UNIVERSIDADE FEDERAL DE MINAS GERAIS
INSTITUTO DE GEOCIÊNCIAS
PROGRAMA DE PÓS-GRADUAÇÃO EM GEOLOGIA

DISSERTAÇÃO DE MESTRADO

Geoquímica de solo e geologia da região do depósito de ouro do Amapari - AP

Volume II - Anexos

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Nº 93

BELO HORIZONTE
DATA (30/07/08)

LISTA DE ANEXOS

Anexo 45: Geoquímica de Solo – Análise de Componentes Principais (PCA) – Zona dos Granitóides Indiferenciados – PC2.

Anexo 46: Geoquímica de Solo – Análise de Componentes Principais (PCA) – Zona dos Granitóides Indiferenciados – PC3.

PETROGRAFIA

Depósito de Ouro do Amapari - AP

Hospedeiras da Mineralização Aurífera - Lâminas Delgada / Polida

Anexo 1

Abreviaturas: quartzo - qzo, grunerita - gru, hornblenda - hbl, diopsídio - di, carbontato - cb, epidoto - epi, granadas (andradita, espessartita e uvarovita) - gr, clorita magnesiana - mgcl, clorita - cl, biotita - bi, muscovita - mu, sericita - ser, plagioclásio - plag, microclina - mic, titanita - ti, zircão - zr, turmalina - tu, rutilo - ru, vesuvianita - ves, clinohumita - clh, flogopita - flo, apatita - ap, grafita - gf, talco - tc, monazita - mz, magnetita - mt, hematita - hm, óxido de ferro - feox, pirrotita - po, pirita py, calcopirita - cpy, arsenopirita - aspy e ouro - Au.

							Minerais (%)	Clinoanfibólio		Clinopiroxênio			Granada		
Alvo	Furo	Lâmina	Prof. (m)	De (m)	Até (m)	Classificação	Quartzo	Grunerita	Hornblenda	Diopsídio	Carbonato	Epidoto	Andradita	Espessart.	Uvarovita
		57438	98.30	98.00	98.60	Gru-po-hbl FFb	30	5	50						
		57438 A	98.30	98.00	98.60	Di-po-hbl FFb	12		35	25					
		57446	105.75	105.45	106.05	Po-hbl-di FFb	45		14	28			2		
		57451	110.60	110.17	110.70	Gru-hbl-di cálcio-silicática	10	5	25	51	1				
		57476	133.60	133.10	133.60	Ves-hbl-flo-mgcl-di carbonato silicática			5	18	43				
	FD 795	57477	133.60	133.10	134.20	Hbl-di-mt-gru calcio-silicática	5	30	15	20					
		57485	140.75	140.68	140.87	Di-mt-hbl FFb	40		33	7					
		57489	143.85	143.00	143.85	Po-gru-hbl FFb	35	20	30						
Urucum		57504	157.25	157.25	157.85	Hbl-di-mt mármore impuro			7	15	60		Tr		
		57506	159.30	159.00	159.60	Qzo-cb-gru-plag-di silicática	5	8		65	7				
		69464	315.87	315.46	315.94	Mt-hbl-di- FFb (esc ?)	44		20	20	1		Tr		
	FD 815	69469	320.58	320.52	321.00	Gru-po-di-hbl-mt FFb	40	7	13	10	1				
		69500	350.66	350.31	350.62	di-gru-po-hbl FFb	27	15	30	6	1				
	829	A	285.18	284.69	285.23	Tc-mgcl-gru-serp-di carbonato silicática		5		20	40				
		102	106.58	106.48	107.00	Gru-hbl-mt FFb	25	20	20						
		137	140.30	139.84	140.44	Mt-gru FFb	15	60							
		177	190.50	190.00	190.75	Mt-gru FFb	45	30							
Taperebá C	FD 162	178	190.75	190.75	191.37	Gru-cb-mt silicática		10			25				
		182	184.38	194.33	194.79	Serp-gru--po-mt mármore impuro		5		1	64				
		192	202.00	201.85	202.50	Serp-po-mt carbonato silicática					35				
		23194	179.15	179.00	179.30	Gr-di-mu-hbl carbonato silicática			50	7	20		5		
		23199	183.70	183.40	184.90	Mt-mgcl-gru carbonato silicática		30			46				
	FD 703	23207	191.70	191.40	192.00	Gru-mt carbonato silicática		20		35	22				
		23229	210.50	210.20	210.80	Gru-cb-mt silicática	2	5			40				
		23237	218.20	218.12	218.84	Gru-di-mt carbonato silicática		5		10	50				
Taperebá B		169	162.00	161.66	162.30	Di-mt-gru FFb	50	22		5	1				
		172*	164.75	164.15	165.40	Gr-di-flo-mt carbonato silicática /				10	50				8
	FD 192	172*				Po-plag-mgcl-cb-di silicática				59	10				1
		173	165.00	164.75	165.40	Mt-di calcio-silicática				50	5				
		180	172.70	172.34	173.12	Gru-di FFb	20	30		38	2				
		216	209.50	209.20	210.00	Po-di-gru carbonato silicática	3	28		25	34				1
		18600	86.70	86.10	86.70	Cl-mt-gru-cb-di silicática		10		70	10				
	FD 659	18621	106.70	106.45	106.70	Mgcl-mt-serp carbonato silicática					50				
		18627	111.80	111.00	112.00	Tc-serp-di-mt-gru carbonato silicática		12		8	30				
		23451	25.10	25.00	25.35	Gru-mt FFb	40	15							
Taperebá A		23463	36.00	35.15	36.00	Di-hm-gru-mt FFb	50	10		5					
		23486	56.20	55.90	56.50	Di-mt FFb	60	4		12	4				
		23490	60.70	60.28	60.85	Di-mt FFb	50			18		2			
	FD 708	23497	67.00	66.81	67.00	Gru-mt-di FFb	40	15		20	5				
		23504	72.12	72.05	72.60	Gr-gru-py-mt FFb	36	14				1	7		
		23516	83.40	83.15	83.70	Di-hm FFb	50			5	1				
		23531	97.70	97.44	98.00	Di-mt FFb	52	3		15		<1			
		23550	113.60	113.34	113.90	Mt-serp-di cb silicática				30	38				
	196	42	94.60	94.30	94.95	Bi-gru-di- carbonato silicática		15		22	45				
		89	141.27	141.20	141.36	Bi-di-gru-di mármore impuro		20		15	54				
		10187	87.43	87.24	87.78	Gr-Di-hbl carbonato silicática			30	20	38			7	
		10189	89.80	89.00	90.00	Mt-di-flo-gru mármore		20		10	50				
Taperebá D	FD 640	10190A	90.56	90.00	91.00	Gru-bi-cb-di silicática		5		42	30				
		10210	108.85	108.00	109.00	Bi-gru-di- carbonato silicática		10		36	40				
		10229	126.30	126.07	126.77	Gru-di-hbl carbonato silicática		15	23	20	35				
	FD 669	12401	73.40	73.18	74.24	Bi-di carbonato silicática				50	40				
Martelo	FD 76	9	19.35	19.30	19.40	Hm FFb	40								
		10	48.55	48.51	48.60	Hm FFb	65								
	FD 13	6	18.15	18.10	18.20	Gru-epi-di-hm FFb	30	10		12	3	10			
		8	29.35	28.30	28.44	Hm-gru-di FFb	25	17		40	3				
		1	49.04	48.88	49.04	Hm-Gru-di FFb	32	15		43	3				
Vila do Meio	FD 65	3	57.00	56.86	57.00	Mt-gru-mu carbonato silicáticas.		15			50				
		4	69.40	57.00	57.15	Gru-di-mt FFb	65	10		10					
	FVD002	13804	124.58	124.08	124.67	Hm-hbl-mt-di cálcio-silicática	1		20	50	1				
	FVD007	46507	225.48	225.41	225.69	Mgcl-di mármore impuro				20	69				
		46511	228.2	228.12	228.53	Di-flo-gru mármore impuro		15		5	70				

Lâmina	Mg Clorita	Clorita	Biotita	Muscovita	Sericita	Plagioclásio	Microclina	Titanita	Zircão	Turmalina	Rutilo	Vesuvianita	Clinohumita	Flogopita	Apatita	Grafita	Serpentina
57438																	
57438 A																	
57446																	
57451		2	2					1									
57476	10											5		7			
57477																	
57485																	
57489																	
57504	5			2								Tr	Tr				
57506						15											
69464																	
69469		Tr															
69500												1					
A	5							Tr	Tr								20
102			Tr														
137																	
177			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
178																	
182	1	3						Tr	Tr			Tr					5
192	Tr	Tr															5
23194			1	7	2							1	Tr		3		
23199	10							3						3			
23207														3			
23229																	
23237			Tr					Tr	Tr								
169		1															
172*	1											1		15			
172*	8		4			8											
173					1												
180																	
216																	Tr
18600		5						Tr			Tr						
18621	6	2															34
18627	2	4						Tr	Tr			3	1				5
23451																	
23463																	
23486																	
23490																	
23497																	
23504		Tr										Tr					
23516		1	3														
23531																	
23550	4																12
42		1	12					Tr	Tr								
89		1	8					Tr	Tr								
10187		2												1			
10189								Tr				Tr		15			
10190A		2	15					Tr	Tr							3	
10210			10					Tr	Tr								
10229						4		1									
12401			5				3										
9																	
10																	
6																	
8													2				
1																	
3				20													
4																	
13804												1	2				
46507	6	2						Tr	Tr								Tr
46511								Tr	Tr					10			

				Opacos									
Lâmina	Talco	Monazita	Uvarovita	Magnetita	Hematita	óxidos Fe	Pirrotita	Pirita	Calcopirita	Arsenopirita	Ouro (ppm)	Outros	Total %
57438						2	13		Tr		8.49	<1	100
57438 A						3	25		Tr			<1	100
57446						1	10		Tr		0.11	<1	100
57451							2					1	100
57476				12					Tr			<1	100
57477				28			2		Tr			<1	100
57485				19			1	Tr					100
57489							15		Tr		1.35	<1	100
57504				6			3		Tr	1		1	100
57506													100
69464				10			5						100
69469				22			7						100
69500						Tr	20						100
A	5			3	Tr	2					12.2		100
102				35		Tr							100
137				25			Tr						100
177	0	0		25	0	0	0	0	0	0	0	0	100
178				65			Tr					<1	100
182	1			12			8				9.09		100
192				35			25				3.19	<1	100
23194				4					Tr			<1	100
23199				8				Tr	Tr			<1	100
23207				20				Tr	Tr			<1	100
23229				53									100
23237	2			33							3.76		100
169				16		1	4						100
172*				15									100
172*				4			6						100
173				30			14		Tr			<1	100
180				9			1		Tr	Tr		<1	100
216				4			5	Tr	Tr			<1	100
18600				5								<1	100
18621	1			7				Tr				<1	100
18627	20			12				3					100
23451				31	4	3						7	100
23463				20	5	3		Tr	Tr			7	100
23486				20									100
23490				30									100
23497				20				Tr				<1	100
23504				24				18			5.35		100
23516				3	37								100
23531				30									100
23550	6			10			Tr					<1	100
42	1						4				4.53		100
89	1						1						100
10187				2			Tr	Tr	Tr			<1	100
10189				5								<1	100
10190A	3												100
10210	2						2			Tr	6		100
10229										2	1.24		100
12401		1						Tr	Tr	Tr		1	100
9					50	5						5	100
10					30	5							100
6					35								100
8					13								100
1					7								100
3				13	2								100
4				13	2								100
13804				20	5								100
46507					3								100
46511													100

* zona de contato

SEÇÕES GEOLÓGICAS

SONDAGEM ROTATIVA

DIAMANTADA

NNW

FD795

SSE

200mRL

200mRL

57.438 - 8,49 ppm Au

57.446 - 0,11 ppm Au

57,451

57,476

57.477 - 0,14 ppm Au

57,485

57.489 - 1,35 ppm Au

57,504

57,506

180.05m

Legenda Litológica

- Colúvio
- Granito
- Quartzo-biotita xisto
- Formação Ferrífera
- Cálcio-silicática
- Rocha carbonática

Am nº

MINA AMAPARI - AP

Date:21/6/2008	Alvo Urucum - Seção FD795 102° Az (Olhando para NE) Boca do FD795 Inclinação/Azimute: -63°/255° UtmX: 401,992.73 UtmY: 99,249.37 Cota (m): 256.17
Author: EHH	
Office:	
Drawing: EFL	
Scale: 1:1000	

0 20 40

m

Anexo 2

NNW

SSE

FD815

200mRL

0mRL

-200mRL

69,464

69,469

69.500 - 12,2 ppm Au

Legenda Litológica

- Granito
- Quartzo-biotita xisto
- Formação Ferrífera
- Cálcio-silicática
- Rocha carbonática
- Am nº

MINA AMAPARI - AP

Date:21/6/2008	Alvo Urucum - Seção FD815
Author: EHH	102º Az (Olhando para NE)
Office:	Boca do FD815
Drawing: EFL	Inclinação/Azimute: -76º/253º
Scale: 1:2000	UtmX: 402,111.83
	UtmY: 100,037.92
	Cota (m): 235.02

0 20 40

m

Anexo 3

NNW

SSE

200mRL

0mRL

-200mRL

FD829

A

332.55m

Legenda Litológica

- Colúvio
- Pegmatito
- Granito
- Quartzo-biotita xisto
- Formação Ferrífera
- Rocha carbonática

MINA AMAPARI - AP

Date:21/6/2008	Alvo Urucum - Seção FD829 103° Az (Olhando para NE) Boca do FD829 Inclinação/Azimute: -75°/256° UtmX: 402,176.69 UtmY: 98,411.58 Cota (m): 136.89
Author: EHH	
Office:	
Drawing: EFL	
Scale: 1:2000	

0 20 40

m

Anexo 4

402,200mE

402,400mE

NNW

SSE

FD162

102

137

177

178

182 - 9,09 ppm Au

192 - 3,19 ppm Au

270.45m

0mRL

0mRL

Legenda Litológica

- Colúvio
- Diabásio
- Granito
- Formação Ferrífera
- Cálcio-silicática
- Rocha carbonática

Am nº

Anexo 5

MINA AMAPARI - AP

	Alvo Taperebá C - Seção FD162 103º Az (Olhando para NE) Boca do FD162 Inclinação/Azimute: -60º/90º UtmX: 402,204.69 UtmY: 96,559.10 Cota (m): 145.59
Date:22/6/2008	
Author: EHH	
Office:	
Drawing: EFL	
Scale: 1:1000	

0 20 40

m

402,200mE

402,400mE

402,200mE

402,400mE

FD703

NNW

SSE

200mRL

200mRL

23194

23199

23207

23229

227.95m

23.237 - 3,76 ppm Au

Legenda Litológica

- Colúvio
- Quartzo-biotita xisto
- Formação Ferrífera
- Cálcio-silicática
- Rocha carbonática
- Anfibolito
- Am nº

MINA AMAPARI - AP

Alvo Taperebá B - Seção FD703
86º Az (Olhando para NE)
Boca do FD703
Inclinação/Azimute: -75º/270º
UtmX: 402,325.08
UtmY: 94,873.91
Cota (m): 231.11

Date:22/6/2008
Author: EHH
Office:
Drawing: EFL
Scale: 1:1000

0 20 40
m

Anexo 6

402,200mE

402,400mE

200mRL

200mRL

NNW

SSE

FD192

169, 172 e 173

180

216

254.95m

Legenda Litológica

- Colúvio
- Granito
- Quartzo-biotita xisto
- Formação Ferrífera
- Cálcio-silicática
- Rocha carbonática

MINA AMAPARI - AP

	Alvo Taperebá B - Seção FD192 82° Az (Olhando para NE) Boca do FD192 Inclinação/Azimute: -63°/90° UtmX: 402,224.91 UtmY: 94,688.52 Cota (m): 210.84
Date:22/6/2008	
Author: EHH	
Office:	
Drawing: EFL	
Scale: 1:1000	

0 20 40

m

Anexo 7

0mRL

0mRL

402,200mE

402,400mE

401,800mE

402,000mE

200mRL

200mRL

W

E

FD659

FD708

23497

23516

23531

23550

18600

18621

18627

23.504 - 5,35 ppm Au

115m

137m

Legenda Litológica

- Colúvio
- Granito
- Formação Ferrífera
- Cálcio-silicática
- Rocha carbonática
- Anfibolito

Am nº

MINA AMAPARI - AP

	Alvo Taperebá A - Seção FD659/708 0° Az (Olhando para N) Boca do FD659/708 Inclin/Azimute:-63°/90°/-63°/90° UtmX: 401,957.86/401,909.01 UtmY: 93,764.06/93,764.07 Cota (m): 115.39/112.85
Date:22/6/2008	
Author: EHH	
Office:	
Drawing: EFL	
Scale: 1:1000	

0 20 40

m

Anexo 8

0mRL

0mRL

401,800mE

402,000mE

94,000mN 401,400mE 94,200mN 401,600mE 94,400mN 401,800mE

200mRL 0mRL -200mRL

SW NE

FD196

42 - 4,53 ppm Au

89

320.65m

Legenda Litológica

- Colúvio
- Granito
- Cálcio-silicática
- Rocha carbonática
- Anfibolito
- Am nº

MINA AMAPARI - AP

Alvo Taperebá D - Seção FD196
44° Az (Olhando para NW)
Boca do FD196
Inclinação/Azimute: -60°/270°
UtmX: 401,606.03
UtmY: 94,247.14
Cota (m): 91.96

Date:22/6/2008
Author: EHH
Office:
Drawing: EFL
Scale: 1:2000

0 20 40
m

Anexo 9

401,000mE 94,800mN 401,200mE

SSW NNE

FD669

FD640

12401

80.8m

10187

10189/10190A

10.210 - 6,00 ppm Au

10.229 - 1,24 ppm Au

128.55m

0mRL 0mRL

Legenda Litológica

- Colúvio
- Granito
- Quartzo-biotita xisto
- Cálcio-silicática
- Rocha carbonática
- Am nº

MINA AMAPARI - AP

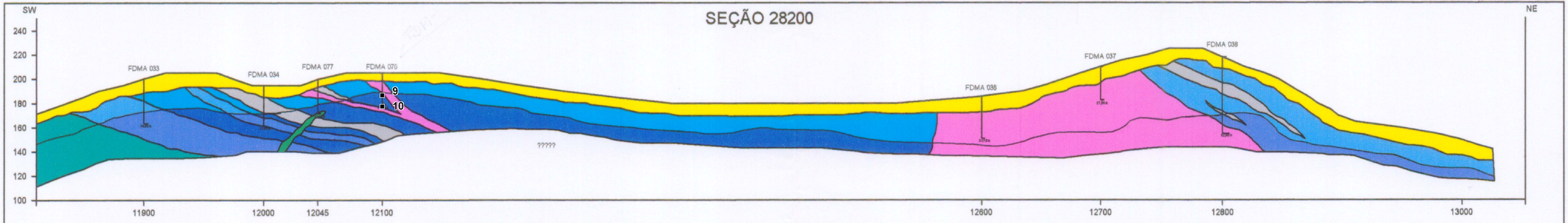
	Alvo Taperebá D - Seção FD640/669 75° Az (Olhando para NW) Boca do FD640/669 Inclin/Azimute:-70°/255°/-86°/270° UtmX: 401,166.90/401,105.71 UtmY: 94,801.94/94,784.99 Cota (m): 113.62/115.39
Date:22/6/2008	
Author: EHH	
Office:	
Drawing: EFL	
Scale: 1:1000	

0 20 40
m

Anexo 10

401,000mE 94,800mN 401,200mE

SEÇÃO 28200



LEGENDA

- COLÚVIO
- ITABIRITO FRIÁVEL
- ITABIRITO COMPACTO
- ITABIRITO ALTERADO FRIÁVEL
- ITABIRITO ALTERADO COMPACTO
- PEGMATITO
- ROCHA CARBONATADA
- ZONA DE ALTERAÇÃO HIDROTERMAL
- DIABÁSIO
- ROCHA ANFIBOLÍTICA

CONVENÇÕES

- LIMITE DE INTEMPERISMO
- FURO EXECUTADO

Anexo 11

MMX

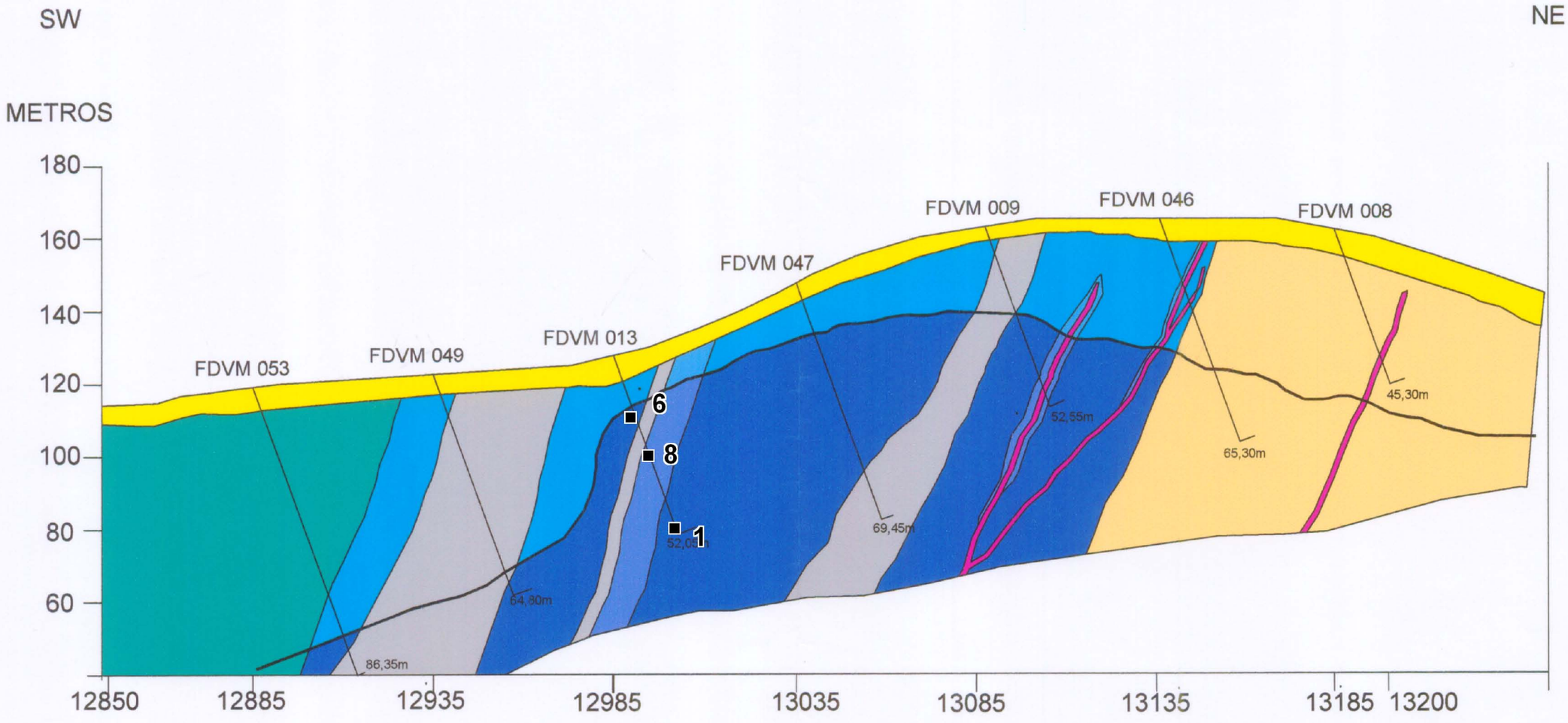
PROJETO FERRO AMAPÁ

Pedra Branca do Amapari-AP

SEÇÃO GEOLÓGICA 28200

ESCALA: 1:2000

SEÇÃO 32000



LEGENDA

- COLÚVIO
- ROCHA ANFIBOLÍTICA
- ITÁBIRITO FRIÁVEL
- ITABIRITO COMPACTO
- ITABIRITO ALTERADO FRIÁVEL
- ITABIRITO ALTERADO COMPACTO
- ZONA DE ALTERAÇÃO HIDROTERMAL
- ROCHA CARBONATADA
- QUARTZO-MICA XISTO
- ROCHA CALCIOSSILICÁTICA

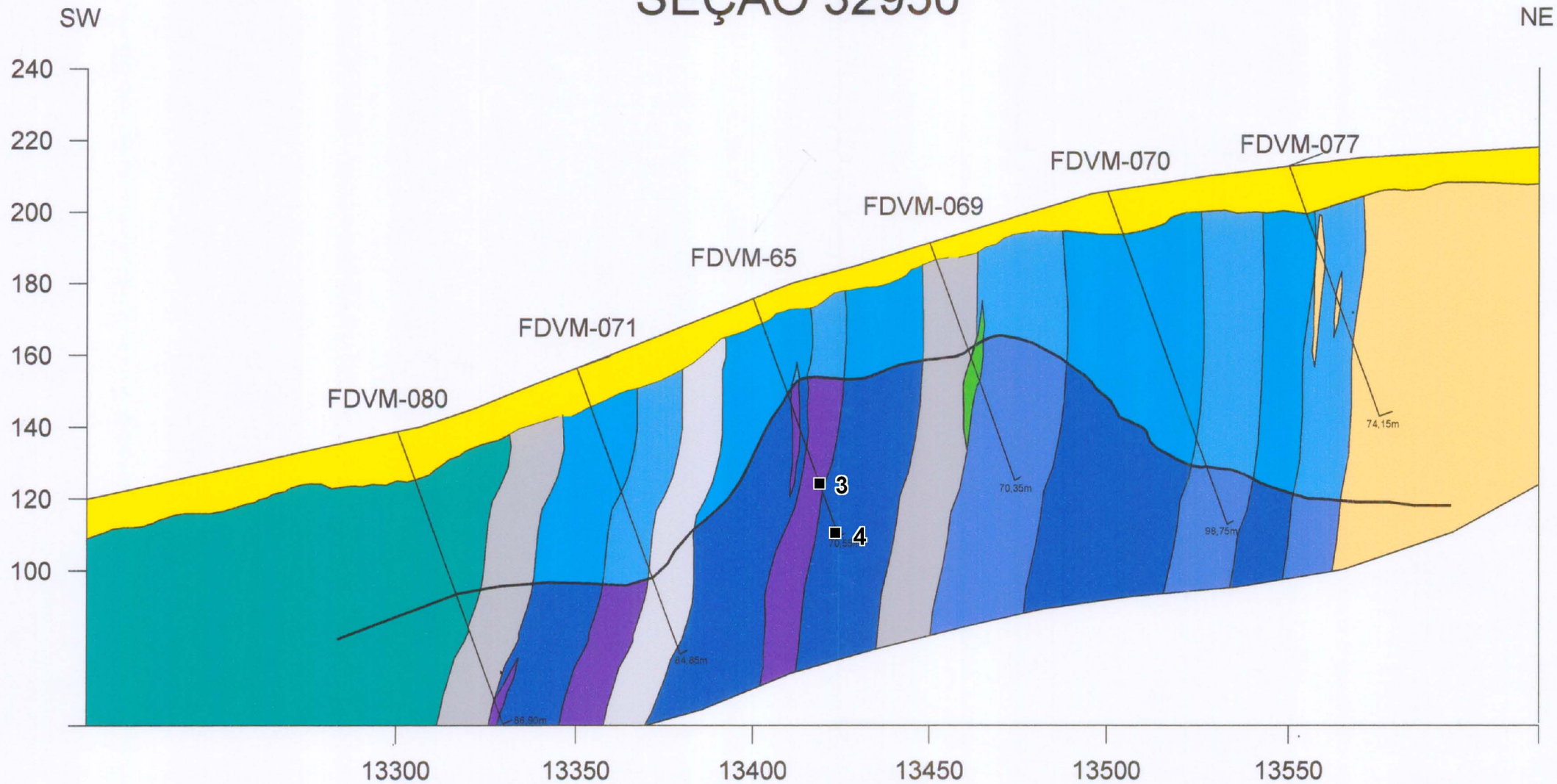
CONVENÇÕES

- LIMITE DE INTEMPERISMO
- FURO EXECUTADO

Anexo 12

MMX	PROJETO FERRO AMAPÁ Pedra Branca do Amaparí–AP
SEÇÃO GEOLÓGICA 32000	
ALVO: Vila do Meio ESCALA: 1:1250	DATA: ABRIL 2006 DESENHO: Equipe Projeto Amapá

SEÇÃO 32950



LEGENDA

- COLÚVIO
- ROCHA ANFIBOLÍTICA
- ITABIRITO FRIÁVEL
- ITABIRITO COMPACTO
- ITABIRITO ALTERADO FRIÁVEL
- ITABIRITO ALTERADO COMPACTO
- ZONA DE ALTERAÇÃO HIDROTERMAL
- ROCHA CARBONATADA
- QUARTZO-MICA XISTO
- ROCHA CALCIOSSILICÁTICA

CONVENÇÕES

- LIMITE DE INTEMPERISMO
- FURO EXECUTADO

Anexo 13

MMX – Uma empresa do Grupo EBX	PROJETO FERRO AMAPÁ Pedra Branca do Amaparí–AP
SEÇÃO GEOLÓGICA 32950	
ALVO: Vila do Meio ESCALA: 1:1250	DATA: ABRIL 2006 DESENHO: Equipe Projeto Amapá

GEOQUÍMICA DE ROCHA

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Client: **Horikava, Elio H.**

Rua Enfermeiro Jose Caldeira Brant
No 200, Boa Vista
Nova Lima - MG CEP-34000-000

Submitted By:	Elio H. Horikava
Receiving Lab:	Acme Analytical Laboratories (Vancouver) Ltd.
Received:	February 25, 2008
Report Date:	April 16, 2008
Page:	1 of 2

CERTIFICATE OF ANALYSIS GOI08000387.1

CLIENT JOB INFORMATION

Project:	ELIO HIROMI HORIKAVA
Shipment ID:	
P.O. Number	BRANCH FILE 0850176
Number of Samples:	24

SAMPLE DISPOSAL

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Method Code	Number of Samples	Code Description	Test Wgt (g)	Report Status
R150	24	Crush, split and pulverize rock to 150 mesh		
4A&4B	24	Whole Rock Analysis Majors and Trace Elements	0.2	Completed

ADDITIONAL COMMENTS

Acme does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

Invoice To: Horikava, Elio H.
Rua Enfermeiro Jose Caldeira Brant
No 200, Boa Vista
Nova Lima - MG CEP-34000-000

CC:

Anexo 14

BRITISH COLUMBIA CERTIFIED ASSAYER
Clarence Leong

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Rua Enfermeiro Jose Caldeira Brant
No 200, Boa Vista
Nova Lima - MG CEP-34000-000

Project: ELIO HIROMI HORIKAVA
Report Date: April 16, 2008

CERTIFICATE OF ANALYSIS GOI08000387.1

Method		4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B
Analyte		SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ni	Sc	LOI	Sum	Ba	Be	Co	Cs	Ga
Unit		%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm
MDL		0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.001	0.01	0.002	20	1	-5.1	0.01	1	1	0.2	0.1	0.5
FD162-102	Rock	47.55	0.44	46.14	4.19	3.33	0.06	0.04	0.03	0.338	0.19	0.006	30	1	0.0	102.32	24	2	4.5	0.9	1.4
FD162-137-138	Rock	50.35	0.41	41.30	3.73	3.13	0.07	0.05	0.03	0.259	0.16	<0.002	<20	2	0.4	99.90	36	1	2.6	4.8	1.4
FD162-182	Rock	7.89	1.67	46.06	7.43	17.55	0.28	0.14	0.09	0.284	0.90	<0.002	<20	3	5.3	87.60	98	<1	8.0	3.1	3.6
FD162-192	Rock	1.67	0.17	54.99	9.70	10.48	<0.01	<0.01	0.08	0.153	0.96	0.004	30	5	7.6	85.84	6	<1	9.2	0.2	1.3
FD196-42	Rock	15.68	1.82	3.15	6.05	39.61	0.02	0.51	0.07	<0.001	0.87	0.007	26	2	31.2	99.03	166	<1	5.9	0.3	3.8
FD196-89	Rock	20.25	2.53	4.21	7.60	36.38	0.17	0.54	0.10	0.016	0.99	0.007	27	2	26.5	99.25	121	<1	6.4	0.5	4.7
FD640-10190A	Rock	27.96	5.02	7.00	7.53	29.22	0.08	1.02	0.22	0.021	0.95	0.011	43	6	20.5	99.52	302	1	9.4	1.5	8.0
FD640-10210	Rock	41.01	4.40	4.45	6.58	26.88	0.74	0.79	0.12	0.022	0.82	0.009	32	3	13.8	99.60	152	<1	6.6	1.2	6.9
FD659-18627	Rock	25.30	0.51	18.79	15.71	22.20	0.04	0.07	0.04	0.089	1.71	<0.002	<20	1	14.5	98.97	37	<1	5.7	1.9	3.4
FD703-23237	Rock	4.22	0.10	45.53	6.82	21.38	<0.01	<0.01	0.04	0.393	0.28	<0.002	<20	2	21.1	99.85	10	<1	7.9	0.1	1.2
FD708-23490	Rock	53.51	0.18	41.45	1.72	3.35	0.03	<0.01	<0.01	0.141	0.12	<0.002	<20	<1	-0.5	100.01	5	1	0.9	<0.1	<0.5
FD708-23504	Rock	38.16	0.26	48.72	1.90	2.96	0.02	0.02	0.02	0.394	0.11	<0.002	<20	1	7.0	99.56	23	<1	14.6	0.4	0.8
FD708-23531	Rock	40.05	0.13	57.31	1.41	2.50	0.01	<0.01	<0.01	0.251	0.08	<0.002	<20	<1	-1.8	99.96	13	<1	0.8	<0.1	0.6
FD795-57438	Rock	46.96	1.52	30.67	6.03	10.72	0.14	0.04	0.10	0.678	0.48	0.003	<20	4	2.5	99.84	6	2	5.4	0.2	4.0
FD795-57485	Rock	52.39	0.26	44.65	1.44	2.18	0.03	<0.01	0.01	0.160	0.06	<0.002	<20	<1	-1.2	100.01	4	<1	0.6	1.6	1.2
FD815-69423	Rock	69.68	11.86	3.95	2.25	2.36	0.35	7.81	0.60	0.166	0.18	0.002	<20	15	0.6	99.83	536	<1	6.2	2.9	17.8
FD815-69464	Rock	63.75	1.27	25.83	3.25	4.99	0.08	0.02	0.02	0.124	0.28	<0.002	<20	1	0.3	99.93	12	2	2.8	0.5	3.5
FD815-69469	Rock	46.82	0.69	42.85	4.44	4.36	0.03	0.02	0.04	0.325	0.21	<0.002	<20	2	0.1	99.89	5	<1	2.1	0.4	2.5
FD815-69500	Rock	55.45	0.24	35.95	2.44	3.54	<0.01	<0.01	0.01	0.230	0.63	<0.002	<20	<1	1.4	99.90	2	<1	5.4	0.1	3.0
FD829-A	Rock	20.79	1.02	4.55	17.78	27.58	0.05	0.28	0.06	0.015	0.69	<0.002	<20	1	26.0	98.83	203	1	3.4	3.9	2.3
FVD002-13804	Rock	36.54	1.36	32.35	8.75	14.99	0.10	0.26	0.11	1.225	2.38	0.003	33	3	0.0	98.08	1391	1	14.1	1.4	4.9
FVD007-46507	Rock	16.09	0.76	2.68	18.93	30.28	<0.01	0.12	0.14	0.130	1.09	0.003	26	2	28.5	98.78	34	<1	14.4	3.1	3.0
FVD007-46511	Rock	13.59	1.93	3.41	17.40	27.05	0.03	0.60	0.09	0.023	1.33	0.004	<20	3	33.5	98.99	84	<1	2.9	1.2	4.6
FVD007-57451-4	Rock	49.70	3.14	15.91	10.43	16.74	0.32	0.48	0.17	0.170	0.87	0.007	23	5	1.9	99.83	33	4	7.0	19.9	8.9

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No 200, Boa Vista
Nova Lima - MG CEP-34000-000

Project: ELIO HIROMI HORIKAVA
Report Date: April 16, 2008

CERTIFICATE OF ANALYSIS GOI08000387.1

Method		4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B
Analyte		Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
MDL		0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05	0.01
FD162-102	Rock	0.2	3.0	1.8	<1	23.6	0.6	0.5	0.2	23	<0.5	11.9	27.5	12.3	18.2	2.10	8.6	1.52	0.32	2.04	0.39
FD162-137-138	Rock	0.2	0.8	6.8	1	20.3	<0.1	1.9	1.9	<8	0.6	9.7	35.7	7.8	12.6	1.52	6.6	1.31	0.39	2.27	0.39
FD162-182	Rock	0.3	2.5	8.0	<1	317.8	0.3	0.8	0.8	107	8.9	14.4	27.0	10.1	16.8	1.97	8.0	1.50	0.33	2.28	0.40
FD162-192	Rock	0.6	1.3	0.3	<1	163.0	0.2	0.9	0.6	39	3.0	30.1	38.3	14.9	22.3	2.70	11.8	2.12	0.57	2.93	0.55
FD196-42	Rock	0.6	1.7	19.8	<1	804.1	0.1	1.5	0.7	<8	1.6	22.1	8.2	7.4	13.0	1.40	5.1	1.00	0.20	1.00	0.18
FD196-89	Rock	0.8	2.7	19.8	<1	661.3	0.3	3.2	1.2	9	0.5	29.6	9.5	8.3	13.9	1.58	6.1	1.17	0.25	1.16	0.19
FD640-10190A	Rock	1.6	3.7	35.5	2	339.9	0.3	5.2	1.6	33	2.5	48.9	15.4	14.6	26.9	3.07	11.9	2.14	0.49	2.02	0.33
FD640-10210	Rock	1.1	2.7	31.5	<1	419.2	0.3	2.6	1.0	22	93.5	33.5	7.9	8.5	14.0	1.53	5.8	1.14	0.25	1.02	0.19
FD659-18627	Rock	<0.1	0.7	4.7	<1	43.9	<0.1	0.3	0.7	11	7.0	6.5	7.8	3.8	4.1	0.52	2.1	0.45	0.16	0.66	0.12
FD703-23237	Rock	0.2	1.0	0.5	<1	298.2	0.1	0.4	0.3	61	16.6	9.4	31.7	5.3	9.4	1.31	6.0	1.47	0.39	2.27	0.46
FD708-23490	Rock	<0.1	0.3	0.4	<1	17.2	<0.1	0.3	0.4	<8	16.8	2.4	7.0	3.1	3.3	0.44	1.8	0.47	0.13	0.68	0.11
FD708-23504	Rock	0.1	0.4	0.8	<1	13.1	<0.1	0.6	0.7	<8	4.9	8.6	14.4	6.3	8.7	1.07	4.3	0.85	0.26	1.20	0.22
FD708-23531	Rock	<0.1	0.5	0.4	<1	16.5	0.1	<0.2	0.3	9	6.4	2.7	11.5	4.1	5.6	0.73	2.8	0.65	<0.02	1.05	0.17
FD795-57438	Rock	0.4	1.6	2.6	8	147.6	<0.1	0.6	0.3	27	5.6	17.6	29.9	8.5	12.4	1.56	6.2	1.50	0.53	2.11	0.38
FD795-57485	Rock	0.1	0.5	1.8	<1	32.5	<0.1	0.6	0.1	<8	0.6	6.2	9.2	4.6	6.6	0.78	3.3	0.61	0.16	0.77	0.14
FD815-69423	Rock	8.1	17.0	125.1	5	34.0	1.5	24.2	9.2	<8	3.3	277.7	53.1	46.7	94.1	11.06	42.2	8.59	1.71	8.77	1.56
FD815-69464	Rock	0.1	0.6	1.4	<1	91.6	<0.1	0.3	0.2	21	13.8	5.8	13.8	6.7	8.4	0.97	4.2	0.80	0.29	1.13	0.19
FD815-69469	Rock	0.2	0.7	0.4	<1	43.2	<0.1	0.6	0.3	17	6.6	11.5	28.4	10.2	14.7	1.75	7.3	1.36	0.46	2.14	0.38
FD815-69500	Rock	<0.1	0.4	<0.1	<1	68.6	<0.1	<0.2	0.1	<8	0.7	4.6	14.5	4.8	5.2	0.64	2.5	0.49	0.19	0.90	0.17
FD829-A	Rock	0.3	0.9	10.6	<1	137.2	<0.1	1.1	0.5	<8	1.2	14.0	3.7	3.8	5.6	0.66	2.3	0.44	0.14	0.47	0.08
FVD002-13804	Rock	0.4	2.5	12.0	<1	57.7	0.1	1.2	1.2	89	1.4	18.5	22.4	10.8	18.4	2.25	9.5	2.00	0.91	2.32	0.37
FVD007-46507	Rock	0.6	2.6	7.9	1	120.6	<0.1	1.2	0.5	10	5.3	20.7	6.3	4.4	6.4	0.89	3.3	0.88	0.29	0.91	0.16
FVD007-46511	Rock	0.4	1.7	24.6	<1	33.4	0.1	2.3	0.9	20	1.4	20.5	7.9	6.5	9.4	1.15	4.8	0.87	0.30	0.97	0.16
FVD007-57451-4	Rock	0.6	6.7	87.5	17	108.1	2.2	1.1	2.0	29	4.1	19.8	8.0	4.9	7.2	0.95	3.7	0.84	0.24	0.96	0.17

