Stop Mina do Recreio, COPELMI MINERAÇÃO S.A.					
DATE	LOCATION	COORDINATION		SAMPLE No.	ROCK
2001/ 10/04	Butiá	Latitude	Longitude	AS020	Coal
16:00		S30 06 58.8	W051 54 24.0	Height	66 m

We have a mention to compare the sulfur isotopes between the sulfide in basalt intrusion and in coal deposit in Rio Bonito formation that is underlain the flood basalt volcanics.

The coal mine is active, which excavate flat area from Butia to Mina ???. The long of the extension of the deposit is around 12 km of east west direction.
The coal deposit near east end has 2 coal seams. The sequences is; the first coal seam have a thickness of 90 cm which covered by siltstone, and 100 to 150 cm of interbeded sandstone, and the second coal seam of 100 to 200 cm in thickness.
Both coal seams in the area have around 5 percent of pyrite, the energy of fire has 4,000 to 6,000 Kilo calorie.

They crush and wash the ore to separate the pyrite and to increase the quality of coal before feed to the farness or to use as reduction material to make steel.

Waste ratio in the mine 10 cubic meters per 1 ton of coal that is, 30 meters of over burden is permitted.
Number of worker in the mine is around 5,000 peoples.

APPENDIX 2

Description of Rock and Drill Core Samples

Sample No. (this survey)	Sample No. (CPRM survey)	Lon_ D	Lon_ M	Lon_ S	Lat_ D	Lat_ M	Lat_ S	UTM: E-W	UTM: N-S	Altitude(m)	Rock Name	Host Unit	Description	Bulk	Thin	P-thin	X-ray	EPMA	Isotope
AS001		51	8	49.2	28	52	38.7				basalt	Gramado?	lava, dark gray, fine, massive, native copper included	1	1				1
AS002		53	8	51.3	25	12	25.2			703	basalt	?	lava, greenish dark gray, fine, massive, rarely quartz in amygdaloidal texture	1	1				
AS003		53	11	10.8	25	22	14.9			590	basalt	?	lava, gray, fine, massive	1	1				1
AS004A		53	3	29.2	25	23	59.8			508	basalt	?	lava, weak greenish gray, fine, massive	1	1			1	
AS004B		53	3	29.2	25	23	59.8			508	basalt	?	lava, greenish gray, coarse grained part of outcrop, malachite/celadonite included, many vesicle	1					
AS005		52	48	13.2	25	24	50.8			665	basalt	?	lava, greenish gray, fine, partly reddish weathered, malachite/celadonite included	1	1				
AS006		52	39	49.1	25	21	5.1			605	basalt	?	lava, dark gray, fine, massive, rarely greenish celadonite included	1	1				1
AS007		52	25	0.8	25	23	22.5			902	basalt	?	lava, dark gray, fine, massive	1	1				
AS008		52	31	51.2	25	29	24.9			685	basalt	?	lava, dark gray, fine, massive	1	1				
AS009		53	20	50.0	25	4	33.9			720	basalt	?	lava, brownish-greenish, fine, massive, weekly weathered	1	1				
AS010		50	29	40.0	24	47	54.9			955	dolerite		dike, black-dark gray, massive, pyrite included	1	1				1
AS011		50	30	30.6	24	47	9.2			914	dolerite		dike, ditto	1	1				1
AS012		50	33	23.4	24	42	31.5			808	shale		black shale of IRATI FORMATION						
AS013		50	46	25.6	24	39	28			829	dolerite		dike, weak greenish, massive, sulfide invisible	1	1				
AS014		50	51	49.5	24	38	3.6				gabbro		sill, gray, pyrite included mainly in crack, large phenocryst:cpx, pl(2-3cm)	1	1				1
AS015A		50	50	0.0	24	30	15			987	dolerite (Acidic Rock)		dike, gray (Acidic Rock)	1	1				

Description of Rock and Drill Core Samples

Sample No. (this survey)	Sample No. (CPRM survey)	Lon_ D	Lon_ M	Lon_ S	Lat_ D	Lat_ M	Lat_ S	UTM: E-W	UTM: N-S	Altitude(m)	Rock Name	Host Unit	Description	Bulk	Thin	P-thin	X-ray	EPMA	Isotope
AS015B		50	50	0.0	24	30	15			987	chilled margin of dike		dike, fine, pyrite veinlet included	1	1				
AS016A		50	46	18.1	24	27	9.2			942	dolerite		dike, gray, fine, sulfide invisible	1	1				
AS016B		50	46	18.1	24	27	9.2			942	dolerite		dike, gray, coarse, sulfide invisible	1	1				
AS017		50	42	21.5	24	25	4.9			911	dolerite		dike, dark gray, coarse, rarely pyrite included	1	1				
AS018		49	46	39.5	23	34	7.7			572	dolerite		sill, dark gray, middle grained(phenocryst:2-3cm), pyrite included in matrix	1	1				
AS019		49	45	15.3	23	34	6.2			551	gabbro		sill, black-bark gray, coarse,pyrite rich in matrix						
AS020													Pyrite rich coal ore of Rio Bonito F.						1
AS021		50	10	18.5	27	50	50.7			1034	basalt		dark gray fine-grained basalt, native copper observed(1 grain, film-like)	1	1			1	
AS022A		50	8	51.0	27	50	56.8			1074	altered rock		greenish altered rock(mudstone or altered volvanic rock), rarely py included	1			1		
AS022B		50	8	51.0	27	50	56.8			1074	altered rock		white argil rock, strong py-diss	1			1		
AS022C		50	8	51.0	27	50	56.8			1074	altered rock		weak silicified sand stone, py-diss	1					
AS022D		50	8	51.0	27	50	56.8			1074	altered rock		white argil rock, strong py-diss	1					
AS023		50	12	21.6	27	51	36.3			958	possible basalt?		dark gray fine-grained basalt or intrusion, fine-grainrd py/cp(?) included	1	1				1
AS024A		50	5	38.2	27	56	33.3			1219	possible basalt?		black aphanitic rock, conpact and very homogenious, columner joint(10-30cm) well developed	1	1				1
AS024B		50	5	38.2	27	56	33.3			1219	dyke		dike, width=50cm, black, glass rich N40° W	1	1				
AS025		50	5	42.0	27	56	30.4			1199	basalt			1	1				

