Concentrations of REE and other elements in rock samples collected from NCZGRS in Asheboro, NC

Sample No.	CH-1-73.5	CH-1-127	CH-1-182	CH-2-56.5	CH-2-93	CH-3-120	CH-3-169	MW-2D-240	Average* Abundances ppm		
Sample description	Mafic metavolcanic	Felsic metatuff	Felsic metatuff	Felsic metatuff	Felsic metatuff	Felsic metatuff	Felsic metatuff	Felsic metatuff	Granite	Basalt/ diabase	**Chondrite****
La	6.07	22.80	19.60	17.80	23.30	20.70	23.10	22.70	101.00	10.00	**0.31**
Ce	13.30	47.30	42.00	36.40	47.80	42.50	49.20	47.60	170.00	23.00	**0.81**
Nd	9.03	23.20	21.80	18.60	23.60	21.30	25.50	23.70	55.00	15.00	**0.60**
Sm	2.06	5.43	4.86	4.20	5.52	4.87	5.69	5.43	8.30	3.60	**0.20**
Eu	0.52	1.27	1.11	0.87	1.25	1.32	1.32	1.33	1.30	1.10	**0.07**
Gd	2.73	6.62	5.74	5.02	6.30	5.17	7.02	6.33	5.00	4.00	**0.26**
Tb	0.40	0.87	0.77	0.66	0.88	0.78	0.91	0.89	0.54	0.65	**0.05**
Ho	0.62	1.26	1.15	1.00	1.30	1.12	1.35	1.29	0.35	0.69	**0.07**
Tm	0.28	0.58	0.50	0.42	0.57	0.51	0.60	0.55	0.15	0.30	**0.03**
Yb	1.77	3.62	3.17	2.67	3.65	3.21	3.75	3.65	1.10	2.10	**0.21**
Lu	0.26	0.54	0.49	0.42	0.55	0.49	0.58	0.55	0.19	0.35	**0.03**
			Chondrite Normalized Abundances:								
La	19.52	73.31	63.02	57.23	74.92	66.56	74.28	72.99	324.76	32.15	
Ce	16.36	58.18	51.66	44.77	58.79	52.28	60.52	58.55	209.10	28.29	
Pr											
Nd	14.95	38.41	36.09	30.79	39.07	35.26	42.22	39.24	91.06	24.83	
Sm	10.51	27.70	24.80	21.43	28.16	24.85	29.03	27.70	42.35	18.37	
Eu	7.00	17.16	15.00	11.81	16.89	17.84	17.84	17.97	17.57	14.86	
Gd	10.50	25.46	22.08	19.31	24.23	19.88	27.00	24.35	19.23	15.38	
Tb	8.47	18.40	16.28	14.02	18.66	16.51	19.43	18.96	11.49	13.83	
Dy											
Ho	8.64	17.55	16.02	13.86	18.11	15.60	18.80	17.97	4.87	9.61	
Er											
Tm	8.68	17.64	15.31	12.88	17.61	15.71	18.40	16.96	4.60	9.20	
Yb	8.43	17.24	15.10	12.71	17.38	15.29	17.86	17.38	5.24	10.00	
Lu	8.11	16.66	15.05	12.91	17.15	15.26	17.89	16.87	5.88	10.84	
			Other elements								
Fe%	7.50	1.82	1.77	1.41	1.80	2.46	1.90	1.88	13,700	77,600	
Ca%	6.62	1.61	1.37	1.65	1.29	2.31	1.71	1.83	9,900	78,300	
Na%	1.70	2.94	1.31	3.07	3.17	3.43	2.95	3.10	24,600	16,000	
K %	2.26	1.60	2.45	0.65	1.92	1.62	1.86	1.82	45,100	5,300	
Rb	147.00	73.30	88.30	26.20	78.60	43.90	76.50	68.80	220	21	
Sr	64.50	208.00	193.00	152.00	197.00	282.00	176.00	211.00	250	190	
Cs	8.89	5.37	2.60	1.30	4.35	1.85	5.21	2.87	2	0.9	
Ba	265.00	495.00	860.00	166.00	564.00	478.00	475.00	521.00	1,220	160	
Th	1.11	6.48	5.65	5.09	6.57	5.57	6.75	6.37	50.00	2.40	
U	0.29	1.80	1.57	1.36	1.76	1.52	1.79	1.71	3.40	0.60	
Ag	<1	<1	<1	<1	<1	<1	<1	<1	0.05	0.08	
Bi	<5	<5	<5	<5	<5	<5	<5	<5	0.07	0.05	
Br	<1	<1	<1	<1	<1	<1	<1	<1	0.40	0.40	
Cd	<1	<1	<1	<1	<1	<1	<1	<1	0.03	0.15	
Cu	38	2	6	9	2	2	2	2	13.00	110.00	
Ga	22	11	11	6	10	15	13	12	20.00	16.00	
Ge	<2	<2	<2	<2	<2	<2	<2	<2	1.10	1.40	
Mo	2	2	2	4	2	3	2	2	1.10	1.40	

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Nb	7	11	13	10	11	11	13	11	24.00	9.50	
Pb	7	14	16	8	13	23	19	16	0.002	0.025	
Se	<1	<1	<1	<1	<1	<1	<1	<1	0.007	0.30	
Sn	<2	<2	<2	<2	<2	<2	<2	<2	3.50	3.20	
V	202	12	8	19	12	36	7	7	17.00	264.00	
Y	18.00	34.00	32.00	27.00	33.00	29.00	36.00	34.00	13.00	25.00	
Zr	56.70	191.00	170.00	137.00	209.00	171.00	207.00	199.00	210.00	105.00	
Hf	1.24	4.78	4.14	3.39	4.84	4.19	5.11	4.79	5.20	2.70	
Ta	0.12	0.67	0.59	0.48	0.68	0.60	0.71	0.69	1.50	0.50	
W	0.81	1.27	1.49	0.68	1.11	1.51	3.21	1.06	0.40	0.50	
Sc	35.70	12.30	11.40	9.17	12.40	14.20	13.20	12.90	2.90	35.00	
Cr	455.00	3.52	4.14	3.83	3.06	4.10	3.18	3.36	20.00	114.00	
Co	45.30	2.35	2.55	2.53	2.36	3.75	2.72	2.29	2.40	47.00	
Ni	145.00	7.80	3.30	0.87	3.79	1.82	8.17	6.25	1.00	76.00	
Zn	107.00	54.80	50.50	36.90	54.80	62.80	57.40	73.10	45.00	86.00	
As	20.40	0.96	42.60	1.17	0.88	2.51	2.10	1.06	0.50	1.90	
Sb	0.17	0.34	0.41	0.37	0.38	0.94	0.74	0.47	0.31	1.0 (?)	
Au, ppb***	4.09	3.27	4.85	1.98	4.38	1.57	0.66	2.37			

REE = Rare Earth Elements; all values in parts per million (ppm) unless noted; * Krauskopr and Bird, 1995

** concentration reported by USGS lab divided by the chondrite normalized abundance calculated and reported by USGS Lab.

*** parts per billion