

SUPLEMENTO ELECTRÓNICO del artículo

Los complejos metamórficos del retro-arco Famatiniano (noroeste de Argentina): caracterización geoquímica e isotópica de sus protolitos e implicancias geotectónicas

por:

Mariano A. Larrovere^{1,2,*}, Camilo R. de los Hoyos³, Pablo Grosse⁴

¹ Centro Regional de Investigaciones Científicas y Transferencia Tecnológica La Rioja, CRILAR, Consejo Nacional de Investigaciones Científicas y Técnicas, CONICET. Entre Ríos y Mendoza, 5301, Anillaco, La Rioja, Argentina.

² Instituto de Geología y Recursos Naturales, INGeReN, Centro de Investigación e Innovación Tecnológica, CENIIT, Universidad Nacional de La Rioja, UNLaR. Av. Gob. Vernet y Apóstol Felipe, 5300, La Rioja, Argentina.

³ Institut für Mineralogie und Kristallchemie, Universität Stuttgart, Azenbergstr. 18, D-70174 Stuttgart, Alemania.

⁴ CONICET y Fundación Miguel Lillo, Miguel Lillo 251, 4000, San Miguel de Tucumán, Argentina.

* marianlarro@gmail.com

Tabla A1. Análisis geoquímicos de roca total de los metasedimentos del CMIEP y del CMLC.

Unidad	Complejo Metamórfico-ígneo El Portezuelo										
	Metapsamita					Metapelita					
Muestra no.	6982	7150-mes	7153	7413-mes	7550-mes	7649-mes	7934-E	7935-mes	6985	7934-A	7934-C
Observaciones	gn	mes	res esq	mes	mes	mes esq	esq	mes	mes	esq	esq
Latitud S	28°01'31''	27°59'54''	27°53'09''	28°28'22''	27°53'09''	27°48'27''	27°42'33''	27°42'34''	28°01'53''	27°41'43''	27°41'37''
Longitud W	65°35'28''	65°35'58''	65°39'36''	65°38'48''	65°39'36''	65°42'39''	65°56'44''	65°55'10''	65°35'28''	65°55'53''	65°55'49''
<i>Óxidos mayoritarios (% peso)</i>											
SiO ₂	74.36	70.00	71.13	67.55	73.11	70.60	69.32	72.80	65.37	63.77	65.23
Al ₂ O ₃	10.88	13.28	12.88	13.52	12.12	12.86	12.93	12.25	15.28	15.65	14.27