Description of Rock and Drill Core Samples

Sample No. (this survey)	Sample No. (CPRM survey)	Lon_ D	Lon_ M	Lon_ S	Lat_ D	Lat_ M	Lat_ S	UTM: E-W	UTM: N-S	Altitude(m)	Rock Name	Host Unit	Description	Bulk	Thin	P-thin	X-ray	EPMA	Isotope
AS026		50	6	26.5	27	46	53.5			993	kimberlite			1	1				
AS027		50	6	21.3	27	46	49.6			975	kimberlite			1	1				
AS028A		50	13	44.9	27	46	41.5			1005	phonolite			1	1				
AS028B		50	13	44.9	27	46	41.5			1005	phonolite			1					
AS028C		50	13	44.9	27	46	41.5			1005	phonolite						1		
AS029		50	16	20.0	27	38	59.6			966	carbonatite?								
AS030		50	13	50.4	27	32	45.4			866	phonolite								
AS031		50	12	23.7	27	39	41.4			894	kimberlite								
KN001		51	2	27.0	29	49	16.0	496055	6701024	130	dolerite	Lonba Grande	sill, dark greenish grey, fine grain(glassy), phenocryst: pyroxene+plagioclase, olivine?.	1	1				
KN002		51	2	27.0	29	49	16.0	496055	6701024	130	gabbro	Lonba Grande	sill, dark greenish grey and redish dots, coarse grain, picritic, pyroxene+plagioclase+olivine.	1	1				1
KN003		51	8	55.7	29	37	53.2	485595	6722032	102	basalt	Gramado	feeder dyke, dark greenish grey, fine grain(glassy), phenocryst: pyroxene+plagioclase.	1	1			1	1
KN004		50	22	2.5	29	14	18.9	561478	6765404	100	acidic rock(dacite?)	Caxias	lava, dark grey, grassy, phenocryst: plagioclase+pyroxene, amygdaloidal texture(agate).						
KN005		50	57	17.5	28	32	4.5	504416	6843565	932	basalt	Paranapanema -Pitanga	lava, dark greenish grey, fine grain, phenocryst: plagioclase(+pyroxene).	1	1				1
KN006		51	6	23.7	28	21	28.4	489555	6863136	923	basalt	Esmeralda	lava, dark greenish grey, fine grain, phenocryst: plagioclase+pyroxene, magnetite rich, native copper.	1	1				1
KN007		51	28	55.0	27	37	6.3	452448	6944963	677	dacite	Caxias	lava, pale grey, coarse grain, phenocryst: plagioclase+pyroxene.						
KN008		51	29	12.1	27	37	8.3	451979	6944900	677	rhyorite	Caxias	lava, dark grey, grassy, flow band, amygdaloidal texture(agate).						

Description of Rock and Drill Core Samples

Sample No. (this survey)	Sample No. (CPRM survey)	Lon_ D	Lon_ M	Lon_ S	Lat_ D	Lat_ M	Lat_ S	UTM: E-W	UTM: N-S	Altitude(m)	Rock Name	Host Unit	Description	Bulk	Thin	P-thin	X-ray	EPMA	Isotope
KN009		51	28	8.0	27	36	22.2	453731	6946325	563	basalt	Paranapanema -Pitanga	lava, dark greenish grey, fine grain, phenocryst: plagioclase+pyroxene, magnetite rich.	1	1				1
KN010		51	20	31.7	27	20	7.3	466156	6976363	863	basalt	Esmeralda	lava, dark greenish grey, fine grain, phenocryst: plagioclase+pyroxene, magnetite rich.	1					
KN011		51	24	3.0	27	17	47.1	460336	6980659	840	basalt	Esmeralda?	lava, greenish grey, fine grain, massive, phenocryst: plagioclase+pyroxene.	1	1				
KN012		51	40	52.2	27	3	29.4	432451	7006929	874	basalt	Esmeralda?	lava, greenish grey, medium grain, phenocryst: plagioclase+pyroxene, native copper.	1	1				1
KN013		51	47	35.2	26	58	56.1	421297	7015273	1,135	dacite	Chapeco	lava, grey, coarse grain(porphyritic), phenocryst: plagioclase(max 1cm)+pyroxene.						
KN014		51	59	36.8	26	53	18.5	401324	7025520	1,054	basalt	?	lava, greenish grey, fine grain, massive, phenocryst: plagioclase+pyroxene, magnetite.	1	1				1
KN015		53	15	29.2	26	45	56.6	275463	7037509	593	basalt	?	lava, dark greenish grey, fine grain, phenocryst: pyroxene+plagioclase, amygdaloidal texture(zeolite).						
KN016		53	30	38.6	26	34	18.9	249913	7058515	753	basalt	?	lava, greenish grey, fine grain, massive, phenocryst: plagioclase+pyroxene, magnetite, native copper.	1	1				1
KN017		52	49	6.6	26	18	7.6	318504	7089620	831	basalt	Esmeralda	lava, grey, medium grain, massive, phenocryst: plagioclase+pyroxene, magnetite.	1	1				
KN018		52	41	25.3	26	14	34.7	331211	7096350	818	basalt	Esmeralda	lava, grey, medium grain, heterogeneity, phenocryst: plagioclase, magnetite, interstitial glass-spheriform black glass.	1	1				
KN019		53	1	20.2	26	4	23.2	297758	7114691	640	basalt	?	lava, grey, fine-medium grain, massive, phenocryst: plagioclase(+pyroxene), magnetite, (weak weathered).	1	1				1
KN020		53	17	25.8	25	52	17.1	270482	7136546	567	basalt	Esmeralda	lava, dark greenish grey, fine grain, massive, glassy, phenocryst: plagioclase(+pyroxene).	1	1				1
KN021		53	10	59.1	25	55	31.8	281353	7130730	606	basalt	Esmeralda	lava, dark greenish grey, fine grain, massive, glassy, phenocryst: plagioclase, spheriform black glass.	1	1				
KN022A		53	19	40.6	25	45	1.9	266495	7149873	545	basalt	Esmeralda	lava, greenish grey, fine-medium grain, phenocryst: plagioclase, magnetite rich.	1	1				1
KN022B		53	19	40.6	25	45	1.9	266495	7149873	545	basalt	Esmeralda	glass rich part, coase grain, phenocryst: plagioclase, native copper	1	1				
KN022C		53	19	40.6	25	45	1.9	266495	7149873	545	gabbro	Esmeralda	Gabbroic part					1	

