Table S2. Rock compositions in borehole OB-36

Компонент	Number									
	1	2	3	4	5	6	7	8	9	10
	Depth, m									
	69.5	86.8	102.5	129.6	129.8	138. 4	200	205.4	213.6	221.8
	Formation									
	mr	mr	mr	mr	mr	mr	mr	mr	mr	mr
SiO_2	49.43	53.27	50.61	50.18	49.19	49.16	50.64	51.57	49.82	50.87
TiO_2	1.15	1.79	1.05	1.11	1.12	1.07	1.05	1.14	1.18	1.11
Al_2O_3	16.38	16.26	15.41	15.69	16.51	16.05	16.18	15.61	16.37	16.27
Fe_2O_3	12.01	10.80	10.95	10.85	14.33	10.51	11.66	11.72	11.31	10.57
MnO	0.22	0.16	0.15	0.13	0.15	0.17	0.22	0.15	0.21	0.22
MgO	7.96	3.36	7.59	7.73	8.14	6.84	9.42	6.17	6.90	6.37
CaO	10.18	10.39	11.23	11.82	6.47	13.52	7.67	10.73	11.45	11.18
Na_2O	1.93	2.41	1.84	1.83	4.05	1.89	1.87	2.12	2.20	2.11
K_2O	0.25	0.28	0.41	0.13	0.17	0.15	1.39	0.51	0.33	0.69
P_2O_5	0.17	0.25	0.13	0.13	0.12	0.15	0.11	0.11	0.17	0.14
Li	16.21	33.38	6.39	5.72	21.48	5.50	37.22	14.61	7.47	6.53
Sc	39.2	27.0	38.1	38.3	38.4	38.7	37.8	32.0	33.4	32.0
V	306	204	295	310	293	293	260	263	261	239
Co	51.5	49.7	47.5	51.2	60.2	50.6	48.1	49.2	48.3	43.3
Ni	128	92	102	99.0	125	111	77.1	59.0	56.8	64.0
Cu	136	27.0	140	133	127	112	79	121	104	107
Zn	101	126	103	144	96.1	87.3	116	102	107	145
Rb	5.67	3.86	5.16	1.14	2.68	1.04	44.94	7.25	3.75	9.01
Sr	78.7	421	189	209	166	221	196	318	298	287
Y	25.0	29.1	21.0	23.3	21.6	22.3	24.9	24.1	25.6	23.71
Zr	98.0	223	88.5	93.8	110	96.0	134	135	142	131
Nb	5.33	15.93	4.90	5.69	6.43	5.45	8.70	9.76	9.70	8.38
La	10.5	25.3	9.57	10.4	18.0	10.6	17.7	19.5	19.6	18.1
Ce	23.2	53.2	20.9	24.4	29.7	22.8	37.1	42.5	42.7	37.2
Pr	2.99	6.66	2.79	3.09	3.33	2.94	4.58	5.00	5.11	4.55
Nd	13.6	28.0	12.4	13.4	14.1	13.4	19.0	20.4	20.8	19.0
Sm	3.57	6.19	3.23	3.41	3.36	3.32	4.25	4.39	4.49	4.15
Eu	1.15	1.81	1.03	1.13	1.15	1.09	1.18	1.26	1.28	1.22
Gd	4.17	6.03	3.65	3.85	3.79	3.78	4.47	4.56	4.54	4.35
Tb	0.71	0.93	0.61	0.64	0.62	0.63	0.72	0.69	0.73	0.69
Dy	4.59	5.85	4.04	4.14	3.99	4.25	4.66	4.37	4.67	4.49
Ho	0.95	1.13	0.83	0.86	0.82	0.87	0.96	0.89	0.94	0.90
Er	2.76	3.17	2.40	2.40	2.34	2.51	2.78	2.53	2.67	2.65
Tm	2.71	2.93	2.31	2.37	2.29	2.48	2.75	2.51	2.66	2.56
Yb	0.40	0.43	0.34	0.34	0.33	0.36	0.41	0.37	0.38	0.37
Lu	0.41	0.41	0.34	0.34	0.33	0.36	0.40	0.37	0.38	0.37
Hf	2.64	5.40	2.40	2.36	2.76	2.53	3.49	3.34	3.48	3.36
Ta	0.33	1.01	0.31	0.31	0.39	0.34	0.53	0.55	0.56	0.51
Pb	2.22	20.70	5.10	16.65	7.28	2.39	4.07	3.37	5.13	12.32
U	0.64	1.09	0.60	0.79	0.65	0.69	1.01	0.90	1.08	0.94

Table S2. Continuation 1.

