					X-Ray Fluoresence										
Sample	**Location**	**Lithology**	**Latitude**	**Longitude**	**SiO_2**	**Al_2O_3**	**TiO_2**	**FeO**	**MnO**	**CaO**	**MgO**	**K_2O**	**Na_2O**	**P_2O_5**	**Total**
2730C01A	Johnson River, Iliamna	Porphyritic andesite	506198	6667661	55.45	18.36	0.660	6.59	0.138	9.89	4.22	1.30	2.93	0.100	99.64
2730C02A	Johnson River, Iliamna	Porphyritic andesite	506401	5667784	50.10	20.35	0.723	8.28	0.153	11.56	5.45	0.59	2.50	0.103	99.81
2730C03	Johnson River, Iliamna	Porphyritic andesite	506453	6667928	70.27	13.81	0.404	4.00	0.154	3.99	2.62	1.55	2.33	0.067	99.19
2730C04B	Johnson River, Iliamna	Porphyritic andesite	506482	6668069	59.84	16.18	0.610	7.06	0.379	3.74	5.92	1.12	2.84	0.079	97.77
2709C09	Little Oshetna River	Pyroxene phyric lava	0465051	6894331	58.89	16.92	0.902	5.97	0.357	7.40	4.26	1.62	2.93	0.186	99.43
2709C04	Little Oshetna River	Basaltic andesite	0464922	6894552	57.64	18.31	0.959	6.08	0.227	7.15	4.30	1.58	3.48	0.196	99.92
2712C11	N of Little Oshetna River	Aphyric lava	0463784	6896822	50.40	17.95	0.945	9.90	0.184	11.73	6.37	0.13	1.93	0.122	99.66
2712C08	N of Little Oshetna River	Aphyric lava	0463522	6896478	50.88	17.79	0.955	9.41	0.176	11.09	7.19	0.13	2.46	0.140	100.22
2712C05	N of Little Oshetna River	CPX phyric lava	0463513	6896358	50.27	17.12	0.934	9.19	0.198	11.57	8.26	0.12	2.15	0.147	99.96
2713C15	Southern Talkeetna Mtns	Plagioclase-phyric lava	0464743	6897008	50.48	19.31	0.936	9.45	0.178	10.90	5.86	0.20	2.55	0.142	100.01
2713C09	Southern Talkeetna Mtns	Aphyric lava	0464674	6896695	51.33	18.45	0.920	8.89	0.174	10.97	5.90	0.18	2.66	0.136	99.61
2713C20	Southern Talkeetna Mtns	Aphyric lava	0465065	6897859	51.36	17.80	0.774	8.92	0.171	10.49	7.68	0.18	2.88	0.093	100.34
2714C10	Gold Creek, Talkeetna Mtı	Plagioclase-phyric lava	0466758	6900640	63.86	16.40	0.666	6.18	0.141	4.33	1.74	2.45	3.64	0.239	99.64
2714C08	Gold Creek, Talkeetna Mtı	Aphyric lava	0466535	6900374	52.05	18.24	0.940	9.44	0.170	10.00	5.41	0.41	2.76	0.147	99.57
2714C18	Gold Creek, Talkeetna Mtı	Aphyric lava	0465715	6901393	51.47	20.26	1.128	8.41	0.197	10.81	3.97	0.52	2.83	0.244	99.84
2721C02	Horn Mountains	Aphyric lava	0473653	6873775	70.02	12.63	0.645	3.86	0.103	6.01	1.27	2.06	1.65	0.159	98.41
2722C16	Horn Mountains	Tuff	0473550	6872643	63.24	17.18	0.774	4.08	0.125	6.43	1.65	1.71	3.77	0.203	99.16
2722C04	Horn Mountains	Volcaniclastic sandstone	0473376	6872248	52.09	16.02	0.788	5.84	0.429	15.48	2.55	2.97	2.90	0.154	99.22
2722C12	Horn Mountains	Volcaniclastic sandstone	0473293	6871934	53.67	17.37	1.142	4.80	0.352	14.68	1.43	1.65	4.04	0.305	99.43
2722C08	Horn Mountains	Volcaniclastic sandstone	0473050	6872196	53.93	19.51	0.893	8.44	0.119	8.77	5.39	0.29	2.14	0.180	99.66
2723C03	Horn Mountains	Ignimbrite	0472934	6873342	70.30	16.25	0.432	2.01	0.025	0.44	0.52	3.55	6.67	0.103	100.30
2723C05	Horn Mountains	Lava cobble in breccia	0472814	6873367	46.96	16.97	0.561	6.75	0.307	19.56	5.81	0.75	1.54	0.688	99.90
2723C08	Horn Mountains	Ignimbrite	0472577	6873421	62.53	17.58	0.771	5.11	0.151	4.65	2.36	2.34	3.80	0.201	99.49
2723C11	Horn Mountains	Volcaniclastic sandstone	0471921	6836700	67.51	15.37	0.644	4.44	0.112	5.33	1.73	1.85	1.82	0.166	98.97
