

Table S1 Major element (wt%), REE element (ppm), and trace element (ppm) compositions of magmatic rocks

Sample No.	gabbro						syenogranite					monzogranite			
	DP-26	DP-31	DP-49	DP-72	DP-141	DP-200	DP-201	DP-202	DP-203	DP-204	DP-206	DP212	DP-213	DP-214	DP-215
SiO ₂	54.32	51.61	50.69	49.72	52.51	72.19	71.76	71.99	71.64	70.63	71.79	71.58	73.53	70.95	71.24
Al ₂ O ₃	17.69	16.42	15.38	15.45	14.35	14.64	14.64	14.92	15.22	15.80	14.87	15.99	14.90	16.14	14.64
Fe ₂ O ₃	1.59	1.84	3.12	0.85	1.57	1.02	1.12	0.80	1.38	1.55	0.97	0.81	0.65	0.82	0.86
FeO	3.96	6	6.91	6.39	6.44	1.05	1.00	0.97	0.74	0.98	0.99	0.47	0.61	0.64	0.74
MnO	0.08	0.12	0.18	0.11	0.12	0.04	0.05	0.03	0.04	0.05	0.05	0.03	0.06	0.03	0.04
TiO ₂	0.56	0.35	1.33	0.2	0.44	0.20	0.21	0.20	0.19	0.25	0.18	0.20	0.15	0.21	0.22
CaO	9.22	6.18	7.71	7.68	8.73	1.08	1.84	1.13	0.53	0.71	0.98	0.42	0.53	0.35	1.37
MgO	5.89	9.79	7.13	13.45	10.11	0.59	0.53	0.68	0.52	0.73	0.55	0.45	0.34	0.46	0.57
Na ₂ O	3.59	2.18	2.55	1.99	2.7	3.94	6.00	5.44	3.89	5.15	3.69	4.27	3.91	4.24	4.01
K ₂ O	0.38	2.04	1.65	0.32	0.39	3.91	1.59	2.33	4.53	3.05	4.92	4.88	4.46	5.29	4.71
P ₂ O ₅	0.09	0.04	0.4	0.04	0.06	0.09	0.09	0.09	0.09	0.10	0.09	0.09	0.10	0.11	0.10
LOI	2.49	3.39	2.81	3.75	2.44	1.04	0.96	1.19	1.09	0.78	0.75	0.57	0.52	0.54	1.28
Total	99.88	99.95	99.85	99.92	99.86	99.80	99.79	99.75	99.83	99.77	99.84	99.76	99.77	99.78	99.79
Q	4.51		1.98		0.84	31.27	26.13	28.25	29.93	26.38	28.66	26.78	32.32	24.89	26.49
An	31.87	30.02	26.43	33.55	26.57	4.83	8.42	5.09	2.07	2.9	4.31	1.51	1.99	1.03	6.24
Ab	31.2	19.1	22.23	17.5	23.45	33.76	51.38	46.7	33.34	44.04	31.52	36.43	33.34	36.16	34.45
Or	2.31	12.48	10.05	1.97	2.37	23.4	9.51	13.97	27.12	18.21	29.35	29.08	26.56	31.5	28.26
C	11.64	1.17	8.32	4.63	14.07	2.21		1.63	3.21	3.01	1.93	3.16	2.94	3.09	0.7
Hy	14.81	32.44	22.78	31.99	29.37	2.57	2.4	2.61	2.35	3.09	2.34	1.56	1.48	1.63	2.09
DI	38.02	31.58	34.26	19.47	26.66	88.44	87.02	88.91	90.39	88.63	89.52	92.29	92.23	92.55	89.21
SI	38.22	44.81	33.38	58.48	47.67	5.62	5.19	6.65	4.72	6.39	4.95	4.14	3.41	4.02	5.24
σ43	1.3	1.83	2.03	0.66	0.92	2.1	1.99	2.07	2.46	2.42	2.56	2.92	2.29	3.24	2.67
La	6.87	4.08	12.89	3.26	4.40	27.75	32.51	30.52	31.04	33.45	23.43	32.77	24.06	37.86	38.66
Ce	14.41	8.49	26.03	6.35	9.47	61.65	68.33	67.47	59.26	59.95	51.84	61.87	54.62	74.29	74.18
Pr	2.00	1.19	3.47	0.85	1.39	5.41	5.82	5.83	6.08	6.45	4.62	7.51	5.21	8.81	8.75
Nd	8.71	5.53	15.5	3.66	6.61	17.93	18.52	19.03	20.28	21.07	15.21	26.26	18.30	31.27	30.98
Sm	2.16	1.28	3.32	0.82	1.72	3.16	2.79	3.23	3.30	3.58	2.72	4.84	3.65	5.87	5.73
Eu	1.01	0.66	1.61	0.47	0.83	0.51	0.84	0.62	0.58	0.61	0.55	0.89	0.58	0.93	0.99