Component	Number									
	11	12	13	14	15	16	17	18	19	20
	Depth,m									
	230	246.8	273.8	289	306	316	324.6	326.8	342	358.4
	Formation									
	mr	nd	nd	nd	nd	nd	nd	nd	nd	nd
SiO_2	51.48	54.60	52.16	53.08	52.55	50.62	51.49	52.84	51.02	51.94
TiO_2	1.04	1.01	1.06	1.05	1.09	1.06	1.04	1.02	1.02	1.09
Al_2O_3	16.55	16.20	15.08	15.31	15.46	15.43	15.60	15.59	15.91	15.64
Fe_2O_3	9.46	10.99	10.70	10.50	10.76	12.88	10.88	10.26	10.48	9.97
MnO	0.18	0.14	0.15	0.20	0.21	0.21	0.20	0.23	0.25	0.26
MgO	6.38	6.58	6.09	5.85	5.91	6.76	6.41	6.35	6.59	6.28
CaO	10.86	4.02	10.04	9.81	9.61	9.17	10.85	9.24	11.06	9.25
Na_2O	2.24	1.69	2.12	2.24	2.62	1.64	2.22	2.97	2.18	3.67
K_2O	1.02	4.46	1.15	1.30	1.50	1.88	0.69	1.06	0.73	0.83
P_2O_5	0.08	0.11	0.14	0.14	0.14	0.15	0.14	0.15	0.13	0.13
Li	6.80	60.48	9.81	8.79	19.48	45.49	12.87	22.66	9.38	57.80
Sc	30.95	31.64	33.15	33.40	33.19	33.28	35.45	34.77	34.67	36.18
V	233	223	260	246	255	274	258	254	247	255
Co	42.0	46.4	40.8	40.2	43.2	55.5	41.2	42.9	42.5	43.5
Ni	60.6	54.9	33.4	38.5	42.5	45.1	36.1	42.2	42.5	48.3
Cu	82.7	88.8	115	92.9	24.0	92.1	92.4	142	105	231
Zn	119	78.0	129	122	112	146	142	191	137	191
Rb	26.6	203	26.8	39.8	63.3	69.5	10.1	34.9	11.0	45.8
Sr	276	208	257	243	302	266	269	288	286	214
Y	23.0	25.4	24.7	26.1	23.7	24.5	25.8	24.6	24.7	27.4
Zr	125	190	141	146	134	134	137	137	133	146
Nb	8.12	13.97	9.48	9.05	9.39	9.27	8.55	9.28	8.54	9.34
La	17.1	25.7	20.9	21.1	19.5	14.7	21.3	19.9	19.6	24.0
Ce	35.8	51.8	43.1	42.7	42.7	36.3	43.2	42.5	40.6	46.8
Pr	4.38	6.22	5.15	5.23	5.04	4.62	5.17	5.01	4.98	5.57
Nd	18.0	24.5	21.1	21.8	20.3	19.2	21.3	19.9	20.4	22.0
Sm	4.08	4.94	4.42	4.73	4.32	4.35	4.65	4.28	4.47	4.72
Eu	1.20	1.21	1.25	1.27	1.21	1.21	1.23	1.19	1.20	1.28
Gd	4.16	4.78	4.56	4.92	4.35	4.42	4.75	4.39	4.60	4.74
Tb	0.67	0.74	0.72	0.78	0.69	0.71	0.76	0.70	0.72	0.77
Dy	4.27	4.53	4.66	4.95	4.41	4.54	4.81	4.49	4.75	4.94
Ho	0.88	0.91	0.93	1.01	0.87	0.89	0.98	0.90	0.93	0.99