2721C13	Horn Mountains	Aphyric lava	0472456	6873060	52.99	13.69	2.723	12.70	0.246	6.75	3.89	0.40	5.10	0.914	99.40
2717C01	Mount Monarch, north	Andesite	0450042	6863857	64.15	19.30	0.862	7.21	0.045	2.90	1.59	2.95	0.79	0.053	99.85
2717C09	Mount Monarch, north	CPX phyric lava	0449966	6864005	55.52	19.22	0.687	12.63	0.154	3.57	4.71	0.29	2.53	0.078	99.39
2717C10	Mount Monarch, north	Aphyric lava	0449912	6864046	57.62	15.40	1.365	11.88	0.240	4.41	3.48	0.40	3.67	0.400	98.86
2716C19	Mount Monarch, west	Tuff	0449789	6863546	59.21	18.09	0.783	8.76	0.209	4.18	4.03	0.30	3.51	0.170	99.25
2717C16	Mount Monarch, north	Aphyric lava	0449488	6864183	65.24	15.61	1.046	6.47	0.141	4.40	1.88	0.51	4.52	0.184	100.00
2716C24	Mount Monarch, west	Plagioclase-phyric andesit	0449178	6864083	64.61	15.80	0.773	5.70	0.104	3.45	1.29	2.85	4.48	0.255	99.31
2719C02	West of Monarch Mtn	Tuff	0448898	6862840	65.39	17.60	0.742	4.47	0.119	6.30	1.67	1.02	2.39	0.195	99.89
2718C04	West of Monarch Mtn	Aphyric lava	0448379	6863235	62.84	14.15	1.444	9.51	0.176	4.86	1.58	0.19	3.95	0.633	99.33
2718C17	West of Monarch Mtn	Felsic lava	0448136	6862047	76.38	14.33	0.166	1.86	0.038	2.08	0.38	1.12	3.66	0.043	100.06
2719C06	E Boulder Creek	Aphyric lava	0448075	6864651	63.94	17.81	0.773	4.22	0.119	2.33	1.92	2.30	5.84	0.341	99.60
2718C13	West of Monarch Mtn	Aphyric lava	0447923	6862213	52.91	17.29	1.366	10.41	0.204	9.09	4.16	0.69	3.15	0.308	99.58
2710C14	NE side of Sheep Mtn	Volcaniclastic sandstone	0474184	6858607	54.90	17.27	0.940	9.58	0.206	6.33	5.18	0.32	5.05	0.116	99.89
2710C10	NE side of Sheep Mtn	Basalt lava	0474042	6859027	52.27	15.74	1.347	12.07	0.221	6.20	5.17	1.84	4.32	0.207	99.38
2710C07	NE side of Sheep Mtn	Plagioclase-phyric lava	0473922	6858940	55.20	18.16	0.884	7.91	0.160	11.50	2.95	0.56	2.11	0.097	99.53
2710K02	NE side of Sheep Mtn	Basaltic andesite	0473888	6858960	59.29	17.90	0.801	8.01	0.243	5.73	3.47	0.27	3.67	0.125	99.51
1725C05	Sheep Mountain	Ignimbrite	475478	6854883	61.22	15.13	0.897	8.13	0.183	4.47	2.80	1.87	3.92	0.237	98.85
1725C02	Sheep Mountain	Sandstone	475451	6854812	72.36	11.58	0.718	4.86	0.138	1.69	1.30	0.45	4.83	0.341	98.26
1725C03	Sheep Mountain	Tuff	475451	6854812	70.33	13.29	0.664	4.24	0.089	1.84	1.00	0.78	6.24	0.179	98.65

					X-Ray Fluoresence										
Sample	**Location**	**Lithology**	**Latitude**	**Longitude**	**SiO_2**	**Al_2O_3**	**TiO_2**	**FeO**	**MnO**	**CaO**	**MgO**	**K_2O**	**Na_2O**	**P_2O_5**	**Total**
1721C01	Sheep Mountain	Sandstone	474455	6855355	67.59	14.84	0.668	4.97	0.149	3.59	1.68	1.88	3.53	0.107	99.01
1721C10	Sheep Mountain	Sandstone	474431	6855377	59.62	17.84	0.957	8.95	0.172	4.44	2.96	0.59	3.58	0.254	99.36
1721C08	Sheep Mountain	Basalt	474246	6855659	50.30	17.39	1.156	10.70	0.195	8.81	4.78	0.91	3.69	0.190	98.12
1721C05	Sheep Mountain	Volcanic Sandstone	474038	6855843	58.85	17.66	0.702	5.65	0.142	8.49	2.27	1.48	3.16	0.194	98.60
1721C04	Sheep Mountain	Tuff breccia	473970	6855869	57.16	17.57	1.093	9.19	0.191	8.19	3.26	0.82	2.52	0.271	100.26
1723C13	W of Tazlina	Basaltic andesite	493273	6856535	57.76	15.30	1.426	10.28	0.171	7.25	3.28	0.61	3.16	0.292	99.52
1723C10	W of Tazlina	Sandstone	492972	6856461	51.15	18.10	0.951	9.53	0.219	10.00	4.12	0.12	4.81	0.121	99.12