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Sample No. (this survey)	Sample No. (CPRM survey)	Lon_ D	Lon_ M	Lon_ S	Lat_ D	Lat_ M	Lat_ S	UTM: E-W	UTM: N-S	Altitude(m)	Rock Name	Host Unit	Description	Bulk	Thin	P-thin	X-ray	EPMA	Isotope
KN023A		53	32	54.9	25	46	48.2	244418	7146189	463	basalt	Esmeralda	lava, grey, fine grain, glassy, phenocryst: plagioclase, magnetite, native copper.	1	1				
KN023B		53	32	54.9	25	46	48.2	244418	7146189	463	gabbroic dolerite	Esmeralda	glass rich and coarse grain part, phenocryst: plagioclase+pyroxene, black spheriform glass, native copper.	1	1				
KN023C		53	32	54.9	25	46	48.2	244418	7146189	463	gabbroic dolerite	Esmeralda	glass rich and coarse grain part.		1				
KN024A		53	48	40.2	25	40	54.2	217838	7156553	374	basalt	Esmeralda	lava, grey, fine grain, glassy, phenocryst: plagioclase, magnetite.	1	1				1
KN024B		53	48	40.2	25	40	54.2	217838	7156553	374	gabbroic dolerite	Esmeralda	glass rich and coarse grain part, phenocryst: plagioclase+pyroxene, black spheriform glass.	1	1				
KN025A		53	48	18.6	25	38	19.2	218341	7161336	314	basalt	?	lava, reddish grey, fine-medium grain, massive, glassy, phenocryst: plagioclase, amygdaloidal texture, weak weathered(celadonite).	1	1				
KN025B		53	48	18.6	25	38	19.2	218341	7161336	314	basalt	?	lava, greenish grey, coarse grain, glass rich, amygdaloidal texture (zeolite, quartz, calcite).	1	1				
KN026		53	34	0.4	25	36	19.3	242216	7165509	407	basalt	Esmeralda	lava, greenish grey, fine grain, massive, phenocryst: plagioclase+pyroxene.	1	1				
KN027		54	12	6.5	25	20	16.6	781657	7194677	385	basalt	?	lava, greenish grey, fine grain, massive, glassy, phenocryst: plagioclase, magnetite.	1	1				1
KN028		53	51	51.6	25	0	58.1	210916	7230193	544	basalt	?	lava, reddish grey, fine grain, phenocryst: plagioclase, weathered.	1	1				
KN029		53	42	4.5	24	43	44.9	226756	7262337	516	basalt	?	lava, reddish grey, fine grain, massive, amygdaloidal texture(ϕ : Max 1cm), weathered.	1	1				
KN030		53	46	26.2	24	45	5.6	219449	7259710	468	basalt	?	lava, reddish-greenish grey, fine-medium grain, massive, phenocryst: plagioclase, weak weatherd(hematite, celadonite).	1	1				
KN031		54	5	32.2	24	33	31.6	794541	7280792	418	basalt	?	lava, grey, fine grain, massive, native copper along joint.	1	1				1
KN032		54	14	29.9	24	27	21.9	779633	7292480	278	basalt	?	lava, greenish grey, fine grain, phenocryst: plagioclase, weak weathered.	1	1				1
KN033		54	1	40.1	24	47	16.6	800528	7255255	348	basalt	?	lava, greenish grey, fine grain, massive, phenocryst: plagioclase, magnetite, native copper, weak weathered(hematite, celadonite).	1	1			1	
KN034A		50	51	52.3	25	12	21.6	513649	7212226	922	basalt	Irati formation?	sill, grey, fine grain, massive, phenocryst: plagioclase+pyroxene.	1	1				

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KN034B		50	51	52.3	25	12	21.6	513649	7212226	922	gabbro	Irati formation?	sill, dark grey, coarse grain, phenocryst: pyroxene+plagioclase.	1	1				
KN035A		50	40	32.4	25	26	23.1	532613	7186309	995	gabbro	Irati formation?	sill, grey, coarse grain, phenocryst: pyroxene+plagioclase, magnetite, pyrite dissemination.	1					
KN035B		50	40	32.4	25	26	23.1	532613	7186309	995	gabbro	Irati formation?	sill, grey, coarse grain, phenocryst: pyroxene+plagioclase, magnetite, pyrite dissemination(abundant part of pyrite).			1		1	
KN035C		50	40	32.4	25	26	23.1	532613	7186309	995	black crey	---	black crey and zeolite along joint.				1		
KN036A		50	37	28.8	24	19	23.7	538079	7309923	739	dolerite	?	dyke, grey, coarse grain, phenocryst: plagioclase+pyroxene, pyrite dissemination.	1					
KN036B		50	37	28.8	24	19	23.7	538079	7309923	739	dolerite	?	dyke, grey, coarse grain, phenocryst: plagioclase+pyroxene, pyrite dissemination(abundant part of pyrite).	1		1			
KN037		50	26	29.5	24	1	12.5	556794	7343420	905	dolerite	?	dyke, grey-greenish grey, phenocryst: pyroxene+plagioclase.	1	1				
KN038		50	12	30.7	23	54	31.2	580566	7355649	877	dolerite	?	sill, greenish grey, medium-coarse grain, massive, phenocryst: pyroxene+plagioclase, pyrite dissemination.	1		1			
KN039A		49	51	18.3	23	39	27.4	616762	7383204	812	dolerite	?	sill, grey-greenish grey, medium grain, massive, phenocryst: pyroxene+plagioclase, pyrite.	1	1				
KN039B		49	51	18.3	23	39	27.4	616762	7383204	812	gabbroic dolerite	?	sill, grey-greenish grey, coarse grain, phenocryst: pyroxene+plagioclase, pyrite.	1	1				
KN040A		49	44	26.8	24	14	22.9	627843	7318653	991	dolerite	?	sill, grey-greenish grey, medium grain, massive, phenocryst: pyroxene+plagioclase, pyrite dissemination.	1	1				1
KN040B		49	44	26.8	24	14	22.9	627843	7318653	991	dolerite	?	sill, grey-greenish grey, medium grain, massive, phenocryst: pyroxene+plagioclase, pyrite dissemination(abundant part of pyrite).	1		1			1
KN040C		49	44	26.8	24	14	22.9	627843	7318653	991	gabbro	?	sill, grey-greenish grey, coarse grain, phenocryst: pyroxene+plagioclase.	1	1				
KN041		54	45	24.8	29	19	34.1	717817	6753771	338	dacite		lava, ligh grey, massive, fine grain, phenocryst: plagioclase, weathered.						
KN042		54	49	27.1	29	15	1.5	711439	6762294	450	dacite		lava, ligh grey, massive, fine grain, phenocryst: plagioclase.	1	1				
KN043		55	6	31.0	29	35	28.6	683180	6724998	170	dacite (Acidic Rock)		lava, ligh grey, massive, fine grain, phenocryst: plagioclase, weak weathered.	1	1				

