B.
2	KL502	1511.58	4668.45	S. Karamuak	peridotite	Pr	3	3.0	3	1	D.B.
3	KL503	1511.37	4668.39	S. Karamuak	peridotite	Pr	3	6.0	3	1	D.B.
4	KL504	1511.16	4668.16	S. Karamuak	————	Pr	3	5.0	3	1	D.B.
5	KL505	1511.01	4667.99	S. Karamuak	peridotite	Pr	3	5.0	3	1	D.B.
6	KL506	1510.77	4667.67	S. Karamuak	peridotite	Pr	3	5.0	3	1	D.B.
7	KL507	1510.39	4667.38	S. Karamuak	————	Gb	3	5.0	3	3	Y.B.
8	KL508	1510.23	4666.92	S. Karamuak	————	Gb	3	6.0	4	3	Y.B.
9	KL509	1509.94	4666.71	S. Karamuak	————	Gb	3	4.0	3	3	Y.B.
10	KL510	1509.82	4666.39	S. Karamuak	gabbro	Gb	3	8.0	3	3	B.
11	KL511	1509.56	4666.46	S. Karamuak	gabbro	Gb	3	8.0	3	3	B.
12	KL512	1509.36	4666.15	S. Karamuak	gabbro	Gb	3	7.0	3	3	B.
13	KL513	1509.22	4665.88	S. Karamuak	————	Gb	3	10.0	3	3	B.
14	KL514	1509.16	4665.40	S. Karamuak	————	Gb	3	7.0	3	3	B.
15	KL515	1509.22	4665.12	S. Karamuak	————	Gb	3	10.0	3	4	B.
16	KL516	1509.38	4664.90	S. Karamuak	————	Gb	3	5.0	4	3	D.B.
17	KL517	1509.62	4664.62	S. Karamuak	gabbro	Gb	3	10.0	3	3	B.
18	KL518	1509.95	4664.33	S. Karamuak	————	P ₂ Cr	3	8.0	3	3	B.
19	KL519	1510.17	4664.08	S. Karamuak	sandstone	P ₂ Cr	3	8.0	3	3	B.
20	KL520	1511.82	4667.97	S. Karamuak	————	P ₂ Cr	2	2.5	2	3	Y.B.
21	KL521	1511.83	4667.60	S. Karamuak	————	P ₂ Cr	1	2.0	1	3	Y.B.
22	KL522	1511.79	4667.30	S. Karamuak	————	P ₂ Cr	1	2.0	2	3	Y.B.
23	KL523	1511.68	4667.68	S. Karamuak	————	P ₂ Cr	1	0.5	1	3	Y.B.
24	KL524	1511.34	4668.07	S. Karamuak	————	Pr	1	1.5	1	3	D.B.
25	KL525	1510.91	4667.72	S. Karamuak	————	Pr	2	2.0	2	3	D.B.
26	KL526	1511.21	4667.53	S. Karamuak	peridotite	Pr	2	2.0	2	3	R.B.
27	KL527	1511.33	4667.16	S. Karamuak	sandstone	P ₂ Cr	2	1.5	2	3	R.B.
28	KL528	1511.32	4666.82	S. Karamuak	shale	P ₂ Cr	2	1.0	2	3	R.B.
29	KL529	1511.27	4666.64	S. Karamuak	sandstone	P ₂ Cr	1	0.5	2	3	R.B.
30	KL530	1511.38	4666.55	S. Karamuak	sandstone	P ₂ Cr	1	0.5	2	3	R.B.
31	KL531	1511.49	4666.29	S. Karamuak	sandstone	P ₂ Cr	1	1.0	2	3	R.B.
32	KL532	1511.44	4666.00	S. Karamuak	sandstone	P ₂ Cr	1	1.0	2	3	R.B.
33	KL533	1511.14	4666.35	S. Karamuak	sandstone	P ₂ Cr	1	0.5	2	3	R.B.
34	KL534	1510.32	4667.71	S. Karamuak	————	Gb	2	1.5	4	1	R.B.
35	KL535	1509.77	4668.11	S. Karamuak	gabbro	Gb	2	2.0	3	1	R.B.
36	KL536	1509.48	4668.25	S. Karamuak	————	Gb	2	3.0	3	1	R.B.
37	KL537	1509.24	4668.30	S. Karamuak	————	Gb	2	2.0	4	3	R.B.
38	KL538	1508.93	4668.50	S. Karamuak	————	Gb	1	1.5	2	3	R.B.
39	KL539	1508.70	4668.74	S. Karamuak	————	Csba	1	1.0	1	3	Y.B.
40	KL540	1509.71	4667.92	S. Karamuak	gabbro	Gb	1	1.0	1	1	R.B.
41	KL541	1508.89	4668.36	S. Karamuak	gabbro	Gb	1	2.0	3	3	Y.B.
42	KL542	1508.56	4668.30	S. Karamuak	————	Gb	1	2.0	3	3	Y.B.
43	KL543	1510.18	4667.30	S. Karamuak	————	Gb	1	1.0	2	3	Y.B.
44	KL544	1510.42	4666.92	S. Karamuak	————	Gb	1	0.5	1	3	Y.B.
45	KL545	1510.03	4666.66	S. Karamuak	————	Gb	2	2.0	2	3	Y.B.
46	KL546	1510.02	4666.41	S. Karamuak	gabbro	Gb	2	4.0	3	2	Y.B.
47	KL547	1510.18	4666.07	S. Karamuak	gabbro	Gb	2	5.0	3	2	D.B.
48	KL548	1510.26	4665.79	S. Karamuak	————	Gb	2	5.0	3	2	Y.B.
49	KL549	1510.51	4665.52	S. Karamuak	mudstone	P ₂ Cr	1	1.0	3	3	L.B.
50	KL550	1510.40	4665.48	S. Karamuak	mudstone	P ₂ Cr	1	1.0	3	3	L.B.