1723C01	W of Tazlina	Dacitic tuff	492794	6854442	74.98	11.31	0.614	4.17	0.119	1.96	1.69	0.12	4.46	0.102	99.52
1723C05	W of Tazlina	Basalt	492655	6855257	56.76	16.31	0.730	8.54	0.139	4.63	8.02	0.21	4.39	0.129	99.85
1723C07	W of Tazlina	Rhyolitic tuff	492531	6856143	49.43	18.27	0.855	9.72	0.190	8.53	6.84	0.61	4.60	0.185	99.23
1719C13	E. of Matanuska Glacier	Crystal lithic tuff	474143	6845494	71.60	14.08	0.399	3.07	0.091	2.61	0.90	1.37	4.51	0.076	98.70
1716C04	E. of Matanuska Glacier	Rhyolitic tuff	472836	6846735	74.69	12.83	0.260	2.07	0.074	1.65	0.41	0.66	5.37	0.044	98.06
1716C11	E. of Matanuska Glacier	Tuff-thin bedded	472733	6847339	73.32	13.14	0.335	2.90	0.094	1.23	0.66	0.17	5.75	0.077	97.68
1717C15	E. of Matanuska Glacier	Dacite	472731	6845978	70.92	13.30	0.478	3.12	0.057	4.51	1.09	0.37	4.22	0.106	98.17
1722C15	E. of Matanuska Glacier	Basaltic andesite	472390	6849715	58.47	16.42	0.922	9.02	0.237	3.29	3.48	0.41	5.78	0.187	98.21
1717C07	E. of Matanuska Glacier	Crystal lithic tuff	472289	6846963	52.85	16.93	0.767	7.84	0.151	15.86	3.67	0.08	0.20	0.098	98.45
1717C11	E. of Matanuska Glacier	Tuffaceous sandstone	472270	6846749	53.31	16.95	0.864	9.34	0.182	9.68	4.59	0.05	3.03	0.141	98.14
1718C03	E. of Matanuska Glacier	Volcanic Breccia	472258	6848476	68.11	15.14	0.657	4.62	0.115	2.77	1.45	0.16	5.31	0.144	98.48
1717C03	E. of Matanuska Glacier	Basalt	472194	6846753	52.59	17.29	0.859	10.11	0.180	9.53	4.63	0.16	2.54	0.113	98.00
1722C03	E. of Matanuska Glacier	Tuff	472186	6848643	64.73	15.69	0.664	5.61	0.158	3.68	2.00	1.23	4.58	0.146	98.49
1719C07	E. of Matanuska Glacier	Basaltic andesite	472137	6847494	56.65	16.12	0.797	9.97	0.217	5.04	4.77	0.14	4.20	0.096	98.00
1718C09	E. of Matanuska Glacier	Basalt	471576	6848297	52.27	14.87	1.248	12.74	0.214	7.58	4.80	0.65	3.30	0.143	97.82
1722C07	E. of Matanuska Glacier	Dacite	471078	6848979	69.98	14.59	0.502	3.14	0.118	3.58	0.79	0.59	5.45	0.124	98.86
1724C02	Willow Mountain	Andesitic breccia	595924	6850671	68.45	13.84	0.537	4.80	0.218	1.24	3.11	2.56	3.46	0.086	98.30
1724C03	Willow Mountain	Volcanic breccia	595924	6850671	66.70	14.45	0.648	5.74	0.259	1.75	3.40	1.56	3.77	0.113	98.39
1724C04	Willow Mountain	Dacite	595924	6850671	75.58	11.95	0.352	2.86	0.141	0.71	1.85	0.84	4.52	0.055	98.86
1724C08	Willow Mountain	Ignimbrite	595924	6850671	60.06	15.68	0.819	8.47	0.274	6.45	3.98	0.04	3.47	0.119	99.36
1724C10	Willow Mountain	Andesite	595924	6850671	59.22	16.65	0.787	7.77	0.338	3.96	3.86	1.24	4.03	0.132	97.99
1708C02	Willow Mountain	Tuff	594766	6850709	60.47	14.32	0.719	6.95	0.149	7.40	2.89	2.29	3.85	0.164	99.20
1708C04	Willow Mountain	Sandstone	594766	6850709	60.07	14.70	0.651	6.13	0.164	6.25	3.15	2.37	4.27	0.169	97.92
2711C07	Stuck Mountain	Aphyric lava	0591271	6849826	50.55	16.52	0.871	12.77	0.295	10.31	3.97	0.87	3.09	0.130	99.37
2711C06	Stuck Mountain	Aphyric lava	0591080	6849963	51.19	15.81	0.822	11.84	0.229	6.72	8.79	0.18	3.94	0.165	99.69
2711C04	Stuck Mountain	Aphyric lava	0589361	6850461	55.61	16.54	0.998	10.88	0.585	6.43	5.40	0.06	2.51	0.154	99.17
2711C01	Stuck Mountain	Aphyric lava	0589094	6850262	63.22	16.03	0.880	6.83	0.284	3.75	2.53	0.37	5.42	0.278	99.59