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KN044		55	54	20.9	29	50	25.7	605703	6698378	136	dacite?		lava, grey, massive, fine grain, phenocryst: plagioclase, weathered.	1	1				
KN045		55	15	51.4	29	0	45.0	669054	6789376	318	basalt?		lava, dark greenish grey, fine-medium grain, phenocryst: plagioclase(+pyroxene?), weakly weathered.	1	1				
KN046A		56	3	4.8	29	54	46.2	591582	6690482	130	dacite?		lava, grey, medium grain, massive, phenocryst: plagioclase(+pyroxene?), weathered.	1	1				
KN046B		56	3	4.8	29	54	46.2	591582	6690482	130	dacite?		lava, grey, coarse grain, porphyritic, phenocryst: plagioclase(+pyroxene?), muscovite and zeolite, weathered.						
KN047		55	43	50.6	28	48	41.0	623857	6812240	124	basalt	Esmeralda?	lava, dark grey, medium grain, massive, phenocryst: plagioclase+pyroxene, native copper in.	1		1		1	
KN048A		55	8	24.4	28	28	51.7	682069	6848091	173	basalt	?	lava, greenish grey, medium grain, massive, phenocryst: plagioclase+pyroxene, weathered.	1	1				
KN048B		55	8	24.4	28	28	51.7	682069	6848091	173	gabbro	?	lava, greenish grey, coarse grain, porphyritic, phenocryst: plagioclase+pyroxene, weathered.	1	1				
KN049		55	22	34.0	28	27	19.0	658999	6851276	135	basalt	?	lava, grey, fine grain, massive, phenocryst: plagioclase+pyroxene, native copper in.	1		1			
KN050		54	26	37.4	28	23	47.9	750459	6856189	268	basalt	?	lava or Sill?, dark grey, medium-coarse grain, massive, phenocryst: plagioclase+pyroxene, sulfide dissemination.	1		1			1
KN051		54	16	11.5	28	20	15.7	767644	6862347	264	basalt	?	lava or Sill?, dark grey, medium-coarse grain, massive, phenocryst: plagioclase+pyroxene, sulfide dissemination, weakly weathered.	1		1			
KN052		54	21	52.8	27	46	39.4	759694	6924638	235	basalt	?	lava, grey, fine-medium grain, massive, phenocryst: plagioclase+pyroxene, native copper in.	1		1			1
KN053		55	12	57.3	29	2	23.3	673718	6786279	335	dacite?		lava, grey-reddish grey, fine grain, massive, weathered.		1				
	WW013	50	44	21.1	28	36	3.0	525500	6836200		andesitic basalt	Paranapanema -Pitanga	lava, brown, fine-grain, amygdaloidal texture.						
	WW017	50	17	16.1	28	39	7.2	569600	6830350		andesitic basalt (Acidic Rock)	Paranapanema -Pitanga	lava, brown, fine-grain, weak amygdaloidal texture.	1	1				
	WW024	50	33	23.3	28	1	31.2	543600	6899900		andesitic basalt	Esmeralda	lava, brow-reddish grey, fine-grain, weak amygdaloidal texture.	1	1				1
	WW026	50	51	21.8	28	23	41.1	514100	6859050		andesitic basalt (Acidic Rock)	Paranapanema -Pitanga	lava, brow-grey, fine-grain, amygdaloidal texture.	1	1				

Description of Rock and Drill Core Samples

Sample No. (this survey)	Sample No. (CPRM survey)	Lon_ D	Lon_ M	Lon_ S	Lat_ D	Lat_ M	Lat_ S	UTM: E-W	UTM: N-S	Altitude(m)	Rock Name	Host Unit	Description	Bulk	Thin	P-thin	X-ray	EPMA	Isotope
	WW031	51	28	1.9	28	19	3.9	454200	6867500		basalt	Paranapanema-Pitanga	lava, greenish grey, fine grain.	1	1				
	WW056	52	52	4.0	27	25	15.7	315364	6965535		basalt	Paranapanema-Pitanga	lava, greenish grey, fine grain.	1	1				
	WW068	53	5	8.5	29	19	4.5	297453	6754975		andesite? (Acidic Rock)	Gramado	lava, grey, coarse grain, phenocryst: pyroxene-plagioclase.	1	1				
	WW069	53	0	48.9	29	24	23.3	304628	6745281		basalt	Gramado	lava, greenish grey, fine grain, rare amygdaloidal texture.	1	1				
	WW073	52	44	18.5	29	9	17.7	330913	6773588		basalt	Gramado	lava, dark grey, fine grain.	1	1				
	WW076	51	55	40.4	29	22	57.2	409956	6749261		andesitic basalt	Gramado	lava, grey, coarse grain, phenocryst: pyroxene-plagioclase.	1	1				
	WW077	51	52	57.0	29	11	37.9	414204	6770202		andesitic basalt	Gramado	lava, grey, coarse grain, phenocryst: pyroxene-plagioclase.	1	1				
	WW083	51	6	33.3	29	28	46.6	489409	6738860		basalt	Gramado	lava, dark grey, fine grain.	1	1				
	WW092	51	38	9.6	28	13	59.4	437601	6876795		basalt	Paranapanema-Pitanga	lava, dark grey, fine grain, rare amygdaloidal texture.	1	1				
	WW095	52	15	50.6	28	4	4.8	375786	6894610		basalt	Paranapanema-Pitanga	lava, grey-dark brown, fine grain.	1	1				
	WW097	50	52	26.0	29	45	21.6	512193	6708234		basalt	Gramado	lava, amygdaloidal texture						
	WW099	50	43	41.8	29	33	2.5	526325	6730958		basalt	Gramado	lava, grey, fine grain, phenocryst: pyroxene+(plagioclase).	1	1				1
	WW117a	50	18	28.7	28	26	41.5	567761	6853311		basalt	Paranapanema-Pitanga	lava, reddish grey, fine grain.	1	1				
	WW122	49	43	23.8	28	18	7.2	625186	6868670		basalt	Esmeralda	lava, reddish grey, fine grain, rare amygdaloidal texture.	1	1				1
	WW129	50	9	55.0	28	14	52.4	581885	6875044		basalt	Esmeralda	lava, grey, medium grain, rare amygdaloidal texture, (brown layer).	1	1				
	WW130	50	2	58.0	28	7	40.7	593352	6888244		basalt	Esmeralda	lava, grey, medium grain.	1	1				

Description of Rock and Drill Core Samples

Sample No. (this survey)	Sample No. (CPRM survey)	Lon_ D	Lon_ M	Lon_ S	Lat_ D	Lat_ M	Lat_ S	UTM: E-W	UTM: N-S	Altitude(m)	Rock Name	Host Unit	Description	Bulk	Thin	P-thin	X-ray	EPMA	Isotope
	WW134	50	11	33.3	27	51	57.5	579488	6917371		basalt	Esmeralda	lava, grey, medium grain.	1	1				
	AC-028	53	13	20.6	26	45	26.4	279000	7038500		basalt	?	lava, greenish grey, fine grain.	1	1				
	AC-034B	53	30	5.0	26	52	28.3	251500	7025000		dolerite	?	lava, greenish grey, coarse grain, phenocryst: pyroxene+plagioclase.	1	1				
	AC-035	53	29	59.1	27	1	40.6	252000	7008000		basalt	?	lava, reddish grey, fine grain.	1	1				
	ACR-119	51	36	27.2	27	31	5.8	440000	6956000		basalt (Acidic Rock)	?	lava, reddish grey, fine grain.	1	1				
	ACR-125	52	35	54.1	27	4	5.3	341500	7005000		basalt	?	lava, grey, fine grain, phenocryst: pyroene+plagioclase.	1	1				
	ADR-033	52	5	9.8	26	44	36.7	392000	7041500		basalt	?	lava, greenish grey, fine grain, weak weathered(hematite), rare amygdaloidal texture.	1	1				
AT03-486.0		49	45	19.6	29	11	34.1	621000	6770000		(Drill core)		native copper in cavity, chalcedonic quartz druse			1		1	
AT03-486.3								621000	6770000		(Drill core)		black brecciated shale with pyrite	1	1				1
AT03-487.0								621000	6770000		(Drill core)		sill, gray aphanitic tholeiitic dolerite, strongly py-diss(dotted)	1	1				
AT03-498.5								621000	6770000		(Drill core)		sill, gray coarse grained tholeiitic dolerite(gabbroic), weakly py-diss	1	1				
AT03-509.4								621000	6770000		(Drill core)		sill, gray medium grained tholeiitic dolerite	1	1				
AT03-519.2								621000	6770000		(Drill core)		sill, gray medium grained tholeiitic dolerite, strong pyritization	1	1				1
AT03-528.9								621000	6770000		(Drill core)		sill, gray medium grained tholeiitic(or picritic) dolerite	1	1				
AT03-537.3								621000	6770000		(Drill core)		sill, gray medium grained tholeiitic dolerite, weak pyritization(film like)	1	1				
AT03-547.4								621000	6770000		(Drill core)		sill, gray aphanitic tholeiitic dolerite, chilled margin(4m in width)	1	1				