Er	2.53	2.57	2.65	2.95	2.50	2.63	2.83	2.72	2.76	2.88
Tm	2.53	2.41	2.73	2.78	2.46	2.60	2.73	2.58	2.65	2.87
Yb	0.35	0.36	0.38	0.41	0.36	0.37	0.41	0.37	0.40	0.42
Lu	0.36	0.36	0.39	0.41	0.36	0.38	0.41	0.38	0.39	0.42
Hf	3.21	4.58	3.65	3.96	3.37	3.30	3.69	3.51	3.57	3.84
Ta	0.48	0.86	0.58	0.56	0.56	0.54	0.54	0.54	0.54	0.58
Pb	6.30	7.31	6.97	7.46	8.72	20.80	6.68	8.66	5.11	6.74
U	0.98	1.14	1.07	1.09	1.06	1.09	1.10	1.08	1.05	1.13

Table S2. Continuation 2.

Component	Number									
	21	22	23	24	25	26	27	28	29	30
	Depth, m									
	364	380	382	390	400	402.3	419.7	438	450.6	466.2
	Formation									
	nd	nd	nd	nd	nd	nd	nd	nd	nd	G
SiO_2	52.22	52.90	50.70	52.84	52.32	51.55	51.79	53.02	54.03	48.20
TiO_2	1.08	1.00	1.02	1.01	0.94	0.95	0.99	0.95	1.13	1.23
Al_2O_3	16.49	15.24	16.12	15.46	16.18	14.52	15.23	15.62	15.27	15.41
Fe_2O_3	9.83	9.40	10.67	10.29	9.49	10.68	10.38	10.09	10.89	12.80
MnO	0.18	0.63	0.46	0.26	0.14	0.23	0.25	0.21	0.25	0.24
MgO	6.71	5.80	7.40	7.27	6.59	8.11	6.85	6.78	4.98	8.07
CaO	7.88	9.17	9.26	8.89	9.80	9.81	10.84	9.32	8.15	10.90
Na_2O	3.24	3.44	2.76	2.52	2.39	2.57	1.69	2.63	3.36	2.28
K_2O	1.46	1.94	0.89	0.99	1.23	1.25	1.15	1.03	1.45	0.30
P_2O_5	0.08	0.23	0.14	0.18	0.12	0.11	0.13	0.14	0.18	0.18
Li	47.10	45.87	33.94	26.71	23.67	17.49	25.63	23.92	25.39	7.29
Sc	38.19	33.62	35.07	33.48	34.43	36.48	34.32	33.14	32.15	36.01
V	266	231	261	253	251	277	250	241	257	265
Co	43.0,	37.0	45.6	42.4	43.0	44.2	43.6	39.3	38.2	54.3
Ni	44.7	38.3	51.1	53.2	51.5	18.2	51.8	42.5	22.1	156
Cu	62.0	112	64.3	93.7	115	65.7	115	100	228	181
Zn	135	277	197	190	126	116	171	137	156	153
Rb	47.6	84.9	34.9	22.3	32.5	43.7	39	36.0	54.6	7.47
Sr	340	366	376	317	323	433	332	427	418	193
Y	24.6	28.9	23.4	21.9	21.1	21.4	22.2	22.3	28.9	23.4
Zr	133	124	128	118	114	108	120	122	173	79.0
Nb	8.34	8.06	8.87	8.45	8.20	6.33	7.86	8.10	12.93	4.12
La	18.0	22.7	18.4	18.7	17.5	15.0	16.4	16.1	22.5	6.25