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Method		4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	2A C/S	2A C/S	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX
Analyte		Dy	Ho	Er	Tm	Yb	Lu	C/TOT	S/TOT	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au	Hg
Unit		ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm
MDL		0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5	0.01
FD162-102	Rock	2.53	0.72	2.30	0.36	2.24	0.45	0.03	0.04	0.3	1.6	1.0	5	1.9	1.5	<0.1	0.7	<0.1	<0.1	<0.5	<0.01
FD162-137-138	Rock	2.89	0.80	2.64	0.42	2.84	0.46	0.10	0.07	0.3	1.1	3.4	32	1.3	3.7	<0.1	0.5	<0.1	<0.1	<0.5	<0.01
FD162-182	Rock	2.63	0.68	2.21	0.34	2.25	0.43	4.73	8.09	0.3	17.1	10.9	35	5.8	2.1	0.5	0.1	0.1	<0.1	824.5	<0.01
FD162-192	Rock	3.90	1.02	3.15	0.51	3.36	0.58	5.54	9.24	0.2	17.1	11.5	41	7.1	3.5	0.3	0.2	0.2	0.4	2889	<0.01
FD196-42	Rock	1.05	0.23	0.61	0.10	0.60	0.09	8.97	0.14	1.2	11.1	10.8	5	22.0	16.0	<0.1	0.4	<0.1	<0.1	24.4	<0.01
FD196-89	Rock	1.08	0.25	0.77	0.11	0.71	0.11	7.60	0.09	0.4	18.6	17.9	18	16.0	13.3	0.5	0.1	<0.1	<0.1	3.4	<0.01
FD640-10190A	Rock	1.99	0.43	1.21	0.20	1.21	0.19	5.90	0.03	0.7	6.2	21.0	20	22.5	49.8	0.3	0.1	0.1	<0.1	2.9	<0.01
FD640-10210	Rock	1.10	0.25	0.70	0.12	0.71	0.11	3.83	0.03	1.5	9.2	12.7	3	12.0	38.5	<0.1	0.6	3.8	3.7	41583	<0.01
FD659-18627	Rock	0.71	0.19	0.58	0.10	0.60	0.11	4.17	0.12	0.4	16.9	9.3	24	5.0	2.8	<0.1	0.3	<0.1	<0.1	26.5	<0.01
FD703-23237	Rock	2.94	0.79	2.52	0.43	2.61	0.46	6.43	<0.02	0.8	6.0	67.4	39	6.0	0.8	0.6	0.5	0.3	0.1	146.0	<0.01
FD708-23490	Rock	0.64	0.17	0.50	0.09	0.49	0.10	0.12	<0.02	0.1	5.1	1.3	10	2.3	1.2	<0.1	0.1	<0.1	<0.1	54.1	<0.01
FD708-23504	Rock	1.36	0.37	1.14	0.19	1.15	0.20	<0.02	11.82	1.2	159.6	18.3	15	6.2	3.2	0.1	0.4	0.4	5.9	2250	<0.01
FD708-23531	Rock	1.03	0.34	0.88	0.16	0.81	0.18	0.03	0.04	0.3	2.1	0.5	4	1.2	2.4	<0.1	0.4	<0.1	<0.1	3.1	<0.01
FD795-57438	Rock	2.63	0.67	2.06	0.34	2.13	0.36	0.07	6.59	0.6	129.0	25.3	7	6.7	9.2	0.1	0.3	1.8	1.8	11843	<0.01
FD795-57485	Rock	0.86	0.24	0.69	0.13	0.78	0.13	0.07	0.10	<0.1	4.0	3.3	4	1.4	2.4	<0.1	0.1	<0.1	<0.1	2.0	<0.01
FD815-69423	Rock	8.85	1.88	5.52	0.88	5.19	0.81	0.03	0.04	0.3	7.6	5.2	8	6.2	0.7	<0.1	<0.1	<0.1	<0.1	2.9	<0.01
FD815-69464	Rock	1.30	0.35	1.12	0.19	1.16	0.22	0.16	1.37	0.4	19.6	2.6	10	3.9	1.4	<0.1	0.4	<0.1	0.2	186.5	<0.01
FD815-69469	Rock	2.59	0.69	2.17	0.36	2.30	0.39	0.09	0.86	0.3	11.8	1.5	12	2.9	2.2	<0.1	0.4	<0.1	<0.1	330.1	<0.01
FD815-69500	Rock	1.17	0.32	1.04	0.18	1.19	0.20	0.15	5.85	0.3	61.3	2.6	4	7.3	2.7	<0.1	0.4	0.2	0.3	367.9	<0.01
FD829-A	Rock	0.50	0.14	0.33	0.06	0.37	0.06	6.54	<0.02	0.4	1.4	9.9	23	6.2	1.0	0.2	0.1	<0.1	<0.1	7.9	<0.01
FVD002-13804	Rock	2.18	0.52	1.47	0.24	1.53	0.26	0.18	0.03	<0.1	6.3	3.4	33	22.4	39.7	<0.1	0.8	<0.1	<0.1	5.4	<0.01
FVD007-46507	Rock	0.89	0.20	0.51	0.08	0.45	0.08	7.67	<0.02	8.4	2.8	101.8	191	23.7	0.7	2.2	0.2	0.8	<0.1	3.6	<0.01
FVD007-46511	Rock	0.90	0.23	0.62	0.12	0.71	0.12	9.78	<0.02	0.4	19.6	34.3	39	7.3	0.7	0.5	0.1	<0.1	0.1	4.2	<0.01
FVD007-57451-4	Rock	1.09	0.26	0.76	0.12	0.82	0.12	0.51	<0.02	0.3	3.9	3.8	15	7.6	2.2	<0.1	0.8	0.1	<0.1	28.3	<0.01

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Client: **Horikava, Elio H.**

Rua Enfermeiro Jose Caldeira Brant
No 200, Boa Vista
Nova Lima - MG CEP-34000-000

Project: ELIO HIROMI HORIKAVA
Report Date: April 16, 2008

CERTIFICATE OF ANALYSIS GOI08000387.1

	Method	1DX	1DX
	Analyte	Tl	Se
	Unit	ppm	ppm
	MDL	0.1	0.5
FD162-102	Rock	<0.1	<0.5
FD162-137-138	Rock	<0.1	<0.5
FD162-182	Rock	<0.1	0.7
FD162-192	Rock	<0.1	1.8
FD196-42	Rock	0.1	<0.5
FD196-89	Rock	0.1	<0.5
FD640-10190A	Rock	0.2	<0.5
FD640-10210	Rock	<0.1	0.6
FD659-18627	Rock	<0.1	<0.5
FD703-23237	Rock	<0.1	<0.5
FD708-23490	Rock	<0.1	<0.5
FD708-23504	Rock	<0.1	17.9
FD708-23531	Rock	<0.1	<0.5
FD795-57438	Rock	<0.1	2.1
FD795-57485	Rock	<0.1	<0.5
FD815-69423	Rock	0.4	0.7
FD815-69464	Rock	<0.1	1.3
FD815-69469	Rock	<0.1	<0.5
FD815-69500	Rock	<0.1	2.0
FD829-A	Rock	<0.1	<0.5
FVD002-13804	Rock	<0.1	<0.5
FVD007-46507	Rock	<0.1	<0.5
FVD007-46511	Rock	0.3	<0.5
FVD007-57451-4	Rock	0.5	<0.5

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Project: ELIO HIROMI HORIKAVA
Report Date: April 16, 2008

QUALITY CONTROL REPORT GOI08000387.1

	Method	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B
	Analyte	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ni	Sc	LOI	Sum	Ba	Be	Co	Cs	Ga
	Unit	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm
	MDL	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.001	0.01	0.002	20	1	-5.1	0.01	1	1	0.2	0.1	0.5
FD162-182	Rock	7.89	1.67	46.06	7.43	17.55	0.28	0.14	0.09	0.284	0.90	<0.002	<20	3	5.3	87.60	98	<1	8.0	3.1	3.6
Pulp Duplicates																					
FD162-102	Rock	47.55	0.44	46.14	4.19	3.33	0.06	0.04	0.03	0.338	0.19	0.006	30	1	0.0	102.32	24	2	4.5	0.9	1.4
REP FD162-102	QC	48.59	0.46	44.91	4.27	3.41	0.06	0.04	0.03	0.335	0.18	0.005	<20	2	0.0	102.28	25	2	4.5	1.2	1.2
FD196-42	Rock	15.68	1.82	3.15	6.05	39.61	0.02	0.51	0.07	<0.001	0.87	0.007	26	2	31.2	99.03	166	<1	5.9	0.3	3.8
REP FD196-42	QC																				
FD795-57438	Rock	46.96	1.52	30.67	6.03	10.72	0.14	0.04	0.10	0.678	0.48	0.003	<20	4	2.5	99.84	6	2	5.4	0.2	4.0
REP FD795-57438	QC	47.00	1.53	30.62	6.00	10.74	0.14	0.04	0.10	0.689	0.48	0.004	<20	4	2.5	99.86	8	1	5.6	0.2	4.4
FD795-57485	Rock	52.39	0.26	44.65	1.44	2.18	0.03	<0.01	0.01	0.160	0.06	<0.002	<20	<1	-1.2	100.01	4	<1	0.6	1.6	1.2
REP FD795-57485	QC																				
Reference Materials																					
STD CSC	Standard																				
STD DS7	Standard																				
STD DS7	Standard																				
STD OREAS76A	Standard																				
STD SO-18	Standard	58.11	14.13	7.61	3.34	6.38	3.69	2.15	0.69	0.807	0.39	0.549	38	25	1.9	99.75	514	<1	28.5	7.1	17.7
STD SO-18	Standard	58.10	14.14	7.62	3.34	6.37	3.69	2.15	0.69	0.804	0.39	0.550	39	25	1.9	99.75	522	<1	28.3	7.2	18.0
STD SO-18	Standard	58.12	14.12	7.60	3.34	6.39	3.69	2.15	0.69	0.803	0.39	0.549	48	26	1.9	99.75	511	<1	29.2	7.2	17.9
STD SO-18	Standard	58.09	14.13	7.61	3.34	6.39	3.69	2.15	0.69	0.803	0.39	0.548	44	26	1.9	99.74	518	1	28.9	7.3	17.9
STD DS7 Expected																					
STD CSC Expected																					
STD OREAS76A Expected																					
STD SO-18 Expected		58.47	14.23	7.67	3.35	6.42	3.71	2.17	0.69	0.83	0.39	0.55	44	25			514		26.2	7.1	17.6
BLK	Blank																				
BLK	Blank	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.01	<0.002	<20	<1	0.0	<0.01	<1	<1	<0.2	<0.1	<0.5
BLK	Blank																				
BLK	Blank	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.01	<0.002	<20	<1	0.0	<0.01	<1	<1	<0.2	<0.1	<0.5
Prep Wash																					
QUARTZ	Prep Blank	98.45	0.01	0.64	<0.01	0.03	<0.01	<0.01	<0.01	0.002	<0.01	<0.002	<20	<1	0.9	100.05	1	<1	0.4	<0.1	<0.5

This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only.

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Rua Enfermeiro Jose Caldeira Brant
No 200, Boa Vista
Nova Lima - MG CEP-34000-000

Project: ELIO HIROMI HORIKAVA
Report Date: April 16, 2008

QUALITY CONTROL REPORT GOI08000387.1

	Method	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B
	Analyte	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05	0.01
FD162-182	Rock	0.3	2.5	8.0	<1	317.8	0.3	0.8	0.8	107	8.9	14.4	27.0	10.1	16.8	1.97	8.0	1.50	0.33	2.28	0.40
Pulp Duplicates																					
FD162-102	Rock	0.2	3.0	1.8	<1	23.6	0.6	0.5	0.2	23	<0.5	11.9	27.5	12.3	18.2	2.10	8.6	1.52	0.32	2.04	0.39
REP FD162-102	QC	0.2	2.0	1.8	<1	22.2	0.4	0.9	0.2	22	<0.5	10.5	28.5	13.9	18.1	2.05	8.5	1.59	0.30	2.14	0.60
FD196-42	Rock	0.6	1.7	19.8	<1	804.1	0.1	1.5	0.7	<8	1.6	22.1	8.2	7.4	13.0	1.40	5.1	1.00	0.20	1.00	0.18
REP FD196-42	QC																				
FD795-57438	Rock	0.4	1.6	2.6	8	147.6	<0.1	0.6	0.3	27	5.6	17.6	29.9	8.5	12.4	1.56	6.2	1.50	0.53	2.11	0.38
REP FD795-57438	QC	0.4	1.3	2.5	8	146.1	<0.1	0.6	0.3	25	5.2	18.2	29.8	8.3	12.1	1.51	6.9	1.49	0.54	2.13	0.38
FD795-57485	Rock	0.1	0.5	1.8	<1	32.5	<0.1	0.6	0.1	<8	0.6	6.2	9.2	4.6	6.6	0.78	3.3	0.61	0.16	0.77	0.14
REP FD795-57485	QC																				
Reference Materials																					
STD CSC	Standard																				
STD DS7	Standard																				
STD DS7	Standard																				
STD OREAS76A	Standard																				
STD SO-18	Standard	9.8	22.3	29.3	16	421.0	7.3	10.5	17.3	205	15.3	294.4	32.7	13.3	27.3	3.45	14.0	2.98	0.89	2.99	0.52
STD SO-18	Standard	10.1	22.2	29.9	16	420.9	7.2	10.5	17.2	205	15.1	295.8	32.4	12.9	27.1	3.45	13.9	2.97	0.89	2.99	0.53
STD SO-18	Standard	9.8	22.9	29.3	16	423.0	7.2	10.7	17.1	214	14.9	294.6	32.4	12.9	27.8	3.47	14.0	2.99	0.86	3.01	0.53
STD SO-18	Standard	9.9	22.6	29.6	16	430.7	7.2	10.6	17.2	214	15.2	294.3	32.7	12.7	27.3	3.46	14.0	2.95	0.87	3.01	0.52
STD DS7 Expected																					
STD CSC Expected																					
STD OREAS76A Expected																					
STD SO-18 Expected		9.8	20.9	28.7	15	407.4	7.4	9.9	16.4	200	15.1	280	33	12.3	27.1	3.45	14	3	0.89	2.93	0.53
BLK	Blank																				
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.5	<0.1	<0.2	<0.1	<8	<0.5	<0.1	<0.1	0.5	<0.1	<0.02	<0.3	<0.05	<0.02	<0.05	<0.01
BLK	Blank																				
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.5	<0.1	<0.2	<0.1	<8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.02	<0.3	<0.05	<0.02	<0.05	<0.01
Prep Wash																					
QUARTZ	Prep Blank	<0.1	0.5	<0.1	<1	<0.5	<0.1	<0.2	<0.1	<8	<0.5	0.3	<0.1	1.8	0.2	0.03	<0.3	<0.05	<0.02	<0.05	<0.01

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Nova Lima - MG CEP-34000-000

Project: ELIO HIROMI HORIKAVA
Report Date: April 16, 2008

QUALITY CONTROL REPORT GOI08000387.1

	Method	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	4A&4B	2A C/S	2A C/S	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX
	Analyte	Dy	Ho	Er	Tm	Yb	Lu	C/TOT	S/TOT	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au	Hg
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm
	MDL	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5	0.01
FD162-182	Rock	2.63	0.68	2.21	0.34	2.25	0.43	4.73	8.09	0.3	17.1	10.9	35	5.8	2.1	0.5	0.1	0.1	<0.1	824.5	<0.01
Pulp Duplicates																					
FD162-102	Rock	2.53	0.72	2.30	0.36	2.24	0.45	0.03	0.04	0.3	1.6	1.0	5	1.9	1.5	<0.1	0.7	<0.1	<0.1	<0.5	<0.01
REP FD162-102	QC	2.56	0.68	2.24	0.39	2.31	0.42														
FD196-42	Rock	1.05	0.23	0.61	0.10	0.60	0.09	8.97	0.14	1.2	11.1	10.8	5	22.0	16.0	<0.1	0.4	<0.1	<0.1	24.4	<0.01
REP FD196-42	QC							8.90	0.14												
FD795-57438	Rock	2.63	0.67	2.06	0.34	2.13	0.36	0.07	6.59	0.6	129.0	25.3	7	6.7	9.2	0.1	0.3	1.8	1.8	11843	<0.01
REP FD795-57438	QC	2.66	0.66	2.05	0.36	2.14	0.37														
FD795-57485	Rock	0.86	0.24	0.69	0.13	0.78	0.13	0.07	0.10	<0.1	4.0	3.3	4	1.4	2.4	<0.1	0.1	<0.1	<0.1	2.0	<0.01
REP FD795-57485	QC									<0.1	3.9	3.5	5	1.0	2.1	<0.1	<0.1	<0.1	<0.1	3.6	<0.01
Reference Materials																					
STD CSC	Standard							3.13	4.30												
STD DS7	Standard									19.4	104.0	64.7	407	53.4	52.2	6.2	6.0	4.9	0.9	64.0	0.20
STD DS7	Standard									17.7	97.6	63.4	395	52.1	48.5	6.1	6.2	4.8	0.8	53.6	0.20
STD OREAS76A	Standard							0.19	17.34												
STD SO-18	Standard	3.06	0.64	1.83	0.30	1.79	0.28														
STD SO-18	Standard	3.04	0.64	1.84	0.29	1.81	0.28														
STD SO-18	Standard	3.01	0.64	1.83	0.30	1.81	0.28														
STD SO-18	Standard	3.03	0.64	1.85	0.30	1.81	0.28														
STD DS7 Expected										20.92	109	70.6	411	56	48.2	6.38	5.86	4.51	0.89	70	0.2
STD CSC Expected								3.13	4.19												
STD OREAS76A Expected								0.16	18												
STD SO-18 Expected		3	0.62	1.84	0.29	1.79	0.27														
BLK	Blank									<0.1	<0.1	<0.1	<1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5	<0.01
BLK	Blank	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01														
BLK	Blank							<0.02	<0.02												
BLK	Blank	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01														
Prep Wash																					
QUARTZ	Prep Blank	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01	<0.02	<0.02	0.6	5.7	0.1	<1	3.3	<0.5	<0.1	0.1	<0.1	<0.1	<0.5	<0.01

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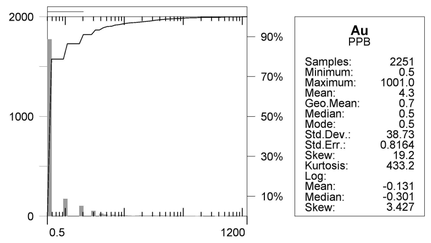
Project: ELIO HIROMI HORIKAVA
Report Date: April 16, 2008

QUALITY CONTROL REPORT GOI08000387.1

	Method	1DX	1DX
	Analyte	Tl	Se
	Unit	ppm	ppm
	MDL	0.1	0.5
FD162-182	Rock	<0.1	0.7
Pulp Duplicates			
FD162-102	Rock	<0.1	<0.5
REP FD162-102	QC		
FD196-42	Rock	0.1	<0.5
REP FD196-42	QC		
FD795-57438	Rock	<0.1	2.1
REP FD795-57438	QC		
FD795-57485	Rock	<0.1	<0.5
REP FD795-57485	QC	<0.1	<0.5
Reference Materials			
STD CSC	Standard		
STD DS7	Standard	4.5	2.6
STD DS7	Standard	4.5	3.2
STD OREAS76A	Standard		
STD SO-18	Standard		
STD SO-18	Standard		
STD SO-18	Standard		
STD SO-18	Standard		
STD DS7 Expected		4.19	3.5
STD CSC Expected			
STD OREAS76A Expected			
STD SO-18 Expected			
BLK	Blank	<0.1	<0.5
BLK	Blank		
BLK	Blank		
BLK	Blank		
Prep Wash			
QUARTZ	Prep Blank	<0.1	<0.5

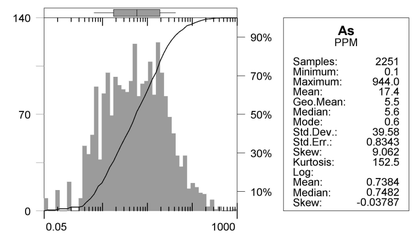
GEOQUÍMICA DE SOLO

Histograma dos Elementos Químicos
Malhas Silvestre-Vila do Meio e Bananeira - 51 Elementos



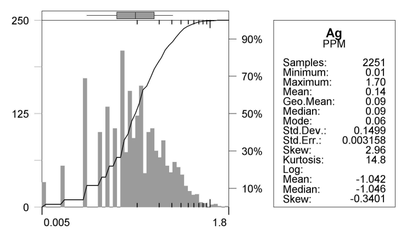
Au
PPB

Samples:	2251
Minimum:	0.5
Maximum:	1001.0
Mean:	4.3
Geo.Mean:	0.7
Median:	0.5
Mode:	0.5
Std.Dev.:	38.73
Std.Err.:	0.8164
Skew:	19.2
Kurtosis:	433.2
Log:	
Mean:	-0.131
Median:	-0.301
Skew:	3.427



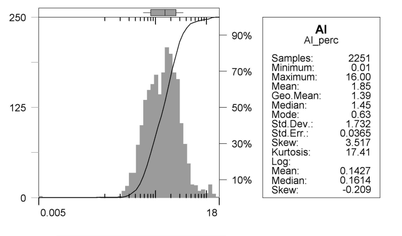
As
PPM

Samples:	2251
Minimum:	0.1
Maximum:	944.0
Mean:	17.4
Geo.Mean:	5.5
Median:	5.6
Mode:	0.6
Std.Dev.:	39.58
Std.Err.:	0.8343
Skew:	9.062
Kurtosis:	152.5
Log:	
Mean:	0.7384
Median:	0.7482
Skew:	-0.03787



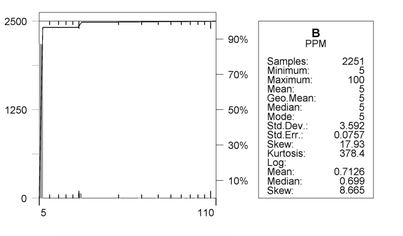
Ag
PPM

Samples:	2251
Minimum:	0.01
Maximum:	1.70
Mean:	0.14
Geo.Mean:	0.09
Median:	0.09
Mode:	0.06
Std.Dev.:	0.1499
Std.Err.:	0.003158
Skew:	2.96
Kurtosis:	14.8
Log:	
Mean:	-1.042
Median:	-1.046
Skew:	-0.3401



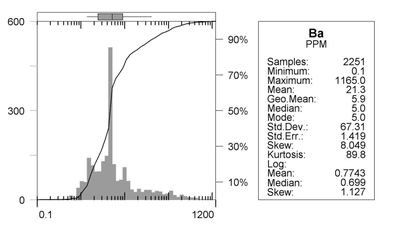
Al
Al_perc

Samples:	2251
Minimum:	0.01
Maximum:	16.00
Mean:	1.85
Geo.Mean:	1.39
Median:	1.45
Mode:	0.63
Std.Dev.:	1.732
Std.Err.:	0.0365
Skew:	3.517
Kurtosis:	17.41
Log:	
Mean:	0.1427
Median:	0.1614
Skew:	-0.209



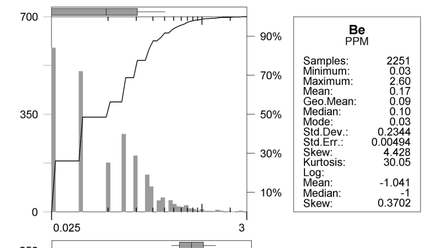
B
PPM

Samples:	2251
Minimum:	5
Maximum:	100
Mean:	5
Geo.Mean:	5
Median:	5
Mode:	5.0
Std.Dev.:	3.592
Std.Err.:	0.0757
Skew:	17.93
Kurtosis:	378.4
Log:	
Mean:	0.7126
Median:	0.699
Skew:	8.665



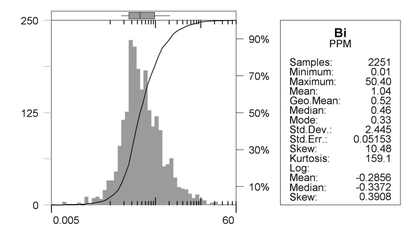
Ba
PPM

Samples:	2251
Minimum:	0.1
Maximum:	1165.0
Mean:	21.3
Geo.Mean:	5.9
Median:	5.0
Mode:	5.0
Std.Dev.:	67.31
Std.Err.:	1.419
Skew:	8.049
Kurtosis:	89.8
Log:	
Mean:	0.7743
Median:	0.699
Skew:	1.127



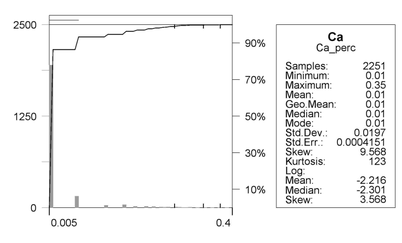
Be
PPM

Samples:	2251
Minimum:	0.03
Maximum:	2.60
Mean:	0.17
Geo.Mean:	0.09
Median:	0.10
Mode:	0.03
Std.Dev.:	0.2344
Std.Err.:	0.00494
Skew:	4.428
Kurtosis:	30.05
Log:	
Mean:	-1.041
Median:	-1
Skew:	0.3702



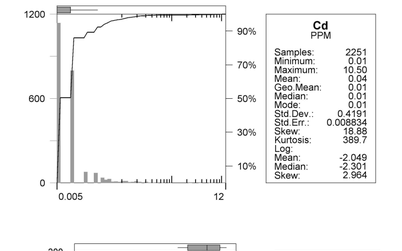
Bi
PPM

Samples:	2251
Minimum:	0.01
Maximum:	50.40
Mean:	1.04
Geo.Mean:	0.52
Median:	0.46
Mode:	0.33
Std.Dev.:	2.445
Std.Err.:	0.05153
Skew:	10.48
Kurtosis:	159.1
Log:	
Mean:	-0.2856
Median:	-0.3372
Skew:	0.3908



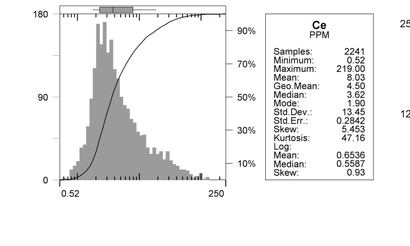
Ca
Ca_perc

Samples:	2251
Minimum:	0.01
Maximum:	0.35
Mean:	0.01
Geo.Mean:	0.01
Median:	0.01
Mode:	0.01
Std.Dev.:	0.0197
Std.Err.:	0.0004151
Skew:	9.568
Kurtosis:	123
Log:	
Mean:	-2.216
Median:	-2.301
Skew:	3.568



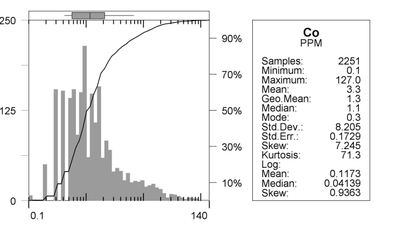
Cd
PPM

Samples:	2251
Minimum:	0.01
Maximum:	10.50
Mean:	0.04
Geo.Mean:	0.01
Median:	0.01
Mode:	0.01
Std.Dev.:	0.4191
Std.Err.:	0.008834
Skew:	18.88
Kurtosis:	389.7
Log:	
Mean:	-2.049
Median:	-2.301
Skew:	2.964



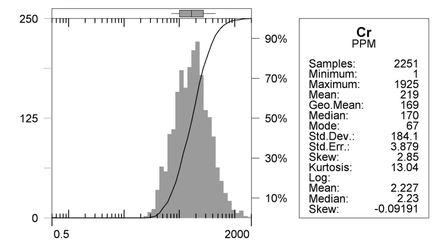
Ce
PPM

Samples:	2241
Minimum:	0.52
Maximum:	219.00
Mean:	8.03
Geo.Mean:	4.50
Median:	3.62
Mode:	1.90
Std.Dev.:	13.45
Std.Err.:	0.2842
Skew:	5.453
Kurtosis:	47.16
Log:	
Mean:	0.6536
Median:	0.5587
Skew:	0.93



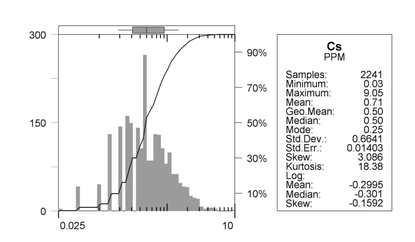
Co
PPM

Samples:	2251
Minimum:	0.1
Maximum:	127.0
Mean:	3.3
Geo.Mean:	1.3
Median:	1.1
Mode:	0.3
Std.Dev.:	8.205
Std.Err.:	0.1729
Skew:	7.245
Kurtosis:	71.3
Log:	
Mean:	0.1173
Median:	0.04139
Skew:	0.9363



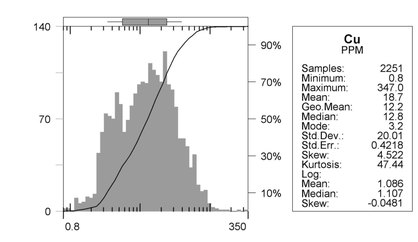
Cr
PPM

Samples:	2251
Minimum:	1
Maximum:	1925
Mean:	219
Geo.Mean:	169
Median:	170
Mode:	67
Std.Dev.:	184.1
Std.Err.:	3.879
Skew:	2.85
Kurtosis:	13.04
Log:	
Mean:	2.227
Median:	2.23
Skew:	-0.09191



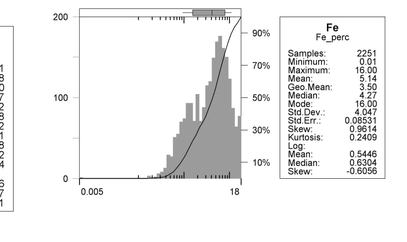
Cs
PPM

Samples:	2241
Minimum:	0.03
Maximum:	9.05
Mean:	0.71
Geo.Mean:	0.50
Median:	0.50
Mode:	0.25
Std.Dev.:	0.6641
Std.Err.:	0.01403
Skew:	3.086
Kurtosis:	18.38
Log:	
Mean:	-0.2995
Median:	-0.301
Skew:	-0.1592



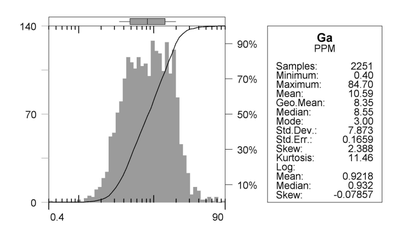
Cu
PPM

Samples:	2251
Minimum:	0.8
Maximum:	347.0
Mean:	18.7
Geo.Mean:	12.2
Median:	12.8
Mode:	3.2
Std.Dev.:	20.01
Std.Err.:	0.4218
Skew:	4.522
Kurtosis:	47.44
Log:	
Mean:	1.086
Median:	1.107
Skew:	-0.0481



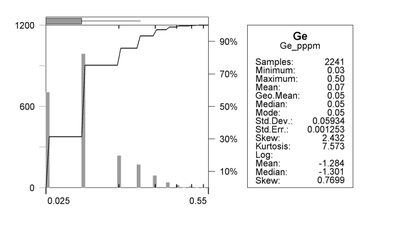
Fe
Fe_perc

Samples:	2251
Minimum:	0.01
Maximum:	16.00
Mean:	5.14
Geo.Mean:	3.50
Median:	4.27
Mode:	16.00
Std.Dev.:	4.047
Std.Err.:	0.08531
Skew:	0.9614
Kurtosis:	0.2409
Log:	
Mean:	0.5446
Median:	0.6304
Skew:	-0.6056



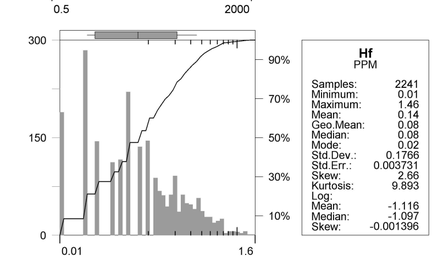
Ga
PPM

Samples:	2251
Minimum:	0.40
Maximum:	84.70
Mean:	10.59
Geo.Mean:	8.35
Median:	8.55
Mode:	3.00
Std.Dev.:	7.873
Std.Err.:	0.1659
Skew:	2.388
Kurtosis:	11.46
Log:	
Mean:	0.9218
Median:	0.932
Skew:	-0.07857



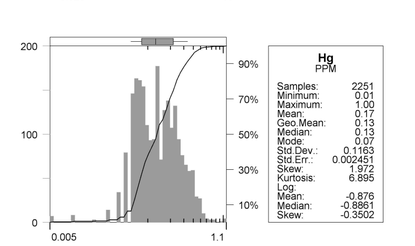
Ge
Ge_pppm

Samples:	2241
Minimum:	0.03
Maximum:	0.50
Mean:	0.07
Geo.Mean:	0.05
Median:	0.05
Mode:	0.05
Std.Dev.:	0.05934
Std.Err.:	0.001253
Skew:	2.432
Kurtosis:	7.573
Log:	
Mean:	-1.284
Median:	-1.301
Skew:	0.7699



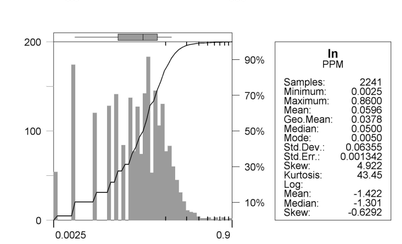
Hf
PPM

Samples:	2241
Minimum:	0.01
Maximum:	1.46
Mean:	0.14
Geo.Mean:	0.08
Median:	0.08
Mode:	0.02
Std.Dev.:	0.1766
Std.Err.:	0.003731
Skew:	2.66
Kurtosis:	9.893
Log:	
Mean:	-1.116
Median:	-1.097
Skew:	-0.001396



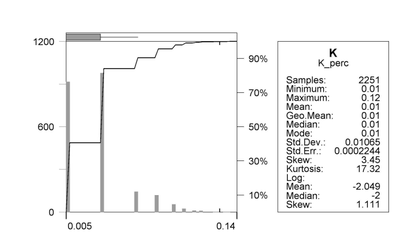
Hg
PPM

Samples:	2251
Minimum:	0.01
Maximum:	1.00
Mean:	0.17
Geo.Mean:	0.13
Median:	0.13
Mode:	0.07
Std.Dev.:	0.1163
Std.Err.:	0.002451
Skew:	1.972
Kurtosis:	6.895
Log:	
Mean:	-0.876
Median:	-0.8861
Skew:	-0.3502



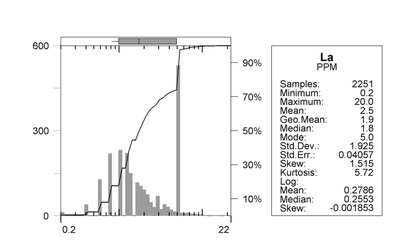
In
PPM

Samples:	2241
Minimum:	0.0025
Maximum:	0.8600
Mean:	0.0596
Geo.Mean:	0.0378
Median:	0.0500
Mode:	0.0050
Std.Dev.:	0.06355
Std.Err.:	0.001342
Skew:	4.922
Kurtosis:	43.45
Log:	
Mean:	-1.422
Median:	-1.301
Skew:	-0.6292



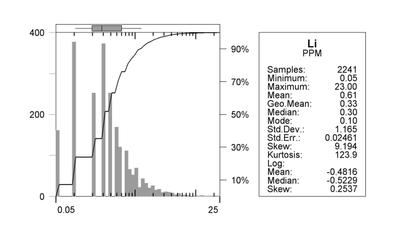
K
K_perc

Samples:	2251
Minimum:	0.01
Maximum:	0.12
Mean:	0.01
Geo.Mean:	0.01
Median:	0.01
Mode:	0.01
Std.Dev.:	0.01065
Std.Err.:	0.0002244
Skew:	3.45
Kurtosis:	17.32
Log:	
Mean:	-2.049
Median:	-2
Skew:	1.111



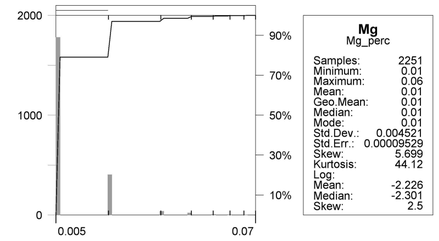
La
PPM

Samples:	2251
Minimum:	0.2
Maximum:	20.0
Mean:	2.5
Geo.Mean:	1.9
Median:	1.8
Mode:	5.0
Std.Dev.:	1.925
Std.Err.:	0.04057
Skew:	1.515
Kurtosis:	5.72
Log:	
Mean:	0.2786
Median:	0.2553
Skew:	-0.001853



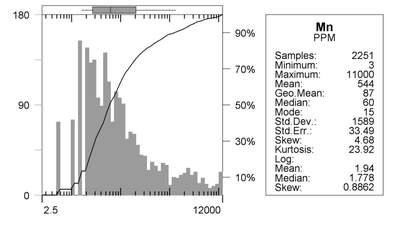
Li
PPM

Samples:	2241
Minimum:	0.05
Maximum:	23.00
Mean:	0.61
Geo.Mean:	0.33
Median:	0.30
Mode:	0.10
Std.Dev.:	1.165
Std.Err.:	0.02461
Skew:	9.194
Kurtosis:	123.9
Log:	
Mean:	-0.4816
Median:	-0.5229
Skew:	0.2537



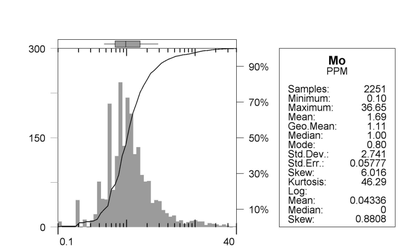
Mg
Mg_perc

Samples:	2251
Minimum:	0.01
Maximum:	0.06
Mean:	0.01
Geo.Mean:	0.01
Median:	0.01
Mode:	0.01
Std.Dev.:	0.004521
Std.Err.:	0.00009529
Skew:	5.699
Kurtosis:	44.12
Log:	
Mean:	-2.226
Median:	-2.301
Skew:	2.5