*1: none(0), puddle(1), slow(2), moderate(3), fast(4)

*2: coarse grained(1), medium grained(2), fine grained(3), clayey(4)

Ser. No.	Sample No.	Coordinates		Name of Stream	Geology	Geol. Unit	Order	Width (m)	Flow *1	Size *2	Color
		N	E								
51	KL551	1509.59	4666.77	S. Karamuak	basalt	Csba	2	1.5	4	1	D.B.
52	KL552	1509.28	4666.97	S. Karamuak	basalt	Csba	2	2.0	4	1	D.B.
53	KL553	1509.10	4667.06	S. Karamuak	basalt	Csba	2	3.0	3	1	D.B.
54	KL554	1508.65	4667.16	S. Karamuak	basalt	Csba	1	1.5	3	2	B.
55	KL555	1508.26	4667.12	S. Karamuak	basalt	Csba	1	1.0	2	2	D.B.
56	KL556	1508.68	4667.26	S. Karamuak	basalt	Csba	1	1.0	3	2	D.B.
57	KL557	1508.41	4667.50	S. Karamuak	basalt	Csba	1	1.0	2	2	D.B.
58	KL558	1509.00	4665.99	S. Karamuak	basalt	Csba	2	3.0	3	2	D.B.
59	KL559	1508.66	4665.87	S. Karamuak	basalt	Csba	1	1.5	3	2	D.B.
50	KL560	1508.44	4665.63	S. Karamuak	basalt	Csba	1	1.5	2	2	D.B.
61	KL561	1508.16	4665.48	S. Karamuak	basalt	Csba	1	1.5	2	2	D.B.
62	KL562	1508.67	4665.96	S. Karamuak	basalt	Csba	1	2.0	3	2	D.B.
63	KL563	1508.40	4666.00	S. Karamuak	basalt	Csba	1	1.5	3	2	D.B.
64	KL564	1509.12	4665.59	S. Karamuak	gabbro	Gb	1	1.0	3	3	B.
65	KL565	1508.82	4665.48	S. Karamuak	gabbro	Gb	1	1.5	3	3	B.
66	KL566	1508.92	4665.00	S. Karamuak	gabbro	Gb	2	3.0	4	2	D.B.
67	KL567	1508.65	4664.80	S. Karamuak	gabbro	Gb	2	5.0	3	2	D.B.
68	KL568	1508.35	4664.60	S. Karamuak	gabbro	Gb	2	6.0	3	2	D.B.
69	KL569	1508.14	4664.29	S. Karamuak	gabbro	Gb	1	2.5	3	2	B.
70	KL570	1508.10	4664.40	S. Karamuak	gabbro	Gb	1	3.0	3	2	B.
71	KL571	1509.47	4664.61	S. Karamuak	————	Gb	1	1.5	3	3	D.B.
72	KL572	1509.27	4664.31	S. Karamuak	dolerite	Gb	1	1.0	3	3	D.B.
73	KL573	1511.73	4668.88	S. Karamuak	————	Pr	2	3.0	3	1	D.B.
74	KL574	1511.40	4668.96	S. Karamuak	————	Pr	2	3.0	3	1	D.B.
75	KL575	1511.87	4664.86	S. Karamuak	sandstone	P ₂ Cr	1	1.5	2	3	Y.B.
76	KL576	1511.81	4664.59	S. Karamuak	sandstone	P ₂ Cr	1	1.0	2	3	Y.B.
77	KL577	1511.68	4664.69	S. Karamuak	sandstone	P ₂ Cr	1	1.0	2	3	Y.B.
78	KL578	1511.72	4664.45	S. Karamuak	sandstone	P ₂ Cr	1	1.0	2	3	Y.B.
79	KL579	1511.46	4664.44	S. Karamuak	sandstone	P ₂ Cr	1	1.0	2	3	Y.B.
80	KL580	1511.88	4664.41	S. Karamuak	————	P ₂ Cr	1	1.0	2	3	Y.B.

*1: none (0), puddle (1), slow (2), moderate (3), fast (4)

*2: coarse grained (1), medium grained (2), fine grained (3), clayey (4)

Appendix 8

Analytical results of stream sediment
geochemical samples in Area L

List of Geochemical Analysis(1)

Ser. Sample No.	Location (km) X-coord	Y-coord	Fe %	Ti %
1	4668.280	1511.800	2.98	1.08
2	4668.450	1511.580	3.56	1.39
3	4668.390	1511.370	3.38	1.09
4	4668.160	1511.160	3.84	1.61
5	4667.990	1511.010	2.89	.77
6	4667.670	1510.770	4.60	2.36
7	4667.380	1510.390	2.44	.46
8	4666.920	1510.230	2.38	.37
9	4666.710	1509.940	2.38	.53
10	4666.390	1509.820	2.39	.42
11	4666.460	1509.560	2.41	.41
12	4666.150	1509.360	2.52	.46
13	4665.980	1509.220	2.75	.40
14	4665.400	1509.160	2.49	.54
15	4665.120	1509.220	2.50	.47
16	4664.900	1509.380	2.24	.36
17	4664.620	1509.620	2.20	.35
18	4664.330	1509.950	2.37	.37
19	4664.080	1510.170	2.50	.38
20	4667.970	1511.820	.95	.25
21	4667.600	1511.830	.91	.22
22	4667.300	1511.790	1.37	.21
23	4667.680	1511.680	.84	.26
24	4668.070	1511.340	9.26	.89
25	4667.720	1510.910	17.13	12.40
26	4667.530	1511.210	1.78	.35
27	4667.160	1511.330	2.53	.32
28	4666.820	1511.320	2.09	.33
29	4666.640	1511.270	1.45	.33
30	4666.550	1511.380	2.18	.34
31	4666.290	1511.490	1.89	.35
32	4666.000	1511.440	1.98	.32
33	4666.350	1511.140	1.72	.34
34	4667.710	1510.320	12.00	2.24
35	4668.110	1509.770	10.81	1.69
36	4668.250	1509.480	11.35	1.54
37	4668.300	1509.240	12.02	1.65
38	4668.500	1508.930	9.54	1.93
39	4668.740	1508.700	10.13	2.27
40	4667.920	1509.710	11.52	2.53
41	4668.360	1508.890	11.42	1.17
42	4668.300	1508.560	11.48	1.10
43	4667.300	1510.180	10.21	3.08
44	4666.920	1510.420	11.68	7.07
45	4666.660	1510.030	5.52	3.12
46	4666.410	1510.020	4.13	2.17
47	4666.070	1510.180	5.10	3.03
48	4665.790	1510.260	1.81	.40
49	4665.520	1510.510	1.13	.19
50	4665.480	1510.400	1.50	.27