Description of Rock and Drill Core Samples

Sample No. (this survey)	Sample No. (CPRM survey)	Lon_ D	Lon_ M	Lon_ S	Lat_ D	Lat_ M	Lat_ S	UTM: E-W	UTM: N-S	Altitude(m)	Rock Name	Host Unit	Description	Bulk	Thin	P-thin	X-ray	EPMA	Isotope
AT03-590.1								621000	6770000		(Drill core)		sill, gray medium grained tholeiitic dolerite, weak pyritization(dotted dissemonation, film-like)	1	1				
AT03-600.0								621000	6770000		(Drill core)		sill, gray medium grained tholeiitic dolerite, weak pyritization(dotted dissemonation, film-like)	1	1				
AT03-607.9								621000	6770000		(Drill core)		sill, gray medium grained tholeiitic dolerite, weak pyritization(dotted dissemonation, film-like)	1	1				
AT03-616.9								621000	6770000		(Drill core)		sill, gray aphanitic tholeiitic dolerite, chilled margin(4m in width), weak pyritization	1	1				
AT08-792.4		49	43	12.4	29	18	15.8	624300	6757600		(Drill core)		sill, gray medium grained tholeiitic dolerite	1	1				
AT08-802.85								624300	6757600		(Drill core)		sill, gray coarse grained tholeiitic dolerite(gabbroic)	1	1				
AT08-815.1								624300	6757600		(Drill core)		sill, gray medium grained tholeiitic dolerite	1	1				
AT08-825.0								624300	6757600		(Drill core)		sill, gray medium grained tholeiitic dolerite	1	1				
AT08-834.4								624300	6757600		(Drill core)		sill, gray medium grained tholeiitic dolerite	1	1				
AT08-845.1								624300	6757600		(Drill core)		sill, gray medium grained tholeiitic dolerite	1	1				1
AT08-853.05								624300	6757600		(Drill core)		sill, gray aphanitic tholeiitic dolerite, chilled margin(4m in width)	1	1				
AT08-925.3								624300	6757600		(Drill core)		sill, gray fine grained tholeiitic dolerite, weak pyritization	1	1				
AT08-936.5								624300	6757600		(Drill core)		sill, gray medium grained tholeiitic dolerite	1	1				
AT08-947.75								624300	6757600		(Drill core)		sill, gray very fine grained tholeiitic dolerite	1	1				
TG07-235.0		50	26	55.9	29	57	57.4	553175	6684850		(Drill core)		sill, black, fine	1	1				
TG07-250.0								553175	6684850		(Drill core)		sill, black, fine, pyrite in fracture	1	1				

Description of Rock and Drill Core Samples

Sample No. (this survey)	Sample No. (CPRM survey)	Lon_ D	Lon_ M	Lon_ S	Lat_ D	Lat_ M	Lat_ S	UTM: E-W	UTM: N-S	Altitude(m)	Rock Name	Host Unit	Description	Bulk	Thin	P-thin	X-ray	EPMA	Isotope
TG07-270.0								553175	6684850		(Drill core)		sill, black, fine	1	1				
TG114-272.0		50	39	51.9	30	1	52.9	532355	6677680		(Drill core)			1	1				
TG114-275.0								532355	6677680		(Drill core)			1	1				
TG114-278.9								532355	6677680		(Drill core)			1	1				
TG114-283.8								532355	6677680		(Drill core)			1	1				
TG114-286.4								532355	6677680		(Drill core)			1	1				
TG114-289.9								532355	6677680		(Drill core)			1	1			1	1
TG114-293.7								532355	6677680		(Drill core)			1	1				
TG114-295.0								532355	6677680		(Drill core)			1	1				
TG228-725		50	5	37.4	29	50	26.4	587550	6698514		dolerite (Drill core)		sill, black, fine	1	1				
TG228-740								587550	6698514		dolerite (Drill core)		ditto	1	1				
TG228-755.0								587550	6698514		gabbro (Drill core)		sill, coarse grain, gabbroic	1	1				
TG228-758.5								587550	6698514		(Drill core)		boundary of fine/coarse part		1				
TG228-770								587550	6698514		(Drill core)		sill, black, fine	1	1				
TG228-785								587550	6698514		(Drill core)		sill, black, fine	1	1				
TG228-800								587550	6698514		(Drill core)		sill, black, fine	1	1				

Description of Rock and Drill Core Samples

Sample No. (this survey)	Sample No. (CPRM survey)	Lon_ D	Lon_ M	Lon_ S	Lat_ D	Lat_ M	Lat_ S	UTM: E-W	UTM: N-S	Altitude(m)	Rock Name	Host Unit	Description	Bulk	Thin	P-thin	X-ray	EPMA	Isotope
TG228-817								587550	6698514		(Drill core)		sill, black, fine	1	1				1
TG228-830								587550	6698514		(Drill core)		sill, black, fine	1	1				
TG27-112.0								547000	6696750		(Drill core)		sill, reddish black, porphyritic	1	1				
TG27-119.0								547000	6696750		(Drill core)		sill, black, fine	1	1				
TG27-138.5								547000	6696750		(Drill core)		sill, very fine, chilled margin	1	1				
TG27-91.5		50	30	48.2	29	51	31.7	547000	6696750		(Drill core)		sill, black, middle grained, possible high magnesian	1	1				
TG27-93.2								547000	6696750		(Drill core)		sill, black, very fine, chilled margin, possible high magnesian	1	1				
TG62-176.5		50	41	8.2	30	2	21.7	530310	6676800		(Drill core)			1	1				
TG62-183.5								530310	6676800		(Drill core)			1	1				
TG62-188.0								530310	6676800		(Drill core)			1	1				
TG62-196.7								530310	6676800		(Drill core)			1	1				
TG62-200.5								530310	6676800		(Drill core)			1	1				
TG62-204.0								530310	6676800		(Drill core)			1	1				
TG62-207.7								530310	6676800		(Drill core)			1	1				
TG62-211.4								530310	6676800		(Drill core)			1	1				
TG62-215.4								530310	6676800		(Drill core)			1	1				