Fe ₂ O ₃ (T)	4.50	5.51	4.80	5.43	4.55	5.71	5.62	4.78	5.97	7.06	6.10
MnO	0.08	0.08	0.06	0.10	0.06	0.07	0.10	0.10	0.10	0.14	0.13
MgO	1.62	2.17	1.73	2.34	1.80	2.07	2.08	1.68	2.55	2.96	2.99
CaO	1.85	1.64	2.40	2.05	1.86	1.56	2.14	1.65	1.50	1.22	2.86
Na ₂ O	2.36	2.96	3.02	2.76	2.80	2.65	2.88	2.95	2.93	2.53	2.95
K ₂ O	2.04	2.57	2.09	3.02	2.24	2.67	2.31	2.33	3.66	3.83	2.63
TiO ₂	0.73	0.71	0.66	0.73	0.69	0.71	0.74	0.69	0.76	0.79	0.72
P ₂ O ₅	0.17	0.16	0.24	0.21	0.12	0.15	0.20	0.21	0.19	0.17	0.18
LOI	0.89	0.73	0.47	0.69	0.58	0.72	0.71	0.60	1.50	1.49	0.74
TOTAL	99.47	99.81	99.49	98.39	99.93	99.78	99.03	100.03	99.80	99.61	98.81
<i>Elementos traza (ppm)</i>											
Li	nd	nd	nd	32.01	nd	24.84	44.30	38.86	nd	98.07	51.83
Sc	11.0	12.0	11.0	8.98	12.0	6.59	12.46	7.57	14.0	15.58	11.25
Be	2.0	1.0	1.0	1.33	nd	0.61	3.98	2.59	2.0	3.88	3.25
V	70.0	85.0	81.0	88.82	69.0	55.37	91.63	71.57	93.0	122.54	94.85
Cr	101.0	81.0	62.0	70.19	55.0	53.45	94.84	73.37	57.0	106.96	82.10
Co	30.0	33.0	37.0	47.73	42.0	9.13	14.84	10.25	28.0	21.63	15.15
Ni	27.0	36.0	29.0	35.47	29.0	24.43	38.18	27.82	32.0	47.72	41.29
Cu	14.0	487.0	77.0	16.11	0.0	19.11	33.42	60.28	0.0	14.43	10.86
Zn	42.0	82.0	65.0	92.11	46.0	80.47	104.28	72.17	85.0	138.68	106.32
Ga	13.0	17.0	17.0	26.74	17.0	18.16	31.27	21.50	19.0	42.37	32.63
Ge	1.1	1.4	1.8	0.86	1.3	0.57	0.89	0.89	1.4	1.00	0.86
As	nd	nd	nd	4.30	nd	0.56	2.69	0.94	nd	1.88	1.21
Se	nd	nd	nd	0.89	nd	0.21	1.05	0.76	nd	0.92	0.77
Rb	77.0	104.0	107.0	89.34	103.0	68.33	107.96	87.84	137.0	142.67	107.66
Sr	196.0	173.0	163.0	157.88	158.0	86.58	153.12	113.13	134.0	118.31	108.21
Y	30.6	29.1	36.8	13.31	37.1	8.90	19.24	16.08	32.6	13.00	20.42
Zr	237.0	195.0	239.0	47.04	260.0	29.56	119.55	74.01	156.0	77.40	98.40