1709C11	Stuck Mountain	Lapilli Tuff	592051	6851864	68.15	14.25	0.577	6.24	0.148	0.85	2.29	2.78	4.14	0.140	99.57
1709C08	Stuck Mountain	Andesite	591395	6851203	61.72	15.19	0.515	6.38	0.124	13.32	0.08	0.16	1.29	0.126	98.91
1709C02	Stuck Mountain	Vesicular lava	591225	6849972	48.96	13.82	0.722	12.67	0.264	11.15	7.89	0.22	2.38	0.219	98.29
1710C11	Stuck Mountain	Lapilli Tuff	589189	6851076	54.94	16.91	0.959	8.87	0.328	8.38	4.42	0.08	2.65	0.180	97.72
1710C08	Stuck Mountain	Volcanic Sandstone	589172	6850355	47.75	19.93	0.617	8.61	0.588	8.04	7.87	2.42	2.37	0.084	98.28
Average					**59.79**	**16.24**	**0.811**	**7.28**	**0.188**	**6.56**	**3.52**	**0.98**	**3.56**	**0.179**	**99.11**

X-Ray Fluoresence																	ICP-MS								
Ni	Cr	Sc	V	Ba	Rb	Sr	Zr	Y	Nb	Ga	Cu	Zn	Pb	La	Ce	Th	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Sa
6	44	38	202	201	18	50	62	22	2.0	19	42	67	0	2	34	0	4.68	9.76	1.36	6.68	2.11	0.62	2.60	0.50	273
29	97	40	278	190	7	193	44	20	2.6	19	60	80	0	9	15	0	3.78	8.26	1.20	6.06	2.02	0.75	2.45	0.45	273
10	27	20	115	249	21	43	66	21	2.2	15	38	42	1	2	12	0	5.31	10.26	1.57	7.43	2.21	0.47	2.47	0.46	273
13	35	32	216	478	14	120	65	26	2.7	16	39	†273	14	12	22	2	8.05	14.52	1.88	8.91	2.79	0.98	3.40	0.60	273
29	85	30	203	307	30	184	126	32	6.0	15	52	81	3	15	39	2	11.73	21.79	3.29	15.60	4.43	1.21	4.91	0.86	270
32	91	27	205	333	32	212	135	28	5.4	17	74	85	3	3	34	1	9.64	21.78	2.94	13.91	4.15	1.15	4.61	0.81	270
38	127	43	265	86	1	384	45	18	4.1	19	65	80	1	0	8	1	3.44	8.17	1.22	6.31	2.22	0.82	2.68	0.48	271
41	155	40	282	63	0	260	45	17	4.3	16	63	72	1	17	11	1	3.87	9.21	1.35	6.90	2.33	0.90	2.74	0.49	271
71	245	42	283	84	1	243	52	17	4.3	18	56	73	1	0	27	2	4.48	10.48	1.52	7.82	2.57	0.94	2.98	0.53	271
36	119	40	251	92	3	266	47	18	4.0	19	62	79	4	0	19	3	3.99	9.35	1.36	7.11	2.41	0.96	2.95	0.51	271
26	128	37	310	102	1	260	48	18	4.0	19	79	76	3	5	18	2	4.11	9.70	1.41	7.31	2.41	0.95	2.93	0.51	271
52	173	37	260	82	0	232	39	15	4.2	17	75	69	0	0	28	3	3.21	7.43	1.10	5.76	1.99	0.77	2.36	0.43	271
6	9	22	39	354	54	204	157	41	7.7	18	12	90	5	15	57	2	16.50	32.25	4.48	20.86	6.05	1.81	6.82	1.19	271
23	51	42	276	116	4	271	55	21	4.1	20	52	80	3	0	12	0	5.08	11.24	1.66	8.37	2.71	1.03	3.27	0.56	271
10	37	24	267	163	5	328	63	20	4.4	19	75	83	3	28	15	0	6.29	14.02	2.00	10.24	3.22	1.21	3.64	0.64	271
8	14	22	89	403	36	300	90	27	4.4	12	17	68	0	14	19	2	8.60	16.04	2.31	10.99	3.21	0.91	3.60	0.64	272
2	5	17	75	570	33	703	100	29	4.9	17	14	94	0	13	39	1	13.08	26.47	3.52	16.72	4.68	1.78	5.10	0.84	272
4	30	22	173	442	22	271	66	27	4.2	17	30	72	4	7	19	0	7.31	13.46	1.88	9.24	2.81	0.93	3.32	0.61	272
0	13	22	105	333	20	284	288	44	7.9	16	5	115	2	20	44	3	14.81	27.00	3.57	17.13	4.81	1.83	5.58	0.95	272
12	47	35	262	109	5	244	46	20	2.2	15	56	79	1	0	18	1	6.01	9.98	1.44	7.54	2.39	0.90	2.94	0.53	272
5	0	21	29	943	38	94	130	37	5.2	10	8	47	2	5	31	0	5.40	14.03	2.15	10.95	3.70	0.80	4.26	0.82	272
19	85	22	213	61	16	259	24	25	1.9	17	73	135	6	16	27	1	4.76	8.61	1.21	6.47	2.10	0.86	2.82	0.50	272
6	11	21	72	420	32	264	199	27	5.9	19	12	76	4	16	22	1	10.96	21.42	2.87	13.83	3.96	1.79	4.45	0.76	272
10	21	25	89	766	35	941	160	35	5.6	15	24	81	4	0	33	1	11.23	23.39	3.31	15.58	4.72	1.35	5.37	0.96	272
10	22	39	242	126	9	138	157	63	13.3	22	20	97	0	15	37	1	13.61	32.12	4.72	24.86	8.41	3.06	10.62	1.86	272