Ce	36.7	45.6	39.4	39.6	36.9	32.0	34.4	33.8	49.1	14.9
Pr	4.56	5.53	4.69	4.54	4.43	3.97	4.27	4.16	6.03	2.18
Nd	19.3	22.4	18.8	18.1	17.9	16.8	17.6	17.2	24.6	10.9
Sm	4.27	4.99	4.11	3.84	3.88	3.80	3.81	3.88	5.20	3.15
Eu	1.16	1.34	1.13	1.13	1.10	1.07	1.06	1.10	1.27	1.14
Gd	4.33	5.13	4.18	3.94	3.94	3.92	4.04	4.02	5.26	3.97
Tb	0.70	0.80	0.67	0.62	0.62	0.64	0.64	0.65	0.83	0.66
Dy	4.55	5.29	4.21	4.08	3.92	4.11	4.12	4.25	5.28	4.35
Ho	0.90	1.09	0.84	0.81	0.80	0.82	0.84	0.86	1.05	0.90
Er	2.69	3.19	2.42	2.32	2.25	2.40	2.38	2.43	3.03	2.69
Tm	2.53	3.15	2.39	2.24	2.26	2.33	2.38	2.39	3.00	2.53
Yb	0.38	0.47	0.35	0.33	0.32	0.33	0.34	0.35	0.43	0.37
Lu	0.38	0.46	0.36	0.32	0.32	0.33	0.34	0.35	0.44	0.36
Hf	3.34	3.34	3.19	2.97	2.89	2.87	3.11	3.21	4.28	2.15
Ta	0.52	0.50	0.49	0.48	0.48	0.40	0.48	0.50	1.19	0.24
Pb	5.43	8.99	7.94	10.21	6.79	4.54	19.13	4.85	5.60	3.25
U	0.93	1.04	1.03	1.00	0.95	0.81	0.90	0.96	1.38	0.28

Table S2. Continuation 3.

Component	Number									
	31	32	33	34	35	36	37	38	39	40
	Depth, m									
	476	486.6	499.6	509	523.6	533.1	583.5	585.5	588	622
	Formation									
	G	G	nd	nd	nd	nd	nd	nd	hk	gd_2
SiO_2	47.33	48.83	53.76	52.73	53.10	56.90	53.04	57.29	55.23	46.31
TiO_2	1.34	1.63	0.99	1.00	1.04	1.05	0.99	0.91	1.01	1.14
Al_2O_3	14.18	15.17	15.29	15.71	15.67	16.24	15.49	17.42	17.07	8.41
Fe_2O_3	13.93	13.52	9.97	10.00	10.06	9.46	9.82	10.01	9.55	13.19
MnO	0.24	0.28	0.33	0.18	0.20	0.19	0.19	0.20	0.23	0.18
MgO	9.54	6.40	6.00	6.21	6.03	3.97	5.86	4.02	7.40	19.21
CaO	10.35	10.87	8.76	10.36	10.69	5.61	10.90	2.96	3.13	9.50
Na_2O	2.02	2.38	2.42	2.27	2.22	4.59	2.13	4.99	3.50	1.00
K_2O	0.31	0.34	2.06	0.62	0.84	1.86	1.12	1.37	1.57	0.14
P_2O_5	0.16	0.18	0.17	0.14	0.13	0.11	0.13	0.24	0.12	0.14
Li	8.61	8.34	18.87	22.59	13.57	21.42	10.69	17.75	32.29	70.07
Sc	38.86	41.20	32.01	33.92	33.21	28.94	34.99	30.15	31.65	22.72
V	304	374	248	250	248	235	245	252	221	226