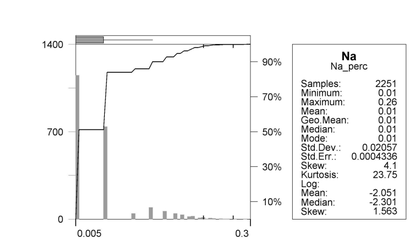
Mn
PPM

Samples:	2251
Minimum:	3
Maximum:	11000
Mean:	544
Geo.Mean:	87
Median:	60
Mode:	15
Std.Dev.:	1589
Std.Err.:	33.49
Skew:	4.68
Kurtosis:	23.92
Log:	
Mean:	1.94
Median:	1.778
Skew:	0.8862



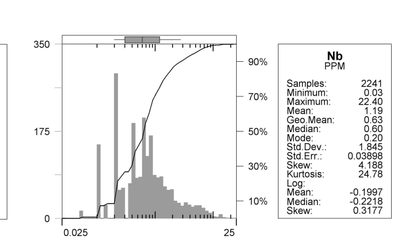
Mo
PPM

Samples:	2251
Minimum:	0.10
Maximum:	36.65
Mean:	1.69
Geo.Mean:	1.11
Median:	1.00
Mode:	0.80
Std.Dev.:	2.741
Std.Err.:	0.05777
Skew:	6.016
Kurtosis:	46.29
Log:	
Mean:	0.04336
Median:	0
Skew:	0.8808



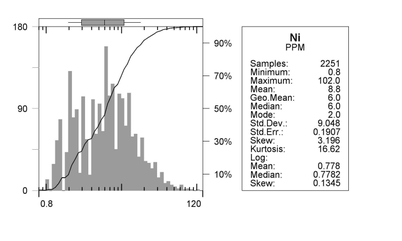
Na
Na_perc

Samples:	2251
Minimum:	0.01
Maximum:	0.26
Mean:	0.01
Geo.Mean:	0.01
Median:	0.01
Mode:	0.01
Std.Dev.:	0.02057
Std.Err.:	0.0004336
Skew:	4.1
Kurtosis:	23.75
Log:	
Mean:	-2.051
Median:	-2.301
Skew:	1.563



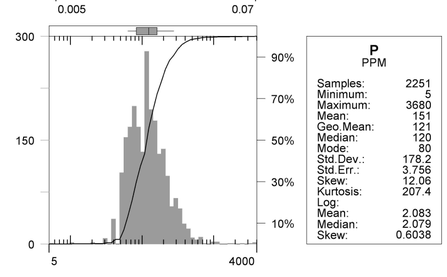
Nb
PPM

Samples:	2241
Minimum:	0.03
Maximum:	22.40
Mean:	1.19
Geo.Mean:	0.63
Median:	0.60
Mode:	0.20
Std.Dev.:	1.845
Std.Err.:	0.03898
Skew:	4.188
Kurtosis:	24.78
Log:	
Mean:	-0.1997
Median:	-0.2218
Skew:	0.3177



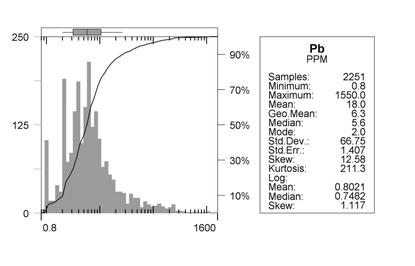
Ni
PPM

Samples:	2251
Minimum:	0.8
Maximum:	102.0
Mean:	8.8
Geo.Mean:	6.0
Median:	6.0
Mode:	2.0
Std.Dev.:	9.048
Std.Err.:	0.1907
Skew:	3.196
Kurtosis:	16.62
Log:	
Mean:	0.778
Median:	0.7782
Skew:	0.1345



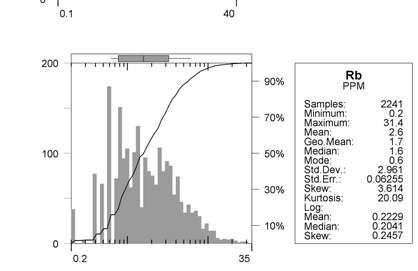
P
PPM

Samples:	2251
Minimum:	5
Maximum:	3680
Mean:	151
Geo.Mean:	121
Median:	120
Mode:	80
Std.Dev.:	178.2
Std.Err.:	3.756
Skew:	12.06
Kurtosis:	207.4
Log:	
Mean:	2.083
Median:	2.079
Skew:	0.6038



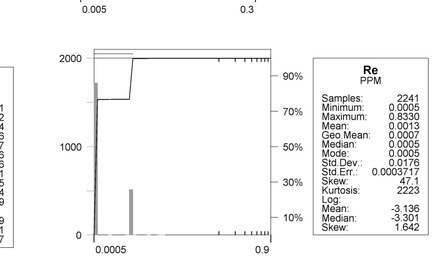
Pb
PPM

Samples:	2251
Minimum:	0.8
Maximum:	1550.0
Mean:	18.0
Geo.Mean:	6.3
Median:	5.6
Mode:	2.0
Std.Dev.:	66.75
Std.Err.:	1.407
Skew:	12.58
Kurtosis:	211.3
Log:	
Mean:	0.8021
Median:	0.7482
Skew:	1.117



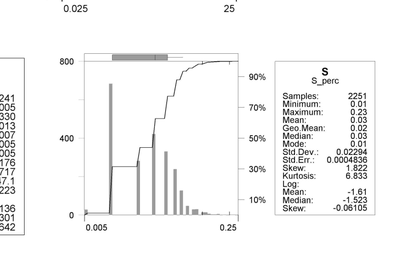
Rb
PPM

Samples:	2241
Minimum:	0.2
Maximum:	31.4
Mean:	2.6
Geo.Mean:	1.7
Median:	1.6
Mode:	0.6
Std.Dev.:	2.961
Std.Err.:	0.06255
Skew:	3.614
Kurtosis:	20.09
Log:	
Mean:	0.2229
Median:	0.2041
Skew:	0.2457



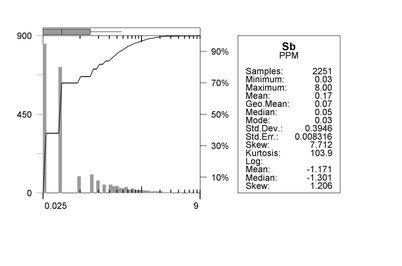
Re
PPM

Samples:	2241
Minimum:	0.0005
Maximum:	0.8330
Mean:	0.0013
Geo.Mean:	0.0007
Median:	0.0005
Mode:	0.0005
Std.Dev.:	0.0176
Std.Err.:	0.0003717
Skew:	47.1
Kurtosis:	2223
Log:	
Mean:	-3.136
Median:	-3.301
Skew:	1.642



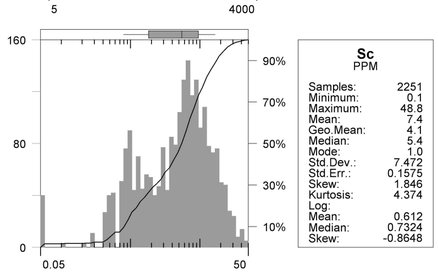
S
S_perc

Samples:	2251
Minimum:	0.01
Maximum:	0.23
Mean:	0.03
Geo.Mean:	0.02
Median:	0.03
Mode:	0.01
Std.Dev.:	0.02294
Std.Err.:	0.0004836
Skew:	1.822
Kurtosis:	6.833
Log:	
Mean:	-1.61
Median:	-1.523
Skew:	-0.06105



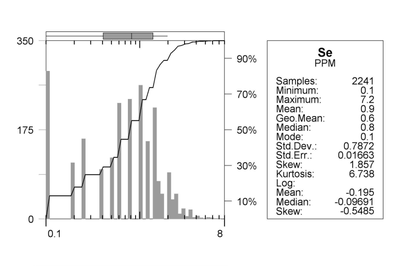
Sb
PPM

Samples:	2251
Minimum:	0.03
Maximum:	8.00
Mean:	0.17
Geo.Mean:	0.07
Median:	0.05
Mode:	0.03
Std.Dev.:	0.3946
Std.Err.:	0.008316
Skew:	7.712
Kurtosis:	103.9
Log:	
Mean:	-1.171
Median:	-1.301
Skew:	1.206



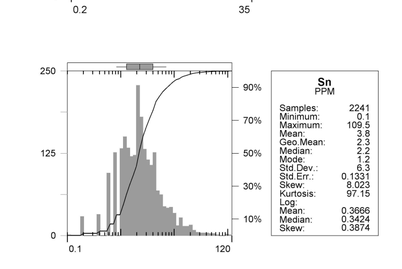
Sc
PPM

Samples:	2251
Minimum:	0.1
Maximum:	48.8
Mean:	7.4
Geo.Mean:	4.1
Median:	5.4
Mode:	1.0
Std.Dev.:	7.472
Std.Err.:	0.1575
Skew:	1.846
Kurtosis:	4.374
Log:	
Mean:	0.612
Median:	0.7324
Skew:	-0.8648



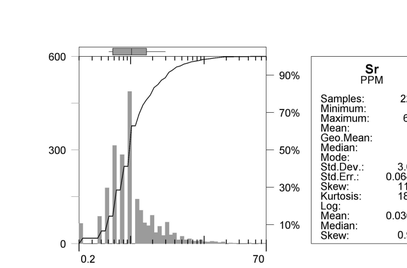
Se
PPM

Samples:	2241
Minimum:	0.1
Maximum:	7.2
Mean:	0.9
Geo.Mean:	0.6
Median:	0.8
Mode:	0.1
Std.Dev.:	0.787
Std.Err.:	0.01663
Skew:	1.857
Kurtosis:	6.738
Log:	
Mean:	-0.195
Median:	-0.09691
Skew:	-0.5485



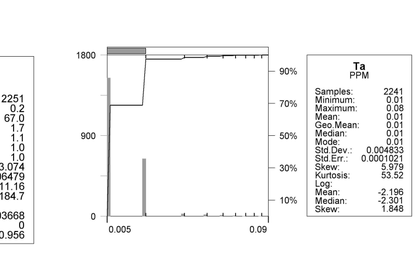
Sn
PPM

Samples:	2241
Minimum:	0.1
Maximum:	109.5
Mean:	3.8
Geo.Mean:	2.3
Median:	2.2
Mode:	1.2
Std.Dev.:	6.3
Std.Err.:	0.1331
Skew:	8.023
Kurtosis:	97.15
Log:	
Mean:	0.3666
Median:	0.3424
Skew:	0.3874



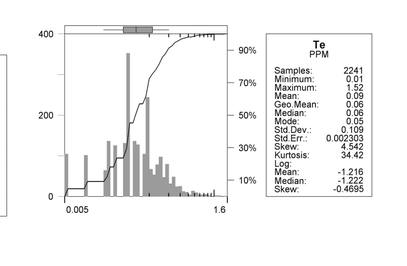
Sr
PPM

Samples:	2251
Minimum:	0.2
Maximum:	67.0
Mean:	1.7
Geo.Mean:	1.1
Median:	1.0
Mode:	1.0
Std.Dev.:	3.074
Std.Err.:	0.06479
Skew:	11.16
Kurtosis:	184.7
Log:	
Mean:	0.03668
Median:	0
Skew:	0.956



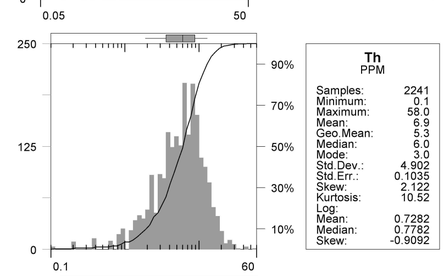
Ta
PPM

Samples:	2241
Minimum:	0.01
Maximum:	0.08
Mean:	0.01
Geo.Mean:	0.01
Median:	0.01
Mode:	0.01
Std.Dev.:	0.004833
Std.Err.:	0.0001021
Skew:	5.979
Kurtosis:	53.52
Log:	
Mean:	-2.196
Median:	-2.301
Skew:	1.848



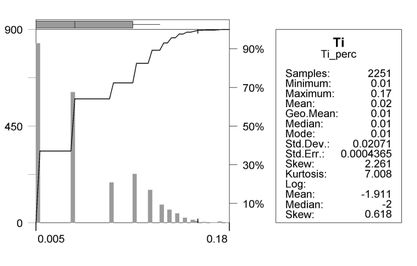
Te
PPM

Samples:	2241
Minimum:	0.01
Maximum:	1.52
Mean:	0.09
Geo.Mean:	0.06
Median:	0.06
Mode:	0.05
Std.Dev.:	0.109
Std.Err.:	0.002303
Skew:	4.542
Kurtosis:	34.42
Log:	
Mean:	-1.216
Median:	-1.222
Skew:	-0.4695



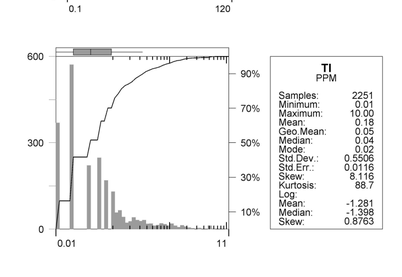
Th
PPM

Samples:	2241
Minimum:	0.1
Maximum:	58.0
Mean:	6.9
Geo.Mean:	5.3
Median:	6.0
Mode:	3.0
Std.Dev.:	4.902
Std.Err.:	0.1035
Skew:	2.122
Kurtosis:	10.52
Log:	
Mean:	0.7282
Median:	0.7782
Skew:	-0.9092



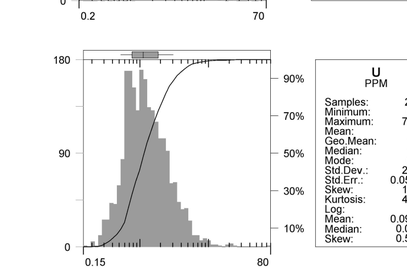
Ti
Ti_perc

Samples:	2251
Minimum:	0.01
Maximum:	0.17
Mean:	0.02
Geo.Mean:	0.01
Median:	0.01
Mode:	0.01
Std.Dev.:	0.02071
Std.Err.:	0.0004365
Skew:	2.251
Kurtosis:	7.008
Log:	
Mean:	-1.911
Median:	-2
Skew:	0.618



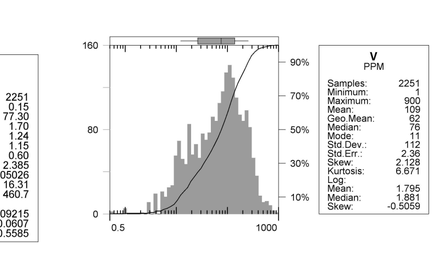
Tl
PPM

Samples:	2251
Minimum:	0.01
Maximum:	10.00
Mean:	0.18
Geo.Mean:	0.05
Median:	0.04
Mode:	0.02
Std.Dev.:	0.5506
Std.Err.:	0.0116
Skew:	8.116
Kurtosis:	88.7
Log:	
Mean:	-1.281
Median:	-1.398
Skew:	0.8763



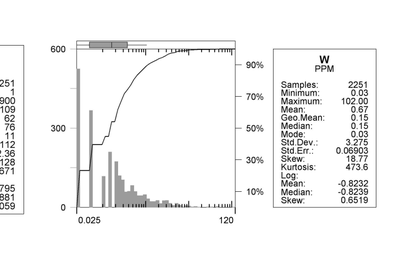
U
PPM

Samples:	2251
Minimum:	0.15
Maximum:	77.30
Mean:	1.70
Geo.Mean:	1.24
Median:	1.15
Mode:	0.60
Std.Dev.:	2.385
Std.Err.:	0.05026
Skew:	16.31
Kurtosis:	460.7
Log:	
Mean:	0.09215
Median:	0.0607
Skew:	0.5585



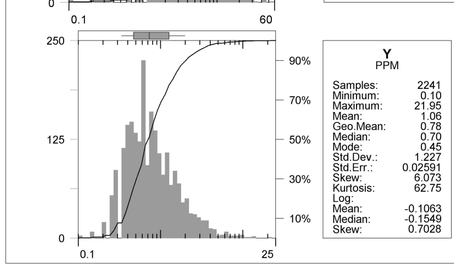
V
PPM

Samples:	2251
Minimum:	1
Maximum:	900
Mean:	109
Geo.Mean:	62
Median:	76
Mode:	11
Std.Dev.:	112
Std.Err.:	2.36
Skew:	2.128
Kurtosis:	6.671
Log:	
Mean:	1.795
Median:	1.881
Skew:	-0.5059



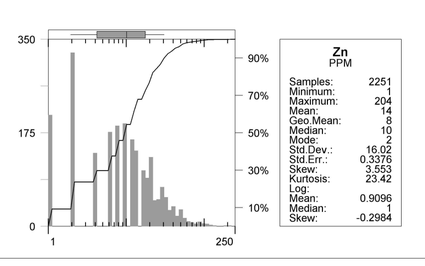
W
PPM

Samples:	2251
Minimum:	0.03
Maximum:	102.00
Mean:	0.67
Geo.Mean:	0.15
Median:	0.15
Mode:	0.03
Std.Dev.:	3.275
Std.Err.:	0.06903
Skew:	18.77
Kurtosis:	473.6
Log:	
Mean:	-0.8232
Median:	-0.8239
Skew:	0.6519



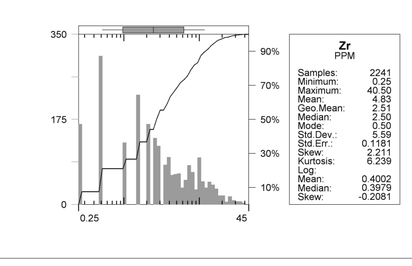
Y
PPM

Samples:	2241
Minimum:	0.10
Maximum:	21.95
Mean:	1.06
Geo.Mean:	0.78
Median:	0.70
Mode:	0.45
Std.Dev.:	1.227
Std.Err.:	0.02591
Skew:	6.073
Kurtosis:	62.75
Log:	
Mean:	-0.1063
Median:	-0.1549
Skew:	0.7028



Zn
PPM

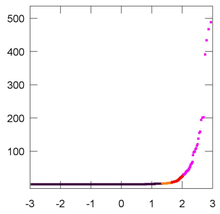
Samples:	2251
Minimum:	1
Maximum:	204
Mean:	14
Geo.Mean:	8
Median:	10
Mode:	2
Std.Dev.:	16.02
Std.Err.:	0.3376
Skew:	3.553
Kurtosis:	23.42
Log:	
Mean:	0.9096
Median:	1
Skew:	-0.2984



Zr
PPM

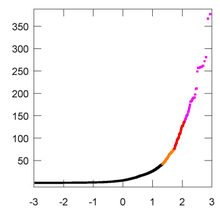
Samples:	2241
Minimum:	0.25
Maximum:	40.50
Mean:	4.83
Geo.Mean:	2.51
Median:	2.50
Mode:	0.50
Std.Dev.:	5.59
Std.Err.:	0.1181
Skew:	2.211
Kurtosis:	6.239
Log:	
Mean:	0.4002
Median:	0.3979
Skew:	-0.2081

Gráfico de Probabilidade Acumulativa dos Elementos Químicos
Malhas Silvestre-Vila do Meio e Bananeira - 51 elem.



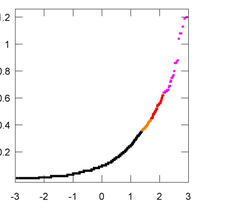
Au_ppb

Samples:	2251
Minimum:	0.5
Maximum:	1001.0
Mean:	4.3
Geo.Mean:	0.7
Median:	0.5
Mode:	0.5
Std.Dev.:	38.73
Std.Err.:	0.8164
Skew:	19.2
Kurtosis:	433.2



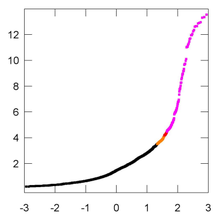
As_ppm

Samples:	2251
Minimum:	0.01
Maximum:	944.0
Mean:	17.4
Geo.Mean:	5.5
Median:	5.6
Mode:	0.6
Std.Dev.:	39.58
Std.Err.:	0.8343
Skew:	9.062
Kurtosis:	152.5



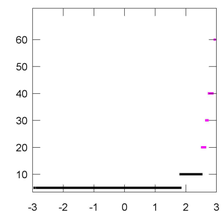
Ag_ppm

Samples:	2251
Minimum:	0.01
Maximum:	1.70
Mean:	0.14
Geo.Mean:	0.09
Median:	0.09
Mode:	0.06
Std.Dev.:	0.1499
Std.Err.:	0.003158
Skew:	2.96
Kurtosis:	14.8



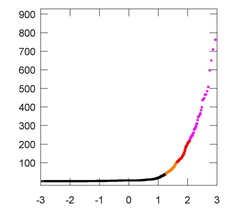
Al_perc

Samples:	2251
Minimum:	0.01
Maximum:	16.00
Mean:	1.85
Geo.Mean:	1.39
Median:	1.45
Mode:	0.63
Std.Dev.:	1.732
Std.Err.:	0.0365
Skew:	3.517
Kurtosis:	17.41



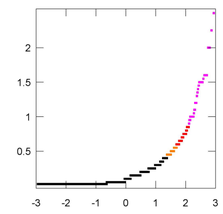
B_ppm

Samples:	2251
Minimum:	5
Maximum:	100
Mean:	5
Geo.Mean:	5
Median:	5
Mode:	5
Std.Dev.:	3.592
Std.Err.:	0.0757
Skew:	17.93
Kurtosis:	378.4



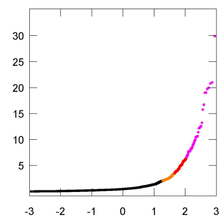
Ba_ppm

Samples:	2251
Minimum:	0.1
Maximum:	1165.0
Mean:	21.3
Geo.Mean:	5.9
Median:	5.0
Mode:	5.0
Std.Dev.:	67.31
Std.Err.:	1.419
Skew:	8.049
Kurtosis:	89.8



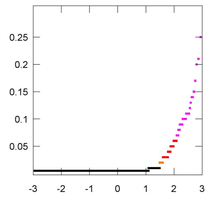
Be_ppm

Samples:	2251
Minimum:	0.03
Maximum:	2.60
Mean:	0.17
Geo.Mean:	0.09
Median:	0.10
Mode:	0.03
Std.Dev.:	0.2344
Std.Err.:	0.00494
Skew:	4.428
Kurtosis:	30.05



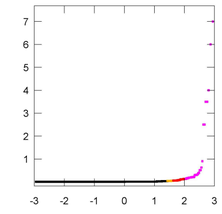
Bi_ppm

Samples:	2251
Minimum:	0.01
Maximum:	50.40
Mean:	1.04
Geo.Mean:	0.52
Median:	0.46
Mode:	0.33
Std.Dev.:	2.445
Std.Err.:	0.05153
Skew:	10.48
Kurtosis:	159.1



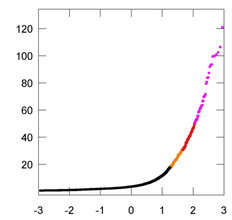
Ca_perc

Samples:	2251
Minimum:	0.01
Maximum:	0.35
Mean:	0.01
Geo.Mean:	0.01
Median:	0.01
Mode:	0.01
Std.Dev.:	0.0197
Std.Err.:	0.0004151
Skew:	9.568
Kurtosis:	123



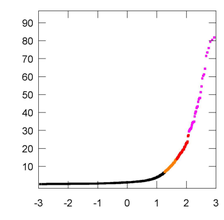
Cd_ppm

Samples:	2251
Minimum:	0.01
Maximum:	10.50
Mean:	0.04
Geo.Mean:	0.01
Median:	0.01
Mode:	0.01
Std.Dev.:	0.4191
Std.Err.:	0.008834
Skew:	18.88
Kurtosis:	389.7



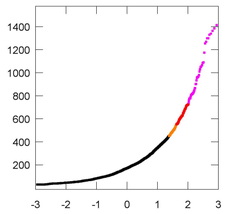
Ce_ppm

Samples:	2241
Minimum:	0.52
Maximum:	219.00
Mean:	8.03
Geo.Mean:	4.50
Median:	3.62
Mode:	1.90
Std.Dev.:	13.45
Std.Err.:	0.2842
Skew:	5.453
Kurtosis:	47.16



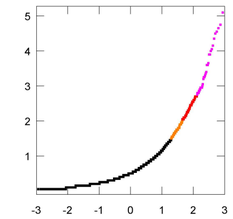
Co_ppm

Samples:	2251
Minimum:	0.1
Maximum:	127.0
Mean:	3.3
Geo.Mean:	1.3
Median:	1.1
Mode:	0.3
Std.Dev.:	8.205
Std.Err.:	0.1729
Skew:	7.245
Kurtosis:	71.3



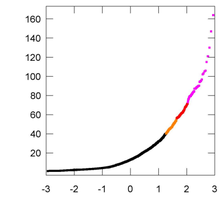
Cr_ppm

Samples:	2251
Minimum:	1
Maximum:	1925
Mean:	219
Geo.Mean:	169
Median:	170
Mode:	67
Std.Dev.:	184.1
Std.Err.:	3.879
Skew:	2.85
Kurtosis:	13.04



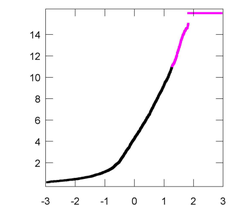
Cs_ppm

Samples:	2241
Minimum:	0.03
Maximum:	9.05
Mean:	0.71
Geo.Mean:	0.50
Median:	0.50
Mode:	0.25
Std.Dev.:	0.6641
Std.Err.:	0.01403
Skew:	3.088
Kurtosis:	18.38



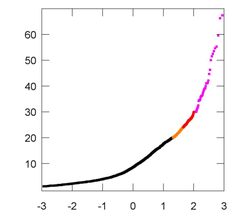
Cu_ppm

Samples:	2251
Minimum:	0.8
Maximum:	347.0
Mean:	18.7
Geo.Mean:	12.2
Median:	12.8
Mode:	3.2
Std.Dev.:	20.01
Std.Err.:	0.4218
Skew:	4.522
Kurtosis:	47.44



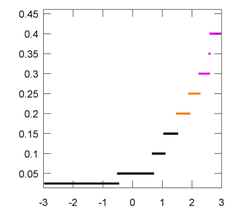
Fe_perc

Samples:	2251
Minimum:	0.01
Maximum:	16.00
Mean:	5.14
Geo.Mean:	3.50
Median:	4.27
Mode:	16.00
Std.Dev.:	4.047
Std.Err.:	0.08531
Skew:	0.9614
Kurtosis:	0.2409



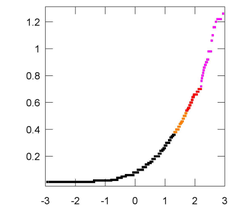
Ga_ppm

Samples:	2251
Minimum:	0.40
Maximum:	84.70
Mean:	10.59
Geo.Mean:	8.35
Median:	8.55
Mode:	3.00
Std.Dev.:	7.873
Std.Err.:	0.1659
Skew:	2.388
Kurtosis:	11.46



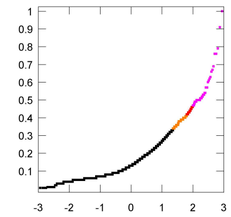
Ge_pppm

Samples:	2241
Minimum:	0.03
Maximum:	0.50
Mean:	0.07
Geo.Mean:	0.05
Median:	0.05
Mode:	0.05
Std.Dev.:	0.05934
Std.Err.:	0.001253
Skew:	2.432
Kurtosis:	7.573



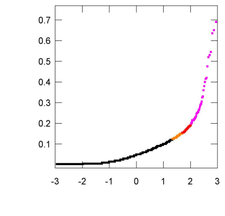
Hf_ppm

Samples:	2241
Minimum:	0.01
Maximum:	1.46
Mean:	0.14
Geo.Mean:	0.08
Median:	0.08
Mode:	0.02
Std.Dev.:	0.1766
Std.Err.:	0.003731
Skew:	2.66
Kurtosis:	9.893



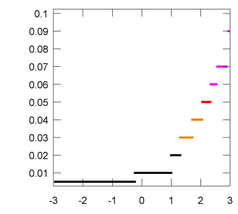
Hg_ppm

Samples:	2251
Minimum:	0.01
Maximum:	1.00
Mean:	0.17
Geo.Mean:	0.13
Median:	0.13
Mode:	0.07
Std.Dev.:	0.1163
Std.Err.:	0.002451
Skew:	1.972
Kurtosis:	6.895



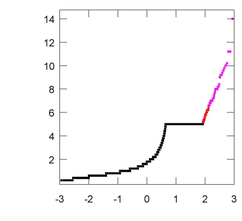
In_ppm

Samples:	2241
Minimum:	0.0025
Maximum:	0.8600
Mean:	0.0596
Geo.Mean:	0.0378
Median:	0.0500
Mode:	0.0050
Std.Dev.:	0.06355
Std.Err.:	0.001342
Skew:	4.922
Kurtosis:	43.45



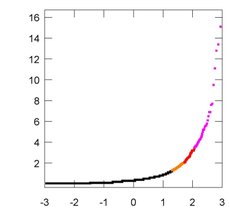
K_perc

Samples:	2251
Minimum:	0.01
Maximum:	0.12
Mean:	0.01
Geo.Mean:	0.01
Median:	0.01
Mode:	0.01
Std.Dev.:	0.01065
Std.Err.:	0.0002244
Skew:	3.45
Kurtosis:	17.32



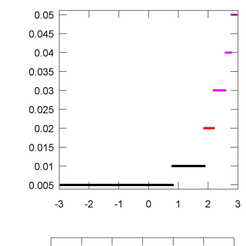
La_ppm

Samples:	2251
Minimum:	0.2
Maximum:	20.0
Mean:	2.5
Geo.Mean:	1.9
Median:	1.8
Mode:	5.0
Std.Dev.:	1.925
Std.Err.:	0.04057
Skew:	1.515
Kurtosis:	5.72



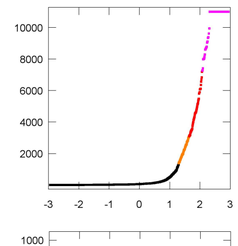
Li_ppm

Samples:	2241
Minimum:	0.05
Maximum:	23.00
Mean:	0.61
Geo.Mean:	0.33
Median:	0.30
Mode:	0.10
Std.Dev.:	1.165
Std.Err.:	0.02461
Skew:	9.194
Kurtosis:	123.9



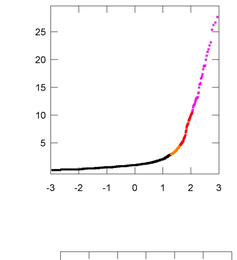
Mg_perc

Samples:	2251
Minimum:	0.01
Maximum:	0.06
Mean:	0.01
Geo.Mean:	0.01
Median:	0.01
Mode:	0.01
Std.Dev.:	0.004521
Std.Err.:	0.00009529
Skew:	5.699
Kurtosis:	44.12



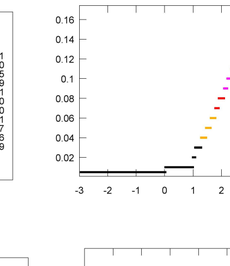
Mn_ppm

Samples:	2251
Minimum:	3
Maximum:	11000
Mean:	544
Geo.Mean:	87
Median:	60
Mode:	15
Std.Dev.:	1589
Std.Err.:	33.49
Skew:	4.68
Kurtosis:	23.92



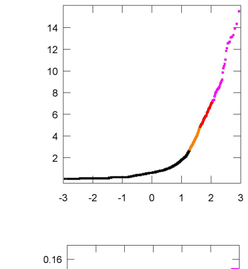
Mo_ppm

Samples:	2251
Minimum:	0.10
Maximum:	36.65
Mean:	1.69
Geo.Mean:	1.11
Median:	1.00
Mode:	0.80
Std.Dev.:	2.741
Std.Err.:	0.05777
Skew:	6.016
Kurtosis:	46.29



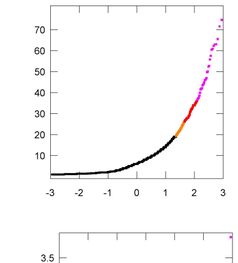
Na_perc

Samples:	2251
Minimum:	0.01
Maximum:	0.26
Mean:	0.01
Geo.Mean:	0.01
Median:	0.01
Mode:	0.01
Std.Dev.:	0.02057
Std.Err.:	0.0004336
Skew:	4.1
Kurtosis:	23.75



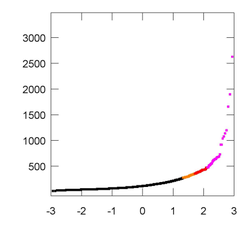
Nb_ppm

Samples:	2241
Minimum:	0.03
Maximum:	22.40
Mean:	1.19
Geo.Mean:	0.63
Median:	0.60
Mode:	0.20
Std.Dev.:	1.845
Std.Err.:	0.03898
Skew:	4.188
Kurtosis:	24.78



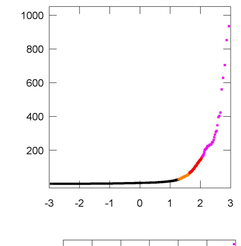
Ni_ppm

Samples:	2251
Minimum:	0.8
Maximum:	102.0
Mean:	8.8
Geo.Mean:	6.0
Median:	6.0
Mode:	2.0
Std.Dev.:	9.048
Std.Err.:	0.1907
Skew:	3.196
Kurtosis:	16.62



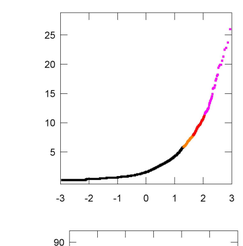
P_ppm

Samples:	2251
Minimum:	5
Maximum:	3680
Mean:	151
Geo.Mean:	121
Median:	120
Mode:	80
Std.Dev.:	178.2
Std.Err.:	3.756
Skew:	12.06
Kurtosis:	207.4



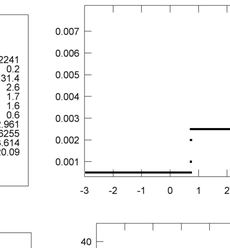
Pb_ppm

Samples:	2251
Minimum:	0.8
Maximum:	1550.0
Mean:	18.0
Geo.Mean:	6.3
Median:	5.6
Mode:	2.0
Std.Dev.:	66.75
Std.Err.:	1.407
Skew:	12.58
Kurtosis:	211.3



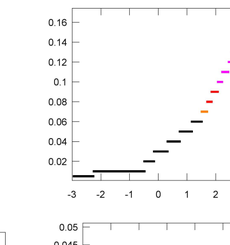
Rb_ppm

Samples:	2241
Minimum:	0.2
Maximum:	31.4
Mean:	2.6
Geo.Mean:	1.7
Median:	1.6
Mode:	0.6
Std.Dev.:	2.961
Std.Err.:	0.06255
Skew:	3.614
Kurtosis:	20.09



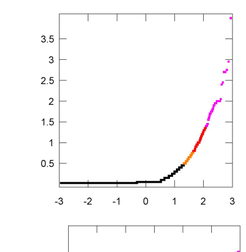
Re_ppm

Samples:	2241
Minimum:	0.0005
Maximum:	0.8330
Mean:	0.0013
Geo.Mean:	0.0007
Median:	0.0005
Mode:	0.0005
Std.Dev.:	0.0176
Std.Err.:	0.0003717
Skew:	47.1
Kurtosis:	2223



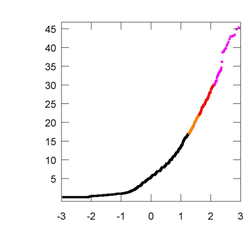
S_perc

Samples:	2251
Minimum:	0.01
Maximum:	0.23
Mean:	0.03
Geo.Mean:	0.02
Median:	0.03
Mode:	0.01
Std.Dev.:	0.02294
Std.Err.:	0.0004836
Skew:	1.822
Kurtosis:	6.833



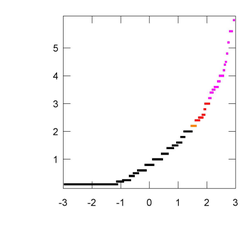
Sb_ppm

Samples:	2251
Minimum:	0.03
Maximum:	8.00
Mean:	0.17
Geo.Mean:	0.07
Median:	0.05
Mode:	0.03
Std.Dev.:	0.3946
Std.Err.:	0.008316
Skew:	7.712
Kurtosis:	103.9



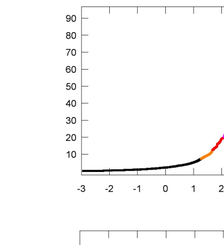
Sc_ppm

Samples:	2251
Minimum:	0.1
Maximum:	48.8
Mean:	7.4
Geo.Mean:	4.1
Median:	5.4
Mode:	1.0
Std.Dev.:	7.472
Std.Err.:	0.1575
Skew:	1.846
Kurtosis:	4.374



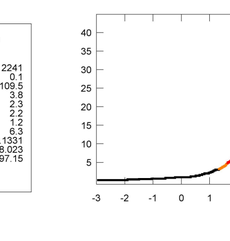
Se_ppm

Samples:	2241
Minimum:	0.1
Maximum:	7.2
Mean:	0.9
Geo.Mean:	0.6
Median:	0.8
Mode:	0.1
Std.Dev.:	0.7872
Std.Err.:	0.01663
Skew:	1.857
Kurtosis:	6.738



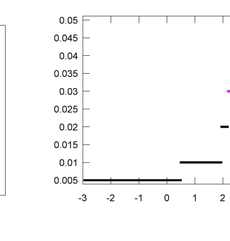
Sn_ppm

Samples:	2241
Minimum:	0.1
Maximum:	109.5
Mean:	3.8
Geo.Mean:	2.3
Median:	2.2
Mode:	1.2
Std.Dev.:	6.3
Std.Err.:	0.1331
Skew:	8.023
Kurtosis:	97.15



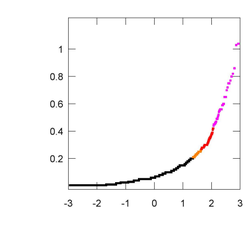
Sr_ppm

Samples:	2251
Minimum:	0.2
Maximum:	67.0
Mean:	1.7
Geo.Mean:	1.1
Median:	1.0
Std.Dev.:	3.074
Std.Err.:	0.06479
Skew:	11.16
Kurtosis:	184.7



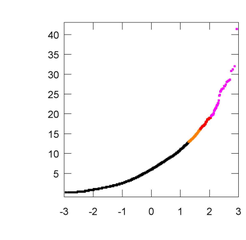
Ta_ppm

Samples:	2241
Minimum:	0.01
Maximum:	0.08
Mean:	0.01
Geo.Mean:	0.01
Median:	0.01
Mode:	0.01
Std.Dev.:	0.004833
Std.Err.:	0.0001021
Skew:	5.979
Kurtosis:	53.52



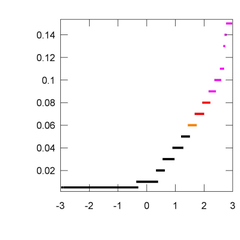
Te_ppm

Samples:	2241
Minimum:	0.01
Maximum:	1.52
Mean:	0.09
Geo.Mean:	0.06
Median:	0.06
Mode:	0.05
Std.Dev.:	0.109
Std.Err.:	0.002303
Skew:	4.542
Kurtosis:	34.42