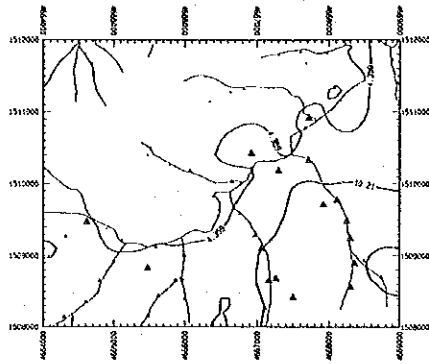
List of Geochemical Analysis(2)

Ser. No.	Sample No.	Location (km)		Fe %	Si %
		X-coord	Y-coord		
51	KL551	4666.770	1509.590	8.84	1.27
52	KL552	4666.970	1509.280	8.91	1.66
53	KL553	4667.060	1509.100	10.77	.93
54	KL554	4667.160	1508.650	10.46	.96
55	KL555	4667.120	1508.260	10.16	1.01
56	KL556	4667.260	1508.680	10.80	.89
57	KL557	4667.500	1508.410	11.07	.87
58	KL558	4665.990	1509.000	8.19	.91
59	KL559	4665.870	1508.660	6.15	.86
60	KL560	4665.630	1508.440	6.39	.85
61	KL561	4665.480	1508.160	7.04	1.04
62	KL562	4665.960	1508.670	9.21	.88
63	KL563	4665.000	1508.400	9.51	.89
64	KL564	4665.590	1509.120	6.47	3.98
65	KL565	4665.480	1508.820	10.98	3.85
66	KL566	4665.000	1508.920	7.16	1.55
67	KL567	4664.800	1508.650	6.70	1.21
68	KL568	4664.600	1508.350	7.96	2.02
69	KL569	4664.290	1508.140	6.94	1.54
70	KL570	4664.400	1508.100	7.56	1.03
71	KL571	4664.610	1508.470	12.27	4.02
72	KL572	4664.310	1509.270	9.86	3.20
73	KL573	4668.880	1511.730	7.53	1.07
74	KL574	4668.960	1511.400	7.99	1.43
75	KL575	4664.860	1511.870	2.14	.29
76	KL576	4664.590	1511.810	2.21	.29
77	KL577	4664.690	1511.680	1.95	.26
78	KL578	4664.450	1511.720	2.57	.26
79	KL579	4664.440	1511.460	2.63	.27
80	KL580	4664.410	1511.880	2.32	.24

Appendix 9

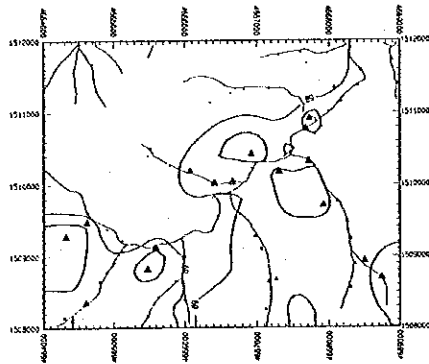
Distribution map of elements in Area L

Stream Sediments



Fe

▲ 10.210
• 4.359



Ti

▲ 1.530
• 0.690

Appendix 10

List of soil geochemical samples in Area M

Ser. No.	Sample No.	Coordinates		1/50,000 Topo. Sheet	Rock of Basement	Geol. Unit	Depth (cm)	Color	G. *1	S. *2	T. *3	H. *4	Vegetation
		N	E										
1	KM001	1590.11	4697.62	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	M	W	secondary forest
2	KM002	1590.08	4698.08	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	F	W	secondary forest
3	KM003	1590.12	4698.77	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest
4	KM004	1590.25	4699.17	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest
5	KM005	1590.16	4699.60	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest
6	KM006	1590.09	4699.87	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	M	W	secondary forest
7	KM007	1590.29	4700.32	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	F	W	secondary forest
8	KM008	1589.92	4700.28	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	F	W	secondary forest
9	KM009	1590.22	4701.32	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	M	W	secondary forest
10	KM010	1590.22	4701.67	Linkabau	sandstone	P ₂ Cr	30	B.	R	C	M	W	secondary forest
11	KM011	1589.97	4702.08	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	F	W	secondary forest
12	KM012	1590.04	4704.15	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
13	KM013	1590.17	4705.25	Sungai sungai	sandstone	P ₂ Cr	30	B.G.	R	S	F	W	secondary forest
14	KM014	1590.17	4706.62	Sungai sungai	sandstone	P ₂ Cr	30	L.B.	R	C	F	W	secondary forest
15	KM015	1590.17	4707.20	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	M	W	secondary forest
16	KM016	1589.70	4697.48	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	S	W	secondary forest
17	KM017	1589.28	4697.50	Linkabau	_____	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
18	KM018	1589.26	4697.93	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
19	KM019	1589.75	4698.36	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	F	W	secondary forest
20	KM020	1589.25	4698.38	Linkabau	_____	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
21	KM021	1589.52	4698.87	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	S	W	secondary forest
22	KM022	1589.23	4698.85	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	S	W	secondary forest
23	KM023	1589.90	4699.08	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest
24	KM024	1589.31	4699.22	Linkabau	shale/sst.	P ₂ Cr	30	Y.B.	R	S	S	W	secondary forest
25	KM025	1589.75	4699.55	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	S	W	secondary forest
26	KM026	1589.78	4699.82	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	F	W	secondary forest
27	KM027	1589.30	4699.72	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	M	W	secondary forest
28	KM028	1589.52	4700.03	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	S	W	secondary forest
29	KM029	1589.13	4700.29	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	S	W	secondary forest
30	KM030	1589.92	4700.79	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest

*1Gravel: Many (M), Few (F), Rare or none (R) *2Grain size: Sandy (S), Clayey (C)

**Topography: Steep (S), Moderate (M), Flat (F) *3Humidity: Dry (D), Wet (W)

Ser. No.	Sample No.	Coordinates		1/50,000 Topo. Sheet	Rock of Basement	Geol. Unit	Depth (cm)	Color	G. #1	S. #2	T. #3	H. #4	Vegetation
		N	E										
31	KM031	1589.67	4700.68	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest
32	KM032	1589.47	4700.56	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest
33	KM033	1589.04	4700.95	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest
34	KM034	1589.44	4701.10	Linkabau	sandstone	P ₂ Cr	30	B.	R	C	M	W	secondary forest
35	KM035	1589.77	4701.52	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	M	W	secondary forest
36	KM036	1589.42	4701.45	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest
37	KM037	1589.04	4701.45	Linkabau	siltstone	P ₂ Cr	30	B.	R	C	M	W	secondary forest
38	KM038	1589.87	4701.77	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	F	W	secondary forest
39	KM039	1589.54	4701.86	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
40	KM040	1589.70	4702.27	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest
41	KM041	1588.99	4702.10	Linkabau	sandstone	P ₂ Cr	30	B.	R	C	F	W	secondary forest
42	KM042	1589.45	4702.37	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	F	W	secondary forest
43	KM043	1589.90	4702.50	Linkabau	sandstone	P ₂ Cr	30	B.	M	S	F	W	secondary forest
44	KM044	1589.44	4702.84	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest
45	KM045	1589.65	4703.22	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
46	KM046	1589.92	4703.30	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
47	KM047	1589.30	4703.50	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
48	KM048	1589.80	4703.60	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
49	KM049	1589.93	4703.85	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
50	KM050	1589.35	4703.89	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
51	KM051	1589.65	4704.17	Linkabau	sandstone	P ₂ Cr	30	B.G.	F	S	F	W	secondary forest
52	KM052	1589.12	4704.18	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
53	KM053	1589.82	4704.38	Linkabau	sandstone	P ₂ Cr	30	B.G.	F	S	F	W	secondary forest
54	KM054	1589.01	4704.38	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
55	KM055	1589.99	4704.76	Sungai sungai	sandstone	P ₂ Cr	30	B.G.	F	C	F	W	secondary forest
56	KM056	1589.56	4704.65	Sungai sungai	sandstone	P ₂ Cr	30	B.G.	F	C	F	W	secondary forest
57	KM057	1589.17	4704.80	Sungai sungai	sandstone	P ₂ Cr	30	B.	R	S	F	W	secondary forest
58	KM058	1589.42	4704.87	Sungai sungai	sandstone	P ₂ Cr	30	B.G.	R	C	F	W	secondary forest
59	KM059	1589.01	4705.23	Sungai sungai	sandstone	P ₂ Cr	30	B.G.	R	C	F	W	secondary forest
60	KM060	1589.94	4705.61	Sungai sungai	sandstone	P ₂ Cr	30	B.G.	R	C	F	W	secondary forest

*1Gravel: Many (M), Few (F), Rare or none (R) **Grain size: Sandy (S), Clayey (C)