Co	62.3	56.1	39.4	38.1	39.5	30.5	36.1	39.9	40.2	90.9
Ni	233	191	21.1	19.4	22.0	11.7	29.2	74.2	94.9	105
Cu	189	441	34.3	59.0	42.5	74.1	36.5	339	51.4	111
Zn	168	107	155	138	95.5	137	120	172	136	133
Rb	7.58	9.82	79.3	21.9	24.0	72.0	39.2	42.0	49.2	6.94
Sr	177	202	459	322	288	308	271	262	263	179
Y	26.9	31.5	22.3	24.4	23.6	22.9	26.0	24.9	23.9	15.4
Zr	91.5	125	124	134	132	146	142	142	116	79.9
Nb	4.68	5.46	9.54	9.80	10.3	10.3	9.42	9.43	9.76	5.26
La	6.66	8.32	16.7	20.9	20.4	15.8	22.2	19.6	18.1	7.55
Ce	16.0	20.1	37.6	44.1	43.9	35.7	44.3	42.3	40.9	17.7
Pr	2.36	2.85	4.47	5.34	5.21	4.44	5.44	5.00	4.73	2.46
Nd	11.8	13.7	18.2	22.0	20.9	18.4	22.4	20.2	18.8	11.6
Sm	3.56	3.99	4.03	4.67	4.35	4.15	4.82	4.40	3.98	3.05
Eu	1.20	1.39	1.14	1.24	1.18	1.13	1.23	1.30	1.11	1.01
Gd	4.40	5.05	4.14	4.58	4.30	4.12	4.79	4.47	4.19	3.35
Tb	0.74	0.80	0.65	0.72	0.68	0.68	0.74	0.71	0.67	0.52
Dy	4.88	5.44	4.22	4.66	4.33	4.39	4.75	4.51	4.47	3.16
Ho	1.03	1.15	0.84	0.93	0.87	0.87	0.94	0.93	0.88	0.61
Er	2.95	3.29	2.43	2.69	2.50	2.48	2.74	2.62	2.58	1.63
Tm	2.82	3.00	2.40	2.59	2.41	2.41	2.65	2.56	2.59	1.38
Yb	0.41	0.43	0.34	0.38	0.35	0.35	0.38	0.37	0.37	0.21
Lu	0.41	0.46	0.35	0.38	0.36	0.35	0.40	0.39	0.36	0.19
Hf	2.50	3.13	3.14	3.45	3.33	3.77	3.65	3.64	3.09	2.18
Ta	0.29	0.34	0.56	0.60	0.60	0.64	0.60	0.58	0.64	0.35
Pb	2.75	2.06	4.36	9.60	6.96	2.61	7.52	22.09	4.85	2.91
U	0.28	0.41	1.13	1.07	1.08	1.06	1.12	1.47	1.45	0.37

Table S2. Continuation 4.

Component	Number									
	41	42	43	44	45	46	47	48	49	50
	Depth,m									
	630	635.7	639	642	642x	643.4	669	672	677.5	678.5
	Formation									
	gd_2	gd_2	gd_2	gd_2	gd_2	gd_2	gd_2	gd_2	gd_2	gd_2
SiO_2	48.75	47.49	49.38	50.66	51.76	48.25	47.36	47.47	47.96	48.96
TiO_2	1.62	1.31	1.56	1.40	1.15	1.24	1.25	1.49	1.24	2.24
Al_2O_3	10.77	9.28	11.03	10.69	15.31	9.41	7.98	10.45	8.69	9.69
Fe_2O_3	13.09	13.62	13.48	11.72	11.24	13.17	13.74	12.80	14.09	15.09
MnO	0.19	0.20	0.19	0.20	0.22	0.20	0.20	0.17	0.16	1.16