Gd	2.13	1.32	3.4	0.83	1.77	2.77	2.18	2.83	2.63	3.35	2.43	3.94	3.26	5.18	4.81
Tb	0.34	0.21	0.52	0.14	0.29	0.51	0.35	0.51	0.43	0.64	0.44	0.71	0.61	1.00	0.83
Dy	2.08	1.28	3.13	0.84	1.75	3.15	1.93	3.06	2.41	4.17	2.63	4.10	3.60	6.13	4.66
Ho	0.38	0.23	0.57	0.15	0.31	0.66	0.40	0.64	0.48	0.90	0.54	0.78	0.67	1.22	0.86
Er	1.07	0.66	1.66	0.45	0.87	1.99	1.16	1.87	1.39	2.78	1.56	2.17	1.84	3.45	2.31
Tm	0.15	0.09	0.24	0.07	0.12	0.35	0.19	0.31	0.22	0.52	0.25	0.34	0.29	0.54	0.35
Yb	0.96	0.56	1.4	0.41	0.74	2.45	1.25	2.03	1.45	3.83	1.66	2.21	1.90	3.32	2.19
Lu	0.13	0.08	0.21	0.06	0.1	0.35	0.19	0.28	0.21	0.59	0.24	0.28	0.26	0.42	0.32
Y	9.78	5.87	14.97	4.03	8.03	19.77	11.56	18.71	14.92	27.21	15.47	21.25	19.90	34.34	23.48
ΣREE	42.4	25.66	73.95	18.36	30.37	128.64	136.46	138.23	129.76	141.89	108.12	148.67	118.85	180.29	175.62
LREE	35.16	21.23	62.82	15.41	24.42	116.41	128.81	126.70	120.54	125.11	98.37	134.14	106.42	159.03	159.29
HREE	7.24	4.43	11.13	2.95	5.95	12.23	7.65	11.53	9.22	16.78	9.75	14.53	12.43	21.26	16.33
LREE/HREE	4.86	4.79	5.64	5.23	4.1	9.52	16.84	10.99	13.07	7.46	10.09	9.23	8.56	7.48	9.75
(La/Yb) _N	5.13	5.23	6.6	5.7	4.27	8.12	18.66	10.78	15.36	6.26	10.12	10.64	9.08	8.18	12.66
δEu	1.42	1.54	1.45	1.72	1.44	0.53	1.04	0.63	0.60	0.54	0.65	0.62	0.51	0.52	0.58
δCe	0.94	0.93	0.94	0.91	0.93	1.23	1.22	1.24	1.06	1.00	1.22	0.97	1.20	1.00	0.99
Ba	148.6	775.3	660.9	116.5	119.6	532.10	342.80	480.60	593.40	419.30	591.10	608.70	483.80	649.80	615.00
Hf	2.23	1.08	2.03	1.05	1.36	7.06	6.42	6.23	5.86	8.38	6.88	7.91	4.18	7.03	6.27
Nb	1.76	0.71	2.2	0.42	0.81	14.28	8.51	11.74	10.67	16.03	12.98	14.81	18.02	16.49	11.66
Rb	8.5	61.9	41.6	9.8	8.4	146.49	57.76	91.26	106.19	154.59	157.74	160.34	186.12	171.06	132.03
Sr	792.7	377.5	450.9	571.9	546.5	161.80	283.10	190.50	168.10	188.40	145.60	118.40	90.40	108.70	106.30
Ta	0.13	0.05	0.18	0.05	0.07	1.82	0.75	1.19	0.89	2.41	1.20	1.60	2.68	1.58	1.11
Th	0.47	0.32	0.68	0.25	0.31	19.47	15.14	23.07	28.17	30.88	21.89	14.60	12.97	16.73	15.72
U	0.3	0.17	0.13	0.05	0.19	5.92	2.46	5.71	7.61	7.38	5.03	2.48	2.20	3.01	2.58
Zr	44	27.1	40.4	28	33.3	145.70	119.50	124.90	137.60	167.00	131.80	211.10	95.20	173.30	182.50