continúa

Tabla A1 (continuación). Análisis geoquímicos de roca total de los metasedimentos del CMIEP y del CMLC.

Unidad	Complejo Metamórfico-igneo El Portezuelo											
	Metapsamita						Metapelita					
Muestra no.	6982	7150-mes	7153	7413-mes	7550-mes	7649-mes	7934-E	7935-mes	6985	7934-A	7934-C	
Observaciones	gn	mes	res esq	mes	mes	mes	esq	mes	mes	esq	esq	
Latitud S	28°01'31"	27°59'54"	27°53'09"	28°28'22"	27°53'09"	27°48'27"	27°42'33"	27°42'34"	28°01'53"	27°41'43"	27°41'37"	
Longitud W	65°35'28"	65°35'58"	65°39'36"	65°38'48"	65°39'36"	65°42'39"	65°56'44"	65°55'10"	65°35'28"	65°55'53"	65°55'49"	
<i>Elementos traza (ppm)</i>												
Nb	10.7	12.1	12.0	11.49	12.5	8.06	15.15	11.90	12.5	17.02	13.05	
Mo	nd	nd	nd	0.91	nd	2.57	4.21	2.77	nd	2.90	5.01	
Sn	2.0	4.0	4.0	nd	4.0	nd	nd	nd	4.0	nd	nd	
Cd	nd	nd	nd	0.15	nd	0.02	0.16	0.11	nd	0.14	0.15	
Cs	3.7	5.1	3.8	5.25	3.7	5.00	7.47	6.20	7.2	9.18	7.00	
Ba	394.0	331.0	237.0	343.14	254.0	261.06	346.02	232.49	438.0	501.25	435.83	
Hf	6.70	5.50	6.50	nd	7.30	nd	nd	nd	4.40	nd	nd	
Ta	3.13	2.61	3.14	2.46	3.99	0.56	1.28	0.92	2.33	1.31	1.25	
W	234.00	196.00	232.00	186.46	313.00	0.87	2.35	1.30	153.00	2.37	1.18	
Tl	0.45	0.72	0.59	0.66	0.43	0.52	0.81	0.74	0.86	1.04	0.85	
Pb	12.00	38.00	15.00	16.03	12.00	15.00	23.50	22.16	26.00	22.16	25.61	
Bi	nd	1.00	nd	0.11	nd	0.05	0.23	0.45	0.10	0.54	0.26	
Th	11.00	11.30	10.90	11.69	10.10	8.73	15.88	13.86	11.90	14.71	11.71	
U	2.58	2.32	2.91	2.57	2.38	1.63	3.13	3.27	3.13	3.93	2.16	
<i>Tierras Raras (ppm)</i>												
La	35.80	34.10	34.20	31.33	31.20	21.29	37.95	35.78	34.10	34.09	25.29	
Ce	75.00	70.60	71.20	64.21	66.80	42.44	76.96	71.75	71.20	69.27	55.07	
Pr	8.99	8.44	8.78	8.73	8.34	5.30	10.39	9.67	8.62	9.20	7.24	
Nd	32.50	30.50	32.90	32.83	30.80	20.67	39.25	35.69	31.00	34.24	27.34	
Sm	6.54	6.18	6.85	6.60	6.40	3.95	7.76	6.97	6.34	6.70	5.54	
Eu	1.32	1.28	1.24	1.35	1.25	0.87	1.50	1.26	1.20	1.39	1.13	
Gd	5.88	5.66	6.51	5.59	6.11	3.44	6.73	5.94	5.92	5.67	4.95	
Tb	0.99	0.93	1.07	0.77	1.03	0.48	0.96	0.84	0.96	0.78	0.79	
Dy	5.50	4.97	5.91	3.60	5.85	2.30	4.62	4.03	5.37	3.48	4.28	
Ho	1.04	0.93	1.14	0.61	1.19	0.39	0.84	0.72	1.03	0.60	0.90	
Er	3.07	2.77	3.37	1.40	3.52	0.91	2.03	1.70	3.07	1.36	2.40	
Tm	0.46	0.41	0.49	0.19	0.53	0.12	0.29	0.23	0.46	0.19	0.37	
Yb	2.88	2.48	2.98	1.12	3.37	0.65	1.80	1.30	2.82	1.12	2.17	
Lu	0.41	0.36	0.42	0.19	0.49	0.10	0.29	0.21	0.40	0.19	0.36	
ΣREE	180.38	169.60	177.07	158.52	166.88	102.90	191.37	176.10	172.49	168.27	137.85	

Tabla A1 (continuación). Análisis geoquímicos de roca total de los metasedimentos del CMIEP y del CMLC.

