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Lithogeochemistry and zircon U-Pb geochronology of the Granjeiro Complex and associated units, Curral Novo do Piauí, NW-Borborema Province, Brazil: implications for Archean to Paleoproterozoic crustal evolution

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APPENDIX 1. Table with chemical analysis of major elements (wt. %) and traces (ppm) of the granodioritic to tonalitic orthogneisses of the Granjeiro Complex.

Sample	CB-03	DS-17B	CB-R-18A	CB-R-48	DS-12B	CB-11	DS-10	DS-12A	DS-20	DS-R-25
Major elements (wt. %)										
SiO_2	70.59	68.56	70.3	66.6	65.74	63.51	63.7	71.16	69.35	68.8
TiO_2	0.26	0.56	0.3	0.45	0.48	0.83	0.91	0.11	0.23	0.4
Al_2O_3	14.69	12.77	15.3	16.3	15.96	16.21	12.05	14.96	14.35	15.8
Fe_2O_3T	2.39	5.15	3.14	3.99	3.24	4.57	7.72	1.45	2.33	3.86
MgO	0.64	1.64	1.54	0.79	1.02	1.54	1.37	0.26	0.41	1.09
CaO	2.08	1.29	2.18	2.08	2.63	3.12	2.6	1.58	1.5	2.5
Na_2O	4.75	4.3	3.51	4.15	4.32	4.19	3.33	4.14	3.93	4.82
K_2O	2.54	2.44	4.3	4.47	3.93	2.45	2.85	4.4	4.2	2.34
P_2O_5	0.06	0.09	0.09	0.132	0.15	0.28	0.22	0.03	0.09	0.132
LOI	0.15	0.32			0.17	0.51	1.15	0.13	0.38	0.35
Total	98.150	97.120	100.660	98.962	97.640	97.210	95.900	98.220	96.770	99.742
Trace elements (ppm)										
Cr	4	<1	4	8.2	13	2	6	<1	<1	8
Ni	8.1	<0,5	5.9	11.6	8.2	1.6	7.3	1.8	1.1	8.2
Co	4.9	7.3	7.2	116.95	9.1	6.6	17.4	1.9	3.2	9
Ba	297	479	1306	1	1667	1061	1072	562	1548	455
Sr	134.5	42.6	297.4	4.3	556.5	548.1	143.2	229.1	308.9	289.4
Zr	131.1	353.1	141.3	42	95.1	88.2	246.8	65.9	176.6	41.1
Nb	18.2	38.3	7.7	2.98	16.3	41.5	21.1	8.3	19	7.7
Y	23	82.2	9.97	11.14	7.02	43.8	76.9	5.6	17.24	6.82
V	13	32	16	1.5	33	43	30	11	14	20
La	19.3	122.3	135.3	3.23	38.1	105.3	72.4	10.7	91.6	24.1
Ce	31.63	194.26	221.58	<0.02	70.67	156.21	108.48	19.34	142.17	45.46
Pr	6.29	21.7	21.87	15.11	9.3	20.72	11.13	3.06	16.56	8.06
Nd	21.2	80.5	68	49.9	31.8	75.1	43.2	10.8	52.7	29.1
Sm	4.1	15.9	8.2	6.8	4.5	13.4	9	1.7	7.8	4.2
Eu	0.82	2.07	1.26	1.29	1.15	2.46	1.82	0.44	1.2	0.9
Gd	3.91	16.23	4.58	4.24	2.99	11.84	10.42	1.32	5.74	2.75
Tb	0.68	2.61	0.53	0.51	0.34	1.7	1.63	0.18	0.75	0.31
Dy	4.23	17.04	2.35	2.51	1.58	9.55	10.21	0.93	3.62	1.43
Ho	0.86	3.47	0.37	0.44	0.26	1.77	2.08	0.18	0.68	0.26
Er	2.5	10.34	0.96	1.07	0.69	4.86	6.08	0.56	1.83	0.65
Tm	0.36	1.48	0.13	0.15	0.11	0.62	0.87	0.09	0.25	0.1
Yb	2.2	9.8	0.7	0.9	0.6	3.8	5.4	0.6	1.6	0.5
Lu	0.31	1.39	0.09	0.11	0.08	0.52	0.78	0.11	0.23	0.09
Cs	2.33	1.07	2.02	1.7	3.75	1.26	0.72	3.33	1.15	1.71
Rb	83.7	85.7	150.2	118.8	134.8	63.5	87	158.8	97.8	70.2
Th	7	25.9	58.5	40.7	9.3	14.2	12	14.2	38	11.4
U	2	3.51	3.36	2.38	1.79	1.16	2.95	3.22	2	0.61
Ta	0.57	2.14	0.58	0.79	0.46	1.98	1.24	1.21	0.68	0.23
Pb	15.6	5.8	32.3	406	30.5	17.3	13.5	41.7	17.8	10.2

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APPENDIX 2. Table with chemical analysis of major elements (wt. %) and traces (ppm) of the syenogranitic to syenitic orthogneisses of the Granjeiro Complex.