7	7	30	77	1297	49	78	98	28	4.5	21	5	19	0	19	14	1	7.35	17.87	2.62	13.04	4.10	1.36	4.44	0.78	271
42	62	22	124	96	6	127	62	24	3.0	21	6	77	0	5	13	1	2.42	4.01	0.63	3.31	1.34	0.69	2.11	0.44	271
11	22	33	294	210	8	128	81	34	4.9	16	3	94	0	5	10	2	9.96	21.72	3.18	15.67	4.95	1.47	5.54	0.95	271
8	14	25	141	249	6	246	99	32	3.6	17	47	155	10	18	39	3	9.92	21.08	2.81	13.38	4.24	1.43	4.75	0.85	271
2	2	17	73	435	6	255	155	46	3.9	18	0	82	3	4	37	0	6.52	15.67	2.36	12.35	4.57	1.56	6.17	1.15	271
2	4	17	92	2156	33	296	126	40	5.2	15	5	64	2	27	28	5	15.87	31.65	4.13	19.31	5.75	1.54	6.09	1.07	271
1	7	14	111	551	20	196	100	27	5.4	14	8	62	6	12	35	2	10.65	22.18	2.83	12.83	3.59	1.26	3.76	0.66	271
0	0	29	63	236	3	104	135	48	6.6	15	12	137	9	21	51	1	16.02	35.57	4.95	24.70	7.51	1.81	8.22	1.39	271
6	0	4	8	180	23	83	151	46	2.8	16	4	53	0	0	29	0	7.72	18.50	2.69	13.47	4.48	0.88	5.30	1.03	271
4	1	19	72	1066	33	286	100	31	5.7	17	15	64	0	22	36	2	12.61	27.42	3.77	17.78	5.11	1.63	5.44	0.91	271
5	21	40	287	378	8	390	71	29	3.8	18	76	91	0	3	38	1	7.59	17.12	2.46	12.41	4.02	1.47	4.56	0.78	271
28	86	45	263	142	4	132	50	22	2.8	15	52	88	1	5	21	0	4.35	9.52	1.38	7.24	2.51	0.90	3.14	0.56	271
13	53	51	395	959	25	303	63	28	2.6	16	60	102	3	11	11	1	5.83	13.25	1.96	10.28	3.52	1.27	4.45	0.78	271
14	46	34	192	147	7	140	60	24	3.3	17	34	77	3	9	14	0	4.63	10.87	1.60	8.30	2.77	0.94	3.27	0.60	271
12	33	32	167	112	5	279	51	19	3.7	16	45	77	3	10	16	0	4.39	9.13	1.36	7.06	2.30	1.01	2.78	0.50	271
11	23	33	128	850	24	218	96	33	2.9	18	31	89	6	14	20	1	8.59	19.70	2.82	13.79	4.34	1.30	4.97	0.89	172
3	0	24	37	262	7	167	106	35	4.0	11	11	79	2	15	41	2	11.11	25.43	3.52	16.86	5.14	1.49	5.86	1.03	172
5	2	25	33	228	9	41	125	37	3.6	15	11	99	1	18	24	2	7.55	18.81	2.79	13.80	4.38	0.98	5.10	0.94	172

X-Ray Fluoresence																	ICP-MS								
Ni	Cr	Sc	V	Ba	Rb	Sr	Zr	Y	Nb	Ga	Cu	Zn	Pb	La	Ce	Th	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Sa
7	11	22	95	980	26	332	79	24	4.1	12	30	64	4	13	24	0	7.51	15.67	2.06	9.66	2.88	1.08	3.14	0.55	172
6	18	31	187	394	10	236	81	29	3.3	17	55	76	15	7	16	2	6.93	15.53	2.22	11.16	3.62	1.01	4.14	0.74	172
26	64	44	336	631	15	392	65	24	2.6	16	126	88	5	16	11	2	6.24	13.94	1.99	10.10	3.38	1.17	3.92	0.71	172
16	26	24	152	707	25	401	72	19	3.3	19	59	79	4	16	26	2	6.56	13.98	1.88	9.00	2.81	0.97	3.10	0.52	172
6	20	37	222	408	12	114	92	32	3.8	20	34	102	1	4	14	3	9.12	20.13	2.81	13.80	4.34	1.42	4.93	0.88	172
2	10	46	281	255	5	278	74	37	4.0	18	72	117	4	6	20	1	6.50	15.44	2.36	12.46	4.36	1.55	5.46	0.98	172
15	55	33	287	40	1	87	42	20	3.8	15	85	89	0	7	24	2	3.90	8.23	1.23	6.37	2.20	0.80	2.62	0.49	172
6	5	24	48	21	3	123	84	28	3.9	15	5	67	5	6	27	2	5.98	15.14	2.15	10.47	3.35	1.01	3.69	0.73	172
118	243	29	213	80	4	256	49	17	3.0	15	70	74	2	10	19	3	4.45	10.12	1.42	7.05	2.20	0.80	2.52	0.45	172
62	153	39	263	380	5	641	56	20	3.8	17	16	78	2	17	4	0	4.81	11.09	1.57	7.85	2.45	0.90	2.88	0.50	172
6	4	17	35	533	21	236	94	32	3.3	11	8	56	2	7	19	4	6.56	15.15	2.18	10.82	3.52	1.06	4.03	0.76	171
6	0	18	8	249	7	162	122	40	4.0	12	20	46	1	0	23	2	8.88	20.92	3.02	14.91	4.81	1.12	5.45	1.03	171
8	0	17	28	75	4	167	76	25	2.7	9	24	51	0	3	27	1	5.14	12.26	1.82	9.42	3.12	0.88	3.64	0.67	171
