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Rhyacian magmatic arc rocks with sanukitoid geochemical signature from the Juiz de Fora Complex, Minas-Bahia Orogenic System (SE- Brazil)

Sandro Mauri, Monica Heilbron, Henrique Bruno, Rodson A. Marques, Carla Neto, Cláudio de Morisson Valeriano, Samuel Bersan, Luiz Felipe Romero, Mauro Cesar Geraldes

Supplementary Material B (Analytical results)

Table S.1- Lithogeochemistry data for the Juiz de Fora Complex.

Sample	CA-21	CA-11	CA-14	CA-02	CA-22	CA-23	CA-24	CA-17
SiO_2	55.21	58.41	59.78	60.62	63.5	64.56	64.99	65.79
TiO_2	1.003	1.503	0.649	0.869	0.587	0.629	0.55	0.505
Al_2O_3	16.6	16.3	16.31	15.56	13.77	15.39	15.29	15.61
FeO_t	9.2026	6.6394	7.2624	6.9954	5.9452	4.5212	4.2453	3.9961
Fe_2O_3	10.34	7.46	8.16	7.86	6.68	5.08	4.77	4.49
MnO	0.168	0.108	0.141	0.121	0.091	0.08	0.067	0.065
MgO	4.43	2.89	3.48	3.45	2.6	2.98	2.05	1.91
CaO	6.73	5.43	4.82	5.81	5.02	4.72	4.42	3.17
Na_2O	3.76	3.38	3.96	3.43	3.18	3.26	2.93	3.16
K_2O	1.14	3.42	1.69	2.24	2.42	1.72	4.12	4.18
P_2O_5	0.36	0.47	0.23	0.27	0.19	0.35	0.2	0.17
LOI*	0.35	0.53	1.03	-0.14	1.55	1.57	0.95	0.95
Total	100.1	99.89	100.3	100.1	99.59	100.3	100.3	99.99
Sc	29	18	17	27	18	11	14	7
Be	2	2	2	2	2	3	2	2
V	174	134	104	172	109	88	85	59
Ba	288	1368	509	1197	648	489	1389	1081
Sr	586	455	542	624	377	449	482	414
Y	27	36	20	18	34	24	20	41
Zr	155	411	156	148	245	98	194	278
Cr	120	40	110	90	70	50	50	60
Co	31	23	27	30	22	21	22	17
Ni	30	< 20	50	< 20	< 20	< 20	< 20	20
Cu	10	20	50	30	10	20	10	50
Zn	130	80	90	80	70	80	50	60
Ga	23	20	21	18	19	22	20	20
Ge	2	1	1	1	1	1	1	1
As	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Rb	15	80	28	39	64	71	115	157
Nb	10	21	10	8	16	10	10	10
Mo	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Ag	0.6	1.3	0.5	0.5	0.8	< 0.5	0.6	0.9
In	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Sn	1	2	1	2	3	1	2	1
Sb	< 0.5	< 0.5	1.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Cs	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	2.3
La	43.7	63	29.9	26.9	54.2	40.7	38.2	35.4
Ce	103	135	64.5	54.2	117	80.8	83.1	61.5
Pr	13.3	16.4	8.38	6.66	14.1	9.29	10.6	7.12
Nd	54	64	35.6	27.4	53.7	35.7	44.5	26
Sm	10.4	11.9	7.5	5.7	10.5	7.2	9.4	4.7
Eu	1.72	2.2	1.6	1.82	1.51	1.39	1.61	1.56
Gd	7	8.2	5.2	4.1	7.2	5.1	6.1	3.9
Tb	1	1.3	0.9	0.7	1.2	0.9	0.9	0.6
Dy	5.6	7.5	4.3	3.9	6.6	4.8	4.5	3.7
Ho	1	1.4	0.8	0.7	1.2	0.9	0.8	0.8
Er	2.7	3.7	2.1	2	3.5	2.4	2.1	2.5
Tm	0.37	0.5	0.26	0.29	0.47	0.32	0.28	0.36
Yb	2.3	3.1	1.5	1.9	3	2	1.7	2.2
Lu	0.35	0.46	0.22	0.28	0.45	0.3	0.24	0.34
Hf	3.6	8.7	3.5	3.3	5.7	2.5	4.9	7
Ta	0.4	0.9	0.4	0.5	0.9	0.5	0.4	0.6
W	28	68	56	101	77	65	117	68
Tl	< 0.1	0.2	< 0.1	0.1	0.2	0.2	0.4	0.6
Pb	8	7	28	6	12	10	13	19
Bi	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Th	0.6	1.7	0.3	0.4	3.7	3.1	0.6	7.8
U	0.2	0.2	0.3	0.2	0.6	0.4	0.2	1.5

