APPENDIX 2

Represent whole geochemical analysis of rock minor and rare earth elements (ICP-MS) of Arbat gabbro-monzonite-syenite complex, west of Miandoab

	Alkali-syenite						Syenite-monzosyenite								Monzonite-monzodiorite					Gabbro-monzogabbro		
Sample ID	AR22	Hy-10	Hy-11	Hy-13	Hy-16	AR2	AR5	AR11	AR18	AR26	AR31	AR39	Hy-1	Hy-20	AR15	AR23	Go1	Hy-4	Hy-6	Hy-21	Hy-22	AR14
Li	21.2	n. m.	n. m.	n. m.	n. m.	19.2	12.5	47.8	33.7	32.5	33.2	39.6	n. m.	n. m.	28.4	33	25.8	n. m.	n. m.	n. m.	n. m.	14.7
Sc	2	8	8	7	8	6.6	6.5	6.9	6.1	6.9	3.5	7.4	22	20	16.1	10.5	20.8	30	27	22	22	30.3
V	26	n. m.	n. m.	n. m.	n. m.	87	71	84	74	75	40	100	n. m.	n. m.	189	127	196	n. m.	n. m.	n. m.	n. m.	230
Cr	13	–	–	–	–	19	14	25	21	24	19	47	–	–	263	42	214	–	–	–	–	171
Co	1.7	8.2	8.1	5.9	8.8	4.9	5.5	9.3	6.1	6.5	4.6	7.3	28.1	26.9	22.6	11.6	26.6	42.7	29.6	26.5	33.0	29.8
Ni	3.2	21	<20	<20	<20	11.5	4.1	13	12.5	13.4	6.2	20.3	96	157	111	25.9	87.1	256	35	<20	88	61.9
Ga	19.9	18.1	17.4	16.8	17.7	18.0	17.3	17.7	19.1	18.6	16.5	18.8	15.4	14.5	17.0	18.3	17.2	12.9	16.8	16.3	14.8	16.0
Rb	376	186	192	210	203	149	215	175	193	185	161	230	90	125	159	188	111	47	42	61	78	72
Sr	75	703	690	716	665	775	238	639	685	738	601	670	745	640	637	604	641	839	504	643	890	729
Y	13.3	18.4	18.7	17.6	19.8	15.8	13.8	19.1	16.0	15.6	14.8	18.8	20.1	19.9	19.1	20.6	21.6	18.2	22.5	22.9	22.1	21.5
Zr	239	270	294	254	355	73	53	138	64	55	131	108	131	197	68	50	98	73	126	131	104	72
Nb	51.1	25.5	27.0	25.2	29.8	19.2	16.3	25.8	22.7	22.7	21.9	31.5	14.3	20.0	20.8	23.9	16.7	5.8	9.8	12.1	11.1	9.6
Sn	4.09	2	2	5	2	1.82	1.96	2.42	1.79	1.8	3.03	2.02	<1	1	1.75	1.96	1.83	<1	<1	3	1	1.23
Cs	22.4	6.7	7.9	7.8	7.0	3.1	3.3	9.1	7.1	5.3	8.4	7.4	3.7	6.5	6.0	5.1	4.6	3.0	1.5	5.7	2.9	3.6
Ba	41	571	510	749	498	707	172	653	655	726	636	761	446	500	602	548	492	259	456	524	461	533
La	32.4	34.7	35.5	34.1	37.0	28.2	25.1	32.0	30.3	29.2	31.7	39.3	26.9	30.3	30.5	36.0	30.1	16.8	21.4	24.1	31.5	22.4
Ce	52.0	64.2	67.2	61.6	69.1	51.0	45.5	56.6	53.8	50.0	54.7	72.5	50.2	58.6	56.3	67.5	59.4	35.6	43.4	47.7	58.6	42.8
Pr	4.95	6.79	6.77	6.36	7.05	5.71	5.36	6.26	5.94	5.68	5.50	7.67	5.83	6.33	6.62	7.52	6.97	4.35	5.04	5.71	6.70	5.54
Nd	14.3	23.8	23.3	22.1	24.5	20.6	19.8	22.2	20.9	20.1	18.4	26.0	23.0	23.7	24.0	27.2	26.3	18.9	20.1	21.9	27.9	22.5
Sm	2.28	4.30	4.33	3.90	4.27	3.59	3.57	3.97	3.60	3.48	3.13	4.46	4.31	4.44	4.44	4.83	5.23	4.03	4.34	4.40	4.97	4.66
Eu	0.36	1.07	1.03	0.99	1.04	1.09	0.92	0.90	1.08	1.12	0.72	1.04	1.16	1.08	1.14	1.12	1.26	1.11	1.32	1.39	1.30	1.31
Gd	1.83	3.66	3.68	3.52	3.87	2.98	2.92	3.36	3.07	2.91	2.51	3.71	4.19	4.08	3.89	4.13	4.74	3.75	4.51	4.46	4.85	4.18
Tb	0.32	0.56	0.56	0.52	0.56	0.46	0.42	0.51	0.46	0.44	0.41	0.54	0.63	0.63	0.57	0.61	0.68	0.56	0.73	0.72	0.74	0.64
Dy	2.06	3.35	3.06	3.12	3.28	2.74	2.57	3.17	2.82	2.73	2.47	3.33	3.55	3.40	3.39	3.58	4.14	3.07	4.05	4.12	4.04	3.88
Ho	0.46	0.58	0.63	0.58	0.66	0.54	0.49	0.64	0.56	0.54	0.50	0.66	0.66	0.73	0.67	0.72	0.80	0.59	0.81	0.80	0.79	0.77
Er	1.60	1.87	2.03	1.86	2.03	1.62	1.39	1.95	1.75	1.60	1.59	2.05	2.02	1.94	1.93	2.10	2.39	1.85	2.36	2.41	2.19	2.21
Tm	0.29	0.32	0.30	0.31	0.31	0.24	0.19	0.30	0.26	0.25	0.25	0.31	0.30	0.28	0.29	0.32	0.34	0.25	0.35	0.35	0.29	0.32
Yb	2.36	2.13	2.13	1.97	2.23	1.59	1.23	2.12	1.79	1.69	1.81	2.16	2.02	1.90	1.94	2.11	2.21	1.67	2.11	2.33	1.97	2.09
Lu	0.39	0.33	0.34	0.31	0.34	0.25	0.18	0.33	0.27	0.25	0.29	0.34	0.30	0.30	0.29	0.32	0.34	0.39	0.34	0.36	0.30	0.32
Hf	8.4	6.0	6.6	6.0	7.8	1.9	1.1	3.8	2.0	1.5	3.6	3.2	3.2	4.4	2.0	1.5	2.8	1.9	3.3	3.4	2.7	2.1
Ta	6.1	1.7	1.8	1.7	2.0	1.3	0.8	2.1	1.5	1.5	1.9	2.2	1.0	1.2	1.3	1.4	1.2	0.4	0.7	0.8	0.9	0.6
Pb	29.2	n. m.	n. m.	n. m.	n. m.	19.4	32	18.6	22.8	25.9	26	21.6	n. m.	n. m.	18.1	22.1	15.2	n. m.	n. m.	n. m.	n. m.	8.5
Th	109.0	18.3	29.4	21.6	20.3	8.3	3.0	22.6	16.5	9.4	23.0	18.0	8.0	12.3	10.5	9.8	9.1	2.8	4.0	5.0	5.8	3.7
U	25.1	5.7	9.6	7.1	6.1	3.1	0.9	5.4	5.1	3.0	4.9	5.5	2.6	3.9	3.3	2.8	2.9	1.0	1.1	1.6	1.8	1.1
Rb/Sr	5.01	0.26	0.28	0.29	0.31	0.19	0.90	0.27	0.28	0.25	0.27	0.34	0.12	0.19	0.25	0.31	0.17	0.06	0.08	0.09	0.09	0.10
Rb/Ba	9.29	0.33	0.38	0.28	0.41	0.21	1.25	0.27	0.29	0.26	0.25	0.30	0.20	0.25	0.27	0.34	0.23	0.18	0.09	0.12	0.17	0.14
K/Ba	1775	103	116	85	119	91	504	80	94	86	83	84	72	96	81	107	78	58	52	57	58	56
Eu*	4.10	7.91	7.96	7.34	8.06	6.54	6.47	7.29	6.62	6.36	5.63	8.14	8.37	8.42	8.26	8.90	9.87	7.68	8.67	8.70	9.67	8.75
Eu/Eu*	0.51	0.80	0.77	0.80	0.77	0.99	0.85	0.74	0.97	1.05	0.76	0.76	0.83	0.76	0.82	0.75	0.76	0.86	0.91	0.95	0.80	0.89
Ce*	32.52	37.56	38.10	36.34	39.70	30.85	27.95	34.65	32.81	31.57	33.05	42.50	30.14	33.52	34.17	39.80	34.55	20.11	24.71	27.88	35.06	26.31
Ce/Ce*	0.90	0.96	0.99	0.95	0.98	0.93	0.92	0.92	0.92	0.89	0.93	0.96	0.94	0.98	0.93	0.95	0.97	1.00	0.99	0.96	0.94	0.92
La_n/Yb_n	9.0	11.3	11.2	11.8	11.7	12.4	14.8	10.6	12.3	12.6	11.9	12.3	9.7	10.9	11.4	12.0	9.6	4.6	6.8	7.2	11.3	7.6
La_n/Sm_n	9.2	5.2	5.3	5.7	5.6	5.1	4.5	5.2	5.4	5.4	6.5	5.7	4.0	4.4	4.4	4.8	3.7	2.7	3.2	3.5	4.1	3.1
Sm_n/Yb_n	1.1	2.2	2.3	2.2	2.1	2.5	3.2	2.1	2.2	2.3	1.9	2.3	2.4	2.6	2.5	2.5	2.6	2.7	2.3	2.1	2.8	2.5