Unidad	Complejo Metamórfico La Cébila														
	Metapsamita							Metapelita							
Muestra no.	7652	7818	7904	7918	7921	C70	6941	7244	7252	7587	7816	7820	7901	7912	7993
Observaciones	esq	esq	com	gn xen	gn xen/sep	esq	filita	com xen/sep	esq	esq	gn	esq	com sep	esq	gn xen
Latitud S	29°18'09''	29°16'57''	29°18'34''	29°23'08''	29°22'47''	29°25'24''	29°10'22''	29°17'56''	29°23'08''	29°25'29''	29°16'51''	29°25'32''	29°18'22''	29°18'44''	29°25'24''
Longitud W	66°53'57''	66°52'53''	66°54'24''	67°01'23''	67°02'33''	66°57'12''	66°49'40''	66°56'04''	66°58'23''	66°57'14''	66°52'54''	66°57'08''	66°54'21''	66°53'37''	66°57'14''
<i>Oxidos mayoritarios (% peso)</i>															
SiO ₂	71.30	nd	70.98	78.94	nd	62.99	57.20	64.57	66.06	61.47	64.22	63.81	61.48	59.48	62.32
Al ₂ O ₃	12.58	nd	14.42	7.92	nd	15.49	21.92	16.77	17.29	16.53	17.69	15.55	18.35	17.85	16.40
Fe ₂ O ₃ (T)	4.53	nd	4.81	3.43	nd	7.55	6.45	6.74	5.24	8.15	5.33	6.15	6.97	8.38	7.42
MnO	0.04	nd	0.07	0.15	nd	0.14	0.07	0.11	0.05	0.43	0.06	0.09	0.09	0.13	0.15
MgO	1.73	nd	1.79	1.35	nd	2.60	2.45	2.07	1.95	2.71	2.08	2.17	2.53	2.40	2.75
CaO	0.40	nd	0.69	1.49	nd	0.10	0.18	0.28	0.35	0.74	0.33	0.69	0.77	0.54	0.11
Na ₂ O	1.51	nd	1.40	1.70	nd	0.20	0.93	1.80	1.95	1.49	1.12	1.77	1.79	1.41	0.23
K ₂ O	3.40	nd	2.54	1.63	nd	6.20	5.05	4.06	4.10	3.19	4.32	4.18	3.47	5.47	6.52
TiO ₂	0.68	nd	0.68	0.53	nd	0.97	0.87	0.87	0.71	0.78	0.88	0.79	0.91	1.15	1.00
P ₂ O ₅	0.11	nd	0.15	0.16	nd	0.06	0.13	0.09	0.20	0.20	0.09	0.13	0.08	0.10	0.06
LOI	0.29	nd	2.24	0.04	nd	0.11	4.73	2.60	2.35	0.56	0.09	0.05	2.42	2.72	0.18
TOTAL	96.57	nd	99.76	97.34	nd	96.41	99.98	99.94	100.25	96.25	96.21	95.38	98.85	99.63	97.14
<i>Elementos traza (ppm)</i>															
Li	183.80	45.67	56.64	nd	51.57	98.86	120.56	133.41	198.44	87.07	79.68	85.01	183.16	128.85	nd
Sc	2.75	1.73	2.44	nd	2.72	3.31	3.29	3.75	3.13	3.23	2.91	3.39	10.32	4.48	nd
Be	10.78	10.98	12.10	11	7.93	7.31	21.10	20.00	15.28	17.43	14.56	15.65	29.03	18.00	nd
V	65.44	50.03	79.78	46	49.88	149.36	158.14	115.28	86.00	102.84	101.16	102.19	206.94	118.86	nd
Cr	59.37	82.61	75.16	73	33.71	104.84	143.44	179.54	137.31	67.01	70.85	72.77	193.10	94.59	86
Co	17.69	35.59	32.91	31	21.91	26.35	10.52	23.22	21.64	31.74	28.83	26.46	56.26	12.45	nd
Ni	17.68	45.83	36.97	23	15.58	43.18	5.21	43.26	53.31	39.10	40.80	44.76	92.91	11.92	31
Cu	8.02	22.40	30.73	21	8.92	8.49	10.01	35.24	28.34	76.50	25.25	2.46	61.66	48.20	nd
Zn	54.62	67.37	114.36	56	46.10	148.09	63.21	135.12	92.55	96.81	93.05	93.41	200.71	149.68	nd
Ga	23.84	12.69	29.82	10	23.54	28.64	73.91	39.15	41.22	32.61	33.18	28.56	71.73	33.77	nd
Ge	0.82	1.04	0.95	nd	1.17	1.39	0.84	1.62	1.17	1.14	1.07	0.97	1.70	1.16	nd
As	0.65	1.43	5.31	11	3.18	13.44	1.56	47.33	3.62	7.71	95.53	4.72	16.73	43.96	nd
Se	0.72	1.22	0.58	nd	1.65	1.05	nd	2.38	2.01	0.54	0.55	0.60	1.09	0.73	nd
Rb	162.80	109.76	103.58	97	167.16	207.06	189.52	263.71	205.50	117.96	156.54	146.17	137.53	249.23	nd
Sr	90.29	67.49	119.38	54	70.48	16.84	137.76	77.81	67.40	72.78	128.63	93.65	158.08	71.32	nd
Y	8.32	33.21	14.68	37	25.49	14.91	15.82	17.02	19.59	25.65	15.46	20.08	10.95	14.31	nd
Zr	37.02	108.53	69.47	340	24.22	117.38	102.16	119.03	90.35	63.16	148.65	62.36	193.56	103.61	nd

continúa

Tabla A1 (continuación). Análisis geoquímicos de roca total de los metasedimentos del CMIEP y del CMLC.