*LOI- Loss of ignition to fire

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Table S.2- U-Pb zircon in situ data from sample CA-14 obtained by LA-MC-ICP-MS.

							Isotope ratios[c]							Ages (Ma)						
Spot number	**Zone**		**Pb**	**Th**	**U**		$^{207}Pb/$	**1 s**	$^{206}Pb/$	**1 s**		$^{207}Pb/$	**1 s**	$^{206}Pb/$	**1 s**	$^{207}Pb/$	**1 s**	$^{207}Pb/$	**1 s**	**%**
		f_{206}[a]	ppm	**ppm**	**ppm**	**Th/U**[b]	^{235}U	**[%]**	^{238}U	**[%]**	**Rho**[d]	^{206}Pb[e]	**[%]**	^{238}U	**abs**	^{235}U	**abs**	^{206}Pb	**abs**	**Conc**[f]
CA-14-B7	Rimm	0.0006	308.20	585.20	3050.12	0.19	0.7742	4.0255	0.0958	2.7946	0.6942	0.0586	2.8974	580	16	575	23	552	16	105
CA-14-B3	Rimm	0.0044	83.20	204.65	803.05	0.25	0.8081	4.9377	0.0957	2.7658	0.5601	0.0612	4.0904	585	16	596	29	641	26	91
CA-14-A2	Core	0.0011	98.18	128.88	255.41	0.50	6.7153	1.2661	0.3627	0.9759	0.7708	0.1343	0.8066	2389	23	2133	27	1894	15	126
CA-14-B6	Rimm	0.0026	100.45	577.52	951.31	0.61	0.7416	4.0767	0.0911	2.7518	0.6750	0.0590	3.0078	560	15	562	23	568	17	99
CA-14-D9	Core	0.0008	98.30	35.14	424.36	0.08	2.9641	5.2514	0.1970	4.5151	0.8598	0.1091	2.6817	1173	53	1408	74	1785	48	66
CA-14-D7	Core	0.0004	135.87	40.67	434.57	0.09	4.3994	2.0479	0.2605	1.6088	0.7856	0.1225	1.2671	1492	24	1712	35	1993	25	75
CA-14-A3	Core	0.0011	132.16	29.86	304.66	0.10	7.6725	4.8390	0.4081	4.7078	0.9729	0.1364	1.1191	3440	162	2699	131	2183	24	158
CA-14-A5	Core	0.0006	165.58	72.08	496.51	0.15	5.5555	1.0993	0.3122	0.7174	0.6526	0.1291	0.8329	1749	13	1908	21	2085	17	84
CA-14-D4	Core	0.0006	155.05	63.83	371.04	0.17	6.0038	2.4517	0.3368	1.8227	0.7435	0.1293	1.6396	1832	33	1955	48	2088	34	88
CA-14-C4	Core	0.0045	448.03	374.25	1858.54	0.20	3.2648	7.4386	0.2056	6.8573	0.9219	0.1152	2.8827	1075	74	1377	102	1882	54	57
CA-14-B2	Core	0.0011	245.14	209.42	879.60	0.24	4.0987	2.7614	0.2476	2.2264	0.8063	0.1200	1.6335	1424	32	1652	46	1956	32	73
CA-14-D3	Core	0.0003	151.15	97.33	365.97	0.27	6.0797	2.5937	0.3397	2.2017	0.8489	0.1298	1.3710	1863	41	1976	51	2095	29	89
CA-14-A6	Core	0.0015	73.21	66.42	171.48	0.39	7.0991	1.5610	0.3817	1.1874	0.7607	0.1349	1.0133	2101	25	2131	33	2161	22	97
CA-14-C9	Core	0.0042	211.74	195.78	485.63	0.40	6.3790	2.7967	0.3518	1.9333	0.6913	0.1315	2.0209	1940	38	2028	57	2118	43	92
CA-14-C6	Core	0.0010	542.88	682.19	1640.88	0.42	4.0861	3.5352	0.2452	2.7909	0.7895	0.1209	2.1700	1388	39	1635	58	1969	43	70
CA-14-A4	Core	0.0008	209.45	241.67	474.41	0.51	7.7696	3.4286	0.4130	3.2187	0.9388	0.1364	1.1813	2212	71	2198	75	2184	26	101
CA-14-A8	Core	0.0010	94.56	127.86	221.40	0.58	6.8053	1.2053	0.3669	0.8696	0.7215	0.1345	0.8346	2008	17	2083	25	2158	18	93
CA-14-B8	Core	0.0011	316.53	428.82	729.99	0.59	6.5186	2.0713	0.3560	1.5566	0.7515	0.1328	1.3665	1915	30	2023	42	2135	29	90
CA-14-B9	Core	0.0038	105.16	163.29	233.56	0.70	7.0300	2.2597	0.3783	1.7005	0.7525	0.1348	1.4882	2045	35	2104	48	2161	32	95
CA-14-B4	Core	0.0024	110.52	328.41	269.49	1.22	5.5516	2.6694	0.3101	2.1191	0.7938	0.1298	1.6233	1725	37	1899	51	2095	34	82