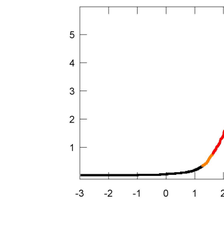
Th_ppm

Samples:	2241
Minimum:	0.1
Maximum:	58.0
Mean:	6.9
Geo.Mean:	5.3
Median:	6.0
Mode:	3.0
Std.Dev.:	4.902
Std.Err.:	0.1035
Skew:	2.122
Kurtosis:	10.52



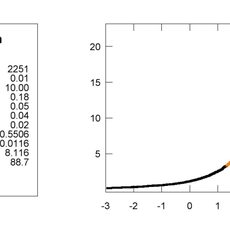
Ti_perc

Samples:	2251
Minimum:	0.01
Maximum:	0.17
Mean:	0.02
Geo.Mean:	0.01
Median:	0.01
Mode:	0.01
Std.Dev.:	0.02071
Std.Err.:	0.0004365
Skew:	2.261
Kurtosis:	7.008



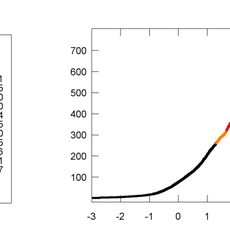
Tl_ppm

Samples:	2251
Minimum:	0.01
Maximum:	10.00
Mean:	0.18
Geo.Mean:	0.05
Median:	0.04
Mode:	0.02
Std.Dev.:	0.5506
Std.Err.:	0.0116
Skew:	8.116
Kurtosis:	88.7



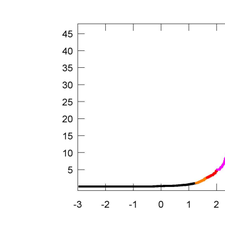
U_ppm

Samples:	2251
Minimum:	0.15
Maximum:	77.30
Mean:	1.70
Geo.Mean:	1.24
Median:	1.15
Mode:	0.60
Std.Dev.:	2.385
Std.Err.:	0.05026
Skew:	16.31
Kurtosis:	460.7



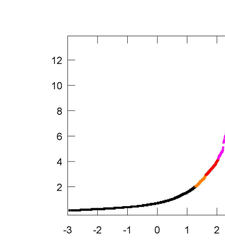
V_ppm

Samples:	2251
Minimum:	1
Maximum:	900
Mean:	109
Geo.Mean:	62
Median:	76
Mode:	11
Std.Dev.:	112
Std.Err.:	2.36
Skew:	2.128
Kurtosis:	6.671



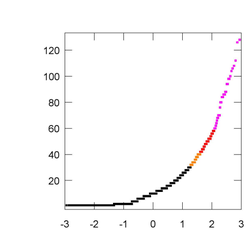
W_ppm

Samples:	2251
Minimum:	0.03
Maximum:	102.00
Mean:	0.67
Geo.Mean:	0.15
Median:	0.15
Mode:	0.03
Std.Dev.:	3.275
Std.Err.:	0.06903
Skew:	18.77
Kurtosis:	473.6



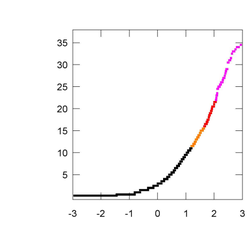
Y_ppm

Samples:	2241
Minimum:	0.10
Maximum:	21.95
Mean:	1.06
Geo.Mean:	0.78
Median:	0.70
Mode:	0.45
Std.Dev.:	1.227
Std.Err.:	0.02591
Skew:	6.073
Kurtosis:	62.75



Zn_ppm

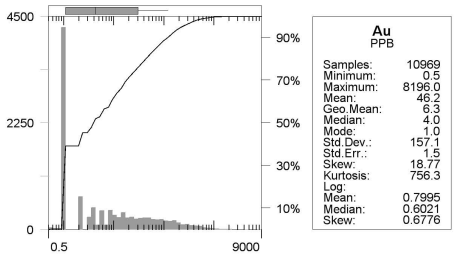
Samples:	2251
Minimum:	1
Maximum:	204
Mean:	14
Geo.Mean:	8
Median:	10
Mode:	2
Std.Dev.:	16.02
Std.Err.:	0.3376
Skew:	3.553
Kurtosis:	23.42



Zr_ppm

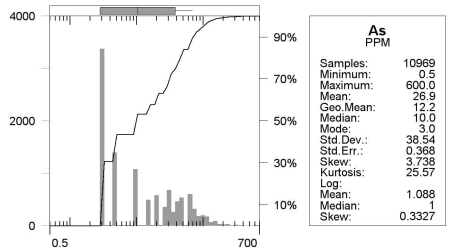
Samples:	2241
Minimum:	0.25
Maximum:	40.50
Mean:	4.83
Geo.Mean:	2.51
Median:	2.50
Mode:	0.50
Std.Dev.:	5.59
Std.Err.:	0.1181
Skew:	2.211
Kurtosis:	6.239

Histograma dos Elementos Químicos
Malhas Taperebá - Urucum - 7 Elementos



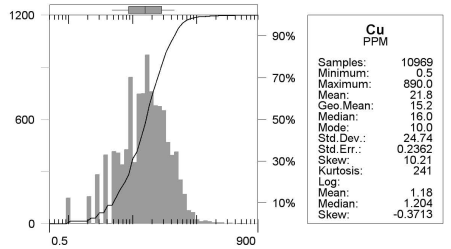
Au
PPB

Samples:	10969
Minimum:	0.5
Maximum:	8196.0
Mean:	46.2
Geo.Mean:	6.3
Median:	4.0
Mode:	1.0
Std.Dev.:	157.1
Std.Err.:	1.5
Skew:	18.77
Kurtosis:	756.3
Log:	
Mean:	0.7995
Median:	0.6021
Skew:	0.6776



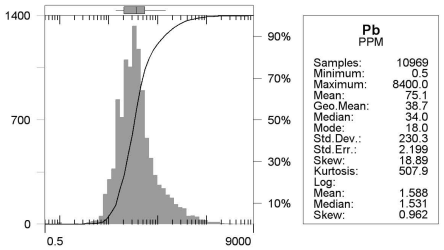
As
PPM

Samples:	10969
Minimum:	0.5
Maximum:	600.0
Mean:	26.9
Geo.Mean:	12.2
Median:	10.0
Mode:	3.0
Std.Dev.:	38.54
Std.Err.:	0.368
Skew:	3.738
Kurtosis:	25.57
Log:	
Mean:	1.088
Median:	1
Skew:	0.3327



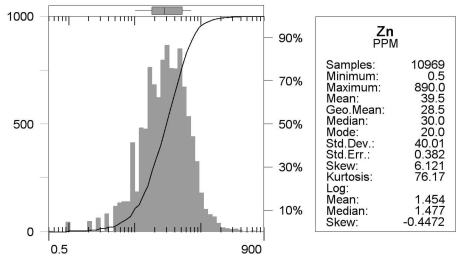
Cu
PPM

Samples:	10969
Minimum:	0.5
Maximum:	890.0
Mean:	21.8
Geo.Mean:	15.2
Median:	16.0
Mode:	10.0
Std.Dev.:	24.74
Std.Err.:	0.2362
Skew:	10.21
Kurtosis:	241
Log:	
Mean:	1.18
Median:	1.204
Skew:	-0.3713



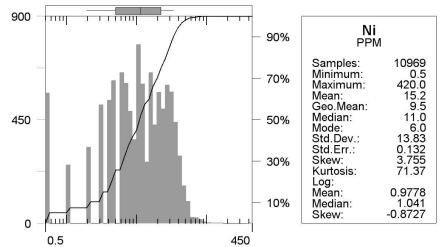
Pb
PPM

Samples:	10969
Minimum:	0.5
Maximum:	8400.0
Mean:	75.1
Geo.Mean:	38.7
Median:	34.0
Mode:	18.0
Std.Dev.:	230.3
Std.Err.:	2.199
Skew:	18.89
Kurtosis:	507.9
Log:	
Mean:	1.588
Median:	1.531
Skew:	0.962



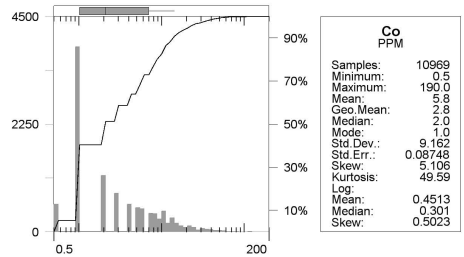
Zn
PPM

Samples:	10969
Minimum:	0.5
Maximum:	890.0
Mean:	39.5
Geo.Mean:	28.5
Median:	30.0
Mode:	20.0
Std.Dev.:	40.01
Std.Err.:	0.382
Skew:	6.121
Kurtosis:	76.17
Log:	
Mean:	1.454
Median:	1.477
Skew:	-0.4472



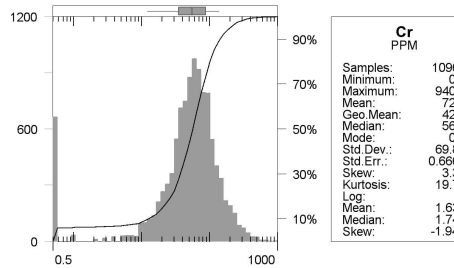
Ni
PPM

Samples:	10969
Minimum:	0.5
Maximum:	420.0
Mean:	15.2
Geo.Mean:	9.5
Median:	11.0
Mode:	6.0
Std.Dev.:	13.83
Std.Err.:	0.132
Skew:	3.755
Kurtosis:	71.37
Log:	
Mean:	0.9778
Median:	1.041
Skew:	-0.8727



Co
PPM

Samples:	10969
Minimum:	0.5
Maximum:	190.0
Mean:	5.8
Geo.Mean:	2.8
Median:	2.0
Mode:	1.0
Std.Dev.:	9.162
Std.Err.:	0.08748
Skew:	5.106
Kurtosis:	49.59
Log:	
Mean:	0.4513
Median:	0.301
Skew:	0.5023



Cr
PPM

Samples:	10969
Minimum:	0.5
Maximum:	940.0
Mean:	72.6
Geo.Mean:	42.8
Median:	56.0
Mode:	0.5
Std.Dev.:	69.85
Std.Err.:	0.6669
Skew:	3.33
Kurtosis:	19.76
Log:	
Mean:	1.632
Median:	1.748
Skew:	-1.949

Anexo 17

Miner NS Statistic

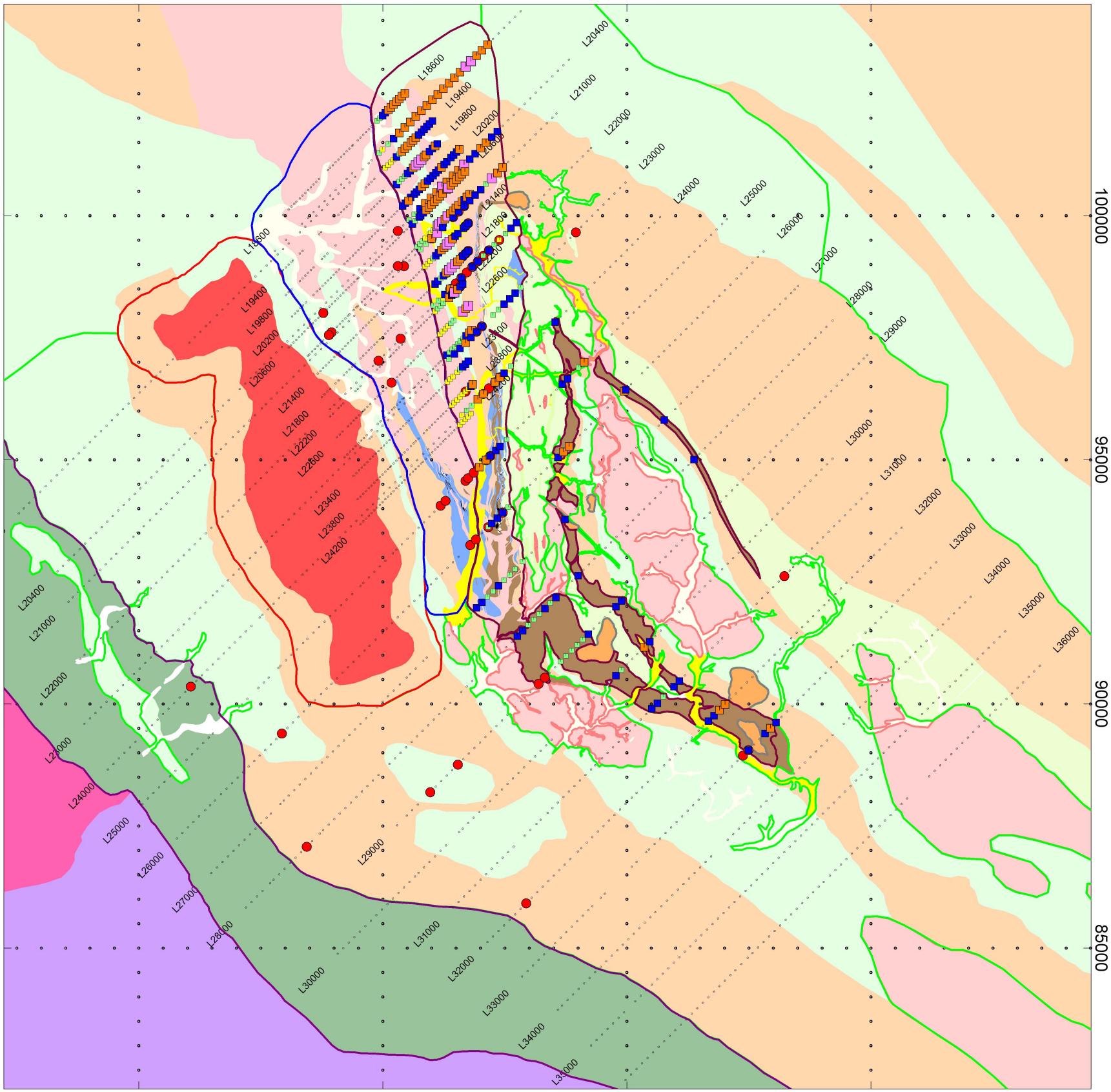
Anexo 18

Channel	NumValid	Num>0	Dummies	Min	Max	Range	Mean	StdDev	Var	Sum	SumSq	GeoMean	Median	Mode	StdErr	Skewness	Kurtosis
Ag_ppm	344	344	0	0.005	0.69	0.685	0.184724	0.132282	0.017499	63.545	17.74028	0.135771	0.15	0.12	0.007132	1.40804	2.04653
Al_perc	344	344	0	0.21	12.65	12.44	1.656715	1.35909	1.84713	569.91	1577.745	1.31054	1.34	0.7	0.073277	3.38811	18.5496
As_ppm	344	344	0	0.1	281	280.9	20.97238	32.9312	1084.46	7214.5	523276.1	8.808341	9.85	1.1	1.775531	3.94807	21.6797
Au_ppb	344	344	0	0.5	434	433.5	9.135174	38.6327	1492.48	3142.5	540628.8	1.077712	0.5	0.5	2.082933	7.78863	71.8643
Ba_ppm	344	344	0	0.8	597.2	596.4	40.83663	81.2404	6600	14047.8	2837465	11.91612	8.2	5	4.380188	3.52606	14.3587
Be_ppm	344	344	0	0.025	2.25	2.225	0.239026	0.238491	0.056878	82.225	39.16313	0.146825	0.15	0.05	0.012859	2.72264	15.137
Bi_ppm	344	344	0	0.08	5.46	5.38	0.687994	0.704704	0.496607	236.67	333.1639	0.496369	0.48	0.26	0.037995	3.23464	13.7958
Ce_ppm	344	344	0	0.8	131	130.2	11.57672	15.6594	245.217	3982.39	130212.3	6.547821	5.54	2.16	0.844298	3.20253	13.9482
Co_ppm	344	344	0	0.1	127	126.9	7.809884	16.1541	260.953	2686.6	110489.1	2.359814	1.75	0.7	0.870968	4.07066	20.1107
Cr_ppm	344	344	0	24	1540	1516	195.1773	172.594	29788.8	67141	23321971	148.9777	148	83	9.305668	3.14344	15.7941
Cs_ppm	344	344	0	0.05	9.05	9	1.292878	0.953588	0.90933	444.75	886.9075	1.009777	1.05	0.85	0.051414	2.57844	13.494
Cu_ppm	344	344	0	1.4	77.2	75.8	20.2375	16.5621	274.303	6961.7	234973.4	14.21893	14.2	6.6	0.892969	1.15711	0.586714
Fe_perc	344	344	0	0.26	16	15.74	5.906134	4.60433	21.1999	2031.71	19271.11	4.005754	4.665	16	0.248249	0.821823	-0.38401
Ga_ppm	344	344	0	1.2	38.05	36.85	9.13561	5.67912	32.2524	3142.65	39772.61	7.577839	8.125	3.4	0.306198	1.49108	3.52254
Hf_ppm	344	344	0	0.01	1.22	1.21	0.128939	0.149517	0.022355	44.355	13.38693	0.079014	0.08	0.06	0.008061	3.59336	18.4782
Hg_ppm	344	344	0	0.03	0.69	0.66	0.162209	0.102785	0.010565	55.8	12.675	0.137378	0.13	0.08	0.005542	1.71538	3.51014
La_ppm	344	344	0	0.2	20	19.8	2.314535	1.97105	3.88504	796.2	3175.4	1.742843	1.7	0.8	0.106272	2.94513	18.2384
Li_ppm	344	344	0	0.05	23	22.95	1.404651	2.23957	5.01569	483.2	2399.11	0.772271	0.8	0.7	0.12075	5.22904	36.2252
Mn_ppm	344	344	0	5	11000	10995	1084.767	1967.92	3872720	373160	1.73E+09	251.4027	217.5	20	106.1033	2.89773	9.22516
Mo_ppm	344	344	0	0.2	5.95	5.75	1.09186	0.747156	0.558243	375.6	601.58	0.918548	0.95	1	0.040284	2.73251	11.5696
Nb_ppm	344	344	0	0.1	12.7	12.6	1.596076	1.32357	1.75183	549.05	1477.203	1.225023	1.2	0.8	0.071362	3.01074	16.0652
Ni_ppm	344	344	0	0.8	85.8	85	12.16337	13.9482	194.551	4184.2	117625.1	7.431173	7	4	0.752035	2.44537	6.83877
P_ppm	344	344	0	40	3680	3640	252.5	387.626	150254	86860	73469200	181.1814	180	170	20.89938	6.68977	50.7927
Pb_ppm	344	344	0	1.2	225.2	224	14.52965	21.3309	455.008	4998.2	228690	8.70201	7.6	4	1.150086	4.92749	34.8579
Rb_ppm	344	344	0	0.4	30.6	30.2	4.419186	3.78461	14.3233	1520.2	11630.94	3.213507	3.4	3	0.204053	2.52376	10.7139
S_perc	344	344	0	0.005	0.11	0.105	0.026381	0.01687	0.000285	9.075	0.337025	0.021703	0.02	0.01	0.00091	1.47736	3.61384
Sb_ppm	344	344	0	0.025	2.7	2.675	0.299782	0.425086	0.180698	103.125	92.89438	0.128141	0.15	0.025	0.022919	2.41188	6.35297
Sc_ppm	344	344	0	0.05	48.8	48.75	8.090988	7.45058	55.5112	2783.3	41559.99	4.840441	5.9	0.5	0.401709	1.62152	3.82857
Se_ppm	344	344	0	0.1	4.2	4.1	1.053924	0.705935	0.498345	362.55	553.0325	0.776153	1	1	0.038061	1.07694	2.20118
Sn_ppm	344	344	0	0.6	47	46.4	3.755233	3.96294	15.7049	1291.8	10237.8	2.820339	2.6	2.2	0.213668	5.45343	46.7788
Sr_ppm	344	344	0	0.2	42.6	42.4	2.245349	3.67141	13.4793	772.4	6357.7	1.384435	1.2	0.8	0.197949	5.93015	48.6941
Te_ppm	344	344	0	0.005	1.2	1.195	0.11327	0.128708	0.016566	38.965	10.09568	0.075057	0.08	0.05	0.006939	4.34163	26.4533
Th_ppm	344	344	0	0.2	41.4	41.2	5.968023	4.87816	23.7964	2053	20414.52	4.515989	4.4	3.8	0.263013	2.56377	10.9235
Tl_ppm	344	344	0	0.01	3.2	3.19	0.310116	0.484493	0.234734	106.68	113.5968	0.140649	0.12	0.06	0.026122	3.28685	12.8319
U_ppm	344	344	0	0.35	20.4	20.05	1.984448	1.94603	3.78702	682.65	2653.633	1.57636	1.5	1.1	0.104923	5.59874	44.4
V_ppm	344	344	0	3	488	485	93.27035	78.36	6140.3	32085	5098701	60.95199	72	8	4.224891	1.34588	2.05862
W_ppm	344	344	0	0.025	14.5	14.475	0.810756	1.45457	2.11578	278.9	951.8313	0.368804	0.35	0.15	0.078425	5.0631	34.2503
Y_ppm	344	344	0	0.25	11.3	11.05	1.350581	1.48524	2.20595	464.6	1384.12	0.955291	0.8	0.55	0.080079	3.23321	13.2205
Zn_ppm	344	344	0	1	88	87	16.81686	15.4015	237.205	5785	178647	10.16937	12	2	0.830392	1.49217	2.57767
Zr_ppm	344	344	0	0.25	34	33.75	3.982558	4.62852	21.4232	1370	12804.25	2.26538	2.5	0.5	0.249553	3.01083	12.961

Fator correlacao MinerNS

Anexo 19

	Ag_ppm	Al_perc	As_ppm	Au_ppb	Ba_ppm	Be_ppm	Bi_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Fe_perc	Ga_ppm	Hf_ppm	Hg_ppm	La_ppm	Li_ppm	Mn_ppm	Mo_ppm	Nb_ppm	Ni_ppm	P_ppm	Pb_ppm	Rb_ppm	S_perc	Sb_ppm	Sc_ppm	Se_ppm	Sn_ppm	Sr_ppm	Te_ppm	Th_ppm	Tl_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Zn_ppm	Zr_ppm
Ag_ppm	1.000	0.145	0.186	0.198	0.155	0.169	0.052	0.126	0.204	0.104	0.155	0.137	0.163	0.205	0.241	0.227	-0.027	0.105	0.196	0.133	0.307	0.179	0.177	0.151	0.034	0.198	0.202	0.183	0.097	0.184	0.208	0.095	0.150	0.350	0.199	0.132	0.061	0.210	0.182	0.171
Al_perc	0.145	1.000	0.423	0.288	0.367	0.471	-0.017	0.173	0.407	0.376	-0.067	0.521	0.814	0.937	0.594	0.790	0.155	0.123	0.528	0.282	0.155	0.521	0.543	0.394	-0.445	0.780	0.684	0.684	-0.057	0.640	0.518	0.450	0.374	0.347	0.255	0.676	0.188	0.329	0.687	0.847
As_ppm	0.186	0.423	1.000	0.289	0.457	0.576	-0.034	0.214	0.584	0.585	0.151	0.708	0.595	0.523	0.335	0.419	-0.084	0.133	0.509	0.199	0.030	0.680	0.429	0.419	-0.220	0.404	0.436	0.689	0.338	0.254	0.305	0.593	0.170	0.388	0.300	0.721	0.165	0.395	0.658	0.476
Au_ppb	0.198	0.288	0.289	1.000	0.357	0.333	0.087	0.309	0.291	-0.024	0.229	0.215	0.313	0.256	0.124	0.328	0.239	0.213	0.401	0.148	0.167	0.211	0.203	0.415	0.052	0.288	0.238	0.209	0.238	0.288	0.358	0.117	0.116	0.392	0.236	0.127	0.403	0.393	0.368	0.212
Ba_ppm	0.155	0.367	0.457	0.357	1.000	0.634	-0.017	0.638	0.807	0.290	0.348	0.592	0.544	0.397	0.146	0.502	0.231	0.450	0.855	0.038	0.137	0.620	0.493	0.783	-0.016	0.429	0.416	0.532	0.244	0.256	0.592	0.455	0.096	0.769	0.413	0.439	0.336	0.675	0.688	0.296
Be_ppm	0.169	0.471	0.576	0.333	0.634	1.000	-0.069	0.358	0.716	0.458	0.225	0.682	0.721	0.526	0.297	0.498	0.063	0.371	0.702	0.053	0.155	0.730	0.643	0.574	-0.146	0.533	0.517	0.698	0.369	0.441	0.388	0.493	0.083	0.595	0.552	0.613	0.340	0.685	0.803	0.430
Bi_ppm	0.052	-0.017	-0.034	0.087	-0.017	-0.069	1.000	-0.160	-0.159	-0.277	0.092	-0.124	-0.130	0.066	-0.041	-0.013	-0.224	0.053	-0.024	0.381	0.300	-0.215	-0.190	0.218	0.212	-0.107	-0.229	-0.153	0.201	0.379	-0.031	0.155	-0.050	0.165	0.205	-0.217	0.397	-0.148	-0.080	-0.038
Ce_ppm	0.126	0.173	0.214	0.309	0.638	0.358	-0.160	1.000	0.541	0.058	0.371	0.300	0.206	0.178	0.073	0.258	0.667	0.487	0.481	0.128	0.228	0.335	0.245	0.601	0.250	0.180	0.177	0.248	0.065	0.125	0.422	0.141	0.456	0.476	0.408	0.146	0.171	0.714	0.374	0.135
Co_ppm	0.204	0.407	0.584	0.291	0.807	0.716	-0.159	0.541	1.000	0.575	0.398	0.786	0.628	0.451	0.268	0.523	0.086	0.449	0.856	-0.096	0.052	0.859	0.525	0.603	-0.105	0.483	0.474	0.726	0.191	0.176	0.511	0.511	0.013	0.724	0.373	0.678	0.145	0.703	0.758	0.397
Cr_ppm	0.104	0.376	0.585	-0.024	0.290	0.458	-0.277	0.058	0.575	1.000	0.054	0.690	0.525	0.416	0.326	0.355	-0.159	0.030	0.355	-0.079	-0.275	0.757	0.311	0.172	-0.356	0.389	0.387	0.696	0.093	0.007	0.087	0.426	0.034	0.204	0.191	0.759	-0.228	0.288	0.547	0.446
Cs_ppm	0.155	-0.067	0.151	0.229	0.348	0.225	0.092	0.371	0.398	0.054	1.000	0.143	-0.062	-0.067	-0.086	0.042	0.085	0.567	0.352	-0.211	0.252	0.207	-0.013	0.307	0.691	-0.103	-0.115	0.092	0.274	0.071	0.186	0.074	-0.120	0.555	0.203	-0.007	0.154	0.352	0.140	-0.134
Cu_ppm	0.137	0.521	0.708	0.215	0.592	0.682	-0.124	0.300	0.786	0.690	0.143	1.000	0.712	0.606	0.347	0.548	-0.039	0.169	0.657	0.020	-0.032	0.893	0.531	0.423	-0.362	0.579	0.467	0.866	0.210	0.241	0.468	0.643	0.114	0.456	0.370	0.857	0.017	0.561	0.796	0.543
Fe_perc	0.163	0.814	0.595	0.313	0.544	0.721	-0.130	0.206	0.628	0.525	-0.062	0.712	1.000	0.838	0.530	0.772	0.052	0.074	0.729	0.200	0.122	0.716	0.793	0.479	-0.505	0.798	0.819	0.815	0.140	0.531	0.542	0.590	0.265	0.470	0.387	0.825	0.287	0.507	0.854	0.758
Ga_ppm	0.205	0.937	0.523	0.256	0.397	0.526	0.066	0.178	0.451	0.416	-0.067	0.606	0.838	1.000	0.637	0.816	0.071	0.105	0.544	0.311	0.229	0.591	0.586	0.415	-0.469	0.784	0.659	0.765	0.018	0.702	0.516	0.523	0.402	0.381	0.322	0.748	0.219	0.366	0.730	0.877
Hf_ppm	0.241	0.594	0.335	0.124	0.146	0.297	-0.041	0.073	0.268	0.326	-0.086	0.347	0.530	0.637	1.000	0.558	-0.062	-0.038	0.287	0.204	0.307	0.377	0.325	0.100	-0.409	0.494	0.426	0.501	-0.110	0.484	0.215	0.299	0.382	0.182	0.188	0.534	0.047	0.156	0.367	0.811
Hg_ppm	0.227	0.790	0.419	0.328	0.502	0.498	-0.013	0.258	0.523	0.355	0.042	0.548	0.772	0.816	0.558	1.000	0.167	0.094	0.655	0.161	0.158	0.558	0.610	0.441	-0.393	0.790	0.659	0.645	0.013	0.589	0.614	0.472	0.270	0.482	0.241	0.636	0.281	0.390	0.670	0.720
La_ppm	-0.027	0.155	-0.084	0.239	0.231	0.063	-0.224	0.667	0.086	-0.159	0.085	-0.039	0.052	0.071	-0.062	0.167	1.000	0.260	0.095	0.230	-0.037	-0.014	0.087	0.284	0.158	0.157	0.125	-0.057	-0.177	0.098	0.279	-0.081	0.502	0.072	0.149	-0.092	0.014	0.452	0.096	0.002
Li_ppm	0.105	0.123	0.133	0.213	0.450	0.371	0.053	0.487	0.449	0.030	0.567	0.169	0.074	0.105	-0.038	0.094	0.260	1.000	0.391	0.004	0.309	0.270	0.105	0.430	0.493	0.046	0.021	0.141	0.163	0.208	0.207	0.027	0.036	0.544	0.339	0.032	0.275	0.487	0.293	0.033
Mn_ppm	0.196	0.528	0.509	0.401	0.855	0.702	-0.024	0.481	0.856	0.355	0.352	0.657	0.729	0.544	0.287	0.655	0.095	0.391	1.000	0.019	0.175	0.682	0.635	0.718	-0.110	0.582	0.600	0.641	0.207	0.390	0.656	0.520	0.052	0.822	0.364	0.564	0.407	0.625	0.789	0.458
Mo_ppm	0.133	0.282	0.199	0.148	0.038	0.053	0.381	0.128	-0.096	-0.079	-0.211	0.020	0.200	0.311	0.204	0.161	0.230	0.004	0.019	1.000	0.276	-0.078	0.132	0.249	-0.052	0.183	0.226	0.027	0.016	0.466	0.128	0.181	0.531	0.033	0.310	0.050	0.319	0.094	0.126	0.260
Nb_ppm	0.307	0.155	0.030	0.167	0.137	0.155	0.300	0.228	0.052	-0.275	0.252	-0.032	0.122	0.229	0.307	0.158	-0.037	0.309	0.175	0.276	1.000	-0.022	0.240	0.189	0.292	0.049	0.147	0.008	0.153	0.475	0.239	0.042	0.225	0.299	0.332	-0.073	0.498	0.269	0.111	0.214
Ni_ppm	0.179	0.521	0.680	0.211	0.620	0.730	-0.215	0.335	0.859	0.757	0.207	0.893	0.716	0.591	0.377	0.558	-0.014	0.270	0.682	-0.078	-0.022	1.000	0.520	0.427	-0.319	0.575	0.526	0.850	0.200	0.212	0.410	0.541	0.069	0.512	0.325	0.835	0.024	0.620	0.821	0.539
P_ppm	0.177	0.543	0.429	0.203	0.493	0.643	-0.190	0.245	0.525	0.311	-0.013	0.531	0.793	0.586	0.325	0.610	0.087	0.105	0.635	0.132	0.240	0.520	1.000	0.377	-0.305	0.645	0.719	0.573	0.121	0.423	0.547	0.438	0.121	0.414	0.391	0.562	0.371	0.466	0.668	0.448
Pb_ppm	0.151	0.394	0.419	0.415	0.783	0.574	0.218	0.601	0.603	0.172	0.307	0.423	0.479	0.415	0.100	0.441	0.284	0.430	0.718	0.249	0.189	0.427	0.377	1.000	0.103	0.361	0.383	0.377	0.319	0.400	0.467	0.352	0.174	0.702	0.470	0.303	0.441	0.593	0.640	0.277
Rb_ppm	0.034	-0.445	-0.220	0.052	-0.016	-0.146	0.212	0.250	-0.105	-0.356	0.691	-0.362	-0.505	-0.469	-0.409	-0.393	0.158	0.493	-0.110	-0.052	0.292	-0.319	-0.305	0.103	1.000	-0.509	-0.422	-0.449	0.201	-0.154	-0.079	-0.344	-0.123	0.182	0.132	-0.525	0.153	0.115	-0.293	-0.533
S_perc	0.198	0.780	0.404	0.288	0.429	0.533	-0.107	0.180	0.483	0.389	-0.103	0.579	0.798	0.784	0.494	0.790	0.157	0.046	0.582	0.183	0.049	0.575	0.645	0.361	-0.509	1.000	0.695	0.655	0.060	0.527	0.522	0.453	0.257	0.378	0.226	0.645	0.156	0.374	0.690	0.703
Sb_ppm	0.202	0.684	0.436	0.238	0.416	0.517	-0.229	0.177	0.474	0.387	-0.115	0.467	0.819	0.659	0.426	0.659	0.125	0.021	0.600	0.226	0.147	0.526	0.719	0.383	-0.422	0.695	1.000	0.550	-0.021	0.383	0.497	0.449	0.228	0.377	0.237	0.584	0.249	0.417	0.661	0.598
Sc_ppm	0.183	0.684	0.689	0.209	0.532	0.698	-0.153	0.248	0.726	0.696	0.092	0.866	0.815	0.765	0.501	0.645	-0.057	0.141	0.641	0.027	0.008	0.850	0.573	0.377	-0.449	0.655	0.550	1.000	0.143	0.379	0.432	0.590	0.238	0.464	0.389	0.934	0.027	0.510	0.807	0.722
Se_ppm	0.097	-0.057	0.338	0.238	0.244	0.369	0.201	0.065	0.191	0.093	0.274	0.210	0.140	0.018	-0.110	0.013	-0.177	0.163	0.207	0.016	0.153	0.200	0.121	0.319	0.201	0.060	-0.021	0.143	1.000	0.123	0.016	0.167	-0.155	0.256	0.233	0.104	0.289	0.197	0.227	-0.046
Sn_ppm	0.184	0.640	0.254	0.288	0.256	0.441	0.379	0.125	0.176	0.007	0.071	0.241	0.531	0.702	0.484	0.589	0.098	0.208	0.390	0.466	0.475	0.212	0.423	0.400	-0.154	0.527	0.383	0.379	0.123	1.000	0.319	0.310	0.342	0.417	0.381	0.301	0.516	0.247	0.466	0.607
Sr_ppm	0.208	0.518	0.305	0.358	0.592	0.388	-0.031	0.422	0.511	0.087	0.186	0.468	0.542	0.516	0.215	0.614	0.279	0.207	0.656	0.128	0.239	0.410	0.547	0.467	-0.079	0.522	0.497	0.432	0.016	0.319	1.000	0.382	0.177	0.476	0.243	0.404	0.303	0.488	0.520	0.361
Te_ppm	0.095	0.450	0.593	0.117	0.455	0.493	0.155	0.141	0.511	0.426	0.074	0.643	0.590	0.523	0.299	0.472	-0.081	0.027	0.520	0.181	0.042	0.541	0.438	0.352	-0.344	0.453	0.449	0.590	0.167	0.310	0.382	1.000	0.125	0.339	0.293	0.597	0.170	0.297	0.556	0.452
Th_ppm	0.150	0.374	0.170	0.116	0.096	0.083	-0.050	0.456	0.013	0.034	-0.120	0.114	0.265	0.402	0.382	0.270	0.502	0.036	0.052	0.531	0.225	0.069	0.121	0.174	-0.123	0.257	0.228	0.238	-0.155	0.342	0.177	0.125	1.000	0.000	0.248	0.201	0.013	0.242	0.197	0.445
Tl_ppm	0.350	0.347	0.388	0.392	0.769	0.595	0.165	0.476	0.724	0.204	0.555	0.456	0.470	0.381	0.182	0.482	0.072	0.544	0.822	0.033	0.299	0.512	0.414	0.702	0.182	0.378	0.377	0.464	0.256	0.417	0.476	0.339	0.000	1.000	0.455	0.333	0.415	0.563	0.605	0.298
U_ppm	0.199	0.255	0.300	0.236	0.413	0.552	0.205	0.408	0.373	0.191	0.203	0.370	0.387	0.322	0.188	0.241	0.149	0.339	0.364	0.310	0.332	0.325	0.391	0.470	0.132	0.226	0.237	0.389	0.233	0.381	0.243	0.293	0.248	0.455	1.000	0.317	0.318	0.576	0.450	0.262
V_ppm	0.132	0.676	0.721	0.127	0.439	0.613	-0.217	0.146	0.678	0.759	-0.007	0.857	0.825	0.748	0.534	0.636	-0.092	0.032	0.564	0.050	-0.073	0.835	0.562	0.303	-0.525	0.645	0.584	0.934	0.104	0.301	0.404	0.597	0.201	0.333	0.317	1.000	-0.056	0.415	0.761	0.718
W_ppm	0.061	0.188	0.165	0.403	0.336	0.340	0.397	0.171	0.145	-0.228	0.154	0.017	0.287	0.219	0.047	0.281	0.014	0.275	0.407	0.319	0.498	0.024	0.371	0.441	0.153	0.156	0.249	0.027	0.289	0.516	0.303	0.170	0.013	0.415	0.318	-0.056	1.000	0.228	0.284	0.110
Y_ppm	0.210	0.329	0.395	0.393	0.675	0.685	-0.148	0.714	0.703	0.288	0.352	0.561	0.507	0.366	0.156	0.390	0.452	0.487	0.625	0.094	0.269	0.620	0.466	0.593	0.115	0.374	0.417	0.510	0.197	0.247	0.488	0.297	0.242	0.563	0.576	0.415	0.228	1.000	0.665	0.264
Zn_ppm	0.182	0.687	0.658	0.368	0.688	0.803	-0.080	0.374	0.758	0.547	0.140	0.796	0.854	0.730	0.367	0.670	0.096	0.293	0.789	0.126	0.111	0.821	0.668	0.640	-0.293	0.690	0.661	0.807	0.227	0.466	0.520	0.556	0.197	0.605	0.450	0.761	0.284	0.665	1.000	0.633
Zr_ppm	0.171	0.847	0.476	0.212	0.296	0.430	-0.038	0.135	0.397	0.446	-0.134	0.543	0.758	0.877	0.811	0.720	0.002	0.033	0.458	0.260	0.214	0.539	0.448	0.277	-0.533	0.703	0.598	0.722	-0.046	0.607	0.361	0.452	0.445	0.298	0.262	0.718	0.110	0.264	0.633	1.000



Legenda

Cenozóico

Quaternário

- Aluvião
- Aluvião Mineralizado (Au)

Terciário

- Cobertura lateritica

Paleoproterozóico

Suíte Intrusiva

- Granito Amapari
- Granitóides indiferenciados
- Metatonalito Papavento

Grupo Vila Nova

- Formações ferríferas
- Biotita xistos e quartzitos
- Rochas carbonáticas e cálcio-silicáticas
- Almandina silimanita-biotita-quartzo xisto
  Biotita-quartzo xisto
  Muscovita/biotita-quartzo xisto
- Paranfibolitos
- Ortoanfibolito Jornal
- Metatonalito Água Fria

Anexo 20

PC1

>	80
60 -	80
40 -	60
20 -	40
<	20

Solo Au > 19 ppb

- Zona MinerNS
- Zona MinerNW
- Zona do Granito
- Zona dos Granitóides Indif.
- Zona da Máfica
- Zona dos Metassedim.