MgO	14.47	17.46	12.41	11.68	6.39	12.12	21.48	16.14	19.45	20.45
CaO	9.09	7.52	9.79	11.55	10.77	6.98	6.22	8.41	6.82	7.82
Na_2O	1.17	0.13	1.44	1.40	2.16	0.81	1.08	0.12	0.78	1.78
K_2O	0.11	1.09	0.07	0.20	0.74	0.25	0.28	1.33	0.21	1.21
P_2O_5	0.17	0.11	0.14	0.12	0.13	0.14	0.09	0.12	0.14	1.14
Li	86.30	230.04	25.58	15.13	10.32	66.23	18.92	248.76	60.79	61.79
Sc	31.07	74.72	28.58	25.71	34.28	23.84	21.69	84.50	23.66	24.66
V	335	225	292	275	273	257	247	200	250	251
Co	121	86.6	72.8	67.9	46.2	92.5	107	40.9	103	104
Ni	1296	79.5	674	643	41.4	995	1261	58.0	1271	1272
Cu	66.9	92.4	122	177	88.5	51.3	108	95.1	74.2	75.2
Zn	130.84	1455	105	63.5	119	100	126	1177	119	120
Rb	6.49	48.7	2.36	7.27	13.1	4.98	9.73	54.7	6.16	7.16
Sr	297	2.87	242	249	371	228	175	3.44	163	164
Y	18.7	1.41	19.3	12.7	24.9	14.4	12.7	1.62	13.9	14.9
Zr	94.5	1.94	97.6	84.9	141	72.5	70.6	2.24	72.9	73.9
Nb	6.94	0.40	6.74	6.18	10.12	5.33	5.39	0.41	5.39	6.39
La	7.93	16.2	8.17	8.43	20.7	6.08	5.42	17.1	6.27	7.27
Ce	21.1	0.49	20.0	19.7	45.2	16.2	14.1	0.87	15.9	16.9
Pr	2.96	10.8	2.90	2.75	5.33	2.27	1.98	12.4	2.22	3.22
Nd	13.9	169	13.8	12.9	21.6	10.7	9.43	207	10.5	11.5
Sm	3.67	4.72	3.85	3.30	4.48	2.82	2.54	8.50	2.87	3.87
Eu	1.23	0.54	1.26	1.20	1.25	0.94	0.89	0.58	0.95	1.95
Gd	4.08	0.51	4.20	3.54	4.52	3.13	2.79	0.58	3.15	4.15
Tb	0.62	3.15	0.65	0.55	0.72	0.47	0.43	3.68	0.50	1.50
Dy	3.78	0.61	4.00	3.26	4.52	2.90	2.56	0.71	2.95	3.95
Ho	0.71	14.66	0.74	0.62	0.92	0.54	0.50	16.40	0.54	1.54
Er	1.89	0.20	1.97	1.63	2.62	1.45	1.28	0.22	1.48	2.48
Tm	1.55	0.17	1.70	1.35	2.61	1.19	1.09	0.19	1.24	2.24
Yb	0.24	1.33	0.27	0.21	0.37	0.19	0.17	1.45	0.19	1.19
Lu	0.23	0.24	0.23	0.19	0.37	0.17	0.15	0.88	0.17	1.17
Hf	2.53	1.10	2.66	2.22	3.51	1.94	1.86	1.20	1.98	2.98
Ta	0.44	6.79	0.46	0.40	0.56	0.34	0.34	7.32	0.35	1.35
Pb	1.40	2.28	1.86	3.20	6.27	1.07	3.70	2.47	2.07	3.07
U	0.52	5.86	0.46	0.40	1.11	0.40	0.35	6.15	0.38	1.38

Table S2.