Sample	JR-R-298	JR-R-333	JR-R-299	JR-R-300
Major elements (wt. %)				
SiO_2	73.3	73.2	74.4	74.1
TiO_2	0.35	0.35	0.38	0.36
Al_2O_3	12.5	12	12.2	12.3
Fe_2O_3T	4.13	4.29	4.45	4.58
MgO	0.17	0.12	<0.1	0.13
CaO	1.36	1	1.54	1.07
Na_2O	3.32	2.53	3.57	3.03
K_2O	4.87	5.67	3.7	4.43
P_2O_5	0.052	0.046	0.045	0.048
LOI	0.04	0.29	0.18	0.35
Total	100.092	99.496	100.465	100.398
Trace elements (ppm)				
Cr	3	2	<1	<1
Ni	3	2	<1	<1
Co	3	2.5	2.3	1.9
Ba	1191	1151	1322	1358
Sr	88	48.4	98.8	60.4
Zr	561.9	628.9	547.3	646.4
Nb	37.5	41.64	36.26	35.02
Y	66.79	91.96	105.17	71.69
V	5	3	1	2
La	26.5	42.4	105.9	19.1
Ce	173.7	168.7	224.3	141.6
Pr	7	11.16	27.36	4.7
Nd	28	43.1	100.1	19
Sm	8.1	10.6	21	5.8
Eu	1.48	1.6	3.54	1.3
Gd	9.87	12.14	20.02	8.4
Tb	1.87	2.39	3.46	1.75
Dy	12.9	16.48	22.18	12.99
Ho	2.72	3.62	4.49	2.81
Er	8.22	11.21	13.53	8.79
Tm	1.24	1.68	2.02	1.38
Yb	8.3	11	13.4	8.8
Lu	1.16	1.56	1.82	1.16
Cs	0.17	0.58	0.08	0.28
Rb	134	162	60.4	96.6
Th	19.5	16.4	21.9	19.2
U	3.07	1.74	2.33	1.4
Ta	2.63	2.04	2.45	2.63
Pb	19.6	10.4	9.6	13.2

APPENDIX 3. Table with chemical analysis of major elements (wt. %) and traces (ppm) of the metamafic rocks of the Granjeiro Complex.