3	0	25	40	221	5	323	93	32	2.9	12	2	23	3	0	24	0	6.53	15.10	2.19	10.96	3.62	1.06	4.17	0.78	171
4	8	38	163	143	7	206	58	29	2.5	17	43	116	0	9	17	3	4.45	10.85	1.65	9.00	3.20	1.15	4.04	0.74	172
10	69	33	275	3	2	175	28	14	3.2	16	78	63	0	3	0	0	2.04	5.13	0.81	4.50	1.63	0.67	2.07	0.37	171
9	42	39	320	22	0	383	38	18	3.0	18	106	77	2	4	12	1	3.02	7.30	1.12	6.07	2.10	0.85	2.72	0.48	171
7	8	21	80	43	3	209	72	22	4.0	15	12	60	5	4	28	2	4.50	10.51	1.58	8.24	2.69	1.01	2.94	0.57	171
10	39	36	284	139	2	338	38	19	2.6	16	111	83	0	4	9	1	2.63	6.36	0.99	5.37	2.00	0.67	2.41	0.45	171
6	10	19	83	308	26	253	68	29	1.9	17	38	76	2	15	18	2	5.63	13.34	2.00	10.36	3.55	1.16	4.32	0.81	172
12	28	43	286	57	2	264	39	18	2.5	15	138	94	0	0	15	2	2.85	6.56	1.01	5.53	1.98	0.76	2.50	0.46	171
13	42	†53	446	296	6	240	49	25	3.1	21	†221	107	4	3	0	0	3.23	8.01	1.28	7.20	2.61	1.03	3.45	0.63	171
4	0	21	14	148	5	191	83	34	3.4	15	7	40	2	14	8	0	6.72	15.71	2.30	11.84	4.05	1.32	4.68	0.87	172
11	12	18	54	1584	33	83	206	50	7.1	12	4	128	2	17	33	4	16.60	35.68	4.76	21.92	6.55	1.39	7.21	1.32	172
12	18	28	70	884	25	103	190	47	6.5	14	8	149	6	13	13	3	15.85	34.78	4.71	21.48	6.55	1.35	7.38	1.35	172
6	0	15	5	412	13	64	244	55	8.1	8	58	93	0	28	54	4	17.62	38.70	5.15	23.43	6.90	1.16	7.66	1.41	172
8	23	38	175	19	1	252	57	26	2.9	15	9	153	3	5	10	2	4.59	10.62	1.56	7.90	2.76	0.93	3.51	0.66	172
8	13	45	173	788	9	162	59	25	2.9	18	89	200	3	7	4	1	4.32	9.70	1.45	7.55	2.68	0.91	3.45	0.65	172
9	37	28	157	685	32	190	136	36	4.5	13	59	74	0	22	36	1	10.26	22.40	3.03	14.26	4.45	1.13	5.03	0.94	170
13	27	23	98	751	33	142	143	41	5.7	14	39	81	7	21	27	4	12.79	27.38	3.67	17.27	5.18	1.20	5.68	1.03	170
33	128	35	246	198	13	332	50	22	2.9	13	14	108	3	0	23	0	4.61	9.40	1.38	7.04	2.36	1.00	2.90	0.56	271
113	272	35	230	42	2	92	48	21	2.6	14	11	87	1	4	23	1	5.62	11.54	1.60	8.00	2.69	1.21	3.31	0.61	271
18	90	46	282	68	0	194	65	24	3.7	17	†208	†555	8	1	31	2	5.98	12.87	1.82	9.00	2.92	0.95	3.50	0.63	271
4	4	24	142	456	3	199	134	34	6.4	15	34	141	0	6	23	1	11.46	25.13	3.37	15.65	4.56	1.20	5.04	0.89	271
8	4	22	35	686	44	93	243	63	8.7	20	34	106	1	31	37	4	19.23	40.92	5.36	24.97	7.42	1.57	8.40	1.54	170
0	0	9	61	47	1	700	163	37	6.6	39	3	6	13	11	28	3	13.73	28.39	3.69	16.78	4.93	1.59	5.43	0.98	170
177	186	38	254	52	3	314	52	67	3.6	14	†1887	73	1	93	177	1	99.05	186.40	22.91	104.45	28.77	22.55	32.53	4.02	170
20	68	41	269	52	0	260	84	28	4.4	17	7	186	4	0	38	3	7.53	16.66	2.32	11.26	3.66	1.16	4.19	0.75	171
70	107	32	214	1332	35	299	31	12	2.9	15	7	†497	16	19	0	3	2.71	5.93	0.86	4.43	1.54	0.71	1.95	0.35	171
19	**47**	**29**	**168**	**379**	**14**	**246**	**91**	**29**	**4**	**16**	**65**	**97**	**3**	**11**	**25**	**2**	**8.68**	**18.51**	**2.56**	**12.47**	**3.89**	**1.38**	**4.50**	**0.79**	**A**

Er	Tm	Yb	Lu	Ba	Th	Nb	Y	Hf	Ta	U	Pb	Rb	Cs	Sr	Sc	Zr
2.19	0.33	2.19	0.36	178	0.73	1.06	19.37	1.74	0.03	0.40	0.50	16.8	0.41	44	34.9	53
1.82	0.27	1.74	0.28	166	0.38	0.80	17.13	1.18	0.01	0.18	1.42	6.6	0.19	184	42.7	35
1.99	0.31	2.00	0.33	244	0.88	1.23	18.68	1.88	0.05	0.41	2.26	18.8	0.17	40	18.2	59
2.50	0.38	2.38	0.38	447	0.82	1.17	24.10	1.91	0.05	0.43	15.77	11.8	0.08	117	34.5	58
3.25	0.46	2.78	0.44	289	2.28	3.88	32.72	3.35	0.28	0.99	3.60	27.7	0.31	180	27.7	118
2.86	0.41	2.46	0.37	312	2.10	4.25	28.56	3.69	0.30	1.07	3.48	30.5	0.58	212	32.7	131