Unidad	Complejo Metamórfico La Cébila														
	Metapsamita							Metapelita							
Muestra no.	7652	7818	7904	7918	7921	C70	6941	7244	7252	7587	7816	7820	7901	7912	7993
Observaciones	esq	esq	com	gn, xen	gn, xen/sep	esq	filita	com, xen/sep	esq	esq	gn	esq	com, sep	esq	gn, xen
Latitud S.	29°18'09"	29°16'57"	29°18'34"	29°23'08"	29°22'47"	29°25'24"	29°10'22"	29°17'56"	29°23'08"	29°25'29"	29°16'51"	29°25'32"	29°18'22"	29°18'44"	29°25'24"
Longitud W	66°53'57"	66°52'53"	66°54'24"	67°01'23"	67°02'33"	66°57'12"	66°49'40"	66°56'04"	66°58'23"	66°57'14"	66°52'54"	66°57'08"	66°54'21"	66°53'37"	66°57'14"
Nb	14.03	16.16	15.55	13	10.00	32.72	21.16	23.51	20.52	16.94	22.54	17.96	43.63	24.30	nd
Mo	2.30	17.91	0.96	17	4.17	2.92	0.54	3.58	1.05	5.33	5.15	2.61	4.03	10.89	nd
Sn	2.45	1.12	nd	nd	1.55	5.82	nd	nd	nd	2.94	2.44	3.81	nd	nd	nd
Cd	1.00	0.95	0.15	11	0.87	0.87	nd	0.27	0.19	1.15	1.47	0.73	0.25	0.05	nd
Cs	67.91	13.64	6.88	12	34.93	105.46	14.37	33.53	27.78	21.33	8.96	50.90	4.15	28.79	nd
Ba	364.62	81.57	370.39	68	333.64	133.06	797.94	371.70	433.94	439.34	494.42	355.22	614.58	293.71	129
Hf	1.15	3.34	nd	9	0.65	3.54	nd	nd	nd	1.91	5.01	1.77	nd	nd	nd
Ta	2.81	3.10	2.20	nd	2.35	4.10	4.92	3.31	4.05	2.43	3.74	2.46	5.27	2.41	nd
W	97.97	201.61	131.23	193	119.96	78.43	37.83	87.82	95.52	83.86	80.89	87.08	181.80	65.47	nd
Tl	1.20	0.70	0.80	nd	1.01	1.38	0.46	2.14	1.60	0.69	1.17	0.88	2.13	2.69	nd
Pb	30.42	22.33	23.69	11	40.78	27.13	25.81	10.44	23.06	43.15	42.54	40.52	46.97	15.51	nd
Bi	0.34	0.64	0.27	nd	0.02	nd	nd	0.17	0.49	0.81	0.21	0.07	0.94	0.94	nd
Th	10.62	14.74	18.55	12	22.41	20.41	20.79	19.13	15.64	15.96	19.71	15.02	21.01	21.52	nd
U	2.75	1.59	4.42	2	0.68	2.82	5.78	5.64	8.79	2.32	9.05	2.13	6.79	10.59	nd
<i>Tierras Raras (ppm)</i>															
La	28.98	43.19	41.06	46	43.04	45.26	35.96	44.74	35.20	25.26	47.85	38.59	40.60	37.28	nd
Ce	70.00	102.37	80.31	94	107.93	116.33	73.78	83.03	65.70	90.57	108.97	91.61	84.44	72.19	nd
Pr	7.79	11.64	10.44	8	12.89	13.29	8.80	11.54	8.81	7.87	12.74	10.11	11.70	8.91	nd
Nd	28.05	42.77	40.79	40	47.60	47.94	34.26	45.20	33.39	28.04	46.10	37.08	46.33	32.48	nd
Sm	5.44	9.24	7.92	9	10.63	9.44	5.32	8.18	6.18	5.75	8.71	7.02	8.63	5.88	nd
Eu	0.99	1.08	1.51	1	0.94	0.97	0.91	1.25	1.25	0.99	1.67	1.39	1.98	0.81	nd
Gd	4.10	8.95	6.81	7	9.60	7.52	4.45	6.53	5.22	5.12	7.04	6.01	6.90	4.92	nd
Tb	0.54	1.41	0.92	1	1.40	1.04	0.50	0.90	0.81	0.92	0.93	0.87	0.90	0.69	nd
Dy	2.53	7.74	4.08	2	6.84	4.42	3.49	4.36	4.31	5.71	4.44	4.99	3.80	3.46	nd
Ho	0.36	1.36	0.65	2	1.15	0.65	0.57	0.72	0.82	1.18	0.70	0.87	0.61	0.63	nd
Er	0.80	3.22	1.40	2	2.61	1.47	1.92	1.79	2.22	3.32	1.64	2.20	1.34	1.65	nd
Tm	0.09	0.40	0.17	nd	0.31	0.18	0.18	0.25	0.34	0.52	0.21	0.28	0.17	0.25	nd
Yb	0.53	2.24	0.94	nd	1.66	1.16	2.03	1.53	2.05	3.15	1.39	1.73	0.94	1.56	nd
Lu	0.08	0.32	0.14	nd	0.24	0.17	0.22	0.24	0.33	0.51	0.23	0.27	0.16	0.25	nd
ΣREE	150.26	235.94	197.15	nd	246.84	249.86	172.38	210.27	166.63	178.90	242.62	203.03	208.51	170.93	nd