Sample	DS-07	CB-05	CB-10	DS-R-06C	JR-R-311	JR-R-323A	JR-R-321	JR-R-303	JR-R-329A	JR-R-316A	JR-R-342i	JR-R-340A	JR-R-340G	JR-R-341E	JR-R-342F	JR-R-344	JR-R-346
Major elements (wt. %)																	
SiO_2	51.38	50.4	54.6	52.4	51	50.1	50.3	55.1	49.3	50.4	42.1	47.3	51	45.7	46.1	52.5	49.7
TiO_2	0.73	1.17	1.02	0.67	1.15	1.41	1.35	0.74	1.08	1.4	1.53	1.04	2.11	1.27	0.96	0.9	1.66
Al_2O_3	12.48	13.88	14.9	11	13.6	14.2	14.7	10.5	13.7	14.1	17.3	16.3	12.7	12.8	13.5	13.1	13.2
Fe_2O_3T	10.47	14.68	10.68	11.9	14.9	12.2	14.5	11.7	14.2	14.2	16.2	13.9	18	23.9	13.4	13.6	16.8
MgO	8.86	6.76	6.55	10.5	6.43	7.1	6.52	9.19	7.57	6.73	8.88	7.69	4.64	5.99	7.42	7.67	5.47
CaO	10.88	9.34	9.03	10.7	9.59	10.6	10.5	9.38	10.2	10	7.77	8.92	8.66	5.7	6.99	8.65	8.36
Na_2O	2.09	2.62	2.91	1.69	2.38	3.11	1.94	2.04	2.92	2.23	2.71	3.03	2.45	0.72	1.64	2.81	2.56
K_2O	0.42	0.27	0.34	0.33	0.4	0.78	0.21	0.83	0.63	0.27	2.61	0.8	0.44	3.94	6.61	0.73	1.26
P_2O_5	0.07	0.09	0.12	0.076	0.114	0.177	0.122	0.092	0.096	0.124	0.113	0.132	0.235	0.121	0.081	0.09	0.157
LOI	0.73	0.4	0.46	0.99	0.55	0.55	0.71	0.82	0.49	0.87	1.11	0.84	0.75	0.77	3.24	0.67	1.23
Total	98.110	99.610	100.610	100.256	100.114	100.227	100.852	100.392	100.186	100.324	100.323	99.952	100.985	100.911	99.941	100.720	100.397
Trace elements (ppm)																	
Cr	153	28	71	65.5	29	97	62	249	20	95	55	40	10	87	87	36	9
Ni	205.7	55	86.4	2.6	50	161	89	218	77	109	129	196	52	90	101	82	60
Co	65.1	64.1	54	9.47	44.4	46.7	47.2	56.8	55.1	50.5	80	69.3	54.7	63.3	52.2	52.6	61
Ba	121	175	51	2	86	122	30	47	84	47	740	119	36	504	1012	104	215
Sr	148.8	137.3	249.3	0.9	129.9	213.5	144.2	92	140.6	194.1	273.6	173.7	138.7	19.1	286.6	112.3	166.7
Zr	19.8	19	49.5	67	58.4	38.6	68.4	49.9	92.6	74.1	92.3	101.3	171.1	119.7	58	56.8	112.9
Nb	8.1	5.8	10.3	1.43	2.77	2.96	3.11	2.78	3.62	3.76	5.2	5.7	9.5	7.06	3.71	3.61	6.46
Y	20.3	28.3	26.3	0.4	21.13	21.84	21.98	14.07	19.37	22.33	21.79	22.26	38.85	27.41	13.5	18.01	29.04
V	232	289	220	0.1	213	268	279	196	258	281	204	99	172	200	126	156	196
La	8.3	8.4	20.6	0.28	4.1	7.3	6.3	6.3	9.7	19.2	9.7	10.6	16.7	24.8	5.2	5.6	9
Ce	14.08	15.38	38.64	0.08	9.3	12.3	11.6	8.4	13.9	11.7	16.2	20.8	31.9	30.1	10.1	10.9	20.5
Pr	1.44	2.04	3.84	0.82	1.6	1.92	1.83	1.27	2.45	1.87	2.32	2.83	4.56	3.87	1.55	1.59	3.12
Nd	6.5	10.1	16	3.9	7.8	9.3	8.7	5.5	11	9.3	11.2	12	20.7	16.6	7.4	7.4	15.2
Sm	1.9	3.1	3.7	1.3	2.5	2.7	2.7	1.7	2.9	3	3.4	3.1	5.4	4	2.2	2.2	4.5
Eu	0.74	1.12	1.11	0.5	0.89	1.22	0.94	0.64	1.01	1.06	1.63	1.07	1.84	1.05	0.8	0.8	1.52
Gd	2.58	3.81	4.05	1.78	3.28	3.43	3.46	2.36	3.64	3.79	3.85	3.91	6.78	4.92	2.77	3.15	5.32
Tb	0.44	0.68	0.66	0.34	0.55	0.62	0.57	0.39	0.6	0.62	0.66	0.64	1.17	0.87	0.41	0.52	0.89
Dy	3.03	4.29	4	2.37	3.6	4	3.84	2.65	3.63	4.21	4.17	4.1	7.44	5.32	2.66	3.46	5.7
Ho	0.62	0.89	0.8	0.51	0.77	0.85	0.8	0.57	0.73	0.91	0.85	0.88	1.51	1.06	0.55	0.71	1.15
Er	1.84	2.63	2.34	1.49	2.4	2.46	2.36	1.6	2.18	2.51	2.56	2.63	4.32	2.93	1.43	2.02	3.35
Tm	0.26	0.38	0.33	0.23	0.33	0.35	0.34	0.22	0.31	0.38	0.34	0.38	0.64	0.39	0.23	0.33	0.5
Yb	1.7	2.4	2.2	1.4	2.2	2.4	2.3	1.5	2	2.5	2.2	2.4	4.4	2.5	1.3	2	3.2
Lu	0.24	0.36	0.31	0.21	0.31	0.37	0.35	0.13	0.24	0.3	0.25	0.3	0.56	0.3	0.11	0.24	0.42
Cs	0.74	<0,05	0.4	0.24	0.11	0.14	0.26	0.34	0.14	0.51	18.57	0.73	0.12	11.14	21.23	0.71	1.79
Rb	11.4	3.8	7.9	4.7	6.7	8.1	4.3	22.4	12.3	2.1	176.9	18.1	4.4	194.6	611.5	27.3	51.9
Th	4.8	0.2	13	0.7	<0.1	<0.1	<0.1	1.4	1.3	0.7	3.1	2.6	3.1	2.6	0.9	1.1	0.8
U	0.33	0.14	0.56	0.07	0.06	0.29	0.16	0.76	0.31	0.14	0.38	0.59	0.35	0.9	0.24	0.2	0.16
Ta	0.6	<0,05	1.47	0.17	<0.05	<0.05	<0.05	0.69	0.33	0.21	0.18	0.29	0.8	0.45	0.09	0.11	0.27
Pb	2.8	5.3	8.6	279	9.8	11.8	3	6.3	17.3	5.3	29.3	14.4	9.5	7.4	28.8	28.2	15

APPENDIX 4. Table with chemical analysis of major elements (wt. %) and traces (ppm) of the metaultramafic rocks of the Granjeiro Complex.