Component	Number									
	51	52	53	54	55	56	57	58	59	60
	Depth, m									
	689.5	692.5	701.2	711	721.8	732	745	759	763	783.6
	Formation									
	gd_2	gd_2	gd_2	sv	sv	sv	sv	sv	sv	sv
SiO_2	48.35	48.83	48.57	50.57	49.76	51.14	51.65	50.02	51.25	51.80
TiO_2	1.45	1.43	1.51	1.79	1.88	1.85	1.89	1.87	1.78	1.79
Al_2O_3	10.50	10.41	10.73	15.74	15.64	15.82	15.54	15.67	15.44	16.81
Fe_2O_3	13.11	13.12	13.45	10.56	11.36	10.60	11.63	11.88	10.59	11.32
MnO	0.20	0.18	0.22	0.20	0.28	0.16	0.19	0.20	0.14	0.12
MgO	17.14	15.98	14.90	6.21	6.41	5.75	7.30	6.63	5.90	5.93
CaO	7.42	8.56	8.69	10.93	10.94	10.56	7.29	9.86	10.95	7.12
Na_2O	1.05	1.19	1.29	2.64	2.55	2.73	3.04	2.76	2.64	3.01
K_2O	0.16	0.09	0.11	0.46	0.31	0.66	0.77	0.73	0.70	1.16
P_2O_5	0.15	0.11	0.13	0.21	0.29	0.19	0.21	0.25	0.24	0.23
Li	71.40	53.30	52.91	6.52	9.03	7.92	40.48	9.02	5.15	49.11
Sc	25.88	26.54	25.80	33.14	32.83	31.72	30.79	31.41	30.74	28.82
V	259	281	298	253	252	246	245	240	253	231
Co	75.7	78.5	80.1	40.1	40.8	40.4	45.5	44.7	41.8	37.9
Ni	769	794	750	58.5	47.9	50.4	62.1	52.4	53.2	58.4
Cu	90.5	62.9	35.7	59.1	59.1	68.0	25.6	95.4	44.2	20.4
Zn	125	95.8	150	74.6	142	115	123	116	139	113
Rb	4.18	2.85	3.21	4.83	3.92	7.01	18.2	8.00	8.84	32.7
Sr	183	212	218	439	458	424	407	424	414	351
Y	16.8	16.1	16.4	24.5	25.9	23.6	24.0	26.8	22.4	24.4
Zr	85.9	81.7	81.3	156	168	152	151	159	140	214
Nb	5.85	6.31	6.56	10.01	11.61	11.02	11.07	11.39	10.37	14.44
La	6.53	6.96	7.15	17.1	18.9	16.6	16.8	17.5	16.2	18.4
Ce	16.6	17.3	18.8	36.5	40.5	36.1	37.9	38.4	36.0	40.8
Pr	2.41	2.48	2.63	4.77	5.28	4.72	4.72	4.96	4.60	5.20
Nd	11.8	11.9	12.4	20.9	23.3	20.8	20.7	21.8	20.2	22.4
Sm	3.40	3.25	3.35	5.15	5.40	4.94	4.80	5.19	4.67	5.06
Eu	1.08	1.09	1.17	1.79	1.84	1.71	1.73	1.78	1.61	1.52
Gd	3.73	3.57	3.55	5.17	5.54	5.13	5.04	5.46	4.84	4.94
Tb	0.57	0.54	0.56	0.79	0.86	0.78	0.80	0.84	0.73	0.78
Dy	3.51	3.23	3.33	4.85	5.39	4.83	4.81	5.13	4.55	4.96
Ho	0.67	0.59	0.63	0.93	1.02	0.92	0.91	0.98	0.87	0.96
Er	1.76	1.60	1.62	2.63	2.81	2.55	2.48	2.72	2.35	2.69
Tm	1.49	1.33	1.37	2.35	2.49	2.28	2.21	2.33	2.11	2.49
Yb	0.23	0.21	0.21	0.35	0.38	0.34	0.34	0.36	0.32	0.37
Lu	0.20	0.19	0.19	0.32	0.35	0.32	0.31	0.34	0.31	0.34
Hf	2.40	2.18	2.21	3.83	4.24	3.72	3.71	3.69	3.42	4.97
Ta	0.40	0.40	0.40	0.59	0.67	0.65	0.61	0.63	0.56	0.78
Pb	2.40	2.56	2.74	2.89	4.56	2.90	4.47	3.97	4.49	8.28
U	0.41	0.39	0.44	0.41	0.52	0.44	0.49	0.47	0.47	0.66

Table S2. End.