[a]Fraction of the non-radiogenic ^{206}Pb in the analyzed zircon spot, where $f_{206}=[^{206}Pb/^{204}Pb]_c/[^{206}Pb/^{204}Pb]_s$ (c=common; s=sample);

[b]Th/U ratios and amount of Pb, Th and U (in pmm) are calculated relative to 91500 reference zircon

[c]Corrected for background and within-run Pb/U fractionation and normalised to reference zircon GJ-1 (ID-TIMS values/measured value); $^{207}Pb/^{235}U$ calculated using $(^{207}Pb/^{206}Pb)/(^{238}U/^{206}Pb * 1/137.88)$

[d]Rho is the error correlation defined as the quotient of the propagated errors of the $^{206}Pb/^{238}U$ and the $^{207}Pb/^{235}U$ ratio

[e]Corrected for mass-bias by normalising to GJ-1 reference zircon and common Pb using the model Pb composition of Stacey and Kramers (1975)

[f]Degree of concordance = ($^{206}Pb/^{238}U$ age * $100/^{207}Pb/^{206}U$ age)

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Table S.3- U-Pb zircon in situ data from sample CA-17 obtained by LA-MC-ICP-MS.

							Isotope ratios[c]							Ages (Ma)						
Spot number	**Zone**		**Pb**	**Th**	**U**		**^{207}Pb/**	**1 s**	**^{206}Pb/**	**1 s**		**^{207}Pb/**	**1 s**	**^{206}Pb/**	**1 s**	**^{207}Pb/**	**1 s**	**^{207}Pb/**	**1 s**	**%**
		f_{206}[a]	ppm	**ppm**	**ppm**	**Th/U[b]**	**^{235}U**	**[%]**	**^{238}U**	**[%]**	**Rho[d]**	**^{206}Pb[e]**	**[%]**	**^{238}U**	**abs**	**^{235}U**	**abs**	**^{206}Pb**	**abs**	**Conc[f]**
CA-17 A4	Rimm	0.0011	26.79	111.07	248.42	0.45	0.8060	6.2599	0.0970	6.0218	0.9620	0.0603	1.7101	589	35	594	37	613	10	96
CA-17 A3	Rimm	0.0010	31.94	196.22	280.73	0.70	0.8234	6.0415	0.0999	5.8654	0.9709	0.0598	1.4479	604	35	603	36	596	9	101
CA-17 B1	Rimm	0.0010	28.70	203.48	257.42	0.79	0.8014	2.2393	0.0975	1.8425	0.8228	0.0596	1.2728	600	11	598	13	590	8	102
CA-17 A5	Rimm	0.0009	25.45	191.82	217.90	0.88	0.8086	6.0471	0.0983	5.8681	0.9704	0.0597	1.4604	593	35	593	36	592	9	100
CA-17 C9	Rimm	0.0016	39.44	576.11	324.63	1.77	0.8130	2.2509	0.0992	1.8561	0.8246	0.0594	1.2733	610	11	604	14	583	7	105
CA-17 C3	Rimm	0.0029	18.26	285.88	154.49	1.85	0.8170	2.5031	0.0993	1.9360	0.7734	0.0597	1.5867	610	12	606	15	591	9	103