Description of Rock and Drill Core Samples

Sample No. (this survey)	Sample No. (CPRM survey)	Lon_ D	Lon_ M	Lon_ S	Lat_ D	Lat_ M	Lat_ S	UTM: E-W	UTM: N-S	Altitude(m)	Rock Name	Host Unit	Description	Bulk	Thin	P-thin	X-ray	EPMA	Isotope
TG62-220.0								530310	6676800		(Drill core)			1	1				
TG62-220.4								530310	6676800		(Drill core)			1	1				
TG62-223.4								530310	6676800		(Drill core)			1	1				
TG62-225.0								530310	6676800		(Drill core)			1	1				
TG62-226.3								530310	6676800		(Drill core)			1	1			1	
TG62-226.8								530310	6676800		(Drill core)			1	1				
TG62-227.8								530310	6676800		(Drill core)			1	1				
TG62-234.8								530310	6676800		(Drill core)			1	1				
TG62-237.6								530310	6676800		(Drill core)			1	1				1
TG62-238.5								530310	6676800		(Drill core)			1	1				
TG95-639.3		50	10	56.9	29	48	37	578999	6701945		(Drill core)		sill, black, chilled margin, pyrite in fracture	1	1				
TG95-650.3								578999	6701945		(Drill core)		sill, black, fine	1	1				
TG95-664.7								578999	6701945		(Drill core)		sill, black, fine	1	1				
TG95-682.0								578999	6701945		(Drill core)		sill, black, coarse grain, gabbroic	1	1				
TG95-695.0								578999	6701945		(Drill core)		sill, black, fine	1	1				
TG95-709.4								578999	6701945		(Drill core)		sill, black, fine	1	1				

Description of Rock and Drill Core Samples

Sample No. (this survey)	Sample No. (CPRM survey)	Lon_ D	Lon_ M	Lon_ S	Lat_ D	Lat_ M	Lat_ S	UTM: E-W	UTM: N-S	Altitude(m)	Rock Name	Host Unit	Description	Bulk	Thin	P-thin	X-ray	EPMA	Isotope
TG95-725.0								578999	6701945		(Drill core)		sill, black, fine	1	1				
TG95-743.0								578999	6701945		(Drill core)		sill, black, fine	1	1				
TG95-756.3								578999	6701945		(Drill core)		sill, black, fine	1	1				1
TG95-772.8								578999	6701945		(Drill core)		sill, very fine, chilled margin	1	1				
TG95-825.7								578999	6701945		(Drill core)		black shale of IRATI FORMATION						
TG97-563.2		50	7	46.6	29	51	19.2	584070	6696915		silt (Drill core)		pyrite rich silt stone, pyrite conc. In fracture						
TG97-569.2								584070	6696915		dolerite (Drill core)		sill, black, very fine, chilled margin	1	1				
TG97-590.0								584070	6696915		dolerite (Drill core)		sill, black, fine, pyroxene(1mm) included	1	1				
TG97-602.0								584070	6696915		dolerite (Drill core)		sill, black, fine, pyroxene(1mm) included	1	1				
TG97-615.0								584070	6696915		dolerite (Drill core)		sill, black, fine, pyroxene(1mm) included	1	1				
TG97-625.0								584070	6696915		dolerite (Drill core)		sill, black, fine, pyroxene(1mm) included	1	1				
TG97-630.0								584070	6696915		dolerite (Drill core)		sill, black, fine, pyroxene(1mm) included	1	1				
TG97-650.0								584070	6696915		dolerite (Drill core)		sill, black, fine, pyroxene(1mm) included	1	1				
TG97-664.0								584070	6696915		dolerite (Drill core)		sill, black, very fine, possible chilled margin	1	1				

Analysis type
Bulk: Whole rock analysis
Thin: Observation of thin section
P-thin: Observation of polished-thin section
X-ray: Powdary X-ray difraction
EPMA: Erectron microprobe analysis
Isotope: Measurement of Nd, Sr and S isotope ratio

APPENDIX 3

Microscopic Observation of Thin and Polished-Thin Sections

Sampe No.	Rock Name	minerals													Note (others)
												opague			
		pl	am	opx	cpx	ol		qz	chl	ca	serp	mt	chr	sul-(pt)	
AS001	cpx basalt	◎		・	○				・			△		・?	
AS002	ol bearing cpx basalt	◎		・	○				・		・	△		・?	coarse basalt(or dolerite)
AS003	ol bearing cpx basalt	◎		・	○	・			・		・	△		・?	
AS004A	ol bearing cpx basalt	◎		・	○	・			・		・	△		・?	contact with cpx dolerite
AS005	ol bearing cpx basalt	◎		・	○	・			△		△	△		・?	
AS006	ol bearing cpx basalt	◎		・	○				・		・	△		・?	
AS007	ol bearing cpx basalt	◎		・	○				・		・	△		・?	
AS008	ol cpx dolerite	◎		・	○	・			△		△	△		・?	
AS009	ol bearing cpx basalt	◎		・	○				・		・	△		・?	ferric hydroxide
AS010	cpx dolerite	◎			○				・			△		・?	
AS011	cpx dolerite	◎			○				・			△		・?	ol(idingsite) bearing?
AS013	cpx gabbro	◎		・	○			・	・			△		・?	
AS014	ol bearing cpx gabbro	◎		・	○	・		・	・		・	△		・?	needle shape cpx(1cm×0.2mm),
AS015A	ol bearing cpx dolerite	◎		・	○	・			・		・	△		・?	
AS015B	cpx basalt	◎		・	○	・?			・			△		・?	partly brown glass matrix
AS016A	cpx dolerite	◎		・	○				・			△		・?	
AS016B	cpx dolerite	◎		・	○			・	・			△		・?	
AS017	cpx dolerite	◎		・	○			・	・	・		△		・?	
AS018	cpx dolerite	◎		・	○				・			△		・?	
AS021	ol bearing cpx basalt	◎		・	○	・			・		・	△		・?	coarse basalt
AS023	cpx basalt	◎		・	○				・			△		・?	partly brown glass matrix
AS024A	cpx basalt	◎		・	○				・			△		・?	
AS024B_1	cpx basalt (fragment)	◎		・	○				・	・		△		・?	intergranular texture
AS024B_2	cpx ol basalt (matrix)	◎		△	・	△			・	・		△		・?	glass matrix with phenocrysts
AS025	weathered cpx basalt	◎		・	○				△			△		・?	partly glass matrix
AS026	weathered basalt	◎		・	△				△	△	・	△		・?	hyaloclastite