Note: n. m. – not measured; – view as wt.% <1 – less than detection limit; Eu/Eu* is $Eu_N/ (Sm+Gd)_N$ ^ 0.5; Ce/Ce* is $Ce_N/ (La+Pr)_N$ ^ 0.5; normalization values are based on the primitive mantle after Sun and McDonough (1989)

Th_N/Nb_N	17.65	5.94	9.01	7.09	5.64	3.58	1.51	7.25	6.01	3.41	8.71	4.73	4.63	5.09	4.18	3.38	4.49	4.00	3.38	3.42	4.32	3.22
Y_N/Nb_N	0.04	0.11	0.11	0.11	0.10	0.13	0.13	0.11	0.11	0.11	0.10	0.09	0.22	0.15	0.14	0.13	0.20	0.48	0.35	0.29	0.30	0.34
Ce_N/Pb_N	0.16					0.24	0.13	0.27	0.21	0.17	0.19	0.30			0.28	0.27	0.35					0.45
La_N/Nb_N	0.64	1.38	1.34	1.37	1.26	1.49	1.56	1.26	1.36	1.31	1.47	1.27	1.91	1.54	1.49	1.53	1.83	2.94	2.22	2.02	2.88	2.37
Th_N/Ta_N	8.36	5.01	7.60	5.91	4.72	3.02	1.69	5.08	5.23	2.97	5.80	3.85	3.72	4.77	3.63	3.19	3.57	3.26	2.66	2.91	3.00	2.95

Normalization values are based on silica Earth after McDonough and Sun (1995)