Scale 1:100000

1000 0 1000 2000 3000 4000 5000

metres

SAD69 / UTM zone 22N

Região do Depósito de Ouro do Amapari-AP

Geoquímica de Solo
Análise de Componentes Principais - PCA
Zona Mineralizada N-S - PC1

Laboratório Chemex - Vancouver - Canadá

Orientadora - Profa. Dra. Lydia Maria Lobato

Élio Hiromi Horikava

395000 400000 405000 410000

100000 95000 90000 85000

L18600 L19400 L19800 L20200 L20600 L21000 L21400 L21800 L22000 L22200 L22600 L23000 L23400 L23800 L24000 L24200 L24600 L25000 L26000 L27000 L28000 L29000 L30000 L31000 L32000 L33000 L34000 L35000 L36000

Legenda

Cenozóico

Quaternário

- Aluvião
- Aluvião Mineralizado (Au)

Terciário

- Cobertura lateritica

Paleoproterozóico

Suíte Intrusiva

- Granito Amapari
- Granitóides indiferenciados
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Grupo Vila Nova

- Formações ferríferas
- Biotita xistos e quartzitos
- Rochas carbonáticas e cálcio-silicáticas
- Almandina silimanita-biotita-quartzo xisto
  Biotita-quartzo xisto
  Muscovita/biotita-quartzo xisto
- Paranfibolitos
- Ortoanfibolito Jornal
- Metatonalito Água Fria

Anexo 21

PC2

- > 80
- 60 - 80
- 40 - 60
- 20 - 40
- < 20

Solo Au > 19 ppb

- Zona MinerNS
- Zona MinerNW
- Zona do Granito
- Zona dos Granitóides Indif.
- Zona da Máfica
- Zona dos Metassedim.

Scale 1:100000

1000 0 1000 2000 3000 4000 5000

metres

SAD69 / UTM zone 22N

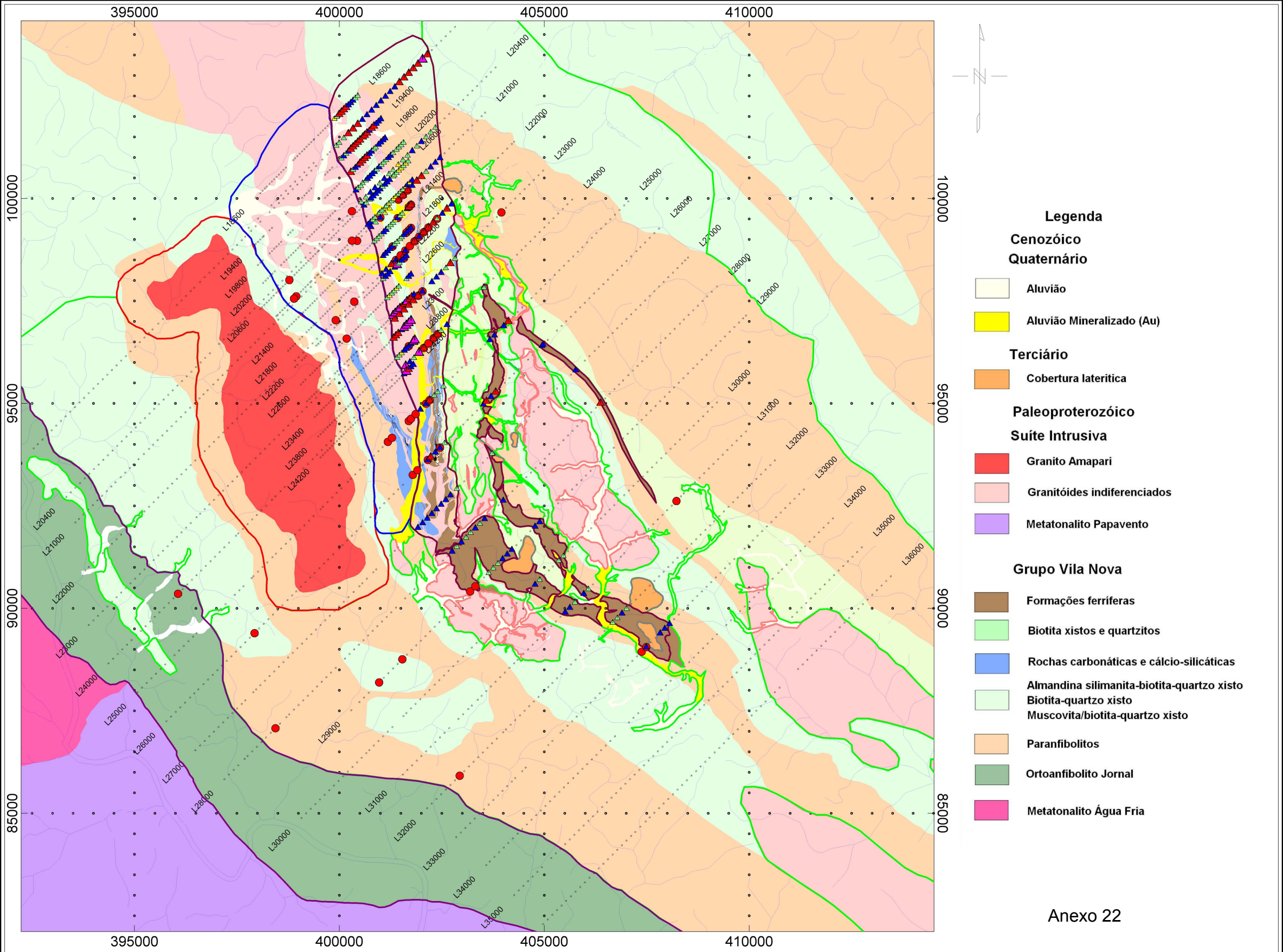
Região do Depósito de Ouro do Amapari-AP

Geoquímica de Solo
Análise de Componentes Principais - PCA
Zona Mineralizada N-S - PC2

Laboratório Chemex - Vancouver - Canadá

Orientadora - Profa. Dra. Lydia Maria Lobato

Élio Hiromi Horikava



Anexo 22

Região do Depósito de Ouro do Amapari - AP
Geoquímica de Solo **Análise de Componentes Principais PCA** **Zona Mineralizada N-S - PC3**
Laboratório Chemex - Vancouver - Canadá
Orientadora - Profa. Dra. Lydia Maria Lobato
Élio Hiromi Horikava

Miner NW Statistic

Anexo 23

Channel	NumValid	Num>0	Dummies	Min	Max	Range	Mean	StdDev	Var	Sum	SumSq	GeoMean	Median	Mode	StdErr	Skewness	Kurtosis
Ag_ppm	443	443	0	0.005	1.34	1.335	0.223036	0.206241	0.042535	98.805	40.83768	0.14095	0.16	0.03	0.009799	2.02178	5.60721
Al_perc	443	443	0	0.005	4.53	4.525	0.906106	0.625253	0.390941	401.405	536.5114	0.752113	0.73	0.51	0.029707	2.2428	6.5055
As_ppm	443	443	0	0.05	392	391.95	8.639278	28.4368	808.65	3827.2	390487.4	2.285902	1.9	0.5	1.351072	8.49332	91.5893
Au_ppb	443	443	0	0.5	488	487.5	3.882619	26.2372	688.389	1720	310946	0.754208	0.5	0.5	1.246565	15.0764	262.949
Ba_ppm	443	443	0	0.4	905	904.6	25.56546	83.0476	6896.9	11325.5	3337971	3.693941	2	1.4	3.945709	5.85032	42.9237
Be_ppm	443	443	0	0.025	2.6	2.575	0.118454	0.232278	0.053953	52.475	30.06313	0.055533	0.025	0.025	0.011036	5.39115	40.0903
Bi_ppm	443	443	0	0.08	50.4	50.32	2.04781	3.37451	11.3873	907.18	6890.939	1.186434	1.12	0.31	0.160328	7.91769	97.2298
Ce_ppm	443	443	0	0.66	219	218.34	11.64411	19.3712	375.245	5158.34	225922.4	5.791937	4.92	1.46	0.920355	4.83776	35.7462
Co_ppm	443	443	0	0.1	48.1	48	2.125734	4.79421	22.9844	941.7	12160.93	0.754912	0.5	0.3	0.22778	4.7105	29.4711
Cr_ppm	443	443	0	0.5	452	451.5	95.78442	56.8705	3234.25	42432.5	5493910	83.3446	83	67	2.701997	2.33468	7.88344
Cs_ppm	443	443	0	0.05	3.25	3.2	0.647178	0.457662	0.209455	286.7	278.125	0.52978	0.5	0.35	0.021744	2.10125	5.64762
Cu_ppm	443	443	0	0.8	347	346.2	11.27698	21.4754	461.191	4995.7	260182.7	6.747864	5.6	3.8	1.020325	9.98961	138.671
Fe_perc	443	443	0	0.005	16	15.995	2.490779	2.81159	7.90504	1103.415	6242.392	1.543382	1.39	0.68	0.133583	2.44038	6.85418
Ga_ppm	443	443	0	0.4	24.95	24.55	6.151806	4.26433	18.1845	2725.25	24802.76	5.061916	4.9	3	0.202604	1.77225	3.10685
Hf_ppm	443	443	0	0.01	0.7	0.69	0.094153	0.102049	0.010414	41.71	8.5301	0.058372	0.06	0.02	0.004848	2.68669	9.94636
Hg_ppm	443	443	0	0.005	0.51	0.505	0.094515	0.065203	0.004251	41.87	5.83645	0.080079	0.08	0.07	0.003098	2.90987	10.6831
La_ppm	443	443	0	0.2	11.2	11	1.93228	1.5109	2.28282	856	2663.04	1.537795	1.6	1	0.071785	2.66317	10.2234
Li_ppm	443	443	0	0.05	4	3.95	0.434312	0.580253	0.336693	192.4	232.38	0.247338	0.3	0.1	0.027569	3.28894	12.748
Mn_ppm	443	443	0	2.5	11000	10997.5	677.421	1846.73	3410410	300097.5	1.71E+09	55.14386	25	15	87.74076	3.67346	14.0958
Mo_ppm	443	443	0	0.25	36.65	36.4	3.471332	5.22353	27.2852	1537.8	17398.28	1.763016	1.5	0.75	0.248177	3.02413	10.3069
Nb_ppm	443	443	0	0.05	22.4	22.35	2.658578	3.1207	9.73878	1177.75	7435.683	1.409478	1.3	0.3	0.148269	2.20007	6.49798
Ni_ppm	443	443	0	1	27.6	26.6	3.597743	3.88714	15.1099	1593.8	12412.64	2.647645	2.2	2	0.184684	3.13125	11.7647
P_ppm	443	443	0	5	420	415	103.0587	54.6768	2989.55	45655	6026525	92.88252	90	80	2.597771	2.38843	7.63163
Pb_ppm	443	443	0	1.2	1550	1548.8	37.04199	123.417	15231.7	16409.6	7340274	8.335831	5	2.8	5.863716	7.65132	72.235
Rb_ppm	443	443	0	0.4	31.4	31	3.854176	3.64545	13.2893	1707.4	12454.48	2.930848	2.9	2.5	0.1732	3.3335	15.2623
S_perc	443	443	0	0.005	0.06	0.055	0.015102	0.009539	9.10E-05	6.69	0.14125	0.01303	0.01	0.01	0.000453	1.76931	2.93117
Sb_ppm	443	443	0	0.025	2.95	2.925	0.085045	0.213443	0.045558	37.675	23.34063	0.041861	0.025	0.025	0.010141	8.00049	85.4835
Sc_ppm	443	443	0	0.05	22.8	22.75	2.932844	3.47563	12.08	1299.25	9149.848	1.686527	1.5	0.5	0.165132	2.41519	6.97106
Se_ppm	443	443	0	0.1	6	5.9	0.820316	0.587689	0.345378	363.4	450.76	0.620671	0.8	0.8	0.027922	2.33765	14.0638
Sn_ppm	443	443	0	0.1	94.4	94.3	5.47246	9.13696	83.4841	2424.3	50166.85	2.520566	1.8	1.2	0.43411	4.40841	28.4116
Sr_ppm	443	443	0	0.2	60.4	60.2	1.432054	3.8478	14.8056	634.4	7452.56	0.839975	0.8	0.6	0.182815	11.515	155.776
Te_ppm	443	443	0	0.005	0.82	0.815	0.07307	0.084136	0.007079	32.37	5.4941	0.041688	0.05	0.005	0.003997	3.4268	19.2982
Th_ppm	443	443	0	0.1	58	57.9	7.593228	6.63857	44.0706	3363.8	45021.3	5.113497	5.8	2	0.315408	2.18083	9.20892
Tl_ppm	443	443	0	0.01	5.84	5.83	0.23614	0.590091	0.348207	104.61	178.6101	0.063408	0.04	0.02	0.028036	5.49729	39.457
U_ppm	443	443	0	0.2	77.3	77.1	2.393679	4.39553	19.3207	1060.4	11078.01	1.511493	1.55	0.5	0.208838	11.9568	190.468
V_ppm	443	443	0	0.5	293	292.5	37.1535	39.912	1592.97	16459	1315603	22.01918	21	11	1.896278	2.17319	6.46298
W_ppm	443	443	0	0.025	102	101.975	1.751072	6.65895	44.3416	775.725	20957.36	0.29259	0.25	0.05	0.316376	9.88269	125.254
Y_ppm	443	443	0	0.2	13.55	13.35	1.130474	1.19179	1.42037	500.8	1193.945	0.823476	0.8	0.4	0.056624	4.69731	35.7075
Zn_ppm	443	443	0	1	192	191	10.22348	18.483	341.622	4529	197299	3.927013	2	2	0.878155	4.21331	27.0394
Zr_ppm	443	443	0	0.25	25.5	25.25	2.595937	3.25167	10.5734	1150	7658.75	1.390477	1.5	0.5	0.154491	2.84554	10.9363

Fator correlacao MinerNW

Anexo 24

	Ag ppm	Al perc	As ppm	Au ppb	Ba ppm	Be ppm	Bi ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe perc	Ga ppm	Hf ppm	Hg ppm	La ppm	Li ppm	Mn ppm	Mo ppm	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	S perc	Sb ppm	Sc ppm	Se ppm	Sn ppm	Sr ppm	Te ppm	Th ppm	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
Ag ppm	1.000	0.356	0.407	0.175	0.344	0.448	0.307	0.392	0.355	0.117	-0.034	0.369	0.452	0.497	0.532	0.233	0.180	0.232	0.414	0.486	0.622	0.293	0.318	0.430	-0.030	0.425	0.322	0.429	0.471	0.581	0.145	0.243	0.471	0.515	0.518	0.402	0.454	0.505	0.485	0.464
Al perc	0.356	1.000	0.617	0.325	0.590	0.622	0.427	0.510	0.616	0.517	0.272	0.568	0.849	0.824	0.625	0.511	0.220	0.431	0.683	0.320	0.333	0.592	0.743	0.598	-0.076	0.709	0.570	0.714	0.390	0.608	0.510	0.350	0.567	0.582	0.478	0.734	0.413	0.417	0.708	0.738
As ppm	0.407	0.617	1.000	0.301	0.588	0.683	0.353	0.345	0.665	0.449	0.072	0.739	0.763	0.732	0.640	0.414	0.072	0.156	0.612	0.295	0.161	0.687	0.597	0.600	-0.331	0.597	0.650	0.759	0.471	0.504	0.452	0.526	0.443	0.500	0.480	0.755	0.323	0.328	0.696	0.694
Au ppb	0.175	0.325	0.301	1.000	0.407	0.401	0.177	0.313	0.375	0.198	0.214	0.303	0.338	0.336	0.212	0.251	0.230	0.228	0.383	0.218	0.153	0.358	0.311	0.341	0.060	0.280	0.363	0.285	0.024	0.295	0.302	0.255	0.218	0.382	0.264	0.211	0.351	0.321	0.358	0.259
Ba ppm	0.344	0.590	0.588	0.407	1.000	0.788	0.528	0.744	0.885	0.428	0.350	0.657	0.641	0.662	0.532	0.501	0.375	0.402	0.895	0.299	0.247	0.751	0.503	0.890	0.063	0.537	0.650	0.631	0.279	0.595	0.626	0.533	0.469	0.854	0.585	0.479	0.550	0.542	0.789	0.624
Be ppm	0.448	0.622	0.683	0.401	0.788	1.000	0.545	0.632	0.851	0.506	0.258	0.799	0.779	0.743	0.632	0.457	0.303	0.370	0.811	0.404	0.334	0.816	0.656	0.800	-0.048	0.652	0.680	0.771	0.452	0.682	0.534	0.594	0.514	0.777	0.728	0.648	0.568	0.621	0.884	0.698
Bi ppm	0.307	0.427	0.353	0.177	0.528	0.545	1.000	0.336	0.495	0.167	0.251	0.496	0.447	0.562	0.379	0.385	0.009	0.241	0.554	0.314	0.274	0.395	0.287	0.724	0.001	0.385	0.328	0.417	0.295	0.602	0.291	0.391	0.229	0.629	0.366	0.304	0.505	0.359	0.553	0.433
Ce ppm	0.392	0.510	0.345	0.313	0.744	0.632	0.336	1.000	0.646	0.262	0.287	0.486	0.543	0.584	0.468	0.418	0.637	0.430	0.727	0.533	0.549	0.468	0.363	0.716	0.264	0.409	0.495	0.486	0.311	0.687	0.439	0.432	0.753	0.741	0.736	0.374	0.642	0.746	0.657	0.544
Co ppm	0.355	0.616	0.665	0.375	0.885	0.851	0.495	0.646	1.000	0.564	0.355	0.783	0.744	0.715	0.604	0.518	0.299	0.391	0.878	0.283	0.211	0.899	0.600	0.816	-0.020	0.626	0.737	0.761	0.321	0.584	0.595	0.590	0.438	0.783	0.621	0.637	0.488	0.537	0.840	0.687
Cr ppm	0.117	0.517	0.449	0.198	0.428	0.506	0.167	0.262	0.564	1.000	0.085	0.542	0.635	0.300	0.250	0.079	0.182	0.091	0.530	0.136	-0.027	0.675	0.523	0.368	-0.073	0.394	0.397	0.443	0.252	0.202	0.284	0.383	0.159	0.330	0.404	0.536	0.199	0.334	0.559	0.316
Cs ppm	-0.034	0.272	0.072	0.214	0.350	0.258	0.251	0.287	0.355	0.085	1.000	0.126	0.143	0.208	0.047	0.236	0.250	0.575	0.284	-0.059	0.012	0.279	0.241	0.298	0.653	0.131	0.184	0.202	0.019	0.143	0.319	0.124	0.092	0.411	0.146	0.088	0.119	0.202	0.229	0.120
Cu ppm	0.369	0.568	0.739	0.303	0.657	0.799	0.496	0.486	0.783	0.542	0.126	1.000	0.767	0.685	0.592	0.378	0.155	0.193	0.723	0.397	0.257	0.763	0.603	0.719	-0.161	0.655	0.661	0.736	0.443	0.583	0.542	0.652	0.435	0.608	0.654	0.713	0.435	0.497	0.809	0.656
Fe perc	0.452	0.849	0.763	0.338	0.641	0.779	0.447	0.543	0.744	0.635	0.143	0.767	1.000	0.824	0.696	0.463	0.192	0.247	0.778	0.441	0.357	0.722	0.775	0.675	-0.211	0.722	0.670	0.851	0.540	0.677	0.477	0.554	0.630	0.609	0.683	0.906	0.487	0.495	0.841	0.787
Ga ppm	0.497	0.824	0.732	0.336	0.662	0.743	0.562	0.584	0.715	0.300	0.208	0.685	0.824	1.000	0.759	0.610	0.192	0.400	0.695	0.417	0.427	0.656	0.640	0.711	-0.199	0.725	0.640	0.842	0.469	0.775	0.520	0.479	0.673	0.686	0.587	0.769	0.511	0.488	0.751	0.868
Hf ppm	0.532	0.625	0.640	0.212	0.532	0.632	0.379	0.468	0.604	0.250	0.047	0.592	0.696	0.759	1.000	0.445	0.008	0.217	0.593	0.357	0.470	0.542	0.485	0.576	-0.281	0.629	0.562	0.726	0.479	0.631	0.365	0.428	0.608	0.529	0.550	0.694	0.403	0.396	0.640	0.901
Hg ppm	0.233	0.511	0.414	0.251	0.501	0.457	0.385	0.418	0.518	0.079	0.236	0.378	0.463	0.610	0.445	1.000	0.193	0.298	0.488	0.220	0.185	0.426	0.483	0.512	-0.041	0.515	0.537	0.463	0.229	0.491	0.470	0.394	0.353	0.480	0.327	0.404	0.400	0.265	0.454	0.496
La ppm	0.180	0.220	0.072	0.230	0.375	0.303	0.009	0.637	0.299	0.182	0.250	0.155	0.192	0.192	0.008	0.193	1.000	0.371	0.299	0.374	0.259	0.242	0.255	0.297	0.400	0.135	0.191	0.098	0.093	0.300	0.337	0.170	0.440	0.360	0.476	0.083	0.353	0.652	0.277	0.068
Li ppm	0.232	0.431	0.156	0.228	0.402	0.370	0.241	0.430	0.391	0.091	0.575	0.193	0.247	0.400	0.217	0.298	0.371	1.000	0.353	0.108	0.353	0.344	0.292	0.363	0.528	0.277	0.266	0.329	0.140	0.380	0.325	0.167	0.256	0.534	0.283	0.132	0.356	0.425	0.367	0.294
Mn ppm	0.414	0.683	0.612	0.383	0.895	0.811	0.554	0.727	0.878	0.530	0.284	0.723	0.778	0.695	0.593	0.488	0.299	0.353	1.000	0.451	0.394	0.749	0.550	0.867	0.018	0.599	0.666	0.686	0.397	0.704	0.577	0.576	0.561	0.850	0.685	0.599	0.659	0.607	0.877	0.687
Mo ppm	0.486	0.320	0.295	0.218	0.299	0.404	0.314	0.533	0.283	0.136	-0.059	0.397	0.441	0.417	0.357	0.220	0.374	0.108	0.451	1.000	0.678	0.170	0.177	0.435	0.055	0.333	0.251	0.336	0.437	0.732	0.171	0.343	0.650	0.457	0.668	0.281	0.757	0.660	0.457	0.391
Nb ppm	0.622	0.333	0.161	0.153	0.247	0.334	0.274	0.549	0.211	-0.027	0.012	0.257	0.357	0.427	0.470	0.185	0.259	0.353	0.394	0.678	1.000	0.083	0.116	0.345	0.227	0.281	0.164	0.277	0.468	0.717	0.052	0.264	0.671	0.510	0.607	0.208	0.665	0.635	0.394	0.454
Ni ppm	0.293	0.592	0.687	0.358	0.751	0.816	0.395	0.468	0.899	0.675	0.279	0.763	0.722	0.656	0.542	0.426	0.242	0.344	0.749	0.170	0.083	1.000	0.641	0.667	-0.084	0.627	0.694	0.741	0.316	0.460	0.558	0.535	0.318	0.640	0.526	0.649	0.369	0.473	0.799	0.620
P ppm	0.318	0.743	0.597	0.311	0.503	0.656	0.287	0.363	0.600	0.523	0.241	0.603	0.775	0.640	0.485	0.483	0.255	0.292	0.550	0.177	0.116	0.641	1.000	0.481	-0.082	0.706	0.616	0.645	0.323	0.400	0.537	0.380	0.392	0.458	0.450	0.711	0.246	0.330	0.661	0.524
Pb ppm	0.430	0.598	0.600	0.341	0.890	0.800	0.724	0.716	0.816	0.368	0.298	0.719	0.675	0.711	0.576	0.512	0.297	0.363	0.867	0.435	0.345	0.667	0.481	1.000	0.019	0.556	0.632	0.654	0.371	0.716	0.542	0.547	0.511	0.858	0.642	0.506	0.636	0.585	0.829	0.651
Rb ppm	-0.030	-0.076	-0.331	0.060	0.063	-0.048	0.001	0.264	-0.020	-0.073	0.653	-0.161	-0.211	-0.199	-0.281	-0.041	0.400	0.528	0.018	0.055	0.227	-0.084	-0.082	0.019	1.000	-0.194	-0.150	-0.248	-0.088	-0.008	0.066	-0.082	0.016	0.222	0.125	-0.315	0.151	0.302	-0.058	-0.268
S perc	0.425	0.709	0.597	0.280	0.537	0.652	0.385	0.409	0.626	0.394	0.131	0.655	0.722	0.725	0.629	0.515	0.135	0.277	0.599	0.333	0.281	0.627	0.706	0.556	-0.194	1.000	0.650	0.664	0.367	0.571	0.497	0.426	0.466	0.527	0.468	0.653	0.416	0.368	0.661	0.659
Sb ppm	0.322	0.570	0.650	0.363	0.650	0.680	0.328	0.495	0.737	0.397	0.184	0.661	0.670	0.640	0.562	0.537	0.191	0.266	0.666	0.251	0.164	0.694	0.616	0.632	-0.150	0.650	1.000	0.670	0.243	0.468	0.558	0.518	0.424	0.553	0.471	0.586	0.404	0.369	0.686	0.610
Sc ppm	0.429	0.714	0.759	0.285	0.631	0.771	0.417	0.486	0.761	0.443	0.202	0.736	0.851	0.842	0.726	0.463	0.098	0.329	0.686	0.336	0.277	0.741	0.645	0.654	-0.248	0.664	0.670	1.000	0.495	0.621	0.470	0.492	0.566	0.590	0.620	0.848	0.389	0.427	0.786	0.835
Se ppm	0.471	0.390	0.471	0.024	0.279	0.452	0.295	0.311	0.321	0.252	0.019	0.443	0.540	0.469	0.479	0.229	0.093	0.140	0.397	0.437	0.468	0.316	0.323	0.371	-0.088	0.367	0.243	0.495	1.000	0.514	0.147	0.414	0.507	0.377	0.518	0.506	0.400	0.356	0.475	0.512
Sn ppm	0.581	0.608	0.504	0.295	0.595	0.682	0.602	0.687	0.584	0.202	0.143	0.583	0.677	0.775	0.631	0.491	0.300	0.380	0.704	0.732	0.717	0.460	0.400	0.716	-0.008	0.571	0.468	0.621	0.514	1.000	0.311	0.497	0.730	0.748	0.703	0.503	0.837	0.657	0.720	0.704
Sr ppm	0.145	0.510	0.452	0.302	0.626	0.534	0.291	0.439	0.595	0.284	0.319	0.542	0.477	0.520	0.365	0.470	0.337	0.325	0.577	0.171	0.052	0.558	0.537	0.542	0.066	0.497	0.558	0.470	0.147	0.311	1.000	0.373	0.287	0.476	0.338	0.450	0.253	0.354	0.529	0.436
Te ppm	0.243	0.350	0.526	0.255	0.533	0.594	0.391	0.432	0.590	0.383	0.124	0.652	0.554	0.479	0.428	0.394	0.170	0.167	0.576	0.343	0.264	0.535	0.380	0.547	-0.082	0.426	0.518	0.492	0.414	0.497	0.373	1.000	0.365	0.498	0.512	0.448	0.462	0.401	0.617	0.464
Th ppm	0.471	0.567	0.443	0.218	0.469	0.514	0.229	0.753	0.438	0.159	0.092	0.435	0.630	0.673	0.608	0.353	0.440	0.256	0.561	0.650	0.671	0.318	0.392	0.511	0.016	0.466	0.424	0.566	0.507	0.730	0.287	0.365	1.000	0.531	0.708	0.551	0.578	0.615	0.567	0.684
Tl ppm	0.515	0.582	0.500	0.382	0.854	0.777	0.629	0.741	0.783	0.330	0.411	0.608	0.609	0.686	0.529	0.480	0.360	0.534	0.850	0.457	0.510	0.640	0.458	0.858	0.222	0.527	0.553	0.590	0.377	0.748	0.476	0.498	0.531	1.000	0.665	0.407	0.702	0.656	0.772	0.608
U ppm	0.518	0.478	0.480	0.264	0.585	0.728	0.366	0.736	0.621	0.404	0.146	0.654	0.683	0.587	0.550	0.327	0.476	0.283	0.685	0.668	0.607	0.526	0.450	0.642	0.125	0.468	0.471	0.620	0.518	0.703	0.338	0.512	0.708	0.665	1.000	0.572	0.643	0.814	0.718	0.588
V ppm	0.402	0.734	0.755	0.211	0.479	0.648	0.304	0.374	0.637	0.536	0.088	0.713	0.906	0.769	0.694	0.404	0.083	0.132	0.599	0.281	0.208	0.649	0.711	0.506	-0.315	0.653	0.586	0.848	0.506	0.503	0.450	0.448	0.551	0.407	0.572	1.000	0.244	0.335	0.686	0.764
W ppm	0.454	0.413	0.323	0.351	0.550	0.568	0.505	0.642	0.488	0.199	0.119	0.435	0.487	0.511	0.403	0.400	0.353	0.356	0.659	0.757	0.665	0.369	0.246	0.636	0.151	0.416	0.404	0.389	0.400	0.837	0.253	0.462	0.578	0.702	0.643	0.244	1.000	0.646	0.598	0.463
Y ppm	0.505	0.417	0.328	0.321	0.542	0.621	0.359	0.746	0.537	0.334	0.202	0.497	0.495	0.488	0.396	0.265	0.652	0.425	0.607	0.660	0.635	0.473	0.330	0.585	0.302	0.368	0.369	0.427	0.356	0.657	0.354	0.401	0.615	0.656	0.814	0.335	0.646	1.000	0.623	0.428
Zn ppm	0.485	0.708	0.696	0.358	0.789	0.884	0.553	0.657	0.840	0.559	0.229	0.809	0.841	0.751	0.640	0.454	0.277	0.367	0.877	0.457	0.394	0.799	0.661	0.829	-0.058	0.661	0.686	0.786	0.475	0.720	0.529	0.617	0.567	0.772	0.718	0.686	0.598	0.623	1.000	0.725
Zr ppm	0.464	0.738	0.694	0.259	0.624	0.698	0.433	0.544	0.687	0.316	0.120	0.656	0.787	0.868	0.901	0.496	0.068	0.294	0.687	0.391	0.454	0.620	0.524	0.651	-0.268	0.659	0.610	0.835	0.512	0.704	0.436	0.464	0.684	0.608	0.588	0.764	0.463	0.428	0.725	1.000

395000 400000 405000 410000

100000 95000 90000 85000

Legenda

Cenozóico

Quaternário

Aluvião

Aluvião Mineralizado (Au)

Terciário

Cobertura lateritica

Paleoproterozóico

Suíte Intrusiva

Granito Amapari

Granitóides indiferenciados

Metatonalito Papavento

Grupo Vila Nova

Formações ferríferas

Biotita xistos e quartzitos

Rochas carbonáticas e cálcio-silicáticas

Almandina silimanita-biotita-quartzo xisto
Biotita-quartzo xisto
Muscovita/biotita-quartzo xisto

Paranfibolitos

Ortoanfibolito Jornal

Metatonalito Água Fria

Anexo 25

Solo Au >19 ppb

PC1

> 80

60 - 80

40 - 60

20 - 40

< 20

Zona MinerNS
Zona MinerNW
Zona do Granito
Zona dos Granitóides Indif.
Zona da Máfica
Zona dos Metassedim.

Scale 1:100000

1000 0 1000 2000 3000 4000 5000

metres

SAD69 / UTM zone 22N

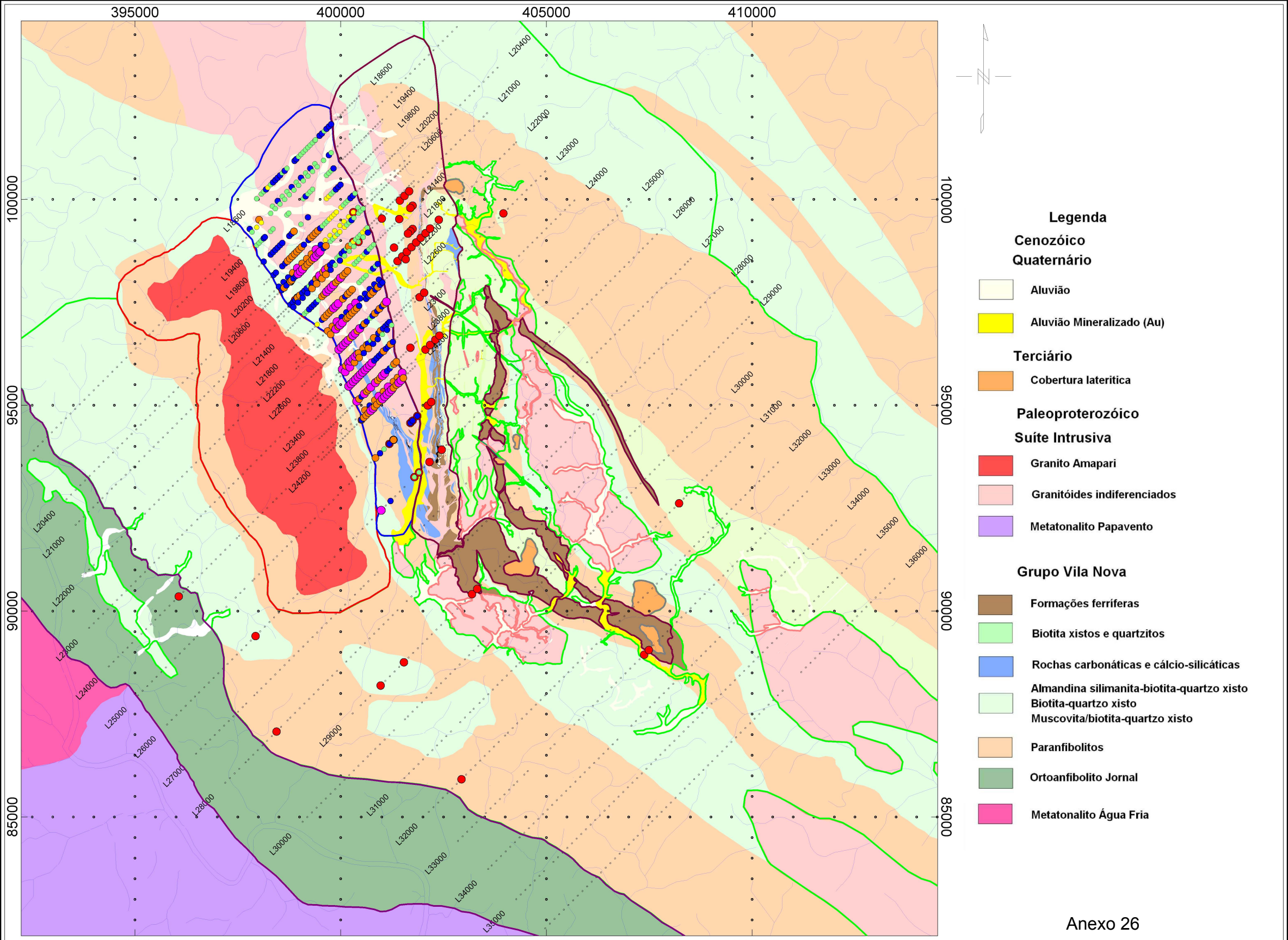
Região do Depósito de Ouro do Amapari - AP

Geoquímica de Solo
Análise de Componentes Principais - PCA
Zona Mineralizada NW - PC1

Laboratório Chemex - Vancouver - Canadá

Orientadora - Profa. Dra. Lydia Maria Lobato

Élio Hiromi Horikava



Anexo 26

Região do Depósito de Ouro do Amapari - AP
Geoquímica de Solo **Análise de Componentes Principais PCA** **Zona Mineralizada NW - PC2**
Laboratório Chemex - Vancouver - Canadá
Orientadora - Profa. Dra. Lydia Maria Lobato
Élio Hiromi Horikava

395000 400000 405000 410000

100000 95000 90000 85000

Legenda

Cenozóico

Quaternário

- Aluvião
- Aluvião Mineralizado (Au)

Terciário

- Cobertura lateritica

Paleoproterozóico

Suíte Intrusiva

- Granito Amapari
- Granitóides indiferenciados
- Metatonalito Papavento

Grupo Vila Nova

- Formações ferríferas
- Biotita xistos e quartzitos
- Rochas carbonáticas e cálcio-silicáticas
- Almandina silimanita-biotita-quartzo xisto
  Biotita-quartzo xisto
  Muscovita/biotita-quartzo xisto
- Paranfibolitos
- Ortoanfibolito Jornal
- Metatonalito Água Fria

Anexo 27

PC3

>	70
50 -	70
40 -	50
20 -	40
<	20

Solo Au >19 ppb

Zona MinerNS
Zona MinerNW
Zona do Granito
Zona dos Granitóides Indif.
Zona da Máfica
Zona dos Metassedim.