Microscopic Observation of Thin and Polished-Thin Sections

Sampe No.	Rock Name	minerals													Note (others)
		pl	am	opx	cpx	ol		qz	chl	ca	serp	opague			
												mt	chr	sul-(pt)	
AS027	cpx basalt	◎		・	○				△		・	△		・?	ferric hydroxide
AS028A	trachy andesite	◎	○						△	・					alkaline feldspar and alkaline amphibole
KN001	cpx basalt	◎			・							・			自破砕構造を示す。
KN002	olivine gabbro	◎		△	△	◎						・	・		
KN003	olivine basalt	◎			○	○			・			・	・?		ferric hydroxide (reddish)
KN005	cpx basalt	◎			○			・	・			△			
KN006	cpx basalt	◎			○				・			△			
KN009	cpx basalt	◎			○			・	・			△			green clay mineral(malachite?)
KN011	cpx basalt	◎			○				・			△			
KN012	ol-cpx basalt	◎			○				△		△	・		・?	coarse basalt
KN014	ol-cpx basalt	◎			○				△		△	・		・?	coarse basalt
KN016	cpx basalt	◎			○				・			△			
KN017	cpx basalt	◎			○				・			△			
KN018	ol-cpx basalt	◎			○				△		△	△		・?	
KN019	cpx basalt	◎			○				・			△		・?	
KN020	ol bearing cpx basalt	◎			○				・		・	△		・?	
KN021	ol-cpx basalt	◎			○				△		△	△		・?	
KN022A	ol-cpx basalt	◎			○				△		△	△		・?	
KN022B	weathered dolerite	◎			△				○			△		・?	ferric hydroxide, malachite?
KN023A	ol bearing cpx basalt	◎			○				・		・	△		・?	
KN023B	cpx dolerite	◎			○				△			△		・?	chlorite-epidote
KN023C	ol-bearing cpx basalt	◎			○				△		・	△		・?	
KN024A	ol-bearing cpx basalt	◎			○				△		・	△		・?	
KN024B	weathered dolerite	○			△			・	○			△		・?	malachite? , needle shape weatherd mineral
KN025A	ol cpx basalt	◎		・	○				△		・	△		・?	
KN025B	cpx dolerite	◎		・	○			・	△			△		・?	malachite? (○)

Microscopic Observation of Thin and Polished-Thin Sections

Sampe No.	Rock Name	minerals													Note (others)
		pl	am	opx	cpx	ol		qz	chl	ca	serp	opague			
												mt	chr	sul-(pt)	
KN026	ol cpx basalt	◎		・	○				△		・	△		・?	
KN027	ol bearing cpx basalt	◎			○			・	・		・	△		・?	malachite?(・)
KN028	cpx-basalt	◎			○				・			△		・?	ferric hydroxide
KN029	cpx-basalt	◎			○				・			△		・?	ferric hydroxide
KN030	cpx-basalt	◎			○				・			△	・?	・?	
KN031	cpx-basalt	◎		・	○				・			△		・?	
KN032	cpx-basalt	◎			○				・			△		・?	
KN033	cpx-basalt	◎			○				・			△		・?	
KN034A	cpx-basalt	◎		・	○				・			△		・?	
KN034B	cpx dolerite	◎		・	○				・			△		・?	
KN035B	cpx gabbro	◎		・	○				・			△		・?	
KN037	cpx gabbro	◎		・	○				・			△		・?	
KN039A	cpx gabbro	◎		・	○				・			△		・?	
KN039B	cpx gabbro	◎		・	○			・	・			△		・?	
KN040A	ol bearing cpx dolerite	◎		・	○	・			・		・	△		・?	
KN040C	ol bearing cpx dolerite	◎		・	○	・			・		・	△		・?	
KN042	weathered pyroxene basalt	◎			・			・	・	・		△		・?	or weathered basaltic andesite
KN043	cpx basalt	◎		・	○			・	・			△		・?	
KN044	cpx basalt	◎		・	○				・			△		・?	
KN045	cpx basalt	◎		・	○				・			△		・?	
KN046A	ol bearing cpx dolerite	◎		・	○	・			・		・	△		・?	ferric hydroxide
KN047	ol bearing cpx dolerite	◎		・	○	・			・		△	△		・?	ferric hydroxide
KN048A	ol bearing cpx dolerite	◎		・	○	・			・		・	△		・?	
KN048B	weathered dolerite	◎			・				△		・	△		・?	
KN049	ol cpx basalt	◎		・	○				・		・	△	・?	・?	
KN050	ol cpx basalt	◎		・	○				・		・	△	・?	・?	

Microscopic Observation of Thin and Polished-Thin Sections

Sampe No.	Rock Name	minerals													Note (others)
		pl	am	opx	cpx	ol		qz	chl	ca	serp	opague			
												mt	chr	sul-(pt)	
KN051	ol cpx basalt	◎		・?	○				・		・	△		・?	
KN052	ol cpx basalt	◎		・?	○				・		・	△		・?	coarse basalt(or dolerite)
KN053	weathered cpx basalt	◎			・				△			△		・?	or weathered basaltic andesite
WW017	aphilic andesite	◎						・				・			idingsite
WW024	cpx basalt	◎		・	○	・			・			△		・?	
WW026	andesite	◎			△			・	・			△		・?	
WW031	cpx basalt	◎			○				・			△		・?	
WW056	cpx basalt	◎			○				・		・	△		・?	ferric hydroxide (reddish)
WW068	sandstone	◎							・	・		△			medium grain size, rock fragment is absent
WW069	cpx basalt	◎			○				・		・	△		・?	ferric hydroxide (reddish)
WW073	cpx basalt	◎			△				・			・			fine
WW076	ol-cpx dolerite	◎			○	・			・		△	△			
WW077	ol-cpx dolerite	◎			○	・			・		△	△			
WW083	cpx basalt	◎			○				・			△		・?	
WW092	ol bearing cpx basalt	◎			○				・		△	△		・?	ferric hydroxide (reddish)
WW095	ol bearing cpx basalt	◎			○				・		△	△		・?	ferric hydroxide (reddish)
WW099	ol bearing cpx basalt	◎			○			・	・		・	△			
WW117a	cpx basalt	◎			○				・			△			ferric hydroxide (reddish)
WW122	ol bearing cpx basalt	◎			○			・	・		・	△			
WW129	cpx basalt	◎			○				・			△			ferric hydroxide (reddish)
WW130	cpx basalt	◎			○				・			△			
WW134	cpx basalt	◎			○				・			△			
AC-028	cpx basalt	◎			○				・			△		・?	green clay mineral(malachite?)
AC-034B	cpx dolerite	◎			○				・			△			green clay mineral(malachite?)
AC-035	cpx basalt	◎			○				・			△			ferric hydroxide (reddish)
ACR-119	cpx basalt	◎			○				・			△			partly spinifex-like texture,

Microscopic Observation of Thin and Polished-Thin Sections

Sampe No.	Rock Name	minerals													Note (others)
												opague			
		pl	am	opx	cpx	ol		qz	chl	ca	serp	mt	chr	sul-(pt)	
ACR-125	cpx olivine dolerite	◎			△				△		○	△		・?	
ADR-033	cpx basalt	◎			○				・			△		・?	green clay mineral(malachite?)
5AT03-SC-486.3	basalt with shear plane	○			・			・	・	・		・		・?	
5AT03-SC-487.0	cpx basalt	○			・			・	・	・		△		・?	needle shape opaque,
5AT03-SC-498.5	cpx gabbro	◎			○				・			△		・?	
5AT03-SC-509.4	cpx gabbro	◎			○				・	・		△		・?	
5AT03-SC-519.2	cpx gabbro	◎			○				・			△		・?	
5AT03-SC-528.9	cpx gabbro	◎			○				・			△		・?	
5AT03-SC-537.3	cpx gabbro	◎			○	・			・			△		・?	
5AT03-SC-547.4	cpx basalt	◎			○			・	・			△		・?	fine, quartz vain,
5AT03-SC-590.1	cpx basalt	◎			○			・	・			△		・?	
5AT03-SC-600.0	cpx dolerite	◎			○			・	・			△		・?	
5AT03-SC-607.9	cpx dolerite	◎			○			・	・			△		・?	
5AT03-SC-616.9	cpx basalt	◎			○			・	・			△		・?	
5AT08-SC-792.4	cpx basalt	◎			○			・	・			△		・?	
5AT08-SC-802.85	cpx gabbro	◎			○				・			△		・?	
5AT08-SC-815.1	cpx dolerite	◎			○				・			△		・?	
5AT08-SC-825.0	cpx dolerite	◎			○				・			△		・?	
5AT08-SC-834.4	cpx dolerite	◎			○				・			△		・?	coase
5AT08-SC-845.1	cpx dolerite	◎			○				・			△		・?	
5AT08-SC-853.05	cpx basalt	◎			○				△			△		・?	epidote-chlorite vein
5AT08-SC-925.3	cpx basalt	◎			○				・		・	△		・?	
5AT08-SC-936.5	cpx basalt	◎			○				・			△		・?	
5AT08-SC-947.75	cpx basalt	◎			○				・			△		・?	fine
TG07-235.0	basaltic andesite	◎			△	・		・	・			・			
TG07-250	basaltic andesite	◎			△	・		・	・			・			