Sample	DS-R-23A	JR-R-332	JR-R-315	JR-R-327	JR-R-309	CB-R-07A
Elementos maiores (%)						
SiO_2	49.7	50.9	48.9	44.7	44.4	51.4
TiO_2	0.23	0.3	0.43	1.13	1.72	0.47
Al_2O_3	10.1	4.92	6.14	6.86	7.47	4.55
Fe_2O_3T	7.52	9.31	12.8	15.1	15.3	11.4
MgO	11.5	19.6	20.1	20.5	18.1	20.3
CaO	18	12.2	8.54	8.5	8.48	9.54
Na_2O	0.85	0.91	0.24	0.46	0.32	0.23
K_2O	0.28	0.25	0.02	0.08	0.04	0.02
P_2O_5	0.073	0.038	0.06	0.125	0.159	0.06
LOI	1.12	1.58	3.19	3.62	3.82	3.05
Total	99.373	100.008	100.420	101.075	99.809	101.020
Elementos traços (ppm)						
Cr	343	721	625	612	455	609
Ni	237.7	392	567	939	665	526
Co	65	66.9	80.5	94.5	48.9	77.3
Ba	35	63	10	15	14	12
Sr	80.8	88.7	6	39.3	18.2	11.5
Zr	10.4	24.9	60.1	73	166.1	79.1
Nb	2	1.59	4.19	4.9	14.5	4.71
Y	14.7	11.31	23.55	16.52	19.22	14.17
V	112	119	109	201	169	100
La	8.3	6.4	17.4	9.5	15.1	7.1
Ce	15.73	11.6	19.2	17.4	31.2	9.2
Pr	1.98	1.76	3.78	2.8	4.85	1.66
Nd	7.9	7.4	15.4	13	20.9	7.6
Sm	1.5	1.8	3.4	3.3	5	2
Eu	0.43	0.5	0.67	0.92	1.36	0.6
Gd	1.67	1.89	3.83	3.53	5.17	2.76
Tb	0.28	0.32	0.57	0.56	0.81	0.43
Dy	1.98	1.98	3.49	3.46	4.5	2.58
Ho	0.43	0.42	0.71	0.63	0.8	0.55
Er	1.36	1.2	2.03	1.86	2.32	1.54
Tm	0.22	0.19	0.28	0.24	0.29	0.2
Yb	1.4	1.2	1.8	1.6	1.7	1.3
Lu	0.21	0.18	0.27	0.26	0.17	0.15
Cs	0.48	<0.05	0.05	0.06	0.05	0.05
Rb	2.2	2.4	0.3	0.7	0.3	0.5
Th	1	0.2	0.8	0.3	3.5	2.4
U	0.16	0.26	0.39	0.24	0.45	0.55
Ta	0.08	<0.05	<0.05	<0.05	1.01	0.42
Pb	3.3	6.7	3	3.1	3.2	2.1

APPENDIX 5. Table with chemical analysis of major elements (wt. %) and traces (ppm) of the banded iron rocks of the Granjeiro Complex.