Scale 1:100000

1000 0 1000 2000 3000 4000 5000

metres

SAD69 / UTM zone 22N

Região do Depósito de Ouro do Amapari - AP

Geoquímica de Solo
Análise de Componentes Principais PCA
Zona Mineralizada NW - PC3

Laboratório Chemex - Vancouver - Canadá

Orientadora - Profa. Dra. Lydia Maria Lobato

Élio Hiromi Horikava

Granite Statistic **Anexo 28**

Channel	NumValid	Num>0	Dummies	Min	Max	Range	Mean	StdDev	Var	Sum	SumSq	GeoMean	Median	Mode	StdErr	Skewness	Kurtosis
Ag_ppm	314	314	0	0.005	1.7	1.695	0.134889	0.184878	0.03418	42.355	16.41148	0.073463	0.07	0.03	0.010433	3.79446	21.5082
Al_perc	314	314	0	0.23	3.37	3.14	0.985382	0.577461	0.333461	309.41	409.2605	0.850815	0.84	0.54	0.032588	1.47291	2.09892
As_ppm	314	314	0	0.05	367	366.95	14.3785	39.353	1548.66	4514.85	549646.4	3.002607	2.2	0.7	2.220817	4.82794	28.5049
Au_ppb	314	314	0	0.5	8	7.5	0.711783	0.821373	0.674653	223.5	370.25	0.583086	0.5	0.5	0.046353	5.41078	34.6107
Ba_ppm	314	314	0	0.6	1165	1164.4	22.61561	99.2411	9848.8	7101.3	3243274	3.965133	2.6	1.4	5.6005	8.77259	85.4834
Be_ppm	314	314	0	0.025	1.3	1.275	0.108838	0.151995	0.023103	34.175	10.95063	0.061689	0.05	0.025	0.008578	3.51006	17.302
Bi_ppm	314	314	0	0.005	29.9	29.895	1.55215	3.22221	10.3826	487.375	4006.242	0.542202	0.59	0.03	0.18184	5.06331	31.113
Ce_ppm	314	314	0	0.52	121	120.48	7.208726	13.7975	190.37	2263.54	75903.03	3.71441	3.17	1.18	0.778636	5.26495	32.7256
Co_ppm	314	314	0	0.3	48	47.7	2.056369	4.62522	21.3927	645.7	8023.71	0.918565	0.7	0.4	0.261016	5.74686	42.4419
Cr_ppm	314	314	0	44	1270	1226	166.0096	126.356	15965.8	52127	13650877	141.2991	133.5	70	7.130674	4.50494	30.9955
Cs_ppm	314	314	0	0.025	5.25	5.225	0.542277	0.526053	0.276731	170.275	178.9531	0.403754	0.4	0.2	0.029687	3.9469	24.3906
Cu_ppm	314	314	0	1.4	90	88.6	11.97675	13.0045	169.118	3760.7	97974.77	7.996526	7	3.2	0.733888	2.65746	8.96102
Fe_perc	314	314	0	0.43	16	15.57	3.010096	2.89905	8.40447	945.17	5475.653	2.131209	1.89	0.76	0.163603	2.16018	5.24096
Ga_ppm	314	314	0	1.2	20.8	19.6	6.616401	3.94497	15.5628	2077.55	18617.07	5.693708	5.3	4.45	0.222628	1.41847	1.52096
Hf_ppm	314	314	0	0.01	0.52	0.51	0.071561	0.091329	0.008341	22.47	4.2187	0.040742	0.04	0.02	0.005154	2.8282	8.79845
Hg_ppm	314	314	0	0.005	0.62	0.615	0.092946	0.064543	0.004166	29.185	4.016525	0.078569	0.08	0.07	0.003642	3.69607	20.7911
La_ppm	314	314	0	0.2	18.4	18.2	1.528025	1.54681	2.39263	479.8	1482.04	1.177285	1.2	0.6	0.087292	5.52079	47.9564
Li_ppm	314	314	0	0.05	13.4	13.35	0.349204	0.9242	0.854145	109.65	305.6375	0.169707	0.1	0.1	0.052156	10.0226	127.884
Mn_ppm	314	314	0	5	11000	10995	468.1529	1574.42	2478810	147000	8.45E+08	53.54488	30	15	88.8499	4.8388	25.0989
Mo_ppm	314	314	0	0.25	14.05	13.8	1.705096	1.9666	3.86753	535.4	2123.445	1.191265	0.95	0.65	0.110982	3.27521	12.7758
Nb_ppm	314	314	0	0.025	15.65	15.625	0.991481	1.63506	2.67343	311.325	1145.456	0.526482	0.5	0.45	0.092272	4.52187	27.1207
Ni_ppm	314	314	0	1.2	65.6	64.4	5.611146	6.48566	42.0638	1761.9	23052.25	4.064887	3.5	2	0.366007	4.49789	28.9274
P_ppm	314	314	0	20	430	410	93.72611	54.9045	3014.51	29430	3701900	82.37485	80	60	3.098441	2.27888	7.50136
Pb_ppm	314	314	0	0.8	704	703.2	24.30414	68.3797	4675.78	7631.5	1648998	5.68667	4	1.6	3.85889	5.49366	38.8461
Rb_ppm	314	314	0	0.3	22.8	22.5	1.928344	1.99228	3.96919	605.5	2409.97	1.452625	1.3	0.9	0.112431	4.83782	39.154
S_perc	314	314	0	0.005	0.06	0.055	0.016592	0.0103	0.000106	5.21	0.11965	0.014333	0.01	0.01	0.000581	1.66467	2.54963
Sb_ppm	314	314	0	0.025	0.5	0.475	0.042118	0.063065	0.003977	13.225	1.801875	0.030889	0.025	0.025	0.003559	4.80559	24.2091
Sc_ppm	314	314	0	0.3	42.9	42.6	3.982484	5.06482	25.6524	1250.5	13009.31	2.259157	2	0.7	0.285825	3.40776	17.3968
Se_ppm	314	314	0	0.1	4	3.9	0.94172	0.604677	0.365634	295.7	392.91	0.739853	0.8	0.8	0.034124	1.57425	4.44208
Sn_ppm	314	314	0	0.2	102.5	102.3	3.439172	8.37735	70.18	1079.9	25680.29	1.54833	1.2	0.8	0.472761	7.20709	68.0548
Sr_ppm	314	314	0	0.2	26	25.8	1.117197	1.79122	3.20846	350.8	1396.16	0.8118	0.8	0.6	0.101084	9.75316	121.851
Te_ppm	314	314	0	0.005	1.2	1.195	0.082054	0.116304	0.013527	25.765	6.347975	0.045721	0.05	0.05	0.006563	5.01303	35.3851
Th_ppm	314	314	0	0.4	42	41.6	5.110828	4.40377	19.3932	1604.8	14271.92	3.876484	4	2	0.248519	3.27569	18.6062
Tl_ppm	314	314	0	0.01	10	9.99	0.189331	0.742411	0.551174	59.45	183.7731	0.042686	0.02	0.02	0.041897	9.54459	109.535
U_ppm	314	314	0	0.2	22.6	22.4	1.726911	1.91672	3.6738	542.25	2086.318	1.240576	1.15	0.95	0.108167	5.24126	45.6127
V_ppm	314	314	0	6	670	664	53.00318	64.5006	4160.32	16643	2184313	35.81123	32.5	18	3.639977	5.20002	40.9922
W_ppm	314	314	0	0.025	5.65	5.625	0.41672	0.761021	0.579152	130.85	235.8025	0.148324	0.15	0.025	0.042947	3.51734	14.865
Y_ppm	314	314	0	0.1	9.1	9	0.969904	0.950909	0.904227	304.55	578.4075	0.733792	0.75	0.65	0.053663	4.34148	27.8283
Zn_ppm	314	314	0	1	128	127	11.2707	17.8728	319.438	3539	139871	5.246799	6	2	1.008622	3.57558	15.2384
Zr_ppm	314	314	0	0.25	25	24.75	2.213376	3.10934	9.66798	695	4564.375	1.200794	1.5	0.5	0.17547	3.34152	14.2252

Fator de Correlação - Granito

Anexo 29

	Ag_ppm	Al_perc	As_ppm	Au_ppb	Ba_ppm	Be_ppm	Bi_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Fe_perc	Ga_ppm	Hf_ppm	Hg_ppm	La_ppm	Li_ppm	Mn_ppm	Mo_ppm	Nb_ppm	Ni_ppm	P_ppm	Pb_ppm	Rb_ppm	S_perc	Sb_ppm	Sc_ppm	Se_ppm	Sn_ppm	Sr_ppm	Te_ppm	Th_ppm	Tl_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Zn_ppm	Zr_ppm
Ag_ppm	1.000	0.448	0.686	0.283	0.538	0.621	0.742	0.533	0.577	0.362	0.211	0.688	0.671	0.532	0.649	0.374	0.181	0.431	0.657	0.684	0.787	0.518	0.638	0.736	0.334	0.455	0.516	0.680	0.352	0.654	0.180	0.591	0.633	0.677	0.718	0.566	0.647	0.653	0.713	0.612
Al_perc	0.448	1.000	0.596	0.260	0.509	0.676	0.437	0.458	0.627	0.518	0.063	0.728	0.807	0.947	0.641	0.616	0.307	0.491	0.539	0.476	0.438	0.705	0.611	0.562	-0.013	0.737	0.494	0.782	0.274	0.666	0.372	0.507	0.728	0.456	0.552	0.751	0.402	0.444	0.728	0.853
As_ppm	0.686	0.596	1.000	0.340	0.498	0.637	0.606	0.299	0.564	0.588	0.110	0.781	0.781	0.642	0.491	0.399	0.115	0.314	0.539	0.550	0.441	0.635	0.675	0.613	0.135	0.614	0.533	0.788	0.373	0.556	0.198	0.572	0.459	0.525	0.608	0.745	0.593	0.443	0.712	0.598
Au_ppb	0.283	0.260	0.340	1.000	0.459	0.403	0.311	0.360	0.441	0.125	0.150	0.345	0.327	0.277	0.219	0.263	0.216	0.290	0.435	0.227	0.230	0.334	0.352	0.417	0.130	0.286	0.424	0.298	0.155	0.355	0.239	0.200	0.210	0.414	0.309	0.243	0.376	0.277	0.361	0.277
Ba_ppm	0.538	0.509	0.498	0.459	1.000	0.727	0.558	0.755	0.859	0.336	0.439	0.657	0.589	0.487	0.379	0.479	0.430	0.514	0.900	0.475	0.508	0.608	0.591	0.883	0.449	0.468	0.587	0.562	0.297	0.625	0.539	0.531	0.488	0.850	0.651	0.413	0.639	0.567	0.700	0.482
Be_ppm	0.621	0.676	0.637	0.403	0.727	1.000	0.534	0.599	0.821	0.573	0.258	0.829	0.809	0.682	0.486	0.471	0.311	0.523	0.723	0.524	0.531	0.814	0.764	0.757	0.260	0.588	0.525	0.795	0.363	0.634	0.294	0.591	0.577	0.667	0.743	0.683	0.588	0.613	0.845	0.618
Bi_ppm	0.742	0.437	0.606	0.311	0.558	0.534	1.000	0.468	0.574	0.276	0.256	0.658	0.605	0.482	0.493	0.358	0.127	0.350	0.701	0.676	0.729	0.471	0.563	0.764	0.355	0.434	0.464	0.588	0.362	0.678	0.230	0.628	0.541	0.676	0.663	0.471	0.711	0.620	0.651	0.545
Ce_ppm	0.533	0.458	0.299	0.360	0.755	0.599	0.468	1.000	0.683	0.164	0.501	0.494	0.411	0.420	0.363	0.342	0.727	0.635	0.723	0.444	0.624	0.459	0.450	0.734	0.525	0.300	0.495	0.417	0.187	0.590	0.396	0.343	0.595	0.768	0.584	0.242	0.543	0.713	0.575	0.457
Co_ppm	0.577	0.627	0.564	0.441	0.859	0.821	0.574	0.683	1.000	0.550	0.366	0.815	0.757	0.601	0.488	0.501	0.350	0.548	0.883	0.480	0.536	0.825	0.725	0.841	0.355	0.586	0.592	0.735	0.281	0.619	0.444	0.578	0.535	0.771	0.698	0.616	0.651	0.651	0.826	0.588
Cr_ppm	0.362	0.518	0.588	0.125	0.336	0.573	0.276	0.164	0.550	1.000	0.077	0.713	0.710	0.504	0.258	0.209	0.120	0.266	0.344	0.265	0.140	0.748	0.589	0.359	0.051	0.528	0.280	0.733	0.050	0.165	0.071	0.464	0.254	0.184	0.516	0.739	0.342	0.443	0.605	0.392
Cs_ppm	0.211	0.063	0.110	0.150	0.439	0.258	0.256	0.501	0.366	0.077	1.000	0.211	0.073	-0.049	0.017	0.004	0.388	0.531	0.432	0.110	0.365	0.182	0.180	0.390	0.827	-0.043	0.151	0.143	-0.034	0.239	0.145	0.195	0.085	0.543	0.329	-0.034	0.369	0.396	0.282	-0.017
Cu_ppm	0.688	0.728	0.781	0.345	0.657	0.829	0.658	0.494	0.815	0.713	0.211	1.000	0.898	0.740	0.549	0.425	0.245	0.431	0.729	0.567	0.526	0.855	0.783	0.755	0.196	0.700	0.565	0.914	0.326	0.624	0.354	0.717	0.597	0.621	0.753	0.830	0.616	0.647	0.882	0.685
Fe_perc	0.671	0.807	0.781	0.327	0.589	0.809	0.605	0.411	0.757	0.710	0.073	0.898	1.000	0.869	0.608	0.576	0.150	0.369	0.659	0.583	0.504	0.819	0.808	0.697	0.032	0.764	0.580	0.958	0.340	0.647	0.281	0.690	0.675	0.535	0.762	0.941	0.563	0.540	0.878	0.776
Ga_ppm	0.532	0.947	0.642	0.277	0.487	0.682	0.482	0.420	0.601	0.504	-0.049	0.740	0.869	1.000	0.657	0.659	0.254	0.396	0.515	0.520	0.444	0.687	0.652	0.566	-0.118	0.778	0.531	0.829	0.340	0.676	0.359	0.550	0.780	0.436	0.576	0.828	0.396	0.431	0.731	0.875
Hf_ppm	0.649	0.641	0.491	0.219	0.379	0.486	0.493	0.363	0.488	0.258	0.017	0.549	0.608	0.657	1.000	0.467	0.152	0.377	0.500	0.539	0.561	0.482	0.468	0.521	0.026	0.508	0.509	0.576	0.271	0.568	0.264	0.479	0.658	0.486	0.485	0.553	0.417	0.453	0.570	0.816
Hg_ppm	0.374	0.616	0.399	0.263	0.479	0.471	0.358	0.342	0.501	0.209	0.004	0.425	0.576	0.659	0.467	1.000	0.195	0.239	0.490	0.371	0.307	0.421	0.529	0.509	-0.021	0.586	0.497	0.494	0.236	0.533	0.411	0.382	0.501	0.427	0.390	0.509	0.362	0.230	0.508	0.570
La_ppm	0.181	0.307	0.115	0.216	0.430	0.311	0.127	0.727	0.350	0.120	0.388	0.245	0.150	0.254	0.152	0.195	1.000	0.501	0.282	0.195	0.228	0.294	0.189	0.329	0.329	0.139	0.279	0.157	-0.001	0.258	0.296	0.147	0.353	0.372	0.294	0.077	0.203	0.621	0.261	0.209
Li_ppm	0.431	0.491	0.314	0.290	0.514	0.523	0.350	0.635	0.548	0.266	0.531	0.431	0.369	0.396	0.377	0.239	0.501	1.000	0.490	0.266	0.567	0.507	0.395	0.500	0.567	0.250	0.275	0.442	0.080	0.443	0.195	0.234	0.439	0.592	0.480	0.296	0.448	0.610	0.541	0.418
Mn_ppm	0.657	0.539	0.539	0.435	0.900	0.723	0.701	0.723	0.883	0.344	0.432	0.729	0.659	0.515	0.500	0.490	0.282	0.490	1.000	0.583	0.677	0.604	0.657	0.925	0.464	0.492	0.634	0.631	0.294	0.737	0.533	0.595	0.564	0.890	0.706	0.478	0.755	0.596	0.775	0.580
Mo_ppm	0.684	0.476	0.550	0.227	0.475	0.524	0.676	0.444	0.480	0.265	0.110	0.567	0.583	0.520	0.539	0.371	0.195	0.266	0.583	1.000	0.647	0.397	0.495	0.662	0.209	0.435	0.531	0.509	0.306	0.677	0.231	0.540	0.595	0.576	0.641	0.458	0.662	0.508	0.593	0.573
Nb_ppm	0.787	0.438	0.441	0.230	0.508	0.531	0.729	0.624	0.536	0.140	0.365	0.526	0.504	0.444	0.561	0.307	0.228	0.567	0.677	0.647	1.000	0.385	0.504	0.694	0.510	0.317	0.369	0.523	0.287	0.732	0.186	0.463	0.661	0.723	0.645	0.352	0.682	0.629	0.635	0.582
Ni_ppm	0.518	0.705	0.635	0.334	0.608	0.814	0.471	0.459	0.825	0.748	0.182	0.855	0.819	0.687	0.482	0.421	0.294	0.507	0.604	0.397	0.385	1.000	0.747	0.606	0.134	0.666	0.416	0.829	0.279	0.462	0.257	0.563	0.489	0.481	0.616	0.754	0.477	0.639	0.834	0.596
P_ppm	0.638	0.611	0.675	0.352	0.591	0.764	0.563	0.450	0.725	0.589	0.180	0.783	0.808	0.652	0.468	0.529	0.189	0.395	0.657	0.495	0.504	0.747	1.000	0.681	0.191	0.678	0.492	0.809	0.249	0.535	0.284	0.563	0.559	0.576	0.699	0.739	0.560	0.541	0.800	0.581
Pb_ppm	0.736	0.562	0.613	0.417	0.883	0.757	0.764	0.734	0.841	0.359	0.390	0.755	0.697	0.566	0.521	0.509	0.329	0.500	0.925	0.662	0.694	0.606	0.681	1.000	0.456	0.517	0.641	0.661	0.326	0.774	0.447	0.601	0.612	0.883	0.764	0.515	0.765	0.638	0.808	0.599
Rb_ppm	0.334	-0.013	0.135	0.130	0.449	0.260	0.355	0.525	0.355	0.051	0.827	0.196	0.032	-0.118	0.026	-0.021	0.329	0.567	0.464	0.209	0.510	0.134	0.191	0.456	1.000	-0.088	0.152	0.087	0.033	0.261	0.182	0.187	0.137	0.591	0.354	-0.098	0.440	0.457	0.284	-0.019
S_perc	0.455	0.737	0.614	0.286	0.468	0.588	0.434	0.300	0.586	0.528	-0.043	0.700	0.764	0.778	0.508	0.586	0.139	0.250	0.492	0.435	0.317	0.666	0.678	0.517	-0.088	1.000	0.509	0.725	0.296	0.528	0.395	0.510	0.554	0.375	0.477	0.731	0.403	0.352	0.651	0.672
Sb_ppm	0.516	0.494	0.533	0.424	0.587	0.525	0.464	0.495	0.592	0.280	0.151	0.565	0.580	0.531	0.509	0.497	0.279	0.275	0.634	0.531	0.369	0.416	0.492	0.641	0.152	0.509	1.000	0.484	0.189	0.562	0.498	0.450	0.498	0.623	0.520	0.456	0.543	0.440	0.553	0.576
Sc_ppm	0.680	0.782	0.788	0.298	0.562	0.795	0.588	0.417	0.735	0.733	0.143	0.914	0.958	0.829	0.576	0.494	0.157	0.442	0.631	0.509	0.523	0.829	0.809	0.661	0.087	0.725	0.484	1.000	0.293	0.591	0.240	0.672	0.640	0.530	0.764	0.937	0.545	0.558	0.872	0.738
Se_ppm	0.352	0.274	0.373	0.155	0.297	0.363	0.362	0.187	0.281	0.050	-0.034	0.326	0.340	0.340	0.271	0.236	-0.001	0.080	0.294	0.306	0.287	0.279	0.249	0.326	0.033	0.296	0.189	0.293	1.000	0.352	0.158	0.348	0.381	0.300	0.228	0.226	0.242	0.162	0.329	0.296
Sn_ppm	0.654	0.666	0.556	0.355	0.625	0.634	0.678	0.590	0.619	0.165	0.239	0.624	0.647	0.676	0.568	0.533	0.258	0.443	0.737	0.677	0.732	0.462	0.535	0.774	0.261	0.528	0.562	0.591	0.352	1.000	0.389	0.536	0.659	0.719	0.602	0.470	0.706	0.452	0.713	0.700
Sr_ppm	0.180	0.372	0.198	0.239	0.539	0.294	0.230	0.396	0.444	0.071	0.145	0.354	0.281	0.359	0.264	0.411	0.296	0.195	0.533	0.231	0.186	0.257	0.284	0.447	0.182	0.395	0.498	0.240	0.158	0.389	1.000	0.312	0.366	0.423	0.201	0.202	0.314	0.196	0.304	0.370
Te_ppm	0.591	0.507	0.572	0.200	0.531	0.591	0.628	0.343	0.578	0.464	0.195	0.717	0.690	0.550	0.479	0.382	0.147	0.234	0.595	0.540	0.463	0.563	0.563	0.601	0.187	0.510	0.450	0.672	0.348	0.536	0.312	1.000	0.473	0.495	0.605	0.611	0.474	0.483	0.646	0.516
Th_ppm	0.633	0.728	0.459	0.210	0.488	0.577	0.541	0.595	0.535	0.254	0.085	0.597	0.675	0.780	0.658	0.501	0.353	0.439	0.564	0.595	0.661	0.489	0.559	0.612	0.137	0.554	0.498	0.640	0.381	0.659	0.366	0.473	1.000	0.549	0.616	0.576	0.462	0.538	0.642	0.790
Tl_ppm	0.677	0.456	0.525	0.414	0.850	0.667	0.676	0.768	0.771	0.184	0.543	0.621	0.535	0.436	0.486	0.427	0.372	0.592	0.890	0.576	0.723	0.481	0.576	0.883	0.591	0.375	0.623	0.530	0.300	0.719	0.423	0.495	0.549	1.000	0.683	0.349	0.729	0.617	0.695	0.533
U_ppm	0.718	0.552	0.608	0.309	0.651	0.743	0.663	0.584	0.698	0.516	0.329	0.753	0.762	0.576	0.485	0.390	0.294	0.480	0.706	0.641	0.645	0.616	0.699	0.764	0.354	0.477	0.520	0.764	0.228	0.602	0.201	0.605	0.616	0.683	1.000	0.657	0.616	0.691	0.765	0.581
V_ppm	0.566	0.751	0.745	0.243	0.413	0.683	0.471	0.242	0.616	0.739	-0.034	0.830	0.941	0.828	0.553	0.509	0.077	0.296	0.478	0.458	0.352	0.754	0.739	0.515	-0.098	0.731	0.456	0.937	0.226	0.470	0.202	0.611	0.576	0.349	0.657	1.000	0.414	0.431	0.755	0.714
W_ppm	0.647	0.402	0.593	0.376	0.639	0.588	0.711	0.543	0.651	0.342	0.369	0.616	0.563	0.396	0.417	0.362	0.203	0.448	0.755	0.662	0.682	0.477	0.560	0.765	0.440	0.403	0.543	0.545	0.242	0.706	0.314	0.474	0.462	0.729	0.616	0.414	1.000	0.517	0.669	0.464
Y_ppm	0.653	0.444	0.443	0.277	0.567	0.613	0.620	0.713	0.651	0.443	0.396	0.647	0.540	0.431	0.453	0.230	0.621	0.610	0.596	0.508	0.629	0.639	0.541	0.638	0.457	0.352	0.440	0.558	0.162	0.452	0.196	0.483	0.538	0.617	0.691	0.431	0.517	1.000	0.636	0.464
Zn_ppm	0.713	0.728	0.712	0.361	0.700	0.845	0.651	0.575	0.826	0.605	0.282	0.882	0.878	0.731	0.570	0.508	0.261	0.541	0.775	0.593	0.635	0.834	0.800	0.808	0.284	0.651	0.553	0.872	0.329	0.713	0.304	0.646	0.642	0.695	0.765	0.755	0.669	0.636	1.000	0.693
Zr_ppm	0.612	0.853	0.598	0.277	0.482	0.618	0.545	0.457	0.588	0.392	-0.017	0.685	0.776	0.875	0.816	0.570	0.209	0.418	0.580	0.573	0.582	0.596	0.581	0.599	-0.019	0.672	0.576	0.738	0.296	0.700	0.370	0.516	0.790	0.533	0.581	0.714	0.464	0.464	0.693	1.000

395000 400000 405000 410000

100000 95000 90000 85000

Legenda

Cenozóico

Quaternário

Aluvião

Aluvião Mineralizado (Au)

Terciário

Cobertura lateritica

Paleoproterozóico

Suíte Intrusiva

Granito Amapari

Granitóides indiferenciados

Metatonalito Papavento

Grupo Vila Nova

Formações ferríferas

Biotita xistos e quartzitos

Rochas carbonáticas e cálcio-silicáticas

Almandina silimanita-biotita-quartzo xisto
Biotita-quartzo xisto
Muscovita/biotita-quartzo xisto

Paranfibolitos

Ortoanfibolito Jornal

Metatonalito Água Fria

Anexo 30

PC1

> 50

30 - 50

20 - 30

< 20

Solo Au > 19 ppb

Zona MinerNS
Zona MinerNW
Zona do Granito
Zona dos Granitóides Indif.
Zona da Máfica
Zona dos Metassedim.

Scale 1:100000

1000 0 1000 2000 3000 4000 5000

metres

SAD69 / UTM zone 22N

Região do Depósito de Ouro do Amapari - AP

Geoquímica de Solo
Análise de Componentes Principais PCA
Zona do Granito Amapari - PC1

Laboratório Chemex - Vancouver - Canadá

Orientadora - Profa. Dra. Lydia Maria Lobato

Élio Hiromi Horikava

395000 400000 405000 410000

100000 95000 90000 85000

Legenda

Cenozóico

Quaternário

- Aluvião
- Aluvião Mineralizado (Au)

Terciário

- Cobertura lateritica

Paleoproterozóico

Suíte Intrusiva

- Granito Amapari
- Granitóides indiferenciados
- Metatonalito Papavento

Grupo Vila Nova

- Formações ferríferas
- Biotita xistos e quartzitos
- Rochas carbonáticas e cálcio-silicáticas
- Almandina silimanita-biotita-quartzo xisto
  Biotita-quartzo xisto
  Muscovita/biotita-quartzo xisto
- Paranfibolitos
- Ortoanfibolito Jornal
- Metatonalito Água Fria

PC2

- > 53
- 30 - 53
- 20 - 30
- < 20

Solo Au >19 ppb

- Zona MinerNS
- Zona MinerNW
- Zona do Granito
- Zona dos Granitóides Indif.
- Zona da Máfica
- Zona dos Metassedim.

Scale 1:100000

1000 0 1000 2000 3000 4000 5000

metres

SAD69 / UTM zone 22N

Anexo 31

Região do Depósito de Ouro do Amapari - AP

Geoquímica de Solo
Análise de Componentes Principais PCA
Zona do Granito Amapari - PC2

Laboratório Chemex - Vancouver - Canadá

Orientadora - Profa. Dra. Lydia Maria Lobato

Élio Hiromi Horikava

395000 400000 405000 410000

100000 95000 90000 85000

Legenda

Cenozóico

Quaternário

- Aluvião
- Aluvião Mineralizado (Au)

Terciário

- Cobertura lateritica

Paleoproterozóico

Suíte Intrusiva

- Granito Amapari
- Granitóides indiferenciados
- Metatonalito Papavento

Grupo Vila Nova

- Formações ferríferas
- Biotita xistos e quartzitos
- Rochas carbonáticas e cálcio-silicáticas
- Almandina silimanita-biotita-quartzo xisto
  Biotita-quartzo xisto
  Muscovita/biotita-quartzo xisto
- Paranfibolitos
- Ortoanfibolito Jornal
- Metatonalito Água Fria

Solo Au >19 ppb

PC3

- > 50
- 30 - 50
- 20 - 30
- < 20

Zona MinerNS
Zona MinerNW
Zona do Granito
Zona dos Granitóides Indif.
Zona da Máfica
Zona dos Metassedim.

Scale 1:100000

1000 0 1000 2000 3000 4000 5000

metres

SAD69 / UTM zone 22N

Anexo 32

Região do Depósito de Ouro do Amapari - AP

Geoquímica de Solo
Análise de Componentes Principais PCA
Zona do Granito Amapari - PC3

Laboratório Chemex - Vancouver - Canadá

Orientadora - Profa. Dra. Lydia Maria Lobato

Élio Hiromi Horikava

Msed Statistic

Channel	NumValid	Num>0	Dummies	Min	Max	Range	Mean	StdDev	Var	Sum	SumSq	GeoMean	Median	Mode	StdErr	Skewness	Kurtosis
Ag_ppm	858	858	0	0.01	0.55	0.54	0.103019	0.091202	0.008318	88.39	16.2341	0.0745	0.08	0.06	0.003114	2.08734	4.96127
Al_perc	858	858	0	0.005	16	15.995	2.751253	2.23567	4.99821	2360.575	10778.00573	2.217198	2.15	1.43	0.076324	2.85377	9.53447
As_ppm	858	858	0	0.1	944	943.9	23.96107	50.3133	2531.43	20558.6	2662043.26	9.662676	10.7	1.2	1.717669	9.18937	137.818
Au_ppb	858	858	0	0.5	1001	1000.5	3.401515	48.3084	2333.7	2918.5	2009911.75	0.678907	0.5	0.5	1.649223	20.5282	420.911
Ba_ppm	858	858	0	0.8	261.6	260.8	11.90979	25.9765	674.78	10218.6	699987.64	6.520219	5	5	0.886824	6.18796	45.3047
Be_ppm	858	858	0	0.025	1.6	1.575	0.173689	0.191933	0.036838	149.025	57.454375	0.109554	0.15	0.05	0.006552	2.93449	12.1075
Bi_ppm	858	858	0	0.06	34.3	34.24	0.54831	1.26814	1.60819	470.45	1636.1675	0.385312	0.36	0.25	0.043294	22.2744	582.726
Ce_ppm	858	858	0	0.8	106.5	105.7	5.663578	8.71223	75.9029	4859.35	92570.0873	3.728319	3	2.4	0.297431	5.658	44.0212
Co_ppm	858	858	0	0.2	73.4	73.2	2.647902	5.55582	30.8671	2271.9	32468.87	1.532637	1.4	0.8	0.189672	8.13807	84.2036
Cr_ppm	858	858	0	52	1925	1873	303.7378	210.461	44293.9	260607	117116047	255.8537	242.5	198	7.185024	2.62187	10.2527
Cs_ppm	858	858	0	0.025	5.1	5.075	0.600874	0.566408	0.320817	515.55	584.72125	0.430045	0.45	0.25	0.019337	3.01901	13.9639
Cu_ppm	858	858	0	1.4	266	264.6	23.72226	20.6528	426.537	20353.7	848378.19	17.74371	18.6	10	0.705074	3.54853	26.368
Fe_perc	858	858	0	0.48	16	15.52	6.767552	3.659	13.3883	5806.56	50769.953	5.703777	6.205	16	0.124916	0.691414	0.019274
Ga_ppm	858	858	0	2.15	84.7	82.55	14.73304	9.36168	87.6411	12640.95	261348.0875	12.40427	13.1	5.2	0.319603	2.32366	9.83957
Hf_ppm	858	858	0	0.01	1.46	1.45	0.212296	0.226958	0.05151	182.15	82.81375	0.114821	0.15	0.025	0.007748	1.8991	4.68241
Hg_ppm	858	858	0	0.05	0.91	0.86	0.222436	0.116266	0.013518	190.85	54.0367	0.195434	0.195	0.19	0.003969	1.34014	3.08096
La_ppm	858	858	0	0.4	14.4	14	3.099068	1.98729	3.94933	2659	11625	2.396481	2.4	5	0.067845	0.469137	0.536302
Li_ppm	858	858	0	0.05	17.5	17.45	0.538636	0.800439	0.640702	462.15	798.0125	0.373552	0.4	0.3	0.027327	12.4228	237.942
Mn_ppm	858	858	0	5	11000	10995	263.1818	787.449	620076	225810	590833800	88.19397	70	30	26.88306	7.97421	81.9288
Mo_ppm	858	858	0	0.1	17	16.9	1.137121	0.846563	0.716669	975.65	1723.6175	0.957911	1	0.8	0.028901	8.4389	143.309
Nb_ppm	858	858	0	0.1	6.2	6.1	0.553322	0.537549	0.288959	474.75	510.3275	0.398148	0.45	0.2	0.018352	4.55811	35.7017
Ni_ppm	858	858	0	1.5	60.5	59	10.938	7.68205	59.0139	9384.8	153225.84	8.988665	9	6	0.262261	2.05543	5.82675
P_ppm	858	858	0	10	1140	1130	152.0746	91.7667	8421.13	130480	27059600	132.7945	130	110	3.132864	3.09227	19.8088
Pb_ppm	858	858	0	1	227.7	226.7	8.037063	14.0342	196.959	6895.8	224215.78	5.172514	6	6	0.47912	10.0366	133.98
Rb_ppm	858	858	0	0.2	20.6	20.4	1.621212	1.79827	3.23376	1391	5026.44	1.133269	1	0.6	0.061392	4.17817	29.1088
S_perc	858	858	0	0.005	0.23	0.225	0.04581	0.024156	0.000584	39.305	2.300625	0.040227	0.04	0.04	0.000825	2.01619	8.57576
Sb_ppm	858	858	0	0.025	2.7	2.675	0.197028	0.333288	0.111081	169.05	128.50375	0.089141	0.05	0.05	0.011378	3.42236	14.5043
Sc_ppm	858	858	0	0.05	48.4	48.35	10.4845	7.98401	63.7444	8995.7	148944.355	7.416901	8	7	0.27257	1.55224	2.96209
Se_ppm	858	858	0	0.1	7.2	7.1	0.955245	0.930506	0.865842	819.6	1524.945	0.555207	0.6	0.1	0.031767	1.78956	5.58099
Sn_ppm	858	858	0	0.2	109.5	109.3	3.361655	4.46726	19.9564	2884.3	26798.65	2.589871	2.4	2.4	0.15251	16.1873	370.093
Sr_ppm	858	858	0	0.2	19.2	19	1.698718	1.98912	3.9566	1457.5	5866.69	1.220709	1	1	0.067907	4.41851	26.2771
Te_ppm	858	858	0	0.01	1.03	1.02	0.105816	0.102892	0.010587	90.79	18.6799	0.077389	0.07	0.05	0.003513	3.25719	15.7524
Th_ppm	858	858	0	0.2	28.4	28.2	7.574359	3.88413	15.0865	6498.8	62153.36	6.492339	7	6.4	0.132602	0.981112	1.97652
Tl_ppm	858	858	0	0.01	1.44	1.43	0.072576	0.120675	0.014562	62.27	16.9993	0.039273	0.04	0.02	0.00412	5.7329	45.5663
U_ppm	858	858	0	0.15	10.35	10.2	1.286305	0.994959	0.989944	1103.65	2268.0125	1.056102	0.975	0.75	0.033967	3.13285	15.8181
V_ppm	858	858	0	5	900	895	168.296	129.808	16850	144398	38742058	124.5844	129	90	4.431556	1.7658	4.53218
W_ppm	858	858	0	0.025	4.55	4.525	0.183362	0.344786	0.118878	157.325	130.725625	0.085116	0.05	0.025	0.011771	6.51953	59.7198
Y_ppm	858	858	0	0.1	21.95	21.85	0.933741	1.20572	1.45375	801.15	1993.9325	0.707896	0.65	0.45	0.041162	9.13322	126.329
Zn_ppm	858	858	0	1	94	93	15.29837	11.4518	131.143	13126	313196	11.80182	12	10	0.390957	2.26355	8.80376
Zr_ppm	858	858	0	0.25	40.5	40.25	7.38549	6.84763	46.8901	6336.75	86984.8125	4.531459	5.5	1.5	0.233774	1.57025	2.79488