1.79	0.26	1.58	0.25	72	0.32	2.14	16.88	1.11	0.15	0.13	1.24	1.6	0.14	381	42.4	35
1.80	0.26	1.64	0.26	69	0.32	1.98	17.48	1.19	0.12	0.16	1.16	0.5	0.01	271	44.2	40
1.98	0.28	1.75	0.27	75	0.40	2.28	18.61	1.39	0.14	0.18	1.48	0.4	0.01	254	42.7	46
1.91	0.27	1.74	0.27	87	0.33	2.08	17.66	1.26	0.13	0.18	1.38	2.4	0.18	272	38.9	41
1.93	0.28	1.75	0.27	87	0.37	2.04	18.19	1.30	0.13	0.17	1.33	1.3	0.05	271	43.2	43
1.65	0.23	1.47	0.23	72	0.27	1.81	15.33	1.02	0.11	0.12	1.22	0.8	0.01	238	43.0	32
4.32	0.65	4.23	0.67	344	2.72	6.08	42.36	4.07	0.42	1.26	5.21	51.6	1.10	193	20.2	143
2.04	0.30	1.87	0.30	117	0.57	2.18	20.40	1.38	0.14	0.19	1.18	2.8	0.08	267	40.2	47
2.30	0.33	2.05	0.32	153	0.65	3.23	22.08	1.65	0.21	0.25	1.65	6.1	0.03	336	30.5	57
2.62	0.39	2.52	0.40	355	1.15	2.59	25.24	2.25	0.19	0.93	2.80	31.2	0.76	275	20.0	79
2.86	0.42	2.69	0.43	540	1.40	4.23	29.33	2.46	0.27	0.59	2.88	31.2	0.56	672	18.6	90
2.63	0.39	2.54	0.40	388	0.50	1.76	24.15	1.75	0.12	0.26	2.13	21.7	0.37	252	26.3	55
4.16	0.63	3.97	0.65	313	1.02	5.79	42.16	5.88	0.32	0.62	2.09	19.5	0.22	266	25.6	264
2.10	0.31	1.95	0.31	94	0.37	1.40	19.99	1.20	0.11	0.21	1.29	4.0	0.09	238	34.0	38
3.49	0.55	3.60	0.58	927	1.62	4.04	29.20	3.73	0.28	0.76	2.12	36.1	0.11	91	14.7	126
2.22	0.33	2.05	0.34	42	0.09	0.54	22.09	0.53	0.03	0.43	0.46	14.4	0.17	233	24.7	15
2.83	0.42	2.67	0.44	386	1.35	4.88	27.52	4.53	0.29	0.73	2.71	27.8	0.38	262	19.0	194
3.64	0.55	3.56	0.57	695	1.99	4.47	34.67	3.88	0.32	1.20	4.26	31.0	1.29	872	20.7	137
6.91	0.96	5.88	0.91	121	1.32	11.77	66.10	4.21	0.76	0.45	1.02	8.2	0.28	140	40.7	153
2.99	0.45	2.91	0.49	1206	1.01	2.15	28.79	2.87	0.15	0.59	0.95	46.9	1.60	75	31.7	88
2.37	0.36	2.27	0.34	83	0.11	0.44	22.90	1.63	0.03	0.26	1.62	6.5	0.82	123	23.1	55
3.61	0.52	3.24	0.53	199	1.27	3.02	33.50	2.39	0.18	0.61	1.12	7.9	0.38	124	34.6	73
3.20	0.47	2.98	0.47	210	1.88	2.55	30.76	2.81	0.18	0.84	8.80	4.6	4.98	239	23.1	92
4.72	0.70	4.48	0.72	420	0.92	1.82	44.62	4.20	0.15	0.48	3.04	6.5	0.12	251	19.1	145
4.15	0.61	3.81	0.62	2138	3.56	3.93	39.74	3.73	0.27	1.28	4.93	31.9	0.95	298	21.3	120
2.56	0.38	2.44	0.41	491	2.22	3.06	24.09	2.68	0.23	0.79	5.74	18.7	0.84	188	16.4	88
5.01	0.71	4.46	0.68	238	2.46	4.53	46.54	3.92	0.27	1.16	5.92	2.7	0.25	98	28.9	124
4.43	0.69	4.52	0.74	179	1.08	1.93	42.72	4.33	0.17	0.53	1.99	21.3	2.79	78	3.1	134
3.15	0.46	2.84	0.45	1034	2.29	3.94	30.76	2.86	0.25	0.83	4.34	30.7	0.98	279	16.4	91
2.89	0.42	2.62	0.42	359	1.07	2.17	26.20	1.92	0.14	0.38	2.38	8.3	0.07	392	35.3	58
2.29	0.33	2.05	0.33	123	0.55	1.18	21.42	1.38	0.08	0.23	1.68	3.4	0.21	129	43.0	44
3.05	0.44	2.81	0.44	924	0.62	1.78	29.00	1.80	0.12	0.32	2.65	26.3	0.62	310	53.1	58
2.33	0.35	2.25	0.36	155	0.71	1.47	22.29	1.63	0.11	0.24	3.23	7.3	0.69	140	34.9	52
1.96	0.29	1.82	0.29	88	0.49	1.25	17.76	1.25	0.09	0.19	2.30	4.4	0.94	262	33.3	40
3.40	0.52	3.20	0.52	872	1.40	2.73	32.41	2.85	0.16	0.60	5.66	23.5	0.55	193	27.9	92
3.98	0.59	3.64	0.58	315	1.62	3.06	38.54	3.21	0.19	0.96	3.24	7.9	0.37	169	19.0	102
3.92	0.60	3.88	0.63	214	1.81	3.45	35.93	3.59	0.21	0.84	1.71	7.4	0.23	38	19.0	117

Er	Tm	Yb	Lu	Ba	Th	Nb	Y	Hf	Ta	U	Pb	Rb	Cs	Sr	Sc	Zr
2.25	0.33	2.16	0.35	904	1.38	2.13	21.15	1.97	0.12	0.61	4.34	24.9	0.26	315	18.4	65