Sample	JR-R-334	JR-R-312	JR-R-305	JR-R-311B	JR-R-316B	JR-R-314	JR-R-287	JR-R-313	JR-R-318	JR-R-340B	JR-R-340D	JR-R-340F	JR-R-341B	JR-R-341D	JR-R-341F	JR-R-342E
Major elements (wt. %)																
SiO_2	41.8	50.6	41.1	34.9	42.4	42.1	44.1	29.2	45.1	40	37.9	40	48.5	40.2	43.7	45.4
TiO_2	0.02	0.02	0.02	0.02	0.02	0.01	0.03	0.02	0.02	0.03	0.02	0.03	0.28	0.04	0.05	0.09
Al_2O_3	0.46	0.61	0.48	0.65	0.56	0.39	0.59	0.69	0.51	0.4	0.23	0.54	4.38	0.42	0.72	1.04
Fe_2O_3T	56.6	49.6	56.2	63.1	55.9	55.1	53.2	67.1	53.6	56.5	60.1	57.6	41	58.3	51.2	50.1
MgO	0.88	0.31	0.96	0.67	0.27	0.91	1.13	1.69	0.54	1.66	1.53	1.64	2.39	1.66	1.61	1.96
CaO	0.36	0.12	0.9	0.49	0.17	0.57	0.66	0.39	0.05	2.23	1.4	1.21	1.76	0.87	1.5	1.46
Na_2O	0.26	<0.1	0.1	0.13	<0.1	0.11	0.11	0.71	<0.1	0.14	0.12	0.21	0.26	0.22	0.13	0.11
K_2O	0.32	0.31	0.02	0.3	0.12	0.22	0.39	0.47	0.23	0.03	0.12	0.2	1.46	0.28	0.21	0.29
P_2O_5	0.049	0.132	0.062	0.072	0.051	0.051	0.033	0.049	0.088	0.098	0.069	0.076	0.125	0.059	0.111	0.118
LOI	0.29	-0.63	0.63	0.36	0.51	0.35	0.39	0.41	0.61	-0.95	-1.29	-1.4	-0.3	-1.46	-1.42	-1.18
Total	101.039	101.072	100.472	100.692	100.001	99.811	100.633	100.729	100.748	100.138	100.199	100.106	99.855	100.589	97.811	99.388
Trace elements (ppm)																
Cr	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	23	<1	<1	<1
Ni	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	11.4	<0.5	<0.5	<0.5
Co	1.7	6.7	1.1	1.4	2.1	1.4	1.3	1.2	1.4	1.9	0.9	1.2	10.8	1.3	2.1	4.4
Ba	71	70	<5	573	136	447	265	64	485	<5	32	<5	230	19	14	23
Sr	4.1	9.4	10.4	17.2	6.1	21	9.6	6.1	19.1	30.1	20.3	16.4	9.3	7	21.2	10.9
Zr	8	8.8	8	8.8	8.5	8.2	7.6	7.9	8.5	9.9	8.9	9.2	51.9	9.4	15.4	10.5
Nb	0.6	0.8	0.7	0.5	0.5	0.8	0.5	0.4	0.6	0.4	0.5	0.6	4.8	0.4	0.7	1.4
Y	3.32	8.53	10	5.29	20.28	37.72	4.91	10.59	9.32	3.56	3.97	5.23	15.32	4.19	5.07	5.54
V	11	23	17	10	13	12	11	11	12	13	12	13	40	14	14	22
La	3.6	1.5	3.4	1.9	26.2	16.6	3.8	4.4	8.3	1.3	1.1	1.7	9.4	1.4	1.8	2.6
Ce	9.1	2.79	3.54	2.77	30.63	13.81	4.33	3.61	8.01	2.33	1.85	3.06	18.09	2.37	3.5	5.17
Pr	1.01	0.43	0.85	0.63	6.72	3.87	1.18	0.89	1.45	0.48	0.45	0.67	2.82	0.62	0.59	0.8
Nd	4.1	1.8	3.5	2.6	23.4	15.5	4.7	3.5	5.7	1.9	1.6	2.4	10.7	2.2	2.2	3.2
Sm	0.7	0.4	0.7	0.5	4.6	3.2	1	0.6	1	0.3	0.2	0.4	2.2	0.4	0.6	0.7
Eu	0.15	0.14	0.2	0.15	1.13	0.99	0.2	0.2	0.31	0.08	0.05	0.1	0.62	0.08	0.14	0.16
Gd	0.54	0.79	0.96	0.62	3.61	3.99	0.87	0.92	1.28	0.37	0.38	0.51	2.37	0.54	0.6	0.65
Tb	0.08	0.15	0.16	0.1	0.62	0.61	0.13	0.15	0.18	0.06	0.07	0.09	0.35	0.08	0.1	0.13
Dy	0.42	1.06	1.08	0.64	3.53	3.89	0.75	0.88	1.04	0.35	0.38	0.56	2.17	0.42	0.63	0.73
Ho	0.09	0.25	0.24	0.13	0.65	0.86	0.14	0.23	0.24	0.08	0.09	0.12	0.46	0.09	0.15	0.16
Er	0.28	0.71	0.66	0.45	1.87	2.52	0.41	0.71	0.65	0.25	0.29	0.38	1.33	0.32	0.43	0.51
Tm	<0.05	0.1	0.14	0.07	0.28	0.36	0.07	0.09	0.08	<0.05	<0.05	0.06	0.21	<0.05	0.06	0.09
Yb	0.2	0.6	0.7	0.4	1.6	2	0.4	0.6	0.6	0.2	0.2	0.3	1.2	0.2	0.4	0.5
Lu	<0.05	0.07	0.14	0.06	0.2	0.3	0.05	0.09	0.08	<0.05	<0.05	<0.05	0.11	<0.05	<0.05	<0.05
Cs	0.07	0.69	0.06	0.09	0.25	0.26	0.5	0.06	1.89	0.13	<0.05	0.43	4.5	0.25	1.28	1.3
Rb	4.6	19.7	0.6	5.5	3.1	8.6	13.1	15.4	37.1	1.5	3.4	12.8	80.2	12.2	13.8	18.7
Th	1.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.8	0.7	0.7	3.5	1	0.9	2.4
U	0.13	0.13	0.4	0.14	0.14	0.1	0.14	0.14	0.06	0.11	0.39	0.21	0.99	0.21	0.24	0.21
Ta	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.47	0.07	<0.05	<0.05
Pb	2.4	2.8	1.4	3.1	9.5	5.7	4.1	2.3	21.7	2.6	3	2.7	8.6	1.8	28.7	1.3

APPENDIX 6. Summary of LA-ICP-MS data of zircons from the migmatitic orthogneiss sample (CB-03).