Nota: gn: gneis; mes: mesosoma; res esq: resister de esquistos; esq: esquistos; com: comeana; xen: xenolito; sep: septo; xen/sep: xenolito o septo.

Tabla A2. Parámetros, funciones y relaciones de los elementos químicos de los metasedimentos del CMIEP y del CMLC.

Unidad	Complejo Metamórfico-igneo El Portezuelo											
	Metapsamita						Metapelita					
Muestra no.	6982	7150-mes	7153	7413-mes	7550-mes	7649-mes	7934-E	7935-mes	6985	7934-A	7934-C	
Observaciones	gn	mes	res esq	mes	mes	mes	esq	mes	mes	esq	esq	
log(SiO ₂ /Al ₂ O ₃)	0.83	0.72	0.74	0.70	0.78	0.74	0.73	0.77	0.63	0.61	0.66	
log(Fe ₂ O ₃ /K ₂ O)	0.34	0.33	0.36	0.26	0.31	0.33	0.39	0.31	0.21	0.27	0.37	
Al ₂ O ₃ /TiO ₂	14.84	18.76	19.46	18.46	17.59	18.07	17.44	17.65	20.18	19.90	19.77	
Fe ₂ O ₃ .T + MgO	6.12	7.68	6.53	7.77	6.35	7.78	7.70	6.45	8.52	10.02	9.10	
F1	-2.95	-1.98	-0.94	-2.59	-2.37	-2.28	-1.45	-2.11	-2.51	-2.71	-1.51	
F2	-1.55	-0.72	-0.35	-0.36	-0.76	-1.03	-0.92	-0.40	0.34	-0.84	-1.14	
Th/Sc	1.00	0.94	0.99	1.30	0.84	1.32	1.27	1.83	0.85	0.94	1.04	
La/Sc	3.25	2.84	3.11	3.49	2.60	3.23	3.05	4.73	2.44	2.19	2.25	
La/Th	3.25	3.02	3.14	2.68	3.09	2.44	2.39	2.58	2.87	2.32	2.16	
La/Co	1.19	1.03	0.92	0.66	0.74	2.33	2.56	3.49	1.22	1.58	1.67	
Th/Co	0.37	0.34	0.29	0.24	0.24	0.96	1.07	1.35	0.43	0.68	0.77	
Th/Cr	0.11	0.14	0.18	0.17	0.18	0.16	0.17	0.19	0.21	0.14	0.14	
Eu/Eu*	0.65	0.66	0.57	0.68	0.61	0.72	0.63	0.60	0.60	0.69	0.66	
LaN	97.55	92.92	93.19	85.36	85.01	58.01	103.40	97.49	92.92	92.88	68.91	
GdN	19.22	18.50	21.27	18.28	19.97	11.25	22.00	19.40	19.35	18.54	16.17	
YbN	11.61	10.00	12.02	4.51	13.59	2.61	7.24	5.24	11.37	4.52	8.76	