2.86	0.41	2.61	0.41	322	1.12	2.01	27.08	2.00	0.11	0.53	10.94	7.6	0.29	223	31.0	65
2.69	0.39	2.44	0.39	619	0.93	1.79	25.46	1.76	0.10	0.42	2.81	15.7	1.99	403	42.9	57
1.99	0.28	1.80	0.29	686	1.39	1.86	18.72	1.92	0.10	0.72	6.19	22.9	0.36	405	23.5	65
3.29	0.49	3.12	0.51	354	1.50	2.64	31.51	2.47	0.14	0.74	3.73	10.4	0.13	108	33.6	82
3.83	0.56	3.54	0.56	239	0.62	2.06	36.77	2.14	0.12	0.31	3.13	6.1	0.30	273	42.9	66
1.86	0.27	1.71	0.27	28	0.40	1.07	18.08	0.97	0.03	0.45	1.65	1.2	0.12	82	36.9	33
3.07	0.47	3.00	0.48	19	1.28	2.48	27.43	2.44	0.13	0.56	3.05	2.1	0.07	116	18.5	79
1.69	0.24	1.52	0.24	73	0.46	1.67	15.84	1.13	0.07	0.29	2.03	3.7	0.26	247	32.5	41
1.89	0.28	1.75	0.28	311	0.41	1.84	18.32	1.19	0.08	0.19	1.86	6.1	0.86	560	39.1	44
3.20	0.49	3.16	0.51	492	0.91	1.73	30.02	2.70	0.09	0.53	4.76	18.4	0.99	228	13.9	83
4.27	0.65	4.30	0.68	248	1.38	2.50	40.78	3.81	0.17	0.76	2.88	6.4	0.04	165	13.0	119
2.75	0.41	2.66	0.44	72	0.81	1.47	25.44	2.33	0.10	0.44	1.90	2.1	3.24	165	14.5	71
3.20	0.49	3.18	0.52	209	0.95	1.76	29.73	2.63	0.14	0.54	3.03	3.7	0.08	313	18.6	81
2.97	0.44	2.78	0.45	129	0.44	1.13	28.17	1.62	0.05	0.26	1.52	5.1	0.39	202	34.8	51
1.40	0.21	1.31	0.21	14	0.13	0.53	13.53	0.68	0.03	0.10	1.67	1.5	0.05	167	37.7	19
1.85	0.27	1.73	0.27	32	0.23	0.83	17.63	0.96	0.05	0.11	1.72	0.4	0.04	369	45.4	30
2.46	0.38	2.48	0.41	35	0.65	1.44	21.60	2.07	0.11	0.36	4.14	2.0	0.22	199	24.6	63
1.75	0.27	1.66	0.26	127	0.21	0.66	16.82	1.00	0.04	0.12	1.04	2.2	0.54	324	41.6	29
3.35	0.49	3.13	0.50	308	0.65	1.41	32.44	1.96	0.07	0.37	3.49	22.6	0.69	251	24.5	60
1.92	0.28	1.82	0.29	55	0.25	0.72	17.78	1.00	0.04	0.13	0.42	1.9	0.14	249	39.1	31
2.52	0.37	2.28	0.37	280	0.23	0.99	23.34	1.29	0.06	0.13	2.37	6.8	0.27	230	51.3	38
3.56	0.53	3.45	0.55	147	0.80	1.67	33.45	2.49	0.08	0.46	4.85	4.2	0.07	209	18.7	76
5.35	0.82	5.21	0.83	1574	3.20	6.04	50.96	5.82	0.37	1.59	4.50	32.2	0.61	83	18.2	193
5.58	0.85	5.47	0.87	843	3.26	6.11	52.24	5.96	0.39	1.60	4.56	23.4	0.65	101	20.6	198
5.88	0.91	5.80	0.93	409	3.98	6.81	55.22	6.98	0.44	1.88	1.52	11.9	0.65	61	11.3	232
2.70	0.41	2.58	0.41	22	0.63	1.82	25.25	1.73	0.10	0.37	6.22	0.4	0.28	240	35.7	53
2.65	0.40	2.54	0.41	754	0.57	1.56	24.11	1.72	0.09	0.38	3.38	8.7	0.30	156	34.8	51
3.85	0.58	3.66	0.59	613	2.00	3.71	36.16	3.68	0.25	0.98	3.06	28.4	0.10	175	23.6	123
4.08	0.61	3.95	0.63	681	2.09	4.28	39.47	3.87	0.27	1.40	4.97	30.7	0.11	131	23.7	131
2.45	0.36	2.29	0.34	183	0.57	1.43	21.45	1.32	0.04	0.34	1.85	12.2	0.83	335	36.6	41
2.17	0.31	1.94	0.30	32	0.66	1.70	21.08	1.21	0.07	0.21	0.71	1.8	0.11	94	38.2	42
2.48	0.37	2.36	0.38	58	0.85	1.86	23.26	1.79	0.08	0.34	7.40	0.4	0.02	202	47.6	58
3.58	0.54	3.49	0.56	438	1.92	4.69	33.37	3.62	0.26	0.82	2.39	2.9	0.46	195	25.8	124
6.30	0.96	6.22	1.00	660	3.63	6.90	60.91	6.65	0.44	1.78	2.92	43.2	0.08	89	19.4	224
3.96	0.61	3.86	0.62	55	2.52	4.98	38.47	4.45	0.32	1.26	13.50	2.4	0.01	745	13.6	152
4.96	0.52	2.77	0.44	40	0.60	1.83	69.67	1.21	0.12	2.62	1.59	2.9	0.12	322	40.2	43
2.90	0.43	2.70	0.43	52	1.07	2.56	28.48	2.30	0.16	0.57	6.03	0.7	0.01	263	35.9	76
1.35	0.20	1.28	0.20	1243	0.25	0.87	12.53	0.77	0.05	0.13	16.49	35.1	0.63	301	34.8	24
2.97	**0.44**	**2.79**	**0.45**	**360**	**1.16**	**2.60**	**28.50**	**2.47**	**0.16**	**0.61**	**3.53**	**13.4**	**0.50**	**240**	**29.0**	**82**