CB-03																			
									Ratios					Ages					
Spot	f(206)	^{204}Pb	^{206}Pb	Th/U	$^{206}Pb/^{204}Pb$	1σ	$^{207}Pb/^{206}Pb$	1σ	$^{207}Pb/^{235}U$	1s	$^{206}Pb/^{238}U$	1σ	Rho	$^{207}Pb/^{206}Pb$	2σ	$^{206}Pb/^{238}U$	2σ	$^{207}Pb/_{235}U$	2σ	U-Pb disc
12	0.01	14	0.0050	0.24	188518	21.04	0.27490	1.27	27.079	1.49	0.71439	0.69	0.46	3334	39	3475	37	3386	29	-4.22
13	0.05	49	0.0121	0.18	30610	26.63	0.27805	1.21	25.185	2.36	0.65689	1.99	0.84	3352	38	3255	101	3315	46	2.89
18	0.02	26	0.0038	0.20	65692	24.26	0.27387	0.96	26.889	1.19	0.71202	0.60	0.51	3328	30	3466	32	3379	23	-4.14
22	0.01	12	0.0039	0.59	170006	23.75	0.27730	0.77	27.468	1.02	0.71836	0.57	0.55	3348	24	3490	31	3400	20	-4.24
23	0.00	22	0.0121	0.18	291283	29.28	0.27532	0.72	26.813	1.07	0.70626	0.69	0.65	3337	22	3444	37	3377	21	-3.23
24	0.01	11	0.0070	0.26	238237	19.07	0.27911	0.90	27.245	1.10	0.70791	0.53	0.48	3358	28	3451	28	3392	22	-2.76
25	0.03	13	0.0015	0.43	39897	22.63	0.28121	1.67	25.837	2.27	0.66633	1.50	0.66	3370	52	3292	77	3340	44	2.31
26	0.03	40	0.0028	0.41	43103	52.78	0.27374	1.32	25.578	1.70	0.67763	1.01	0.59	3328	41	3335	52	3331	33	-0.23
34	0.01	248	0.0126	0.32	99967	54.70	0.27962	1.18	26.537	1.46	0.68825	0.77	0.53	3361	37	3376	40	3367	28	-0.45
3	1.30			0.09	1023		0.28091	1.44	21.306	3.81	0.55008	3.48	0.92	3368	22	2826	80	3153	36	83.89
5	0.28	300	0.0185	0.08	5466	17.68	0.12462	1.27	6.454	1.42	0.37563	0.53	0.37	2023	45	2056	19	2040	25	-1.60
6	0.00	17	0.0278	0.25	694547	25.57	0.11949	0.60	6.189	0.86	0.37563	0.49	0.57	1949	21	2056	17	2003	15	-5.50
7	0.00	21	0.0305	0.20	842212	23.73	0.11905	0.60	6.287	0.87	0.38296	0.50	0.58	1942	22	2090	18	2017	15	-7.63
9	0.58	993	0.0253	0.06	2618	19.35	0.12422	1.33	6.515	1.49	0.38036	0.57	0.38	2018	47	2078	20	2048	26	-2.99
11	0.02	578	0.0292	0.24	78435	61.83	0.12759	1.47	6.860	1.64	0.38993	0.60	0.37	2065	52	2123	22	2094	29	-2.78
17	0.00	105	0.0326	0.26	321985	54.90	0.11779	0.70	6.501	1.00	0.40029	0.62	0.62	1923	25	2170	23	2046	18	-12.87
32	0.12	228	0.0214	0.00	12728	17.60	0.12788	1.19	7.202	1.43	0.40844	0.70	0.49	2069	42	2208	26	2137	25	-6.71
33	0.04	150	0.0107	0.00	43284	47.38	0.11803	1.38	5.403	1.55	0.33196	0.61	0.39	1927	49	1848	19	1885	26	4.09
14B	0.02	80	0.0186	0.00	92771	51.50	0.13757	1.24	7.831	1.44	0.41281	0.63	0.44	2197	43	2228	24	2212	26	-1.41

APPENDIX 7. Summary of LA-ICP-MS data of zircons from the syenogranitic orthogneiss sample (JR-333).

JR-333																									
											Ratios							Ages								
Spot	f206	U	Th	Pb	Th/U	$^{206}Pb/^{204}Pb$	$^{238}U/^{206}Pb$	1σ	$^{207}Pb/^{206}Pb$	1σ	$^{207}Pb/^{235}U$	1σ	$^{206}Pb/^{238}U$	1σ	Rho	$^{208}Pb/^{232}Th$	1σ	$^{207}Pb/^{206}Pb$	2σ	$^{206}Pb/^{238}U$	2s	$^{207}Pb/^{235}U$	2σ	$^{208}Pb/^{232}Th$	2σ	% conc
100	0.00	229	145	213	0.63	65800000	1964637.0000	0.0579	0.1767	0.0030	12.390	0.310	0.5090	0.0150	1.18	0.1538	0.0045	2639	15	2644	64	2638	24	3000	130	100
101	0.20	35	16	21	0.45	9365	2024291.0000	0.0615	0.1723	0.0048	11.850	0.310	0.4940	0.0150	1.16	0.1541	0.0084	2617	29	2580	65	2588	25	2600	1100	99
104	0.15	50	25	36	0.50	12600	1964637.0000	0.0540	0.1756	0.0043	12.010	0.310	0.5090	0.0140	1.07	0.1751	0.0083	2658	25	2650	59	2608	25	3460	680	100
105	0.08	96	44	63	0.46	23150	2016129.0000	0.0569	0.1784	0.0038	11.810	0.280	0.4960	0.0140	1.19	0.1710	0.0058	2668	19	2575	59	2579	22	3050	350	97
110	0.04	178	86	134	0.49	43850	2012072.0000	0.0607	0.1774	0.0042	12.560	0.320	0.4970	0.0150	1.18	0.1603	0.0056	2671	25	2585	64	2634	24	3000	210	97
114	0.00	329	174	246	0.53	82200000	1945525.0000	0.0492	0.1784	0.0035	12.690	0.300	0.5140	0.0130	1.07	0.1470	0.0042	2650	18	2654	56	2654	23	2830	100	100
115	0.00	193	95	133	0.49	50550000	1941748.0000	0.0452	0.1788	0.0030	12.820	0.260	0.5150	0.0120	1.15	0.1416	0.0043	2666	16	2665	52	2665	19	2780	150	100

