Table S2: Apatite U-Pb data

Spot name	U (ppm)	Th (ppm)	207Pb/235U	2 SE (%)	206Pb/238U	2 SE (%)	rho	238U/206Pb	2 SE (%)	207Pb/206Pb	2 SE (%)
ECMB1											
ECMB1_1	49.6	28.3	10.6010	4.4	0.3734	3.1	0.71	2.6781	3.1	0.2060	3.1
ECMB1_2	54.4	24.3	9.7938	4.4	0.3707	3.1	0.70	2.6976	3.1	0.1917	3.1
ECMB1_3	33.1	28.4	12.6190	4.5	0.3704	3.3	0.73	2.6998	3.3	0.2472	3.1
ECMB1_4	44.1	12.5	10.8580	4.6	0.3634	3.3	0.71	2.7518	3.3	0.2168	3.2
ECMB1_5	53.9	12.7	9.4952	4.5	0.3404	3.3	0.73	2.9377	3.3	0.2024	3.1
ECMB1_7	36.7	21.4	12.4303	4.4	0.3701	3.1	0.72	2.7020	3.1	0.2437	3.0
ECMB1_8	35.0	11.3	13.0744	4.4	0.3986	3.2	0.72	2.5088	3.2	0.2380	3.1
ECMB1_9	18.9	4.0	18.8677	4.6	0.4342	3.2	0.71	2.3031	3.2	0.3153	3.2
ECMB1_10	43.1	17.7	11.1589	4.5	0.3841	3.1	0.70	2.6035	3.1	0.2108	3.2
ECMB1_11	35.2	92.0	11.5084	4.7	0.3857	3.3	0.71	2.5927	3.3	0.2165	3.3
ECMB1_12	34.6	15.8	12.4772	4.4	0.3950	3.2	0.72	2.5316	3.2	0.2292	3.1
ECMB1_13	48.9	16.5	9.9917	4.4	0.3601	3.1	0.72	2.7770	3.1	0.2013	3.0
ECMB1_14	56.7	21.5	9.3120	4.4	0.3565	3.1	0.72	2.8050	3.1	0.1895	3.0
ECMB1_15	35.4	15.2	11.3952	4.5	0.3801	3.3	0.73	2.6309	3.3	0.2175	3.0
ECMB1_16	56.8	23.2	9.7936	4.5	0.3621	3.4	0.74	2.7617	3.4	0.1963	3.0
ECMB1_17	97.9	67.0	7.2326	4.5	0.3311	3.2	0.71	3.0202	3.2	0.1585	3.2
ECMB1_19	28.9	6.7	14.2073	4.5	0.3971	3.4	0.74	2.5183	3.4	0.2596	3.0
ECMB1_20	41.0	13.5	10.6404	4.6	0.3596	3.4	0.73	2.7809	3.4	0.2147	3.1
ECMB1_21	27.3	4.0	13.9859	4.7	0.3863	3.5	0.74	2.5887	3.5	0.2627	3.1
ECMB1_22	41.1	19.6	12.2605	4.6	0.3878	3.4	0.74	2.5786	3.4	0.2294	3.1
ECMB1_23	18.8	18.3	18.9832	4.4	0.4287	3.2	0.72	2.3326	3.2	0.3213	3.1
ECMB1_24	39.2	13.3	11.5599	4.4	0.3666	3.1	0.69	2.7278	3.1	0.2288	3.2
ECMB1_25	38.3	14.2	11.4021	4.9	0.3664	3.5	0.72	2.7293	3.5	0.2258	3.4
ECMB1_26	164.9	3840.0	6.5949	5.2	0.3419	4.2	0.81	2.9248	4.2	0.1400	3.0
ECMB1_27	38.6	11.9	10.9887	4.4	0.3712	3.1	0.72	2.6940	3.1	0.2148	3.1
~~ECMB1_6~~	~~18.4~~	~~3.7~~	~~18.7929~~	~~4.6~~	~~0.5173~~	~~3.4~~	~~0.73~~	~~1.9331~~	~~3.4~~	~~0.2636~~	~~3.1~~
~~ECMB1_18~~	~~30.5~~	~~6.4~~	~~15.0260~~	~~4.8~~	~~0.4509~~	~~3.6~~	~~0.76~~	~~2.2178~~	~~3.6~~	~~0.2418~~	~~3.2~~
~~ECMB1_28~~	~~38.1~~	~~24.4~~	~~14.3511~~	~~4.8~~	~~0.4319~~	~~3.7~~	~~0.77~~	~~2.3154~~	~~3.7~~	~~0.2411~~	~~3.1~~
~~ECMB1_29~~	~~48.7~~	~~29.8~~	~~11.2605~~	~~4.5~~	~~0.4015~~	~~3.2~~	~~0.72~~	~~2.4907~~	~~3.2~~	~~0.2035~~	~~3.1~~
~~ECMB1_30~~	~~34.2~~	~~10.6~~	~~15.0964~~	~~4.8~~	~~0.4970~~	~~3.8~~	~~0.78~~	~~2.0121~~	~~3.8~~	~~0.2204~~	~~3.1~~
ECMB3											
ECMB3_1	70.1	179.1	8.5024	4.4	0.3394	3.2	0.72	2.9464	3.2	0.1818	3.0