CA-17 A1	Core	0.0007	37.73	21.32	83.97	0.25	7.9569	1.8358	0.4237	1.6892	0.9202	0.1362	0.7188	2230	38	2204	40	2179	16	102
CA-17 B9	Core	0.0006	44.88	33.94	101.40	0.33	7.5735	1.6716	0.4011	1.5465	0.9251	0.1369	0.6347	2152	33	2171	36	2189	14	98
CA-17 B6	Core	0.0019	20.72	19.70	47.56	0.41	7.3882	1.5980	0.3934	1.4243	0.8913	0.1362	0.7247	2127	30	2154	34	2179	16	98
CA-17 B5	Core	0.0014	27.74	30.06	63.46	0.47	7.1180	1.8242	0.3813	1.6743	0.9178	0.1354	0.7242	2073	35	2122	39	2169	16	96
CA-17 B4	Core	0.0008	75.78	98.70	171.32	0.58	6.8805	3.7230	0.3688	3.5201	0.9455	0.1353	1.2123	2002	70	2085	78	2168	26	92
CA-17 D5	Core	0.0037	23.99	32.59	49.06	0.66	8.0991	1.8785	0.4330	1.5745	0.8382	0.1357	1.0246	2241	35	2205	41	2172	22	103
CA-17 A2	Core	0.0007	45.25	71.98	101.84	0.71	6.7698	2.2029	0.3644	2.0921	0.9497	0.1347	0.6899	1989	42	2074	46	2160	15	92
CA-17 C1	Core	0.0004	127.45	265.37	275.42	0.96	7.7219	3.4941	0.4142	2.4820	0.7104	0.1352	2.4593	2242	56	2203	77	2167	53	103
CA-17 C8	Core	0.0031	31.92	74.78	73.03	1.02	7.3225	2.3492	0.3928	1.6114	0.6859	0.1352	1.7095	2081	34	2124	50	2167	37	96

[a]Fraction of the non-radiogenic ^{206}Pb in the analyzed zircon spot, where $f_{206}=[^{206}Pb/^{204}Pb]_c/[^{206}Pb/^{204}Pb]_s$ (c=common; s=sample);

[b]Th/U ratios and amount of Pb, Th and U (in pmm) are calculated relative to 91500 reference zircon

[c]Corrected for background and within-run Pb/U fractionation and normalised to reference zircon GJ-1 (ID-TIMS values/measured value); $^{207}Pb/^{235}U$ calculated using $(^{207}Pb/^{206}Pb)/(^{238}U/^{206}Pb * 1/137.88)$

[d]Rho is the error correlation defined as the quotient of the propagated errors of the $^{206}Pb/^{238}U$ and the $^{207}Pb/^{235}U$ ratio

[e]Corrected for mass-bias by normalising to GJ-1 reference zircon and common Pb using the model Pb composition of Stacey and Kramers (1975)

[f]Degree of concordance = ($^{206}Pb/^{238}U$ age * $100/^{207}Pb/^{206}U$ age)

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Table S.4- U-Pb zircon in situ data from primary (GJ-1) and secondary (91500) standards obtained by LA-MC-ICP-MS.