APPENDIX 8. Summary of LA-ICP-MS data of zircons from the amphibolite sample (DS-07).

DS-07																					
					Ratios												Ages					
Spot	Pb	Th	U	Th/U	$^{207}Pb/^{235}U$	1σ	$^{206}Pb/^{238}U$	1σ	Rho	$^{238}U/^{206}Pb$	Rho	$^{207}Pb/^{206}Pb$	1σ	$^{207}Pb/^{206}Pb$	1σ	$^{206}Pb/^{238}U$	1σ	$^{207}Pb/^{235}U$	1σ	$^{207}Pb/^{206}Pb$	1σ
16.2	52	26	105	0.25	7.5152	0.1970	0.4008	0.0040	0.75	2.4953	0.0246	0.1360	0.0037	0.0800	0.0041	2.173	0.018	2.175	0.024	2.177	0.048
3.2	46	21	91	0.24	7.5080	0.1724	0.3987	0.0044	0.04	2.5084	0.0277	0.1366	0.0034	0.0784	0.0049	2.163	0.020	2.174	0.020	2.184	0.042
18.1	43	30	82	0.36	7.7951	0.2080	0.4100	0.0041	0.46	2.4393	0.0245	0.1379	0.0038	0.1420	0.0097	2.215	0.019	2.208	0.024	2.201	0.049
2.1	66	44	122	0.36	7.8766	0.1630	0.4126	0.0043	0.87	2.4235	0.0250	0.1384	0.0031	0.1293	0.0047	2.227	0.020	2.217	0.019	2.208	0.039
6.1	50	25	97	0.26	7.7593	0.1718	0.4073	0.0044	0.37	2.4555	0.0266	0.1382	0.0033	0.0902	0.0043	2.202	0.020	2.203	0.020	2.205	0.041
4.1	28	13	52	0.26	7.6674	0.2014	0.4057	0.0051	0.35	2.4646	0.0308	0.1371	0.0040	0.0892	0.0054	2.195	0.023	2.193	0.024	2.190	0.050
7.1	47	36	89	0.41	7.8429	0.1807	0.4122	0.0046	0.32	2.4258	0.0273	0.1380	0.0035	0.1340	0.0069	2.225	0.021	2.213	0.021	2.202	0.044
14.1	25	13	47	0.28	7.8384	0.2745	0.4045	0.0051	0.28	2.4724	0.0310	0.1406	0.0053	0.1015	0.0070	2.190	0.023	2.213	0.032	2.234	0.066
8.1	17	7	33	0.20	7.9782	0.2626	0.4203	0.0064	0.11	2.3791	0.0359	0.1377	0.0052	0.0739	0.0083	2.262	0.029	2.229	0.030	2.198	0.065
17.1	30	14	61	0.23	7.7442	0.2203	0.4076	0.0043	0.82	2.4536	0.0258	0.1378	0.0041	0.0760	0.0040	2.204	0.020	2.202	0.026	2.200	0.053
11.1	52	32	103	0.31	7.8213	0.2082	0.4107	0.0041	0.79	2.4347	0.0245	0.1381	0.0038	0.1045	0.0049	2.218	0.019	2.211	0.024	2.204	0.048
7.2	43	23	83	0.27	7.6963	0.1744	0.4073	0.0045	0.45	2.4553	0.0270	0.1371	0.0034	0.0904	0.0037	2.203	0.021	2.196	0.020	2.190	0.043
15.1	82	63	158	0.40	7.7279	0.1980	0.4083	0.0040	0.01	2.4493	0.0237	0.1373	0.0036	0.1132	0.0139	2.207	0.018	2.200	0.023	2.193	0.046
9.1	51	30	98	0.30	7.8867	0.2129	0.4160	0.0043	0.55	2.4037	0.0246	0.1375	0.0038	0.1136	0.0056	2.242	0.019	2.218	0.024	2.196	0.049
1.1	19	13	35	0.37	7.8917	0.2551	0.4134	0.0062	0.54	2.4189	0.0366	0.1384	0.0050	0.1378	0.0116	2.230	0.028	2.219	0.029	2.208	0.062
5.2	52	32	103	0.32	7.6247	0.1687	0.4016	0.0043	0.55	2.4898	0.0267	0.1377	0.0033	0.1043	0.0025	2.177	0.020	2.188	0.020	2.198	0.041
10.1	44	23	85	0.27	7.8511	0.2150	0.4088	0.0042	0.08	2.4462	0.0251	0.1393	0.0040	0.0892	0.0053	2.209	0.019	2.214	0.025	2.218	0.049
12.1	23	14	46	0.30	7.6424	0.2604	0.3944	0.0049	0.29	2.5354	0.0314	0.1405	0.0051	0.0975	0.0086	2.143	0.023	2.190	0.031	2.234	0.064
13.1	29	10	59	0.18	7.5388	0.2156	0.3980	0.0042	0.37	2.5128	0.0264	0.1374	0.0041	0.0634	0.0050	2.160	0.019	2.178	0.025	2.195	0.051
5.1	8	4	16	0.25	7.9771	0.3944	0.4013	0.0090	0.01	2.4921	0.0559	0.1442	0.0084	0.0765	0.0151	2.175	0.041	2.228	0.045	2.278	0.102