Component	Number							
	61	62	63	64	65	66	67	68
	Depth, m							
	795	806.5	814.3	827.7	841.2	845	852.5	861.6
	Formation							
	sv	sv	sv	sv	sv	sv	sv	sv
	50.45	51.03	49.48	50.90	53.40	51.58	50.27	48.41
SiO_2	1.93	1.93	2.14	2.05	1.83	1.94	1.89	1.63
TiO_2	13.29	15.31	15.14	16.02	15.93	16.60	15.81	16.89
Al_2O_3	11.09	12.38	10.57	11.88	8.71	11.80	10.44	14.42
Fe_2O_3	0.16	0.17	0.18	0.17	0.18	0.25	0.25	0.13
MnO	7.97	5.00	3.56	7.36	3.80	6.30	4.65	5.41
MgO	11.21	9.80	14.29	6.45	12.18	8.26	13.40	8.67
CaO	1.91	2.58	3.28	3.57	2.47	2.33	2.24	3.20
Na_2O	0.39	0.71	1.05	0.65	0.66	0.52	0.43	0.38
K_2O	0.23	0.26	0.28	0.33	0.23	0.30	0.29	0.23
P_2O_5	14.40	18.69	30.53	14.87	14.00	16.45	13.25	45.21
Sc	31.43	29.70	31.22	31.01	28.55	28.97	27.40	25.83
V	270	242	264	252	230	231	235	194
Co	48.0	36.7	27.5	43.3	32.5	38.7	43.9	35.3
Ni	144	48.9	56.4	52.1	37.9	45.3	89.9	80.2
Cu	36.8	45.7	68.5	39.1	34.8	31.8	46.4	47.4
Zn	118	125	61.5	158	145	132	117	188
Rb	2.96	6.15	28.2	7.89	7.26	3.51	2.51	13.1
Sr	416	414	393	495	474	436	489	213
Y	27.4	28.0	28.5	27.7	26.8	27.7	23.2	25.9
Zr	180	205	207	205	208	212	177	200
Nb	12.2	15.3	15.7	15.2	14.4	14.3	12.5	14.3
La	21.0	28.1	24.4	22.4	27.0	27.2	20.7	24.1
Ce	45.3	56.0	53.5	51.0	54.8	55.4	46.1	50.0
Pr	5.88	7.28	6.69	6.46	6.80	6.87	5.76	6.33
Nd	26.0	30.2	29.1	28.0	28.6	28.4	24.4	26.1
Sm	6.42	6.34	6.17	6.13	6.17	6.03	5.42	5.67
Eu	1.95	1.97	2.00	2.05	1.99	2.05	1.95	1.71
Gd	6.34	6.12	6.21	6.06	5.97	6.14	5.31	5.51
Tb	0.92	0.90	0.92	0.90	0.88	0.93	0.79	0.85
Dy	5.75	5.58	5.59	5.43	5.41	5.57	4.71	5.08
Ho	1.07	1.07	1.07	1.06	1.05	1.09	0.91	1.01
Er	2.85	2.87	2.96	2.89	2.93	2.99	2.50	2.84
Tm	2.49	2.54	2.63	2.51	2.65	2.73	2.19	2.61
Yb	0.38	0.38	0.40	0.38	0.40	0.41	0.32	0.39
Lu	0.35	0.38	0.37	0.37	0.38	0.39	0.32	0.37
Hf	4.58	4.66	4.76	4.70	5.07	5.08	4.15	5.01
Ta	0.72	0.83	0.86	0.82	0.86	0.81	0.67	0.91
Pb	9.14	3.76	3.15	5.07	7.20	15.45	4.63	4.86
U	0.60	0.80	0.77	0.62	0.75	0.76	0.56	0.94

Note. Oxides are given in wt.%, elements are in ppm. Formations: mr - Morongovsky, nd - Nadezhdinsky, hk - Khakanchansky, gd_2 – Gudchikhinsky (middle subformation), sv – Syverminsky. G – gabbro-dolerite.