Unidad	Complejo Metamórfico La Cébila											
	Metapsamita						Metapelita					
Muestra no.	7652	7818	7904	7918	C70	6941	7244	7587	7820	7901	7912	7993
Observaciones	esq	esq	corn	gn xen	esq	flita	corn xen/sep	esq	esq	corn sep	esq	gn xen
log(SiO ₂ /Al ₂ O ₃)	0.75	nd	0.69	1.00	0.61	0.42	0.59	0.57	0.61	0.53	0.52	0.58
log(Fe ₂ O ₃ /K ₂ O)	0.12	nd	0.28	0.32	0.09	0.11	0.22	0.41	0.17	0.30	0.19	0.06
Al ₂ O ₃ /TiO ₂	18.50	nd	21.31	14.94	15.97	25.20	19.32	21.19	19.68	20.24	15.47	16.40
Fe ₂ O ₃ .T + MgO	6.26	nd	6.60	4.78	10.15	8.90	8.81	10.86	8.32	9.50	10.78	10.17
F1	-4.96	nd	-2.54	-4.85	-6.99	-1.70	-2.31	-1.00	-3.42	-0.92	-3.18	-7.19
F2	-1.54	nd	-2.81	-2.99	-1.02	-0.70	-0.80	-3.42	-0.56	-1.87	0.18	-0.58
Th/Sc	0.99	1.34	1.53	1.09	2.79	0.99	0.96	0.92	0.96	0.72	1.20	nd
La/Sc	2.69	3.93	3.39	4.18	6.19	1.70	2.24	1.45	2.47	1.40	2.07	nd
La/Th	2.73	2.93	2.21	3.83	2.22	1.73	2.34	1.58	2.57	1.93	1.73	nd
La/Co	1.64	1.21	1.25	1.48	1.72	3.42	1.93	0.80	1.46	0.72	2.99	nd
Th/Co	0.60	0.41	0.56	0.39	0.77	1.98	0.82	0.50	0.57	0.37	1.73	nd
Th/Cr	0.18	0.18	0.25	0.16	0.19	0.14	0.11	0.24	0.21	0.11	0.23	nd
Eu/Eu*	0.64	0.36	0.63	0.39	0.35	0.57	0.52	0.56	0.65	0.78	0.46	nd
LaN	78.97	117.69	111.88	125.34	123.33	97.98	121.92	68.82	105.16	110.62	101.57	nd
GdN	13.41	29.24	22.26	22.88	24.57	14.56	21.34	16.73	19.63	22.54	16.07	nd
YbN	2.15	9.05	3.78	nd	4.70	8.19	6.17	12.72	6.97	3.81	6.28	nd

Nota: gn: gneis; mes: mesosoma; res esq: resister de esquistos; esq: esquistos; corn: comeana; xen: xenolito; sep: septo; xen/sep: xenolito o septo.