APPENDIX 9. Summary of LA-ICP-MS data of zircons from the pegmatite intrusive body sample (JR-289A).

JR-289A																						
					Ratios									Ages								
Spot	$^{206}Pb/^{204}Pb$	f(206)	U	Th/U	Pb^{208}/Th^{232}	2σ	$^{207}Pb/^{206}Pb$	2σ	$^{207}Pb/^{235}U$	2σ	$^{206}Pb/^{238}U$	2σ	Rho	$^{207}Pb/^{206}Pb$	2σ	$^{206}Pb/^{238}U$	2s	$^{207}Pb/^{235}U$	2σ	$^{208}Pb/^{232}Th$	2σ	Rho
156	0	0.00	54.42	0.80	0.09085	2.60	0.10608	1.19	4.633	2.00	0.31675	1.61	0.80	1733	22	1774	25	1755	17	1758	44	102.35
127	351	0.85	84.80	1.40	0.08738	1.81	0.10814	1.92	4.717	2.50	0.31638	1.60	0.64	1768	35	1772	25	1770	21	1693	30	100.21
140	0	0.00	196.71	0.43	0.10055	1.73	0.13074	1.02	6.959	1.73	0.38604	1.40	0.81	2108	18	2104	25	2106	16	1937	32	99.83
128	0	0.00	66.52	0.42	0.10895	3.34	0.13057	1.15	6.961	1.98	0.38667	1.61	0.81	2106	20	2107	29	2106	18	2090	66	100.08
139	0	0.00	174.80	1.30	0.10025	1.76	0.13323	1.07	7.375	1.79	0.40145	1.43	0.80	2141	19	2176	27	2158	16	1931	32	101.62
143	0	0.00	79.14	1.08	0.10491	1.87	0.13311	1.07	7.412	1.83	0.40384	1.49	0.81	2139	19	2187	28	2162	17	2017	36	102.21
130	0	0.00	135.36	0.76	0.09789	2.27	0.13478	1.09	7.414	1.89	0.39893	1.54	0.82	2161	19	2164	28	2163	17	1888	41	100.14
145	687	0.45	65.62	0.77	0.10140	2.86	0.13578	1.36	7.439	2.16	0.39736	1.69	0.78	2174	24	2157	31	2166	20	1952	53	99.21
157	0	0.00	110.43	0.72	0.11270	2.09	0.13489	1.09	7.441	1.85	0.40011	1.50	0.81	2163	19	2170	28	2166	17	2158	43	100.32
162	0	0.00	81.82	0.73	0.10790	2.67	0.13613	1.15	7.527	1.98	0.40101	1.61	0.81	2179	20	2174	30	2176	18	2071	52	99.78
126	0	0.00	125.39	0.96	0.12727	1.95	0.17959	1.06	12.596	1.84	0.50867	1.51	0.82	2649	18	2651	33	2650	17	2421	44	100.07
133	0	0.00	106.58	1.48	0.12487	1.91	0.17899	1.07	12.627	1.87	0.51164	1.54	0.82	2644	18	2664	34	2652	18	2378	43	100.76
141	0	0.00	57.11	0.94	0.12496	2.46	0.17924	1.11	12.635	1.97	0.51127	1.63	0.83	2646	18	2662	36	2653	19	2380	55	100.61
132	0	0.00	35.83	1.30	0.13201	2.74	0.18001	1.19	12.658	2.17	0.50998	1.82	0.84	2653	20	2657	40	2655	21	2506	65	100.14
158	0	0.00	33.15	1.19	0.12631	3.18	0.17973	1.25	12.735	2.32	0.51391	1.95	0.84	2650	21	2673	43	2660	22	2404	72	100.86