							Isotope ratios[c]							Ages (Ma)						
Spot number	**Zone**		**Pb**	**Th**	**U**		$^{207}Pb/$	**1 s**	$^{206}Pb/$	**1 s**		$^{207}Pb/$	**1 s**	$^{206}Pb/$	**1 s**	$^{207}Pb/$	**1 s**	$^{207}Pb/$	**1 s**	**%**
		f_{206}[a]	ppm	**ppm**	**ppm**	**Th/U**[b]	^{235}U	**[%]**	^{238}U	**[%]**	**Rho**[d]	^{206}Pb[e]	**[%]**	^{238}U	**abs**	^{235}U	**abs**	^{206}Pb	**abs**	**Conc**[f]
91500	-	0.0012	9.0	17.0	46.0	0.36	1.8659	1.6400	0.1837	1.0300	0.6300	0.0737	1.2800	1087	11	1069	18	1033	13	105
91500	-	0.0028	9.0	17.0	47.0	0.36	1.8660	3.4200	0.1833	3.0600	0.9000	0.0738	1.5300	1085	33	1069	37	1037	16	105
91500	-	0.0042	10.0	20.0	54.0	0.36	1.8026	3.1600	0.1766	2.3700	0.7500	0.0740	2.1000	1048	25	1046	33	1042	22	101
91500	-	0.0053	11.0	19.0	54.0	0.34	1.8240	2.2800	0.1782	1.4000	0.6100	0.0743	1.8000	1057	15	1054	24	1048	19	101
91500	-	0.0045	15.0	21.0	75.0	0.28	1.8278	2.8400	0.1792	1.8100	0.6400	0.0740	2.1800	1062	19	1055	30	1041	23	102
91500	-	0.0032	5.8	8.7	30.7	0.28	1.8797	3.9076	0.1819	3.4810	0.8908	0.0749	1.7753	1073	37	1071	42	1067	19	101
91500	-	0.0038	10.1	19.7	51.6	0.38	1.8087	2.2208	0.1748	1.5106	0.6802	0.0751	1.6279	1038	16	1049	23	1070	17	97
GJ-1	-	0.0041	31.3	6.1	316.3	0.02	0.8238	3.3716	0.0992	1.7854	0.5295	0.0693	2.8601	610	11	610	21	613	18	100
GJ-1	-	0.0007	33.5	6.9	339.3	0.02	0.8197	2.3691	0.0987	1.3472	0.5686	0.0602	1.9488	607	8	608	14	612	12	99
GJ-1	-	0.0011	29.7	5.7	299.9	0.02	0.8204	2.8263	0.0991	1.7345	0.6137	0.0600	2.2315	609	11	608	17	604	13	101
GJ-1	-	0.0050	24.3	4.9	249.0	0.02	0.8103	3.2929	0.0970	1.5101	0.4586	0.0606	2.9263	597	9	603	20	624	18	96
GJ-1	-	0.0015	39.8	7.6	397.1	0.02	0.8271	1.8529	0.0997	1.1965	0.6458	0.0602	1.4147	613	7	612	11	609	9	101
GJ-1	-	0.0027	38.5	9.4	385.8	0.02	0.8306	2.4035	0.0996	1.6053	0.6679	0.0605	1.7888	612	10	614	15	620	11	99
GJ-1	-	0.0032	40.2	8.0	404.3	0.02	0.8283	2.6820	0.1005	1.2750	0.4754	0.0598	2.3596	617	8	613	16	595	14	104

[a]Fraction of the non-radiogenic ^{206}Pb in the analyzed zircon spot, where $f_{206}=[^{206}Pb/^{204}Pb]_c/[^{206}Pb/^{204}Pb]_s$ (c=common; s=sample);

[b]Th/U ratios and amount of Pb, Th and U (in pmm) are calculated relative to 91500 reference zircon

[c]Corrected for background and within-run Pb/U fractionation and normalised to reference zircon GJ-1 (ID-TIMS values/measured value); $^{207}Pb/^{235}U$ calculated using $(^{207}Pb/^{206}Pb)/(^{238}U/^{206}Pb * 1/137.88)$

[d]Rho is the error correlation defined as the quotient of the propagated errors of the $^{206}Pb/^{238}U$ and the $^{207}Pb/^{235}U$ ratio

[e]Corrected for mass-bias by normalising to GJ-1 reference zircon and common Pb using the model Pb composition of Stacey and Kramers (1975)

[f]Degree of concordance = ($^{206}Pb/^{238}U$ age * $100/^{207}Pb/^{206}U$ age)