**3Topography: Steep (S), Moderate (M), Flat (F)

**4Humidity: Dry (D), Wet (W)

Ser. No.	Sample No.	Coordinates		1/50,000 Topo. Sheet	Rock of Basement	Geol. Unit	Depth (cm)	Color	G. *1	S. *2	T. *3	H. *4	Vegetation
		N	E										
61	KM061	1589.40	4705.85	Sungai sungai	sandstone	P ₂ Cr	30	B.G.	F	S	F	W	secondary forest
62	KM062	1589.18	4705.96	Sungai sungai	sandstone	P ₂ Cr	30	B.G.	F	S	F	W	secondary forest
63	KM063	1584.63	4704.08	Linkabau	sandstone	P ₂ Cr	30	B.B.	F	S	F	W	secondary forest
64	KM064	1589.52	4706.30	Sungai sungai	sandstone	P ₂ Cr	30	B.G.	F	S	F	W	secondary forest
65	KM065	1589.86	4706.60	Sungai sungai	sandstone	P ₂ Cr	30	R.B.	F	S	F	W	secondary forest
66	KM066	1589.50	4706.80	Sungai sungai	sandstone	P ₂ Cr	30	R.B.	F	S	F	W	secondary forest
67	KM067	1589.90	4706.92	Sungai sungai	sandstone	P ₂ Cr	30	B.	F	S	F	W	secondary forest
68	KM068	1589.45	4707.15	Sungai sungai	_____	P ₂ Cr	30	L.B.	F	S	F	W	secondary forest
69	KM069	1589.90	4707.47	Sungai sungai	_____	P ₂ Cr	30	B.	F	S	F	W	secondary forest
70	KM070	1589.40	4707.52	Sungai sungai	sandstone	P ₂ Cr	30	B.	F	S	F	W	secondary forest
71	KM071	1589.16	4707.39	Sungai sungai	_____	P ₂ Cr	30	B.	F	S	F	W	secondary forest
72	KM072	1589.58	4707.80	Sungai sungai	sandstone	P ₂ Cr	30	L.B.	F	S	F	W	secondary forest
73	KM073	1589.02	4707.70	Sungai sungai	_____	Q ₂	30	B.	F	S	F	W	secondary forest
74	KM074	1589.93	4708.12	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
75	KM075	1589.45	4708.09	Sungai sungai	_____	P ₂ Cr	30	B.	F	S	F	W	secondary forest
76	KM076	1589.13	4708.15	Sungai sungai	_____	P ₂ Cr	30	B.	F	S	F	W	secondary forest
77	KM077	1589.25	4708.42	Sungai sungai	_____	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
78	KM078	1589.60	4708.49	Sungai sungai	_____	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
79	KM079	1589.92	4708.82	Sungai sungai	_____	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
80	KM080	1589.29	4708.90	Sungai sungai	sandstone	P ₂ Cr	30	R.B.	F	S	F	W	secondary forest
81	KM081	1589.43	4709.32	Sungai sungai	shale	P ₂ Cr	30	L.B.	R	S	M	W	secondary forest
82	KM082	1589.02	4709.17	Sungai sungai	_____	P ₂ Cr	30	B.	R	S	F	W	secondary forest
83	KM083	1589.53	4709.75	Sungai sungai	s.s./shale	P ₂ Cr	30	L.B.	F	S	M	W	secondary forest
84	KM084	1589.15	4709.80	Sungai sungai	shale	P ₂ Cr	30	L.B.	F	S	M	W	secondary forest
85	KM085	1588.77	4697.42	Linkabau	shale/s.s.	P ₂ Cr	30	Y.B.	R	S	S	W	secondary forest
86	KM086	1588.12	4697.33	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	S	W	secondary forest
87	KM087	1588.18	4697.72	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	S	W	secondary forest
88	KM088	1588.59	4698.05	Linkabau	shale/s.s.	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
89	KM089	1588.78	4698.30	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
90	KM090	1588.18	4698.20	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest

*1Gravel: Many (M), Few (F), Rare or none (R)

*2Grain size: Sandy (S), Clayey (C)

*3Topography: Steep (S), Moderate (M), Flat (F)

*4Humidity: Dry (D), Wet (W)

Area: Lower Stream of S. Sugut (Area M)

Ser. No.	Sample No.	Coordinates		1/50,000 Topo. Sheet	Rock of Basement	Geol. Unit	Depth (cm)	Color	G. #1	S. #2	T. #3	H. #4	Vegetation
		N	E										
91	KM091	1588.80	4698.75	Linkabau	sandstone	P ₂ Cr	40	Y.B.	F	S	S	W	secondary forest
92	KM092	1588.31	4698.69	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
93	KM093	1588.81	4698.16	Linkabau	shale/s.s.	P ₂ Cr	30	Y.B.	F	S	S	W	secondary forest
94	KM094	1588.49	4699.95	Linkabau	s.s./shale	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
95	KM095	1588.14	4699.72	Linkabau	s.s./shale	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
96	KM096	1588.75	4700.62	Linkabau	—	P ₂ Cr	30	R.B.	R	C	S	W	secondary forest
97	KM097	1588.39	4700.55	Linkabau	s.s./shale	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
98	KM098	1588.30	4701.07	Linkabau	s.s./shale	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
99	KM099	1588.80	4701.39	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest
100	KM100	1588.80	4701.80	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	F	W	secondary forest
101	KM101	1588.51	4701.75	Linkabau	sandstone	P ₂ Cr	30	B.	R	C	M	W	secondary forest
102	KM102	1588.22	4701.59	Linkabau	s.s./shale	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
103	KM103	1588.56	4702.12	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	F	W	secondary forest
104	KM104	1588.25	4702.06	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest
105	KM105	1588.06	4702.23	Linkabau	—	Q ₂	30	B.	F	C	M	W	secondary forest
106	KM106	1588.92	4702.52	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest
107	KM107	1588.37	4702.45	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	F	W	secondary forest
108	KM108	1588.99	4702.80	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest
109	KM109	1588.16	4702.70	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	F	W	secondary forest
110	KM110	1588.58	4702.94	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
111	KM111	1588.21	4703.20	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	M	W	secondary forest
112	KM112	1588.79	4703.37	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
113	KM113	1588.45	4703.49	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
114	KM114	1588.12	4703.58	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	F	W	secondary forest
115	KM115	1588.32	4703.89	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
116	KM116	1588.67	4703.88	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
117	KM117	1588.10	4704.03	Linkabau	sandstone	P ₂ Cr	30	R.B.	R	S	F	W	secondary forest
118	KM118	1588.34	4704.30	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
119	KM119	1588.63	4704.51	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
120	KM120	1588.12	4704.55	Sungai sungai	sandstone	P ₂ Cr	30	B.G.	R	S	F	W	secondary forest

*1Gravel: Many (M), Few (F), Rare or none (R) *2Grain size: Sandy (S), Clayey (C)

*3Topography: Steep (S), Moderate (M), Flat (F)

*4Humidity: Dry (D), Wet (W)