Anexo 33

Fator correlacao Msed

Anexo 34

	Ag ppm	Al perc	As ppm	Au ppb	Ba ppm	Be ppm	Bi ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe perc	Ga ppm	Hf ppm	Hg ppm	La ppm	Li ppm	Mn ppm	Mo ppm	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	S perc	Sb ppm	Sc ppm	Se ppm	Sn ppm	Sr ppm	Te ppm	Th ppm	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
Ag ppm	1.000	0.266	0.526	0.086	0.192	0.394	0.220	0.247	0.411	0.549	0.003	0.584	0.652	0.481	0.323	0.244	-0.367	-0.049	0.369	0.583	0.428	0.373	0.509	0.578	0.004	0.022	0.330	0.570	0.056	0.414	0.267	0.678	0.453	0.145	0.434	0.605	0.424	0.440	0.507	0.400
Al perc	0.266	1.000	0.031	0.008	0.004	-0.007	-0.070	0.017	0.125	0.250	-0.126	0.223	0.629	0.854	0.795	0.674	-0.085	0.130	0.263	0.102	0.267	0.201	0.259	-0.037	-0.314	0.403	0.470	0.377	-0.395	0.473	0.440	0.262	0.599	-0.038	-0.124	0.630	-0.195	-0.059	0.276	0.816
As ppm	0.526	0.031	1.000	0.215	0.146	0.374	0.024	0.169	0.288	0.280	-0.033	0.483	0.367	0.196	0.083	0.016	-0.248	-0.033	0.140	0.455	0.182	0.332	0.359	0.395	-0.014	-0.053	0.070	0.430	0.225	0.320	0.087	0.527	0.216	0.082	0.283	0.384	0.450	0.363	0.358	0.135
Au ppb	0.086	0.008	0.215	1.000	0.149	0.167	-0.093	0.193	0.153	-0.014	-0.018	0.135	0.091	0.040	0.012	0.027	-0.029	0.110	0.130	0.031	0.084	0.184	0.182	0.127	0.002	-0.009	-0.028	0.131	0.068	0.162	0.113	0.109	0.050	0.124	0.080	0.066	0.174	0.162	0.129	0.026
Ba ppm	0.192	0.004	0.146	0.149	1.000	0.473	0.070	0.640	0.599	0.060	0.323	0.354	0.203	0.027	-0.078	0.083	0.165	0.361	0.621	0.040	0.122	0.429	0.327	0.487	0.301	0.074	0.172	0.235	0.191	0.175	0.235	0.226	0.098	0.654	0.278	0.076	0.220	0.439	0.434	-0.042
Be ppm	0.394	-0.007	0.374	0.167	0.473	1.000	0.116	0.484	0.613	0.296	0.236	0.603	0.428	0.107	0.005	0.109	0.060	0.318	0.464	0.249	0.158	0.632	0.558	0.463	0.219	0.141	0.046	0.506	0.288	0.360	0.079	0.429	0.245	0.520	0.523	0.295	0.333	0.629	0.666	0.040
Bi ppm	0.220	-0.070	0.024	-0.093	0.070	0.116	1.000	-0.005	-0.051	0.003	0.063	0.009	-0.043	-0.015	-0.095	0.031	0.141	-0.034	-0.022	0.278	0.059	-0.020	-0.053	0.322	0.163	-0.074	-0.194	-0.093	0.296	0.201	-0.093	0.242	0.174	0.185	0.390	-0.116	0.142	0.028	-0.031	-0.091
Ce ppm	0.247	0.017	0.169	0.193	0.640	0.484	-0.005	1.000	0.660	0.163	0.361	0.370	0.206	0.045	-0.035	0.038	0.126	0.421	0.583	0.146	0.256	0.444	0.403	0.547	0.378	-0.030	0.155	0.308	0.116	0.165	0.193	0.210	0.171	0.591	0.461	0.101	0.280	0.619	0.443	-0.006
Co ppm	0.411	0.125	0.288	0.153	0.599	0.613	-0.051	0.660	1.000	0.427	0.337	0.673	0.544	0.246	0.154	0.258	-0.050	0.301	0.804	0.189	0.210	0.785	0.582	0.525	0.150	0.098	0.282	0.599	0.033	0.196	0.313	0.429	0.204	0.542	0.428	0.450	0.310	0.738	0.704	0.191
Cr ppm	0.549	0.250	0.280	-0.014	0.060	0.296	0.003	0.163	0.427	1.000	-0.020	0.551	0.579	0.396	0.338	0.391	-0.027	-0.141	0.258	0.354	0.022	0.561	0.353	0.251	-0.183	0.237	0.193	0.518	-0.074	0.085	0.064	0.544	0.340	-0.060	0.398	0.616	0.069	0.478	0.428	0.330
Cs ppm	0.003	-0.126	-0.033	-0.018	0.323	0.236	0.063	0.361	0.337	-0.020	1.000	0.036	-0.106	-0.187	-0.197	-0.129	0.001	0.495	0.333	0.027	0.238	0.152	0.177	0.231	0.774	-0.123	0.152	0.006	0.036	0.108	0.203	-0.084	-0.180	0.552	0.219	-0.138	0.195	0.245	0.124	-0.217
Cu ppm	0.584	0.223	0.483	0.135	0.354	0.603	0.009	0.370	0.673	0.551	0.036	1.000	0.715	0.417	0.272	0.333	-0.104	0.051	0.533	0.307	0.069	0.755	0.529	0.414	-0.099	0.268	0.220	0.834	0.106	0.321	0.245	0.651	0.424	0.308	0.421	0.706	0.199	0.606	0.775	0.357
Fe perc	0.652	0.629	0.367	0.091	0.203	0.428	-0.043	0.206	0.544	0.579	-0.106	0.715	1.000	0.802	0.677	0.642	-0.193	-0.005	0.560	0.342	0.246	0.607	0.641	0.290	-0.324	0.417	0.486	0.813	-0.184	0.471	0.399	0.676	0.685	0.142	0.283	0.904	0.106	0.400	0.739	0.755
Ga ppm	0.481	0.854	0.196	0.040	0.027	0.107	-0.015	0.045	0.246	0.396	-0.187	0.417	0.802	1.000	0.853	0.742	-0.200	0.012	0.324	0.253	0.310	0.328	0.383	0.081	-0.402	0.415	0.486	0.559	-0.341	0.554	0.480	0.471	0.726	-0.049	-0.001	0.826	-0.107	0.084	0.414	0.910
Hf ppm	0.323	0.795	0.083	0.012	-0.078	0.005	-0.095	-0.035	0.154	0.338	-0.197	0.272	0.677	0.853	1.000	0.704	-0.168	0.065	0.254	0.185	0.271	0.258	0.230	-0.008	-0.417	0.370	0.473	0.428	-0.473	0.478	0.412	0.346	0.633	-0.083	-0.090	0.701	-0.136	-0.006	0.312	0.925
Hg ppm	0.244	0.674	0.016	0.027	0.083	0.109	0.031	0.038	0.258	0.391	-0.129	0.333	0.642	0.742	0.704	1.000	0.243	0.069	0.356	0.082	-0.033	0.363	0.299	-0.032	-0.359	0.619	0.358	0.397	-0.226	0.365	0.358	0.359	0.630	0.064	-0.001	0.620	-0.311	0.093	0.385	0.716
La ppm	-0.367	-0.085	-0.248	-0.029	0.165	0.060	0.141	0.126	-0.050	-0.027	0.001	-0.104	-0.193	-0.200	-0.168	0.243	1.000	0.215	-0.106	-0.248	-0.530	0.068	-0.160	-0.182	0.066	0.390	-0.251	-0.229	0.248	-0.137	-0.257	-0.136	0.046	0.133	0.078	-0.292	-0.437	0.060	0.009	-0.219
Li ppm	-0.049	0.130	-0.033	x	0.361	0.318	-0.034	0.421	0.301	-0.141	0.495	0.051	-0.005	0.012	0.065	0.069	0.215	1.000	0.258	-0.046	0.234	0.183	0.121	0.147	0.478	0.097	0.085	0.088	-0.026	0.283	0.132	-0.140	0.044	0.526	0.094	-0.045	0.072	0.193	0.229	0.034
Mn ppm	0.369	0.263	0.140	0.130	0.621	0.464	-0.022	0.583	0.804	0.258	0.333	0.533	0.560	0.324	0.254	0.356	-0.106	0.258	1.000	0.106	0.266	0.561	0.576	0.487	0.140	0.148	0.421	0.517	-0.144	0.272	0.465	0.394	0.268	0.625	0.286	0.414	0.282	0.463	0.621	0.300
Mo ppm	0.583	0.102	0.455	0.031	0.040	0.249	0.278	0.146	0.189	0.354	0.027	0.307	0.342	0.253	0.185	0.082	-0.248	-0.046	0.106	1.000	0.395	0.180	0.340	0.399	0.086	-0.040	0.242	0.297	0.052	0.336	0.130	0.481	0.349	0.056	0.335	0.356	0.355	0.314	0.230	0.229
Nb ppm	0.428	0.267	0.182	0.084	0.122	0.158	0.059	0.256	0.210	0.022	0.238	0.069	0.246	0.310	0.271	-0.033	-0.530	0.234	0.266	0.395	1.000	0.105	0.332	0.390	0.246	-0.195	0.436	0.214	-0.179	0.442	0.405	0.185	0.176	0.227	0.135	0.229	0.459	0.161	0.123	0.303
Ni ppm	0.373	0.201	0.332	0.184	0.429	0.632	-0.020	0.444	0.785	0.561	0.152	0.755	0.607	0.328	0.258	0.363	0.068	0.183	0.561	0.180	0.105	1.000	0.536	0.357	-0.028	0.277	0.198	0.661	0.104	0.254	0.235	0.512	0.312	0.385	0.423	0.529	0.164	0.693	0.764	0.283
P ppm	0.509	0.259	0.359	0.182	0.327	0.558	-0.053	0.403	0.582	0.353	0.177	0.529	0.641	0.383	0.230	0.299	-0.160	0.121	0.576	0.340	0.332	0.536	1.000	0.418	0.042	0.224	0.387	0.559	-0.063	0.352	0.317	0.416	0.307	0.374	0.452	0.527	0.324	0.556	0.629	0.302
Pb ppm	0.578	-0.037	0.395	0.127	0.487	0.463	0.322	0.547	0.525	0.251	0.231	0.414	0.290	0.081	-0.008	-0.032	-0.182	0.147	0.487	0.399	0.390	0.357	0.418	1.000	0.327	-0.166	0.207	0.301	0.185	0.261	0.230	0.442	0.166	0.457	0.527	0.195	0.477	0.517	0.389	0.027
Rb ppm	0.004	-0.314	-0.014	0.002	0.301	0.219	0.163	0.378	0.150	-0.183	0.774	-0.099	-0.324	-0.402	-0.417	-0.359	0.066	0.478	0.140	0.086	0.246	-0.028	0.042	0.327	1.000	-0.269	-0.008	-0.197	0.205	0.049	0.053	-0.178	-0.240	0.544	0.261	-0.386	0.228	0.186	0.004	-0.434
S perc	0.022	0.403	-0.053	-0.009	0.074	0.141	-0.074	-0.030	0.098	0.237	-0.123	0.268	0.417	0.415	0.370	0.619	0.390	0.097	0.148	-0.040	-0.195	0.277	0.224	-0.166	-0.269	1.000	0.193	0.285	-0.083	0.207	0.133	0.166	0.398	0.028	-0.096	0.379	-0.387	0.030	0.331	0.402
Sb ppm	0.330	0.470	0.070	-0.028	0.172	0.046	-0.194	0.155	0.282	0.193	0.152	0.220	0.486	0.486	0.473	0.358	-0.251	0.085	0.421	0.242	0.436	0.198	0.387	0.207	-0.008	0.193	1.000	0.298	-0.396	0.249	0.503	0.256	0.261	0.138	-0.076	0.458	0.013	0.113	0.262	0.516
Sc ppm	0.570	0.377	0.430	0.131	0.235	0.506	-0.093	0.308	0.599	0.518	0.006	0.834	0.813	0.559	0.428	0.397	-0.229	0.088	0.517	0.297	0.214	0.661	0.559	0.301	-0.197	0.285	0.298	1.000	-0.046	0.394	0.307	0.611	0.549	0.227	0.346	0.818	0.158	0.499	0.741	0.535
Se ppm	0.056	-0.395	0.225	0.068	0.191	0.288	0.296	0.116	0.033	-0.074	0.036	0.106	-0.184	-0.341	-0.473	-0.226	0.248	-0.026	-0.144	0.052	-0.179	0.104	-0.063	0.185	0.205	-0.083	-0.396	-0.046	1.000	-0.067	-0.257	0.135	-0.084	0.127	0.248	-0.259	0.093	0.194	0.061	-0.415
Sn ppm	0.414	0.473	0.320	0.162	0.175	0.360	0.201	0.165	0.196	0.085	0.108	0.321	0.471	0.554	0.478	0.365	-0.137	0.283	0.272	0.336	0.442	0.254	0.352	0.261	0.049	0.207	0.249	0.394	-0.067	1.000	0.339	0.323	0.519	0.323	0.156	0.428	0.243	0.129	0.375	0.515
Sr ppm	0.267	0.440	0.087	0.113	0.235	0.079	-0.093	0.193	0.313	0.064	0.203	0.245	0.399	0.480	0.412	0.358	-0.257	0.132	0.465	0.130	0.405	0.235	0.317	0.230	0.053	0.133	0.503	0.307	-0.257	0.339	1.000	0.219	0.300	0.161	-0.100	0.420	0.034	0.098	0.261	0.464
Te ppm	0.678	0.262	0.527	0.109	0.226	0.429	0.242	0.210	0.429	0.544	-0.084	0.651	0.676	0.471	0.346	0.359	-0.136	-0.140	0.394	0.481	0.185	0.512	0.416	0.442	-0.178	0.166	0.256	0.611	0.135	0.323	0.219	1.000	0.509	0.140	0.412	0.611	0.274	0.440	0.542	0.407
Th ppm	0.453	0.599	0.216	0.050	0.098	0.245	0.174	0.171	0.204	0.340	-0.180	0.424	0.685	0.726	0.633	0.630	0.046	0.044	0.268	0.349	0.176	0.312	0.307	0.166	-0.240	0.398	0.261	0.549	-0.084	0.519	0.300	0.509	1.000	0.069	0.226	0.625	-0.069	0.152	0.493	0.707
Tl ppm	0.145	-0.038	0.082	0.124	0.654	0.520	0.185	0.591	0.542	-0.060	0.552	0.308	0.142	-0.049	-0.083	0.064	0.133	0.526	0.625	0.056	0.227	0.385	0.374	0.457	0.544	0.028	0.138	0.227	0.127	0.323	0.161	0.140	0.069	1.000	0.388	-0.013	0.272	0.384	0.423	-0.070
U ppm	0.434	-0.124	0.283	0.080	0.278	0.523	0.390	0.461	0.428	0.398	0.219	0.421	0.283	-0.001	-0.090	-0.001	0.078	0.094	0.286	0.335	0.135	0.423	0.452	0.527	0.261	-0.096	-0.076	0.346	0.248	0.156	-0.100	0.412	0.226	0.388	1.000	0.153	0.364	0.599	0.434	-0.095
V ppm	0.605	0.630	0.384	0.066	0.076	0.295	-0.116	0.101	0.450	0.616	-0.138	0.706	0.904	0.826	0.701	0.620	-0.292	-0.045	0.414	0.356	0.229	0.529	0.527	0.195	-0.386	0.379	0.458	0.818	-0.259	0.428	0.420	0.611	0.625	-0.013	0.153	1.000	0.025	0.316	0.598	0.773
W ppm	0.424	-0.195	0.450	0.174	0.220	0.333	0.142	0.280	0.310	0.069	0.195	0.199	0.106	-0.107	-0.136	-0.311	-0.437	0.072	0.282	0.355	0.459	0.164	0.324	0.477	0.228	-0.387	0.013	0.158	0.093	0.243	0.034	0.274	-0.069	0.272	0.364	0.025	1.000	0.335	0.188	-0.124
Y ppm	0.440	-0.059	0.363	0.162	0.439	0.629	0.028	0.619	0.738	0.478	0.245	0.606	0.400	0.084	-0.006	0.093	0.060	0.193	0.463	0.314	0.161	0.693	0.556	0.517	0.186	0.030	0.113	0.499	0.194	0.129	0.098	0.440	0.152	0.384	0.599	0.316	0.335	1.000	0.635	0.008
Zn ppm	0.507	0.276	0.358	0.129	0.434	0.666	-0.031	0.443	0.704	0.428	0.124	0.775	0.739	0.414	0.312	0.385	0.009	0.229	0.621	0.230	0.123	0.764	0.629	0.389	0.004	0.331	0.262	0.741	0.061	0.375	0.261	0.542	0.493	0.423	0.434	0.598	0.188	0.635	1.000	0.384
Zr ppm	0.400	0.816	0.135	0.026	-0.042	0.040	-0.091	-0.006	0.191	0.330	-0.217	0.357	0.755	0.910	0.925	0.716	-0.219	0.034	0.300	0.229	0.303	0.283	0.302	0.027	-0.434	0.402	0.516	0.535	-0.415	0.515	0.464	0.407	0.707	-0.070	-0.095	0.773	-0.124	0.008	0.384	1.000

395000 400000 405000 410000

100000 95000 90000 85000

L18600 L19400 L19800 L20200 L20600 L21000 L21400 L21800 L22000 L22200 L22600 L23000 L23400 L23800 L24000 L24200 L24600 L25000 L26000 L27000 L28000 L29000 L30000 L31000 L32000 L33000 L34000 L35000 L36000

Legenda

Cenozóico

Quaternário

- Aluvião
- Aluvião Mineralizado (Au)

Terciário

- Cobertura lateritica

Paleoproterozóico

Suíte Intrusiva

- Granito Amapari
- Granitóides indiferenciados
- Metatonalito Papavento

Grupo Vila Nova

- Formações ferríferas
- Biotita xistos e quartzitos
- Rochas carbonáticas e cálcio-silicáticas
- Almandina silimanita-biotita-quartzo xisto
  Biotita-quartzo xisto
  Muscovita/biotita-quartzo xisto
- Paranfibolitos
- Ortoanfibolito Jornal
- Metatonalito Água Fria

Anexo 35

PC1

- > 50
- 30 - 50
- 20 - 30
- < 20

Solo Au > 19 ppb

- Zona MinerNS
- Zona MinerNW
- Zona do Granito
- Zona dos Granitóides Indif.
- Zona da Máfica
- Zona dos Metassedim.

Scale 1:100000

1000 0 1000 2000 3000 4000 5000

metres

SAD69 / UTM zone 22N

Região do Depósito de Ouro do Amapari-AP

Geoquímica de Solo
Análise de Componentes Principais - PCA
Zona das Rochas Metassedimentares - PC1

Laboratório Chemex - Vancouver - Canadá

Orientadora - Profa. Dra. Lydia Maria Lobato

Élio Hiromi Horikava

395000 400000 405000 410000

100000 95000 90000 85000

L18600 L19400 L19800 L20200 L20400 L20600 L21000 L21400 L21800 L22000 L22200 L22600 L23000 L23100 L23400 L23800 L24000 L24200 L25000 L26000 L27000 L28000 L29000 L30000 L31000 L32000 L33000 L34000 L35000 L36000

Legenda

Cenozóico

Quaternário

- Aluvião
- Aluvião Mineralizado (Au)

Terciário

- Cobertura lateritica

Paleoproterozóico

Suíte Intrusiva

- Granito Amapari
- Granitóides indiferenciados
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- Formações ferríferas
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- Almandina silimanita-biotita-quartzo xisto
  Biotita-quartzo xisto
  Muscovita/biotita-quartzo xisto
- Paranfibolitos
- Ortoanfibolito Jornal
- Metatonalito Água Fria

Anexo 36

PC2

> 80	
60 - 80	
40 - 60	
20 - 40	
< 20	

Solo Au > 19 ppb

Zona MinerNS
Zona MinerNW
Zona do Granito
Zona dos Granitóides Indif.
Zona da Máfica
Zona dos Metassedim.

Scale 1:100000

1000 0 1000 2000 3000 4000 5000

metres

SAD69 / UTM zone 22N

Região do Depósito de Ouro do Amapari-AP

Geoquímica de Solo
Análise de Componentes Principais - PCA
Zona das Rochas Metassedimentares - PC2

Laboratório Chemex - Vancouver - Canadá

Orientadora - Profa. Dra. Lydia Maria Lobato

Élio Hiromi Horikava

Mafic Statistic

Channel	NumValid	Num>0	Dummies	Min	Max	Range	Mean	StdDev	Var	Sum	SumSq	GeoMean	Median	Mode	StdErr	Skewness	Kurtosis
Ag_ppm	138	138	0	0.02	0.41	0.39	0.107826	0.075191	0.005654	14.88	2.379	0.086541	0.09	0.06	0.006401	1.62326	2.95421
Al_perc	138	138	0	0.78	3.81	3.03	2.160652	0.656383	0.430838	298.17	703.2665	2.056879	2.05	2.03	0.055875	0.251358	-0.537388
As_ppm	138	138	0	0.8	77.3	76.5	15.41739	12.586	158.406	2127.6	54503.72	11.55114	12.4	5.8	1.071388	2.19452	6.14025
Au_ppb	138	138	0	0.5	201	200.5	2.474638	17.0686	291.337	341.5	40758.25	0.773917	0.5	0.5	1.452975	11.4014	129.616
Ba_ppm	138	138	0	2.2	108	105.8	7.881159	11.2286	126.082	1087.6	25844.8	5.83734	5	5	0.955844	6.24896	47.3941
Be_ppm	138	138	0	0.025	1.6	1.575	0.156159	0.164528	0.027069	21.55	7.07375	0.110929	0.15	0.15	0.014006	5.19819	40.8668
Bi_ppm	138	138	0	0.07	0.99	0.92	0.314348	0.15908	0.025307	43.38	17.1034	0.281179	0.285	0.28	0.013542	1.78158	4.59475
Ce_ppm	138	138	0	1.44	63.5	62.06	5.806377	7.25196	52.591	801.28	11857.494	4.131133	3.41	2.15	0.617328	4.56043	28.5636
Co_ppm	138	138	0	0.5	54.5	54	2.53913	5.24642	27.5249	350.4	4660.62	1.638426	1.4	1	0.446605	7.84455	70.1917
Cr_ppm	138	138	0	68	1385	1317	314.0217	176.604	31189.1	43335	17881041	277.399	274.5	196	15.03357	2.37074	9.57229
Cs_ppm	138	138	0	0.05	1.7	1.65	0.317391	0.26791	0.071776	43.8	23.735	0.249766	0.25	0.15	0.022806	2.68356	8.54927
Cu_ppm	138	138	0	6.6	164	157.4	27.51232	21.0858	444.613	3796.7	165367.99	22.37983	22.1	11.2	1.794946	2.84558	12.6441
Fe_perc	138	138	0	2.55	16	13.45	7.547319	3.19895	10.2333	1041.53	9262.7157	6.94342	6.505	16	0.272312	0.96002	0.303452
Ga_ppm	138	138	0	4.1	23.2	19.1	13.92609	4.27132	18.2442	1921.8	29262.605	13.2045	13.95	7.9	0.363599	0.005809	-0.693615
Hf_ppm	138	138	0	0.01	0.66	0.65	0.171812	0.120018	0.014404	23.71	6.04705	0.121922	0.15	0.1	0.010217	0.83062	0.814355
Hg_ppm	138	138	0	0.05	0.45	0.4	0.203551	0.078988	0.006239	28.09	6.5725	0.188489	0.19	0.15	0.006724	0.753665	0.453834
La_ppm	138	138	0	0.8	5	4.2	2.601449	1.72699	2.98248	359	1342.52	2.070353	1.8	5	0.147011	0.540925	-1.52367
Li_ppm	138	138	0	0.05	6.9	6.85	0.329348	0.598622	0.358348	45.45	64.0625	0.228097	0.2	0.2	0.050958	9.62701	102.264
Mn_ppm	138	138	0	10	1435	1425	104.2754	164.577	27085.6	14390	5211250	67.46699	60	40	14.00973	5.47306	35.5876
Mo_ppm	138	138	0	0.2	3.25	3.05	1.182971	0.572786	0.328084	163.25	238.0675	1.055076	1.05	0.8	0.048759	1.2043	1.67416
Nb_ppm	138	138	0	0.1	0.95	0.85	0.426087	0.222725	0.049607	58.8	31.85	0.354892	0.45	0.2	0.01896	0.078003	-1.06259
Ni_ppm	138	138	0	4	46.5	42.5	12.13406	7.09722	50.3706	1674.5	27219.25	10.66017	10	9	0.604156	2.10574	5.95878
P_ppm	138	138	0	50	920	870	193.4058	135.972	18488.3	26690	7694900	162.8782	160	120	11.57468	2.75284	10.7289
Pb_ppm	138	138	0	1	24.4	23.4	7.22029	4.42054	19.5412	996.4	9871.44	6.070658	6	8	0.376302	1.47462	2.3331
Rb_ppm	138	138	0	0.2	2.4	2.2	0.822464	0.445909	0.198835	113.5	120.59	0.720248	0.7	0.6	0.037958	1.40884	2.23563
S_perc	138	138	0	0.01	0.11	0.1	0.039203	0.015849	0.000251	5.41	0.2465	0.036266	0.04	0.03	0.001349	1.36402	3.51296
Sb_ppm	138	138	0	0.025	2.75	2.725	0.126449	0.282855	0.080007	17.45	13.1675	0.060211	0.05	0.05	0.024078	6.437	52.5897
Sc_ppm	138	138	0	3	43	40	12.12319	8.42009	70.8979	1673	29995.1	10.003	8.9	8	0.716765	1.62783	2.33126
Se_ppm	138	138	0	0.1	5.6	5.5	1.150725	0.981601	0.96354	158.8	314.74	0.741043	1	0.1	0.083559	1.60848	3.7793
Sn_ppm	138	138	0	0.6	18	17.4	2.714493	2.25082	5.06621	374.6	1710.92	2.250651	2	2	0.191603	3.82214	19.1803
Sr_ppm	138	138	0	0.5	13.6	13.1	1.673913	1.96091	3.84515	231	913.46	1.282836	1	1	0.166923	4.55421	23.0249
Te_ppm	138	138	0	0.025	0.75	0.725	0.116775	0.095979	0.009212	16.115	3.143875	0.093312	0.09	0.05	0.00817	3.05618	14.0753
Th_ppm	138	138	0	2.4	30.8	28.4	8.855072	3.86953	14.9733	1222	12872.24	8.140996	8.3	9.2	0.329397	1.84081	6.91275
Tl_ppm	138	138	0	0.01	1.62	1.61	0.038913	0.138087	0.019068	5.37	2.8213	0.020692	0.02	0.01	0.011755	10.8823	121.551
U_ppm	138	138	0	0.4	6.15	5.75	1.281884	0.976605	0.953757	176.9	357.43	1.047129	0.95	0.55	0.083134	2.33472	6.83968
V_ppm	138	138	0	50	602	552	192.5145	100.661	10132.6	26567	6502701	171.7652	162	119	8.568825	1.54167	2.54348
W_ppm	138	138	0	0.025	1.8	1.775	0.155797	0.204272	0.041727	21.5	9.06625	0.084907	0.05	0.025	0.017389	4.19512	28.4433
Y_ppm	138	138	0	0.3	6	5.7	1.191304	1.003	1.00602	164.4	333.675	0.939315	0.85	0.45	0.085381	2.44712	6.82863
Zn_ppm	138	138	0	4	50	46	16.94203	10.1785	103.602	2338	53804	14.41114	14	8	0.866454	1.2685	1.13527
Zr_ppm	138	138	0	0.25	21	20.75	6.615942	3.96059	15.6863	913	8189.375	5.248202	6	3	0.337148	0.892591	0.992514

Anexo 37

Fator de correlacao Mafic

Anexo 38

	Ag ppm	Al perc	As ppm	Au ppb	Ba ppm	Be ppm	Bi ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe perc	Ga ppm	Hf ppm	Hg ppm	La ppm	Li ppm	Mn ppm	Mo ppm	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	S perc	Sb ppm	Sc ppm	Se ppm	Sn ppm	Sr ppm	Te ppm	Th ppm	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
Ag ppm	1.000	0.010	0.432	0.047	0.109	0.279	0.319	0.269	0.386	0.453	0.094	0.431	0.697	0.422	-0.020	0.028	-0.408	-0.311	0.442	0.546	0.523	0.295	0.630	0.545	0.086	-0.226	0.124	0.580	0.261	0.112	0.193	0.631	0.207	-0.106	0.578	0.629	0.522	0.482	0.443	0.130
Al perc	0.010	1.000	-0.181	0.158	0.020	-0.015	-0.109	0.141	0.158	0.018	-0.242	0.057	0.366	0.792	0.821	0.485	0.064	0.459	0.316	-0.101	0.180	0.134	0.155	0.072	-0.262	0.353	0.471	0.378	-0.443	0.326	0.156	-0.206	0.276	0.201	-0.038	0.487	-0.362	0.081	0.213	0.837
As ppm	0.432	-0.181	1.000	0.032	0.033	0.198	0.327	0.085	0.162	0.201	0.126	0.143	0.233	0.054	-0.171	-0.026	-0.105	-0.244	0.093	0.323	0.141	0.239	0.207	0.201	0.114	-0.167	-0.076	0.174	0.329	0.117	0.034	0.460	0.163	0.049	0.270	0.136	0.373	0.218	0.178	-0.023
Au ppb	0.047	0.158	0.032	1.000	-0.063	-0.052	-0.358	0.044	0.048	0.147	-0.057	0.017	0.132	0.165	0.087	-0.097	-0.357	-0.139	0.177	-0.112	0.183	0.029	0.077	-0.082	-0.169	-0.090	0.412	0.262	-0.179	-0.006	-0.004	-0.083	-0.225	-0.128	0.001	0.148	-0.004	0.096	0.131	0.143
Ba ppm	0.109	0.020	0.033	-0.063	1.000	0.473	-0.158	0.714	0.679	0.276	0.256	0.473	0.288	0.005	-0.079	-0.073	0.210	0.257	0.613	-0.124	0.009	0.542	0.391	0.384	0.274	0.166	0.118	0.399	0.055	-0.106	-0.018	0.181	0.013	0.529	0.498	0.198	0.080	0.551	0.424	-0.139
Be ppm	0.279	-0.015	0.198	-0.052	0.473	1.000	0.120	0.532	0.545	0.464	0.153	0.514	0.486	0.090	0.026	0.093	0.239	0.088	0.355	0.126	0.004	0.629	0.458	0.368	0.223	0.160	0.083	0.447	0.243	0.011	-0.189	0.460	0.235	0.278	0.604	0.344	0.129	0.629	0.581	-0.056
Bi ppm	0.319	-0.109	0.327	-0.358	-0.158	0.120	1.000	-0.205	-0.151	0.115	0.007	-0.038	0.166	0.164	0.059	0.374	0.200	-0.211	-0.276	0.453	-0.007	0.038	-0.014	0.266	0.025	0.002	-0.347	-0.172	0.338	0.256	-0.038	0.539	0.687	-0.088	0.065	0.018	0.183	-0.114	-0.089	0.180
Ce ppm	0.269	0.141	0.085	0.044	0.714	0.532	-0.205	1.000	0.714	0.352	0.236	0.561	0.493	0.184	-0.004	-0.094	0.050	0.226	0.710	0.001	0.177	0.626	0.563	0.445	0.357	0.152	0.260	0.627	0.115	-0.124	-0.007	0.220	0.019	0.501	0.689	0.388	0.097	0.721	0.611	-0.051
Co ppm	0.386	0.158	0.162	0.048	0.679	0.545	-0.151	0.714	1.000	0.488	0.143	0.696	0.626	0.228	0.061	-0.007	0.084	0.218	0.777	0.108	0.155	0.751	0.616	0.468	0.147	0.129	0.313	0.713	0.123	-0.111	-0.039	0.353	0.047	0.373	0.704	0.547	0.088	0.873	0.792	0.025
Cr ppm	0.453	0.018	0.201	0.147	0.276	0.464	0.115	0.352	0.488	1.000	0.032	0.594	0.540	0.152	0.089	0.079	0.032	-0.175	0.446	0.277	0.001	0.671	0.307	0.356	0.057	0.036	0.311	0.487	0.190	-0.195	-0.151	0.541	0.237	-0.037	0.474	0.419	0.009	0.565	0.571	0.063
Cs ppm	0.094	-0.242	0.126	-0.057	0.256	0.153	0.007	0.236	0.143	0.032	1.000	-0.019	0.006	-0.258	-0.359	-0.293	-0.154	0.181	0.183	0.014	0.266	-0.038	0.241	0.224	0.776	-0.240	-0.093	0.080	0.165	0.136	0.223	0.095	-0.243	0.344	0.261	-0.030	0.400	0.154	0.031	-0.340
Cu ppm	0.431	0.057	0.143	0.017	0.473	0.514	-0.038	0.561	0.696	0.594	-0.019	1.000	0.626	0.217	0.010	0.019	0.151	-0.125	0.640	0.147	-0.060	0.670	0.487	0.348	0.071	0.133	0.309	0.680	0.205	-0.268	-0.039	0.469	0.123	0.125	0.614	0.541	-0.084	0.771	0.720	-0.045
Fe perc	0.697	0.366	0.233	0.132	0.288	0.486	0.166	0.493	0.626	0.540	0.006	0.626	1.000	0.648	0.328	0.262	-0.137	-0.110	0.657	0.366	0.315	0.554	0.765	0.607	0.003	0.153	0.462	0.870	0.073	0.097	-0.033	0.607	0.377	0.114	0.737	0.914	0.121	0.724	0.793	0.385
Ga ppm	0.422	0.792	0.054	0.165	0.005	0.090	0.164	0.184	0.228	0.152	-0.258	0.217	0.648	1.000	0.716	0.453	-0.153	0.141	0.386	0.179	0.336	0.199	0.395	0.273	-0.239	0.222	0.378	0.567	-0.251	0.397	0.129	0.153	0.420	0.117	0.197	0.713	-0.109	0.228	0.327	0.826
Hf ppm	-0.020	0.821	-0.171	0.087	-0.079	0.026	0.059	-0.004	0.061	0.089	-0.359	0.010	0.328	0.716	1.000	0.492	0.113	0.339	0.170	-0.010	0.018	0.102	0.081	-0.032	-0.387	0.333	0.379	0.242	-0.408	0.329	-0.045	-0.067	0.411	0.085	-0.046	0.439	-0.429	0.015	0.166	0.848
Hg ppm	0.028	0.485	-0.026	-0.097	-0.073	0.093	0.374	-0.094	-0.007	0.079	-0.293	0.019	0.262	0.453	0.492	1.000	0.503	0.146	-0.126	0.148	-0.158	0.094	-0.013	0.062	-0.379	0.564	0.183	0.037	-0.024	0.256	-0.267	0.164	0.670	0.134	-0.055	0.271	-0.401	-0.065	0.094	0.583
La ppm	-0.408	0.064	-0.105	-0.357	0.210	0.239	0.200	0.050	0.084	0.032	-0.154	0.151	-0.137	-0.153	0.113	0.503	1.000	0.295	-0.176	-0.177	-0.661	0.231	-0.274	-0.109	-0.092	0.547	-0.156	-0.238	0.078	-0.113	-0.248	0.034	0.405	0.292	-0.089	-0.202	-0.553	0.010	0.047	0.008
Li ppm	-0.311	0.459	-0.244	-0.139	0.257	0.088	-0.211	0.226	0.218	-0.175	0.181	-0.125	-0.110	0.141	0.339	0.146	0.295	1.000	0.125	-0.353	-0.056	0.055	-0.019	0.005	0.174	0.236	0.072	0.001	-0.330	0.238	0.100	-0.354	-0.021	0.528	-0.018	0.009	-0.212	0.038	-0.025	0.202
Mn ppm	0.442	0.316	0.093	0.177	0.613	0.355	-0.276	0.710	0.777	0.446	0.183	0.640	0.657	0.386	0.170	-0.126	-0.176	0.125	1.000	0.082	0.274	0.524	0.682	0.482	0.170	0.016	0.466	0.784	-0.106	-0.128	0.249	0.219	-0.085	0.286	0.597	0.643	0.081	0.734	0.693	0.124
Mo ppm	0.546	-0.101	0.323	-0.112	-0.124	0.126	0.453	0.001	0.108	0.277	0.014	0.147	0.366	0.179	-0.010	0.148	-0.177	-0.353	0.082	1.000	0.320	0.131	0.292	0.297	0.008	-0.219	0.025	0.146	0.229	0.110	0.015	0.550	0.306	-0.274	0.303	0.300	0.358	0.179	0.176	0.092
Nb ppm	0.523	0.180	0.141	0.183	0.009	0.004	-0.007	0.177	0.155	0.001	0.266	-0.060	0.315	0.336	0.018	-0.158	-0.661	-0.056	0.274	0.320	1.000	-0.006	0.461	0.339	0.217	-0.338	0.157	0.362	0.031	0.343	0.311	0.085	-0.144	-0.023	0.284	0.331	0.604	0.201	0.103	0.175
Ni ppm	0.295	0.134	0.239	0.029	0.542	0.629	0.038	0.626	0.751	0.671	-0.038	0.670	0.554	0.199	0.102	0.094	0.231	0.055	0.524	0.131	-0.006	1.000	0.453	0.386	0.106	0.209	0.213	0.558	0.212	-0.182	-0.128	0.477	0.255	0.271	0.627	0.370	-0.014	0.763	0.742	0.065
P ppm	0.630	0.155	0.207	0.077	0.391	0.458	-0.014	0.563	0.616	0.307	0.241	0.487	0.765	0.395	0.081	-0.013	-0.274	-0.019	0.682	0.292	0.461	0.453	1.000	0.545	0.195	-0.040	0.362	0.752	0.013	0.127	0.210	0.430	0.024	0.208	0.770	0.687	0.365	0.709	0.682	0.118
Pb ppm	0.545	0.072	0.201	-0.082	0.384	0.368	0.266	0.445	0.468	0.356	0.224	0.348	0.607	0.273	-0.032	0.062	-0.109	0.005	0.482	0.297	0.339	0.386	0.545	1.000	0.211	0.007	0.157	0.511	0.113	0.052	0.160	0.431	0.287	0.167	0.623	0.507	0.373	0.486	0.449	0.051
Rb ppm	0.086	-0.262	0.114	-0.169	0.274	0.223	0.025	0.357	0.147	0.057	0.776	0.071	0.003	-0.239	-0.387	-0.379	-0.092	0.174	0.170	0.008	0.217	0.106	0.195	0.211	1.000	-0.223	-0.188	0.087	0.185	-0.019	0.284	0.140	-0.190	0.320	0.287	-0.089	0.309	0.205	0.073	-0.393
S perc	-0.226	0.353	-0.167	-0.090	0.166	0.160	0.002	0.152	0.129	0.036	-0.240	0.133	0.153	0.222	0.333	0.564	0.547	0.236	0.016	-0.219	-0.338	0.209	-0.040	0.007	-0.223	1.000	0.215	0.059	-0.056	0.033	-0.267	-0.031	0.380	0.354	-0.040	0.149	-0.485	0.035	0.135	0.324
Sb ppm	0.124	0.471	-0.076	0.412	0.118	0.083	-0.347	0.260	0.313	0.311	-0.093	0.309	0.462	0.378	0.379	0.183	-0.156	0.072	0.466	0.025	0.157	0.213	0.362	0.157	-0.188	0.215	1.000	0.525	-0.461	0.074	-0.036	-0.080	-0.049	0.143	0.215	0.530	-0.316	0.354	0.445	0.366
Sc ppm	0.580	0.378	0.174	0.262	0.399	0.447	-0.172	0.627	0.713	0.487	0.080	0.680	0.870	0.567	0.242	0.037	-0.238	0.001	0.784	0.146	0.362	0.558	0.752	0.511	0.087	0.059	0.525	1.000	0.004	0.039	0.058	0.387	0.073	0.207	0.739	0.865	0.138	0.800	0.786	0.264
Se ppm	0.261	-0.443	0.329	-0.179	0.055	0.243	0.338	0.115	0.123	0.190	0.165	0.205	0.073	-0.251	-0.408	-0.024	0.078	-0.330	-0.106	0.229	0.031	0.212	0.013	0.113	0.185	-0.056	-0.461	0.004	1.000	-0.153	-0.200	0.538	0.206	-0.036	0.273	-0.080	0.326	0.201	0.135	-0.308
Sn ppm	0.112	0.326	0.117	-0.006	-0.106	0.011	0.256	-0.124	-0.111	-0.195	0.136	0.268	0.097	0.397	0.329	0.256	-0.113	0.238	-0.128	0.110	0.343	-0.182	0.127	0.052	-0.019	0.033	0.074	0.039	-0.153	1.000	0.070	0.003	0.217	0.322	-0.004	0.169	0.192	-0.170	-0.154	0.452
Sr ppm	0.193	0.156	0.034	-0.004	-0.018	-0.189	-0.038	-0.007	-0.039	-0.151	0.223	0.039	-0.033	0.129	-0.045	-0.267	-0.248	0.100	0.249	0.015	0.311	-0.128	0.210	0.160	0.284	-0.267	-0.036	0.058	-0.200	0.070	1.000	-0.153	-0.203	-0.048	-0.068	0.040	0.197	-0.034	-0.051	0.026
Te ppm	0.631	-0.206	0.460	-0.083	0.181	0.460	0.539	0.220	0.353	0.541	0.095	0.469	0.607	0.153	-0.067	0.164	0.034	-0.354	0.219	0.550	0.085	0.477	0.430	0.431	0.140	-0.031	-0.080	0.387	0.538	0.003	-0.153	1.000	0.454	-0.066	0.566	0.433	0.305	0.457	0.472	0.020
Th ppm	0.207	0.276	0.163	-0.225	0.013	0.235	0.687	0.019	0.047	0.237	-0.243	0.123	0.377	0.420	0.411	0.670	0.405	-0.021	-0.085	0.306	-0.144	0.255	0.024	0.287	-0.190	0.380	-0.049	0.073	0.206	0.217	-0.203	0.454	1.000	0.039	0.211	0.276	-0.197	0.032	0.158	0.486
Tl ppm	-0.106	0.201	0.049	-0.128	0.529	0.278	-0.088	0.501	0.373	-0.037	0.344	0.125	0.114	0.117	0.085	0.134	0.292	0.528	0.286	-0.274	-0.023	0.271	0.208	0.167	0.320	0.354	0.143	0.207	-0.036	0.322	-0.048	-0.066	0.039	1.000	0.272	0.091	-0.089	0.260	0.169	0.070
U ppm	0.578	-0.038	0.270	0.001	0.498	0.604	0.065	0.689	0.704	0.474	0.261	0.614	0.737	0.197	-0.046	-0.055	-0.089	-0.018	0.597	0.303	0.284	0.627	0.770	0.623	0.287	-0.040	0.215	0.739	0.273	-0.004	-0.068	0.566	0.211	0.272	1.000	0.593	0.332	0.802	0.734	-0.075
V ppm	0.629	0.487	0.136	0.148	0.198	0.344	0.018	0.388	0.547	0.419	-0.030	0.541	0.914	0.713	0.439	0.271	-0.202	0.009	0.643	0.300	0.331	0.370	0.687	0.507	-0.089	0.149	0.530	0.865	-0.080	0.169	0.040	0.433	0.276	0.091	0.593	1.000	0.052	0.628	0.704	0.471
W ppm	0.522	-0.362	0.373	-0.004	0.080	0.129	0.183	0.097	0.088	0.009	0.400	-0.084	0.121	-0.109	-0.429	-0.401	-0.553	-0.212	0.081	0.358	0.604	-0.014	0.365	0.373	0.309	-0.485	-0.316	0.138	0.326	0.192	0.197	0.305	-0.197	-0.089	0.332	0.052	1.000	0.145	-0.018	-0.309
Y ppm	0.482	0.081	0.218	0.096	0.551	0.629	-0.114	0.721	0.873	0.565	0.154	0.771	0.724	0.228	0.015	-0.065	0.010	0.038	0.734	0.179	0.201	0.763	0.709	0.486	0.205	0.035	0.354	0.800	0.201	-0.170	-0.034	0.457	0.032	0.260	0.802	0.628	0.145	1.000	0.885	-0.035
Zn ppm	0.443	0.213	0.178	0.131	0.424	0.581	-0.089	0.611	0.792	0.571	0.031	0.720	0.793	0.327	0.166	0.094	0.047	-0.025	0.693	0.176	0.103	0.742	0.682	0.449	0.073	0.135	0.445	0.786	0.135	-0.154	-0.051	0.472	0.158	0.169	0.734	0.704	-0.018	0.885	1.000	0.136
Zr ppm	0.130	0.837	-0.023	0.143	-0.139	-0.056	0.180	-0.051	0.025	0.063	-0.340	-0.045	0.385	0.826	0.848	0.583	0.008	0.202	0.124	0.092	0.175	0.065	0.118	0.051	-0.393	0.324	0.366	0.264	-0.308	0.452	0.026	0.020	0.486	0.070	-0.075	0.471	-0.309	-0.035	0.136	1.000

395000 400000 405000 410000

100000 95000 90000 85000

L18600 L19400 L19800 L20200 L20400 L20600 L21000 L21400 L21800 L22000 L22200 L22600 L23000 L23400 L23800 L24000 L24200 L24600 L25000 L26000 L27000 L28000 L28800 L29000 L30000 L31000 L32000 L33000 L34000 L35000 L36000

Legenda

Cenozóico

Quaternário

- Aluvião
- Aluvião Mineralizado (Au)

Terciário

- Cobertura lateritica

Paleoproterozóico

Suíte Intrusiva

- Granito Amapari
- Granitóides indiferenciados
- Metatonalito Papavento

Grupo Vila Nova

- Formações ferríferas
- Biotita xistos e quartzitos
- Rochas carbonáticas e cálcio-silicáticas
- Almandina silimanita-biotita-quartzo xisto
  Biotita-quartzo xisto
  Muscovita/biotita-quartzo xisto
- Paranfibolitos
- Ortoanfibolito Jornal
- Metatonalito Água Fria

Anexo 39

PC1

- > 40
- 20 - 40
- < 20

Solo Au > 19 ppb

- Zona MinerNS
- Zona MinerNW
- Zona do Granito
- Zona dos Granitóides Indif.
- Zona da Máfica
- Zona dos Metassedim.