Microscopic Observation of Thin and Polished-Thin Sections

Sampe No.	Rock Name	minerals													Note (others)
		pl	am	opx	cpx	ol		qz	chl	ca	serp	opague			
												mt	chr	sul-(pt)	
TG07-270.0	basaltic andesite	◎			△	·		·	·			·			
TG114-272.0	cpx basalt	◎		·	○				·			·			
TG114-275.0	cpx basalt	◎		·	○				·			·			
TG114-278.9	Basalt with gabbro	◎		·	○				·		·	·	·	·?	mixed texture, contact part
TG114-283.8	olivine gabbro	◎		·	○	·			△		◎	·	·	·?	
TG114-286.4	olivine gabbro	◎		·	○	◎			·		·	·	·		
TG114-289.9	olivine gabbro	◎		·	○	◎			·		·	·	·		
TG114-293.7	olivine gabbro	◎		·	○	○			·		△	·	·		
TG114-295.0	olivine gabbro	◎		·	○	·			△		◎	·	·	·?	
TG228-725	cpx basalt	◎		·	○				·			△		·?	
TG228-740	cpx dolerite	◎		·	○				·			△		·?	
TG228-755	cpx gabbro	◎		·	○				·			△			
TG228-758.5	cpx gabbro	◎		·	○				·			△			
TG228-770	cpx gabbro	◎		·	○				△			△			
TG228-785	cpx dolerite	◎		·	○				·			△			
TG228-800	cpx dolerite	◎		·	○				·			△			
TG228-817	cpx dolerite	◎		·	○				·			△			
TG228-830	cpx dolerite	◎		·	○				·			△			
TG27-112.0	basaltic andesite	◎			△	·		·	·			·			ol bearing cpx basalt
TG27-119.0	basaltic andesite	◎			△			·	·			·			
TG27-138.5	basaltic andesite	◎			△			·	△			·			fine, strongly altered
TG27-91.5	olivine gabbro	◎		·	△	·			△		△	△	·?	·?	
TG27-93.2	cpx basalt	◎			△			·				·			fine, quartz-calcite veins
TG62-176.5	cpx basalt	◎		·	○				·			·		?	
TG62-183.5	cpx basalt	◎		·	○				·			·		?	
TG62-188.0	cpx basalt	◎		·	○				·			·		?	

Microscopic Observation of Thin and Polished-Thin Sections

Sampe No.	Rock Name	minerals													Note (others)
		pl	am	opx	cpx	ol		qz	chl	ca	serp	opague			
												mt	chr	sul-(pt)	
TG62-196.7	cpx basalt	◎		·	○				·	△		·		· (pt?)	Calcite vein with opaque
TG62-200.5	cpx basalt	◎		·	○				·			·		?	
TG62-204.0	cpx basalt	◎		·	○				·			·		?	
TG62-207.7	cpx basalt	◎		·	○				·	·		·		?	two calcite veins with sulfide
TG62-211.4	cpx basalt	◎		·	○				·			·		?	
TG62-215.4	Komatiite	·						·	△		◎				spinifex texture
TG62-220.0	cpx basalt	◎		·	○				·			·		?	
TG62-220.4	olivine gabbro	◎		·	○	○			·		△	·	·		
TG62-223.4	olivine gabbro	◎		·	○	○			·		△	·	·		
TG62-225.0	olivine gabbro	◎		·	○	○			·		△	·	·		
TG62-226.3	olivine gabbro	◎		·	○	◎			·		·	·	·		
TG62-226.8	olivine gabbro	◎		·	○	○			△		△	·	·		
TG62-227.8	olivine gabbro	◎		·	○	○			△		△	·	·	· ?	chlorite vein
TG62-234.8	olivine gabbro	◎		·	○	○			·		·	·	·		
TG62-237.6	olivine gabbro	◎		·	○	○			△		△	·	·	· ?	
TG62-238.5	olivine gabbro	◎		·	○	○			·		·	·	·		
TG95-639.3	basaltic andesite	◎			·					·		·		· ?	cpx bearing aphilic basaltic andesite
TG95-650.3	cpx basalt	◎			△					·					calcite veins
TG95-664.7	cpx dolerite	◎		·	○				·			△			
TG95-682.0	ol bearing cpx gabbro	◎		·	○	·			△			△		· ?	coase,
TG95-695.0	cpx gabbro	◎		·	○				·			△		· ?	
TG95-709.4	cpx gabbro	◎		·	○				·			△			
TG95-725.0	cpx gabbro	◎		·	○				·			△			
TG95-743.0	cpx gabbro	◎		·	○				·			△			
TG95-756.3	cpx gabbro	◎		·	○				·			△			
TG95-772.8	cpx dolerite	◎		·	○				·			△		· ?	

Microscopic Observation of Thin and Polished-Thin Sections

Sampe No.	Rock Name	minerals													Note (others)
		pl	am	opx	cpx	ol		qz	chl	ca	serp	opague			
												mt	chr	sul-(pt)	
TG97-569.2	cpx basalt	◎		・	○				・	・		・			chlorite vein
TG97-590.0	cpx dolerite	◎		・	○				・			△		・?	
TG97-602.0	cpx dolerite	◎		・	○				・			△		・?	
TG97-615.0	cpx dolerite	◎		・	○				・			△		・?	
TG97-625.0	cpx dolerite	◎		・	○				・			△		・?	
TG97-630.0	cpx dolerite	◎		・	○				・			△		・?	
TG97-650.0	cpx dolerite	◎		・	○				・			△		・?	
TG97-664.0	cpx basalt	◎		・	○				・			△		・?	

◎, abundant; ○, common; △, minor; ・rare

pl:plagioclase, am:amphibole, opx:ortho pyroxene, cpx:clino pyroxene, ol:olivine

qz:quartz, chl:chlorite, ca:carbonate mineral (mainly calcite) , serp:serpentine

opaque : opaque minerals (mainly iron oxide: mt, magnetite; chr,chromian spinel; sul-(pt), sulphide and/or PGM?)