Ser. No.	Sample No.	Coordinates		1/50,000 Topo. Sheet	Rock of Basement	Geol. Unit	Depth (cm)	Color	G. *1	S. *2	T. *3	H. *4	Vegetation
		N	E										
121	KM121	1588.52	4704.63	Sungai sungai	sandstone	P ₂ Cr	30	B.	F	S	F	W	secondary forest
122	KM122	1588.17	4704.87	Sungai sungai	—	P ₂ Cr	30	B.	F	S	F	W	secondary forest
123	KM123	1588.64	4705.27	Sungai sungai	—	P ₂ Cr	30	B.	F	S	F	W	secondary forest
124	KM124	1587.96	4705.15	Sungai sungai	sandstone	P ₂ Cr	30	B.	F	S	F	W	secondary forest
125	KM125	1588.95	4705.70	Sungai sungai	sandstone	P ₂ Cr	30	B.G.	F	S	F	W	secondary forest
126	KM126	1588.67	4705.62	Sungai sungai	sandstone	P ₂ Cr	30	B.	R	S	F	W	secondary forest
127	KM127	1588.32	4705.64	Sungai sungai	—	Q ₂	30	B.	R	S	F	W	secondary forest
128	KM128	1588.10	4705.42	Sungai sungai	—	Q ₂	40	B.	R	S	F	W	secondary forest
129	KM129	1588.40	4705.87	Sungai sungai	sandstone	P ₂ Cr	30	B.	R	S	F	W	secondary forest
130	KM130	1588.70	4706.15	Sungai sungai	sandstone	P ₂ Cr	30	B.G.	R	S	F	W	secondary forest
131	KM131	1588.02	4706.48	Sungai sungai	—	Q ₂	30	B.	R	S	F	W	secondary forest
132	KM132	1588.37	4706.95	Sungai sungai	—	P ₂ Cr	30	D.B.	R	S	F	W	secondary forest
133	KM133	1588.77	4707.09	Sungai sungai	—	Q ₂	30	D.B.	R	S	F	W	secondary forest
134	KM134	1588.65	4707.42	Sungai sungai	—	Q ₂	30	B.	R	S	F	W	secondary forest
135	KM135	1587.98	4707.57	Sungai sungai	sandstone	P ₂ Cr	30	B.	R	S	F	W	secondary forest
136	KM136	1588.73	4708.11	Sungai sungai	—	Q ₂	30	D.B.	R	S	F	W	secondary forest
137	KM137	1588.85	4708.81	Sungai sungai	—	Q ₂	30	D.B.	R	S	F	W	secondary forest
138	KM138	1588.22	4709.07	Sungai sungai	—	Q ₂	30	B.	R	S	F	W	secondary forest
139	KM139	1588.32	4709.73	Sungai sungai	—	Q ₂	30	D.B.	R	S	F	W	secondary forest
140	KM140	1588.80	4710.18	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
141	KM141	1588.83	4710.65	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
142	KM142	1588.10	4710.55	Sungai sungai	—	P ₂ Cr	30	B.	R	S	F	W	secondary forest
143	KM143	1587.73	4697.31	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
144	KM144	1587.35	4697.45	Linkabau	sandstone	P ₂ Cr	30	G.B.	R	S	F	W	secondary forest
145	KM145	1587.18	4697.32	Linkabau	sandstone	P ₂ Cr	30	G.B.	M	S	F	W	secondary forest
146	KM146	1587.72	4697.76	Linkabau	sandstone	P ₂ Cr	30	Y.B.	M	S	F	W	secondary forest
147	KM147	1587.18	4697.80	Linkabau	sandstone	P ₂ Cr	30	G.B.	R	S	F	W	secondary forest
148	KM148	1587.82	4698.22	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
149	KM149	1587.20	4698.22	Linkabau	sandstone	P ₂ Cr	30	G.B.	R	S	F	W	secondary forest
150	KM150	1587.24	4698.64	Linkabau	s. s./shale	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest

*1Gravel: Many (M), Few (F), Rare or none (R)

*2Topography: Steep (S), Moderate (M), Flat (F)

*3Grain size: Sandy (S), Clayey (C)

*4Humidity: Dry (D), Wet (W)

Ser. No.	Sample No.	Coordinates		1/50,000 Topo. Sheet	Rock of Basement	Geol. Unit	Depth (cm)	Color	G. *1	S. *2	T. *3	H. *4	Vegetation
		N	E										
151	KM151	1587.90	4698.87	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
152	KM152	1587.28	4699.19	Linkabau	s.s./shale	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
153	KM153	1587.62	4699.53	Linkabau	s.s./shale	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
154	KM154	1587.25	4699.64	Linkabau	sandstone	P ₂ Cr	10	B.	R	S	F	W	secondary forest
155	KM155	1587.42	4699.92	Linkabau	sandstone	P ₂ Cr	20	B.	R	S	F	W	secondary forest
156	KM156	1587.15	4700.29	Linkabau	sandstone	P ₂ Cr	10	B.	R	S	M	W	secondary forest
157	KM157	1587.73	4700.32	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	S	W	secondary forest
158	KM158	1587.95	4700.80	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	S	W	secondary forest
159	KM159	1587.46	4700.81	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	M	W	secondary forest
160	KM160	1587.55	4701.41	Linkabau	sandstone	P ₂ Cr	30	L.B.	F	S	M	W	secondary forest
161	KM161	1587.32	4701.55	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	M	W	secondary forest
162	KM162	1587.95	4701.80	Linkabau	sandstone	P ₂ Cr	30	B.	F	C	M	W	secondary forest
163	KM163	1587.20	4701.88	Linkabau	sandstone	P ₂ Cr	30	R.B.	R	C	S	W	secondary forest
164	KM164	1587.73	4702.12	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	S	W	secondary forest
165	KM165	1587.67	4702.57	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	M	W	secondary forest
166	KM166	1587.30	4702.72	Linkabau	shale/s.s.	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
167	KM167	1587.75	4703.10	Linkabau	—	P ₂ Cr	30	R.B.	R	S	M	W	secondary forest
168	KM168	1587.30	4703.15	Linkabau	s.s./shale	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
169	KM169	1587.71	4703.45	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	M	W	secondary forest
170	KM170	1587.62	4703.76	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	M	W	secondary forest
171	KM171	1587.22	4703.93	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
172	KM172	1587.50	4704.41	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
173	KM173	1587.02	4704.60	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
174	KM174	1587.25	4704.84	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
175	KM175	1587.59	4705.12	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
176	KM176	1587.50	4705.41	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	F	S	M	W	secondary forest
177	KM177	1587.70	4705.74	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
178	KM178	1587.98	4705.89	Sungai sungai	—	Q ₂	30	B.	R	S	F	W	secondary forest
179	KM179	1587.05	4705.75	Sungai sungai	—	P ₂ Cr	30	B.	R	S	F	W	secondary forest
180	KM180	1587.70	4706.18	Sungai sungai	—	Q ₂	30	D.B.	R	S	F	W	secondary forest