Scale 1:100000

1000 0 1000 2000 3000 4000 5000

metres

SAD69 / UTM zone 22N

Região do Depósito de Ouro do Amapari-AP

Geoquímica de Solo
Análise de Componentes Principais - PCA
Zona do Ortoanfibolito - PC1

Laboratório Chemex - Vancouver - Canadá

Orientadora - Profa. Dra. Lydia Maria Lobato

Élio Hiromi Horikava

395000 400000 405000 410000

100000 95000 90000 85000

L18600 L19400 L19800 L20200 L20600 L21000 L21400 L21800 L22000 L22200 L22600 L23000 L23400 L23800 L24000 L24200 L24600 L25000 L26000 L27000 L28000 L28800 L29000 L30000 L31000 L32000 L33000 L34000 L35000 L36000

Legenda

Cenozóico

Quaternário

- Aluvião
- Aluvião Mineralizado (Au)

Terciário

- Cobertura lateritica

Paleoproterozóico

Suíte Intrusiva

- Granito Amapari
- Granitóides indiferenciados
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Grupo Vila Nova

- Formações ferríferas
- Biotita xistos e quartzitos
- Rochas carbonáticas e cálcio-silicáticas
- Almandina silimanita-biotita-quartzo xisto
  Biotita-quartzo xisto
  Muscovita/biotita-quartzo xisto
- Paranfibolitos
- Ortoanfibolito Jornal
- Metatonalito Água Fria

Anexo 40

PC2

- > 75
- 60 - 75
- 40 - 60
- 20 - 40
- < 20

Solo Au > 19 ppb

- Zona MinerNS
- Zona MinerNW
- Zona do Granito
- Zona dos Granitóides Indif.
- Zona da Máfica
- Zona dos Metassedim.

Scale 1:100000

1000 0 1000 2000 3000 4000 5000

metres

SAD69 / UTM zone 22N

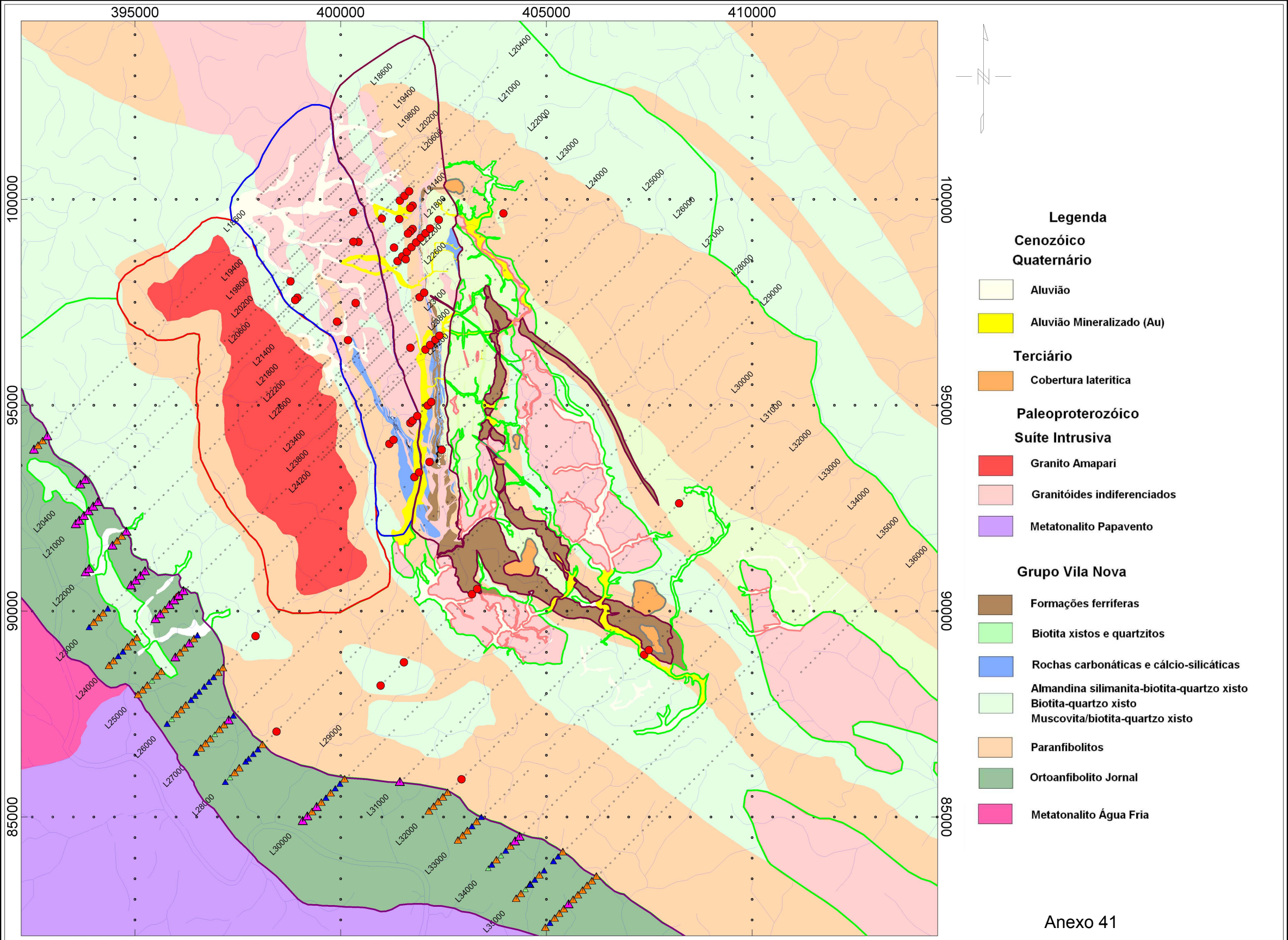
Região do Depósito de Ouro do Amapari-AP

Geoquímica de Solo
Análise de Componentes Principais - PCA
Zona do Ortoanfibolito - PC2

Laboratório Chemex - Vancouver - Canadá

Orientadora - Profa. Dra. Lydia Maria Lobato

Élio Hiromi Horikava



Anexo 41

Região do Depósito de Ouro do Amapari - AP
Geoquímica de Solo **Análise de Componentes Principais PCA** **Zona do Ortoanfibolito - PC3**
Laboratório Chemex - Vancouver - Canadá
Orientadora - Profa. Dra. Lydia Maria Lobato
Élio Hiromi Horikava

Ingrt Statistic

Channel	NumValid	Num>0	Dummies	Min	Max	Range	Mean	StdDev	Var	Sum	SumSq	GeoMean	Median	Mode	StdErr	Skewness	Kurtosis
Ag_ppm	97	97	0	0.01	0.39	0.38	0.049278	0.058135	0.00338	4.78	0.56	0.033064	0.03	0.02	0.005903	3.26122	13.3265
Al_perc	97	97	0	0.31	3.01	2.7	1.125361	0.527786	0.278558	109.16	149.586	1.017655	1.06	1.14	0.053589	1.15389	1.21694
As_ppm	97	97	0	0.1	25.9	25.8	1.895876	3.29447	10.8535	183.9	1390.59	0.920711	0.9	0.2	0.334503	4.7337	28.3443
Au_ppb	97	97	0	0.5	1	0.5	0.505155	0.050767	0.002577	49	25	0.503586	0.5	0.5	0.005155	9.54635	90.0615
Ba_ppm	97	97	0	0.1	48.2	48.1	5.458763	6.18064	38.2004	529.5	6557.65	4.135623	5	5	0.627549	4.70684	25.4298
Be_ppm	97	97	0	0.025	0.45	0.425	0.073969	0.084619	0.00716	7.175	1.218125	0.048728	0.025	0.025	0.008592	2.32412	5.63163
Bi_ppm	97	97	0	0.04	8.66	8.62	0.744227	1.41808	2.01095	72.19	246.7769	0.32493	0.37	0.05	0.143984	4.09916	17.3685
Ce_ppm	97	97	0	0.6	31.2	30.6	5.681546	5.97516	35.7026	551.11	6558.6029	3.981922	3.65	3.6	0.606686	2.53668	6.69622
Co_ppm	97	97	0	0.2	6.4	6.2	0.96701	1.02741	1.05557	93.8	192.04	0.728399	0.7	0.6	0.104317	3.70466	15.4018
Cr_ppm	97	97	0	39	476	437	176.5979	97.3418	9475.43	17130	3934764	150.0933	161	57	9.883565	0.734462	-0.073498
Cs_ppm	97	97	0	0.05	2.8	2.75	0.8	0.588784	0.346667	77.6	95.36	0.603628	0.65	0.45	0.059782	1.31208	1.554
Cu_ppm	97	97	0	0.8	25.6	24.8	6.709278	5.74877	33.0484	650.8	7539.04	5.065188	4.4	3.2	0.583699	1.76837	2.40015
Fe_perc	97	97	0	0.42	16	15.58	2.393918	2.34906	5.51807	232.21	1085.6261	1.782599	1.57	2.49	0.238511	3.01492	11.7618
Ga_ppm	97	97	0	2	18.75	16.75	6.01701	3.19274	10.1936	583.65	4490.4125	5.332269	5	4.2	0.324174	1.3953	2.02659
Hf_ppm	97	97	0	0.01	0.42	0.41	0.035928	0.048166	0.00232	3.485	0.347925	0.025713	0.025	0.025	0.004891	5.60604	39.5206
Hg_ppm	97	97	0	0.04	0.35	0.31	0.115155	0.052184	0.002723	11.17	1.5477	0.105279	0.11	0.11	0.005298	1.6194	4.08358
La_ppm	97	97	0	0.6	10	9.4	3.505155	1.87352	3.51008	340	1528.72	2.838105	4.8	5	0.190227	-0.01072	-0.363205
Li_ppm	97	97	0	0.05	1.9	1.85	0.384021	0.413102	0.170653	37.25	30.6875	0.240516	0.2	0.1	0.041944	1.95703	3.57371
Mn_ppm	97	97	0	10	1900	1890	88.5567	218.429	47711.4	8590	5341000	42.7973	35	20	22.17815	6.45461	47.5362
Mo_ppm	97	97	0	0.1	19.95	19.85	0.95	1.99999	3.99995	92.15	471.5375	0.672993	0.7	0.6	0.203068	8.85713	81.0085
Nb_ppm	97	97	0	0.1	7.65	7.55	0.610309	0.936553	0.877132	59.2	120.335	0.38475	0.4	0.2	0.095093	5.13656	32.2401
Ni_ppm	97	97	0	1	18	17	4.907216	3.34113	11.1632	476	3407.5	4.027435	4	3	0.339241	1.72743	3.34621
P_ppm	97	97	0	10	380	370	96.28866	62.9371	3961.08	9340	1279600	82.37271	70	50	6.390297	2.19075	5.51295
Pb_ppm	97	97	0	1	130	129	6.441237	13.9655	195.036	624.8	22747.92	3.665503	2.4	2	1.417984	7.3187	60.5632
Rb_ppm	97	97	0	0.2	23.7	23.5	2.986598	3.59762	12.9428	289.7	2107.73	1.930603	1.7	1	0.365283	3.19538	12.5154
S_perc	97	97	0	0.005	0.12	0.115	0.029536	0.021361	0.000456	2.865	0.128425	0.022774	0.03	0.01	0.002169	1.26432	2.17695
Sb_ppm	97	97	0	0.025	0.95	0.925	0.077577	0.152858	0.023366	7.525	2.826875	0.045397	0.05	0.05	0.01552	4.40586	19.6233
Sc_ppm	97	97	0	0.05	18.5	18.45	2.385052	2.89157	8.36115	231.35	1354.4525	1.049422	1.3	0.05	0.293594	2.58453	9.12647
Se_ppm	97	97	0	0.1	2.8	2.7	0.744845	0.526559	0.277265	72.25	80.4325	0.58776	0.5	0.5	0.053464	1.40207	2.11281
Sn_ppm	97	97	0	0.2	22	21.8	1.597938	2.38214	5.67458	155	792.44	1.113565	1	0.6	0.241869	6.67236	52.8977
Sr_ppm	97	97	0	0.2	4.2	4	1.058763	0.679269	0.461407	102.7	153.03	0.916711	1	1	0.068969	2.47541	7.07078
Te_ppm	97	97	0	0.005	0.19	0.185	0.034742	0.030639	0.000939	3.37	0.2072	0.025889	0.025	0.025	0.003111	2.63292	8.72445
Th_ppm	97	97	0	0.4	19.8	19.4	4.016495	2.96503	8.79139	389.6	2408.8	3.213441	3	2.6	0.301053	2.13331	6.99601
Tl_ppm	97	97	0	0.01	0.42	0.41	0.053711	0.074824	0.005599	5.21	0.8173	0.02907	0.02	0.02	0.007597	2.63098	7.34283
U_ppm	97	97	0	0.2	6.05	5.85	1.163918	1.06999	1.14488	112.9	241.315	0.890711	0.8	0.55	0.108641	2.44969	6.37162
V_ppm	97	97	0	1	157	156	33.05155	30.6007	936.404	3206	195858	22.29796	21	7	3.107032	1.70159	3.00508
W_ppm	97	97	0	0.025	2.45	2.425	0.147938	0.319213	0.101897	14.35	11.905	0.061265	0.05	0.025	0.032411	4.96667	29.2175
Y_ppm	97	97	0	0.25	5.5	5.25	0.815979	0.725415	0.526226	79.15	115.1025	0.672436	0.65	0.5	0.073655	4.3483	23.1654
Zn_ppm	97	97	0	1	28	27	5.896907	5.51227	30.3851	572	6290	4.137178	4	2	0.559686	1.91402	3.90345
Zr_ppm	97	97	0	0.25	12.5	12.25	1.554124	1.69452	2.87139	150.75	509.9375	1.019885	1	0.5	0.172052	3.36769	16.6877

Anexo 42

Fator de Correlacao - Granitoides Indiferenciados (Ingrt)

Anexo 43

	Ag ppm	Al perc	As ppm	Au ppb	Ba ppm	Be ppm	Bi ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe perc	Ga ppm	Hf ppm	Hg ppm	La ppm	Li ppm	Mn ppm	Mo ppm	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	S perc	Sb ppm	Sc ppm	Se ppm	Sn ppm	Sr ppm	Te ppm	Th ppm	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
Ag ppm	1.000	0.469	0.666	0.123	0.016	0.564	0.505	0.030	0.232	-0.221	0.091	0.484	0.602	0.664	0.207	0.108	-0.486	0.287	0.457	0.472	0.770	0.029	0.634	0.574	0.332	-0.271	0.192	0.579	0.487	0.736	0.076	0.392	0.339	0.573	0.568	0.263	0.680	0.113	0.573	0.388
Al perc	0.469	1.000	0.480	-0.004	0.441	0.620	0.466	-0.044	0.493	0.074	0.209	0.536	0.726	0.795	0.637	0.649	-0.016	0.524	0.517	0.341	0.409	0.437	0.588	0.346	0.185	0.378	0.399	0.447	0.408	0.605	0.026	0.491	0.603	0.600	0.402	0.564	0.378	0.092	0.668	0.687
As ppm	0.666	0.480	1.000	-0.054	0.086	0.478	0.373	-0.098	0.321	0.005	0.133	0.520	0.698	0.604	0.255	0.275	-0.307	0.194	0.417	0.507	0.384	0.205	0.700	0.435	0.312	-0.081	0.311	0.586	0.507	0.627	0.085	0.341	0.218	0.481	0.492	0.466	0.562	-0.044	0.523	0.375
Au ppb	0.123	-0.004	-0.054	1.000	-0.012	0.174	0.265	0.123	-0.029	-0.139	0.127	0.019	-0.107	-0.083	-0.036	-0.066	0.074	0.180	0.181	-0.189	0.113	-0.160	0.100	0.232	0.286	-0.114	-0.079	-0.026	0.003	-0.015	0.154	0.057	0.073	0.192	0.230	-0.343	-0.081	0.381	0.131	-0.156
Ba ppm	0.016	0.441	0.086	-0.012	1.000	0.424	0.206	0.232	0.516	0.237	0.318	0.274	0.346	0.200	0.454	0.464	0.466	0.508	0.491	0.064	0.031	0.458	0.227	0.317	0.206	0.390	0.398	0.118	0.051	0.197	0.137	0.451	0.360	0.491	0.377	0.320	0.079	0.429	0.482	0.240
Be ppm	0.564	0.620	0.478	0.174	0.424	1.000	0.536	0.012	0.589	0.119	0.248	0.702	0.725	0.558	0.424	0.370	-0.002	0.563	0.662	0.311	0.426	0.462	0.620	0.481	0.293	0.147	0.356	0.594	0.375	0.609	-0.045	0.556	0.404	0.682	0.583	0.521	0.529	0.310	0.785	0.410
Bi ppm	0.505	0.466	0.373	0.265	0.206	0.536	1.000	-0.205	0.416	0.064	0.443	0.529	0.442	0.381	0.292	0.334	-0.133	0.527	0.468	0.271	0.349	0.325	0.405	0.629	0.380	0.207	0.162	0.431	0.306	0.334	-0.267	0.521	0.190	0.588	0.542	0.343	0.493	0.319	0.494	0.163
Ce ppm	0.030	-0.044	-0.098	0.123	0.232	0.012	-0.205	1.000	0.077	-0.122	0.224	-0.159	-0.140	-0.088	-0.109	-0.111	0.334	0.227	0.205	0.122	0.317	-0.119	0.078	0.188	0.379	-0.204	-0.023	-0.152	0.063	0.088	0.375	-0.167	0.386	0.256	0.220	-0.368	-0.132	0.496	0.110	-0.076
Co ppm	0.232	0.493	0.321	-0.029	0.516	0.589	0.416	0.077	1.000	0.530	0.412	0.603	0.541	0.292	0.395	0.428	0.151	0.531	0.742	0.259	0.160	0.831	0.490	0.405	0.310	0.217	0.357	0.349	0.153	0.275	-0.102	0.332	0.244	0.540	0.480	0.496	0.357	0.415	0.580	0.229
Cr ppm	-0.221	0.074	0.005	-0.139	0.237	0.119	0.064	-0.122	0.530	1.000	0.263	0.206	0.076	-0.166	0.275	0.405	0.452	0.193	0.078	0.174	-0.300	0.770	-0.014	-0.070	0.138	0.372	0.127	-0.131	-0.136	-0.091	-0.154	0.158	-0.040	-0.086	0.090	0.226	0.031	0.262	0.079	-0.019
Cs ppm	0.091	0.209	0.133	0.127	0.318	0.248	0.443	0.224	0.412	0.263	1.000	0.183	0.064	-0.092	0.168	0.212	0.218	0.640	0.278	-0.043	0.126	0.265	0.232	0.377	0.745	0.066	0.087	0.067	0.129	-0.068	-0.200	0.177	-0.075	0.490	0.459	0.050	0.184	0.473	0.271	-0.153
Cu ppm	0.484	0.536	0.520	0.019	0.274	0.702	0.529	-0.159	0.603	0.206	0.183	1.000	0.749	0.557	0.268	0.409	-0.119	0.302	0.576	0.349	0.192	0.589	0.569	0.343	0.130	0.177	0.134	0.808	0.348	0.553	-0.018	0.519	0.372	0.512	0.498	0.771	0.389	0.072	0.740	0.372
Fe perc	0.602	0.726	0.698	-0.107	0.346	0.725	0.442	-0.140	0.541	0.076	0.064	0.749	1.000	0.792	0.443	0.488	-0.158	0.231	0.625	0.476	0.381	0.471	0.781	0.359	0.032	0.258	0.423	0.745	0.510	0.683	0.018	0.554	0.503	0.532	0.535	0.784	0.501	0.014	0.782	0.610
Ga ppm	0.664	0.795	0.604	-0.083	0.200	0.558	0.381	-0.088	0.292	-0.166	-0.092	0.557	0.792	1.000	0.466	0.469	-0.283	0.208	0.377	0.512	0.523	0.228	0.651	0.331	-0.043	0.188	0.169	0.648	0.498	0.780	0.145	0.394	0.674	0.453	0.348	0.593	0.408	-0.121	0.631	0.778
Hf ppm	0.207	0.637	0.255	-0.036	0.454	0.424	0.292	-0.109	0.395	0.275	0.168	0.268	0.443	0.466	1.000	0.547	0.141	0.465	0.289	0.277	0.156	0.462	0.187	0.164	0.089	0.339	0.418	0.161	-0.050	0.379	-0.005	0.379	0.399	0.343	0.070	0.425	0.382	0.063	0.370	0.618
Hg ppm	0.108	0.649	0.275	-0.066	0.464	0.370	0.334	-0.111	0.428	0.405	0.212	0.409	0.488	0.469	0.547	1.000	0.357	0.335	0.294	0.230	-0.044	0.593	0.423	0.170	0.030	0.652	0.367	0.215	0.211	0.330	0.022	0.584	0.500	0.299	0.294	0.541	0.163	0.128	0.411	0.414
La ppm	-0.486	-0.016	-0.307	0.074	0.466	-0.002	-0.133	0.334	0.151	0.452	0.218	-0.119	-0.158	-0.283	0.141	0.357	1.000	0.229	-0.008	-0.069	-0.396	0.300	-0.180	-0.065	0.068	0.509	0.102	-0.315	-0.171	-0.277	0.104	0.063	0.141	-0.024	-0.001	-0.085	-0.402	0.425	-0.037	-0.118
Li ppm	0.287	0.524	0.194	0.180	0.508	0.563	0.527	0.227	0.531	0.193	0.640	0.302	0.231	0.208	0.465	0.335	0.229	1.000	0.483	0.126	0.356	0.342	0.306	0.560	0.680	0.162	0.349	0.133	0.167	0.280	-0.204	0.330	0.223	0.742	0.452	0.116	0.392	0.435	0.494	0.090
Mn ppm	0.457	0.517	0.417	0.181	0.491	0.662	0.468	0.205	0.742	0.078	0.278	0.576	0.625	0.377	0.289	0.294	-0.008	0.483	1.000	0.249	0.411	0.464	0.637	0.595	0.348	0.058	0.483	0.452	0.331	0.413	0.105	0.372	0.345	0.702	0.526	0.357	0.447	0.425	0.658	0.235
Mo ppm	0.472	0.341	0.507	-0.189	0.064	0.311	0.271	0.122	0.259	0.174	-0.043	0.349	0.476	0.512	0.277	0.230	-0.069	0.126	0.249	1.000	0.476	0.252	0.317	0.205	0.130	0.074	0.068	0.352	0.370	0.597	0.127	0.179	0.478	0.208	0.272	0.303	0.457	0.105	0.303	0.471
Nb ppm	0.770	0.409	0.384	0.113	0.031	0.426	0.349	0.317	0.160	-0.300	0.126	0.192	0.381	0.523	0.156	-0.044	-0.396	0.356	0.411	0.476	1.000	-0.119	0.463	0.433	0.406	-0.326	0.116	0.316	0.435	0.642	0.152	0.138	0.380	0.543	0.442	-0.045	0.611	0.226	0.402	0.372
Ni ppm	0.029	0.437	0.205	-0.160	0.458	0.462	0.325	-0.119	0.831	0.770	0.265	0.589	0.471	0.228	0.462	0.593	0.300	0.342	0.464	0.252	-0.119	1.000	0.302	0.146	0.060	0.481	0.276	0.241	-0.034	0.197	-0.114	0.412	0.221	0.261	0.298	0.598	0.211	0.294	0.455	0.282
P ppm	0.634	0.588	0.700	0.100	0.227	0.620	0.405	0.078	0.490	-0.014	0.232	0.569	0.781	0.651	0.187	0.423	-0.180	0.306	0.637	0.317	0.463	0.302	1.000	0.544	0.287	0.113	0.393	0.573	0.564	0.564	0.059	0.436	0.401	0.609	0.663	0.463	0.466	0.189	0.712	0.315
Pb ppm	0.574	0.346	0.435	0.232	0.317	0.481	0.629	0.188	0.405	-0.070	0.377	0.343	0.359	0.331	0.164	0.170	-0.065	0.560	0.595	0.205	0.433	0.146	0.544	1.000	0.526	-0.097	0.313	0.299	0.361	0.360	-0.065	0.338	0.240	0.686	0.559	0.124	0.452	0.376	0.482	0.020
Rb ppm	0.332	0.185	0.312	0.286	0.206	0.293	0.380	0.379	0.310	0.138	0.745	0.130	0.032	-0.043	0.089	0.030	0.068	0.680	0.348	0.130	0.406	0.060	0.287	0.526	1.000	-0.245	0.128	0.048	0.255	0.196	-0.076	0.078	-0.012	0.634	0.503	-0.199	0.333	0.430	0.326	-0.215
S perc	-0.271	0.378	-0.081	-0.114	0.390	0.147	0.207	-0.204	0.217	0.372	0.066	0.177	0.258	0.188	0.339	0.652	0.509	0.162	0.058	0.074	-0.326	0.481	0.113	-0.097	-0.245	1.000	0.235	0.018	-0.017	-0.054	-0.036	0.375	0.280	0.003	0.042	0.384	-0.175	0.100	0.177	0.205
Sb ppm	0.192	0.399	0.311	-0.079	0.398	0.356	0.162	-0.023	0.357	0.127	0.087	0.134	0.423	0.169	0.418	0.367	0.102	0.349	0.483	0.068	0.116	0.276	0.393	0.313	0.128	0.235	1.000	0.072	0.092	0.192	-0.085	0.448	0.075	0.370	0.134	0.248	0.415	0.082	0.254	0.178
Sc ppm	0.579	0.447	0.586	-0.026	0.118	0.594	0.431	-0.152	0.349	-0.131	0.067	0.808	0.745	0.648	0.161	0.215	-0.315	0.133	0.452	0.352	0.316	0.241	0.573	0.299	0.048	0.018	0.072	1.000	0.407	0.528	-0.009	0.310	0.273	0.431	0.399	0.641	0.357	-0.144	0.638	0.444
Se ppm	0.487	0.408	0.507	0.003	0.051	0.375	0.306	0.063	0.153	-0.136	0.129	0.348	0.510	0.498	-0.050	0.211	-0.171	0.167	0.331	0.370	0.435	-0.034	0.564	0.361	0.255	-0.017	0.092	0.407	1.000	0.516	0.162	0.239	0.390	0.412	0.422	0.248	0.351	0.004	0.370	0.192
Sn ppm	0.736	0.605	0.627	-0.015	0.197	0.609	0.334	0.088	0.275	-0.091	-0.068	0.553	0.683	0.780	0.379	0.330	-0.277	0.280	0.413	0.597	0.642	0.197	0.564	0.360	0.196	-0.054	0.192	0.528	0.516	1.000	0.187	0.424	0.641	0.563	0.410	0.436	0.635	-0.041	0.639	0.578
Sr ppm	0.076	0.026	0.085	0.154	0.137	-0.045	-0.267	0.375	-0.102	-0.154	-0.200	-0.018	0.018	0.145	-0.005	0.022	0.104	-0.204	0.105	0.127	0.152	-0.114	0.059	-0.065	-0.076	-0.036	-0.085	-0.009	0.162	0.187	1.000	-0.099	0.324	-0.028	-0.062	-0.112	-0.137	0.115	0.026	0.252
Te ppm	0.392	0.491	0.341	0.057	0.451	0.556	0.521	0.167	0.332	0.158	0.177	0.519	0.554	0.394	0.379	0.584	0.063	0.330	0.372	0.179	0.138	0.412	0.436	0.338	0.078	0.375	0.448	0.310	0.239	0.424	-0.099	1.000	0.361	0.450	0.496	0.548	0.373	0.190	0.559	0.240
Th ppm	0.339	0.603	0.218	0.073	0.360	0.404	0.190	0.386	0.244	-0.040	-0.075	0.372	0.503	0.674	0.399	0.500	0.141	0.223	0.345	0.478	0.380	0.221	0.401	0.240	-0.012	0.280	0.075	0.273	0.390	0.641	0.324	0.361	1.000	0.365	0.323	0.320	0.128	0.177	0.525	0.562
Tl ppm	0.573	0.600	0.481	0.192	0.491	0.682	0.588	0.256	0.540	-0.086	0.490	0.512	0.532	0.453	0.343	0.299	-0.024	0.742	0.702	0.208	0.543	0.261	0.609	0.686	0.634	0.003	0.370	0.431	0.412	0.563	-0.028	0.450	0.365	1.000	0.627	0.278	0.510	0.327	0.718	0.191
U ppm	0.568	0.402	0.492	0.230	0.377	0.583	0.542	0.220	0.480	0.090	0.459	0.498	0.535	0.348	0.070	0.294	-0.001	0.452	0.526	0.272	0.442	0.298	0.663	0.559	0.503	0.042	0.134	0.399	0.422	0.410	-0.062	0.496	0.323	0.627	1.000	0.308	0.359	0.542	0.715	0.077
V ppm	0.263	0.564	0.466	-0.343	0.320	0.521	0.343	-0.368	0.496	0.226	0.050	0.771	0.784	0.593	0.425	0.541	-0.085	0.116	0.357	0.303	-0.045	0.598	0.463	0.124	-0.199	0.384	0.248	0.641	0.248	0.436	-0.112	0.548	0.320	0.278	0.308	1.000	0.278	-0.167	0.562	0.489
W ppm	0.680	0.378	0.562	-0.081	0.079	0.529	0.493	-0.132	0.357	0.031	0.184	0.389	0.501	0.408	0.382	0.163	-0.402	0.392	0.447	0.457	0.611	0.211	0.466	0.452	0.333	-0.175	0.415	0.357	0.351	0.635	-0.137	0.373	0.128	0.510	0.359	0.278	1.000	0.010	0.392	0.276
Y ppm	0.113	0.092	-0.044	0.381	0.429	0.310	0.319	0.496	0.415	0.262	0.473	0.072	0.014	-0.121	0.063	0.128	0.425	0.435	0.425	0.105	0.226	0.294	0.189	0.376	0.430	0.100	0.082	-0.144	0.004	-0.041	0.115	0.190	0.177	0.327	0.542	-0.167	0.010	1.000	0.279	-0.086
Zn ppm	0.573	0.668	0.523	0.131	0.482	0.785	0.494	0.110	0.580	0.079	0.271	0.740	0.782	0.631	0.370	0.411	-0.037	0.494	0.658	0.303	0.402	0.455	0.712	0.482	0.326	0.177	0.254	0.638	0.370	0.639	0.026	0.559	0.525	0.718	0.715	0.562	0.392	0.279	1.000	0.419
Zr ppm	0.388	0.687	0.375	-0.156	0.240	0.410	0.163	-0.076	0.229	-0.019	-0.153	0.372	0.610	0.778	0.618	0.414	-0.118	0.090	0.235	0.471	0.372	0.282	0.315	0.020	-0.215	0.205	0.178	0.444	0.192	0.578	0.252	0.240	0.562	0.191	0.077	0.489	0.276	-0.086	0.419	1.000

395000 400000 405000 410000

100000 95000 90000 85000

L18600 L19400 L19800 L20200 L20600 L21000 L21400 L21800 L22000 L22200 L22600 L23000 L23400 L23800 L24000 L24200 L24600 L25000 L26000 L27000 L28000 L29000 L30000 L31000 L32000 L33000 L34000 L35000 L36000

Legenda

Cenozóico

Quaternário

- Aluvião
- Aluvião Mineralizado (Au)

Terciário

- Cobertura lateritica

Paleoproterozóico

Suíte Intrusiva

- Granito Amapari
- Granitóides indiferenciados
- Metatonalito Papavento

Grupo Vila Nova

- Formações ferríferas
- Biotita xistos e quartzitos
- Rochas carbonáticas e cálcio-silicáticas
- Almandina silimanita-biotita-quartzo xisto
  Biotita-quartzo xisto
  Muscovita/biotita-quartzo xisto
- Paranfibolitos
- Ortoanfibolito Jornal
- Metatonalito Água Fria

Anexo 44

PC1

- > 55
- 40 - 55
- 20 - 40
- < 20

Solo Au > 19 ppb

- Zona MinerNS
- Zona MinerNW
- Zona do Granito
- Zona dos Granitóides Indif.
- Zona da Máfica
- Zona dos Metassedim.

Scale 1:100000

1000 0 1000 2000 3000 4000 5000

metres

SAD69 / UTM zone 22N

Região do Depósito de Ouro do Amapari-AP

Geoquímica de Solo
Análise de Componentes Principais - PCA
Zona dos Granitóides Indiferenciados - PC1

Laboratório Chemex - Vancouver - Canadá

Orientadora - Profa. Dra. Lydia Maria Lobato

Élio Hiromi Horikava

395000 400000 405000 410000

100000 95000 90000 85000

Legenda

Cenozóico

Quaternário

- Aluvião
- Aluvião Mineralizado (Au)

Terciário

- Cobertura lateritica

Paleoproterozóico

Suíte Intrusiva

- Granito Amapari
- Granitóides indiferenciados
- Metatonalito Papavento

Grupo Vila Nova

- Formações ferríferas
- Biotita xistos e quartzitos
- Rochas carbonáticas e cálcio-silicáticas
- Almandina silimanita-biotita-quartzo xisto
  Biotita-quartzo xisto
  Muscovita/biotita-quartzo xisto
- Paranfibolitos
- Ortoanfibolito Jornal
- Metatonalito Água Fria

Anexo 45

PC2

- > 70
- 50 - 70
- 30 - 50
- < 30

Solo Au > 19 ppb

- Zona MinerNS
- Zona MinerNW
- Zona do Granito
- Zona dos Granitóides Indif.
- Zona da Máfica
- Zona dos Metassedim.

Scale 1:100000

1000 0 1000 2000 3000 4000 5000

metres

SAD69 / UTM zone 22N

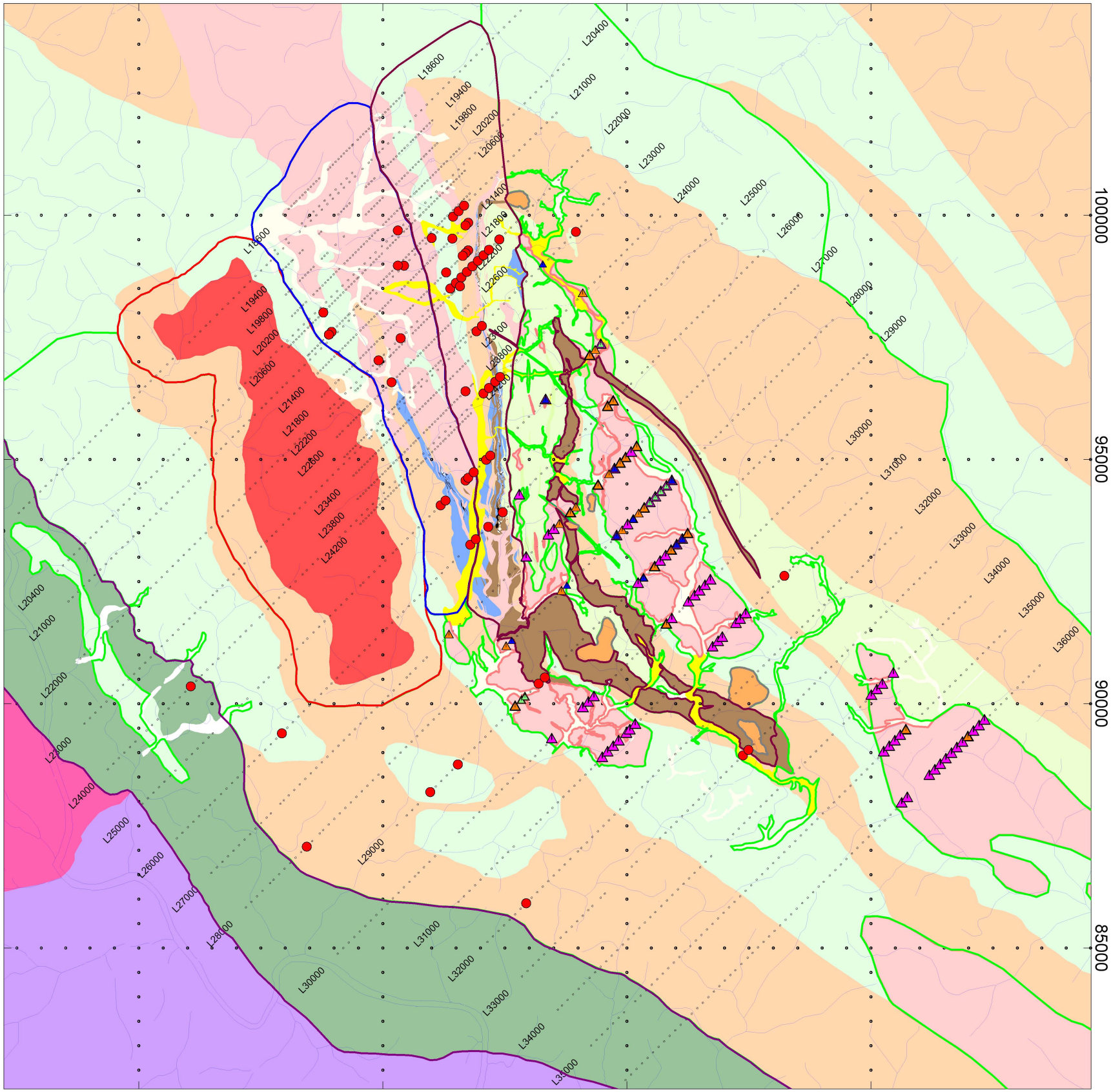
Região do Depósito de Ouro do Amapari-AP

Geoquímica de Solo
Análise de Componentes Principais - PCA
Zona dos Granitóides Indiferenciados - PC2

Laboratório Chemex - Vancouver - Canadá

Orientadora - Profa. Dra. Lydia Maria Lobato

Élio Hiromi Horikava



Legenda

Cenozóico

Quaternário

- Aluvião
- Aluvião Mineralizado (Au)

Terciário

- Cobertura lateritica

Paleoproterozóico

Suíte Intrusiva

- Granito Amapari
- Granitóides indiferenciados
- Metatonalito Papavento

Grupo Vila Nova

- Formações ferríferas
- Biotita xistos e quartzitos
- Rochas carbonáticas e cálcio-silicáticas
- Almandina silimanita-biotita-quartzo xisto
  Biotita-quartzo xisto
  Muscovita/biotita-quartzo xisto
- Paranfibolitos
- Ortoanfibolito Jornal
- Metatonalito Água Fria

Anexo 46

PC3

>	55
30 -	55
20 -	30
<	20

Solo Au >19 ppb

- Zona MinerNS
- Zona MinerNW
- Zona do Granito
- Zona dos Granitóides Indif.
- Zona da Máfica
- Zona dos Metassedim.

Scale 1:100000

1000 0 1000 2000 3000 4000 5000

metres

SAD69 / UTM zone 22N

Região do Depósito de Ouro do Amapari - AP
Geoquímica de Solo **Análise de Componentes Principais PCA** **Zona dos Granitóides Indiferenciados - PC3**
Laboratório Chemex - Vancouver - Canadá
Orientadora - Profa. Dra. Lydia Maria Lobato
Élio Hiromi Horikava