*1Gravel: Many (M), Few (F), Rare or none (R) *2Grain size: Sandy (S), Clayey (C)

*3Topography: Steep (S), Moderate (M), Flat (F) *4Humidity: Dry (D), Wet (W)

Ser. No.	Sample No.	Coordinates		1/50,000 Topo. Sheet	Rock of Basement	Geol. Unit	Depth (cm)	Color	G. *1	S. *2	T. *3	H. *4	Vegetation
		N	E										
181	KM181	1587.40	4706.33	Sungai sungai	—	Q ₂	30	D.B.	R	S	F	W	secondary forest
182	KM182	1587.77	4706.73	Sungai sungai	sandstone	P ₂ Cr	30	L.B.	R	C	F	W	secondary forest
183	KM183	1587.58	4707.08	Sungai sungai	—	P ₂ Cr	30	Y.B.	R	C	M	W	secondary forest
184	KM184	1587.07	4707.43	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
185	KM185	1587.55	4707.72	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
186	KM186	1587.43	4708.10	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
187	KM187	1587.38	4708.57	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
188	KM188	1587.08	4708.84	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
189	KM189	1587.33	4709.40	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
190	KM190	1587.59	4709.64	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
191	KM191	1587.80	4709.82	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
192	KM192	1587.95	4710.10	Sungai sungai	sandstone	P ₂ Cr	30	B.	R	S	F	W	secondary forest
193	KM193	1587.50	4710.22	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
194	KM194	1587.15	4710.32	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
195	KM195	1586.80	4697.35	Linkabau	sandstone	P ₂ Cr	30	B.	R	C	M	W	secondary forest
196	KM196	1586.24	4697.39	Linkabau	sandstone	P ₂ Cr	30	L.B.	F	S	S	W	secondary forest
197	KM197	1586.70	4697.75	Linkabau	—	P ₂ Cr	30	R.B.	R	S	S	W	secondary forest
198	KM198	1586.40	4697.85	Linkabau	—	P ₂ Cr	30	B.	F	S	M	W	secondary forest
199	KM199	1586.62	4698.27	Linkabau	—	P ₂ Cr	30	B.	R	C	F	W	secondary forest
200	KM200	1586.26	4698.27	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	C	S	W	secondary forest
201	KM201	1586.93	4698.89	Linkabau	s.s./shale	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
202	KM202	1586.55	4698.72	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	M	W	secondary forest
203	KM203	1586.09	4698.75	Linkabau	sandstone	P ₂ Cr	30	L.B.	R	S	M	W	secondary forest
204	KM204	1586.40	4699.20	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	M	W	secondary forest
205	KM205	1586.94	4699.73	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	S	W	secondary forest
206	KM206	1586.56	4699.77	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	S	W	secondary forest
207	KM207	1586.24	4699.58	Linkabau	sandstone	P ₂ Cr	30	B.	F	C	M	W	secondary forest
208	KM208	1586.97	4700.52	Linkabau	sandstone	P ₂ Cr	10	B.	R	S	M	W	secondary forest
209	KM209	1586.48	4700.78	Linkabau	sandstone	P ₂ Cr	10	B.	R	S	M	W	secondary forest
210	KM210	1585.97	4700.68	Linkabau	sandstone	P ₂ Cr	20	Y.B.	R	S	M	W	secondary forest

*1Gravel: Many (M), Few (F), Rare or none (R)

*2Topography: Steep (S), Moderate (M), Flat (F)

*3Grain size: Sandy (S), Clayey (C)

*4Humidity: Dry (D), Wet (W)

Ser. No.	Sample No.	Coordinates		1/50,000 Topo. Sheet	Rock of Basement	Geol. Unit	Depth (cm)	Color	G. #1	S. #2	T. #3	H. #4	Vegetation
		N	E										
211	KM211	1586.63	4701.38	Linkabau	sandstone	P ₂ Cr	20	Y.B.	R	S	F	W	secondary forest
212	KM212	1586.26	4701.30	Linkabau	sandstone	P ₂ Cr	20	Y.B.	R	S	M	W	secondary forest
213	KM213	1586.32	4701.62	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	M	W	secondary forest
214	KM214	1586.97	4701.53	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
215	KM215	1586.92	4702.35	Linkabau	—	P ₂ Cr	30	B.	F	S	M	W	secondary forest
216	KM216	1586.41	4702.24	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	M	W	secondary forest
217	KM217	1586.02	4702.07	Linkabau	sandstone	P ₂ Cr	30	L.B.	F	C	M	W	secondary forest
218	KM218	1586.58	4702.54	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	C	M	W	secondary forest
219	KM219	1586.15	4702.62	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	M	W	secondary forest
220	KM220	1586.83	4702.92	Linkabau	s.s./shale	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
221	KM221	1586.28	4702.95	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	M	W	secondary forest
222	KM222	1586.65	4703.42	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
223	KM223	1586.82	4703.89	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
224	KM224	1586.18	4704.15	Linkabau	—	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
225	KM225	1586.60	4704.42	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
226	KM226	1586.01	4704.26	Linkabau	s.s./shale	P ₂ Cr	30	B.	R	S	F	W	secondary forest
227	KM227	1586.70	4701.10	Linkabau	sandstone	P ₂ Cr	20	B.	F	S	F	W	secondary forest
228	KM228	1586.99	4705.27	Sungai sungai	s.s./shale	P ₂ Cr	30	Y.B.	R	C	F	W	secondary forest
229	KM229	1586.47	4705.17	Sungai sungai	—	P ₂ Cr	30	D.B.	R	S	F	W	secondary forest
230	KM230	1586.13	4705.08	Sungai sungai	—	Q ₂	30	B.	F	S	F	W	secondary forest
231	KM231	1586.14	4705.42	Sungai sungai	sandstone	P ₂ Cr	50	D.B.	R	S	F	W	secondary forest
232	KM232	1586.68	4705.65	Sungai sungai	—	Q ₂	30	B.	F	S	F	W	secondary forest
233	KM233	1586.30	4705.70	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
234	KM234	1586.81	4706.13	Sungai sungai	—	P ₂ Cr	20	B.	R	C	F	W	secondary forest
235	KM235	1586.64	4706.55	Sungai sungai	sandstone	P ₂ Cr	20	B.	R	S	F	W	secondary forest
236	KM236	1586.36	4706.82	Sungai sungai	sandstone	P ₂ Cr	20	B.	R	S	F	W	secondary forest
237	KM237	1586.15	4707.35	Sungai sungai	—	P ₂ Cr	20	B.	R	C	F	W	secondary forest
238	KM238	1586.78	4707.72	Sungai sungai	sandstone	P ₂ Cr	20	B.	R	C	M	W	secondary forest
239	KM239	1586.50	4707.89	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
240	KM240	1586.29	4707.70	Sungai sungai	sandstone	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest

*1Gravel: Many (M), Few (F), Rare or none (R)
 *2Grain size: Sandy (S), Clayey (C)
 *3Topography: Steep (S), Moderate (M), Flat (F)
 *4Humidity: Dry (D), Wet (W)

Ser. No.	Sample No.	Coordinates		1/50,000 Topo. Sheet	Rock of Basement	Geol. Unit	Depth (cm)	Color	G. #1	S. #2	I. #3	H. #4	Vegetation
		N	E										
241	KM241	1586.57	4709.42	Sungai sungai	s. s./shale	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
242	KM242	1586.18	4709.36	Sungai sungai	s. s./shale	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
243	KM243	1585.97	4709.57	Sungai sungai	s. s./shale	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
244	KM244	1586.70	4709.85	Sungai sungai	s. s./shale	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
245	KM245	1586.78	4710.27	Sungai sungai	s. s./shale	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
246	KM246	1586.84	4710.67	Sungai sungai	s. s./shale	P ₂ Cr	30	Y.B.	R	S	F	W	secondary forest
247	KM247	1585.76	4697.43	Linkabau	sandstone	P ₂ Cr	30	L.B.	F	S	S	W	secondary forest
248	KM248	1585.38	4697.27	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	S	W	secondary forest
249	KM249	1585.85	4697.75	Linkabau	sandstone	P ₂ Cr	30	B.	F	S	S	W	secondary forest
250	KM250	1585.38	4697.55	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	M	W	secondary forest
251	KM251	1585.43	4697.91	Linkabau	sandstone	P ₂ Cr	30	B.	F	C	M	W	secondary forest
252	KM252	1585.09	4697.83	Linkabau	s. s./shale	P ₂ Cr	30	B.G.	F	C	M	W	secondary forest
253	KM253	1585.87	4698.32	Linkabau	s. s./shale	P ₂ Cr	30	B.	F	S	S	W	secondary forest
254	KM254	1585.70	4698.75	Linkabau	sandstone	P ₂ Cr	30	L.B.	F	S	M	W	secondary forest
255	KM255	1585.20	4698.87	Linkabau	_____	P ₂ Cr	30	B.G.	F	S	C	W	secondary forest
256	KM256	1585.55	4699.19	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	C	S	W	secondary forest
257	KM257	1585.72	4699.53	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	C	S	W	secondary forest
258	KM258	1585.23	4699.77	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	C	M	W	secondary forest
259	KM259	1585.97	4699.88	Linkabau	sandstone	P ₂ Cr	30	B.	F	C	M	W	secondary forest
260	KM260	1585.75	4700.17	Linkabau	sandstone	P ₂ Cr	30	B.G.	F	S	F	W	secondary forest
261	KM261	1585.38	4700.09	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	C	M	W	secondary forest
262	KM262	1585.02	4700.20	Linkabau	sandstone	P ₂ Cr	30	B.G.	F	S	M	W	secondary forest
263	KM263	1585.34	4700.58	Linkabau	_____	P ₂ Cr	30	B.G.	F	S	M	W	secondary forest
264	KM264	1585.54	4700.90	Linkabau	sandstone	P ₂ Cr	30	Y.B.	F	S	M	W	secondary forest
265	KM265	1585.95	4701.20	Linkabau	sandstone	P ₂ Cr	20	Y.B.	R	S	M	W	secondary forest
266	KM266	1585.18	4701.17	Linkabau	sandstone	P ₂ Cr	30	B.	R	S	M	W	secondary forest
267	KM267	1585.56	4701.55	Linkabau	sandstone	P ₂ Cr	30	Y.B.	R	S	M	W	secondary forest
268	KM268	1585.30	4701.70	Linkabau	sandstone	P ₂ Cr	25	Y.B.	F	S	F	W	secondary forest
269	KM269	1585.18	4701.94	Linkabau	s. s./shale	P ₂ Cr	30	Y.B.	F	S	F	W	secondary forest
270	KM270	1585.43	4702.05	Linkabau	sandstone	P ₂ Cr	25	L.B.	F	S	F	W	secondary forest

*1Gravel: Many (M), Few (F), Rare or none (R) *2Grain size: Sandy (S), Clayey (C)

*3Topography: Steep (S), Moderate (M), Flat (F) *4Humidity: Dry (D), Wet (W)