ECMB3_2	33.3	121.6	12.5593	4.9	0.3805	3.8	0.78	2.6281	3.8	0.2395	3.1
ECMB3_3	28.5	72.2	13.1515	4.4	0.3865	3.2	0.72	2.5873	3.2	0.2469	3.1
ECMB3_4	22.0	64.8	15.9828	4.6	0.4130	3.4	0.74	2.4213	3.4	0.2808	3.1
ECMB3_5	22.3	60.6	14.7595	4.7	0.3833	3.4	0.73	2.6089	3.4	0.2794	3.2
ECMB3_6	22.5	72.0	15.7819	4.7	0.4140	3.5	0.75	2.4155	3.5	0.2766	3.1
ECMB3_7	15.9	42.4	19.6392	4.9	0.4431	3.8	0.77	2.2568	3.8	0.3216	3.1
ECMB3_8	4.8	6.3	45.8747	7.7	0.6040	7.0	0.90	1.6556	7.0	0.5511	3.3
ECMB3_9	3.8	6.7	56.4061	9.1	0.6910	8.5	0.93	1.4472	8.5	0.5923	3.2
ECMB3_10	59.0	158.7	8.8574	4.5	0.3435	3.2	0.71	2.9112	3.2	0.1871	3.1
ECMB3_11	48.1	147.1	10.8222	4.5	0.3692	3.3	0.73	2.7086	3.3	0.2127	3.0
ECMB3_12	21.0	53.0	14.8251	4.8	0.4044	3.6	0.75	2.4728	3.6	0.2660	3.1
ECMB3_13	15.9	49.1	19.8998	4.5	0.4494	3.3	0.73	2.2252	3.3	0.3213	3.1
ECMB3_14	15.4	33.1	18.9633	4.9	0.4181	3.8	0.78	2.3918	3.8	0.3291	3.1
ECMB3_15	17.0	50.8	17.4913	5.1	0.4239	4.1	0.79	2.3590	4.1	0.2994	3.1
ECMB3_16	42.6	65.7	8.7769	4.4	0.3503	3.1	0.70	2.8547	3.1	0.1818	3.1
ECMB3_17	42.6	118.3	11.2602	4.5	0.3717	3.3	0.74	2.6903	3.3	0.2198	3.0
ECMB3_18	4.9	11.6	43.5264	7.5	0.6010	6.7	0.89	1.6639	6.7	0.5255	3.4
ECMB3_19	8.0	13.0	30.2100	5.7	0.5080	4.4	0.78	1.9685	4.4	0.4315	3.5
ECMB3_20	47.8	96.7	9.4929	4.4	0.3631	3.1	0.70	2.7541	3.1	0.1897	3.2
ECMB3_21	12.5	32.3	21.9116	4.7	0.4311	3.5	0.75	2.3196	3.5	0.3688	3.1
ECMB3_22	4.2	7.6	51.7630	7.2	0.6630	6.5	0.90	1.5083	6.5	0.5665	3.1
ECMB3_23	5.2	7.7	42.9820	6.0	0.5880	5.1	0.85	1.7007	5.1	0.5304	3.2
ECMB3_24	3.4	5.5	63.3132	7.9	0.7430	7.3	0.92	1.3459	7.3	0.6183	3.2
ECMB3_26	20.3	51.3	16.7809	4.9	0.4150	3.7	0.77	2.4096	3.7	0.2934	3.1
ECMB3_27	8.1	18.1	30.5038	8.2	0.5290	7.6	0.92	1.8904	7.6	0.4184	3.3
ECMB3_28	6.0	10.9	39.1760	6.5	0.5610	5.6	0.86	1.7825	5.6	0.5067	3.3
ECMB3_29	60.4	174.2	9.5511	4.5	0.3602	3.2	0.72	2.7762	3.2	0.1924	3.1
ECMB3_30	28.5	54.8	12.2504	4.5	0.3667	3.1	0.69	2.7270	3.1	0.2424	3.3
ECMB3_31	112.7	387.0	7.7152	5.0	0.3445	3.9	0.77	2.9028	3.9	0.1625	3.2
ECMB3_32	10.4	28.3	25.2184	5.2	0.4710	4.1	0.78	2.1231	4.1	0.3885	3.2
ECMB3_33	8.6	20.1	28.1872	6.2	0.4850	5.2	0.84	2.0619	5.2	0.4217	3.4
ECMB3_34	10.0	31.6	22.8309	9.2	0.4400	8.5	0.93	2.2727	8.5	0.3765	3.4
ECMB3_35	22.9	62.7	15.1554	4.4	0.4009	3.2	0.71	2.4944	3.2	0.2743	3.1
ECMB3_36	40.7	128.6	11.3333	4.5	0.3622	3.3	0.74	2.7609	3.3	0.2270	3.0
ECMB3_38	45.8	70.3	8.9418	4.4	0.3530	3.1	0.71	2.8329	3.1	0.1838	3.1
ECMB3_39	25.8	85.4	13.5569	4.4	0.3798	3.2	0.72	2.6330	3.2	0.2590	3.1
ECMB3_40	36.3	128.5	12.1928	4.5	0.3797	3.3	0.73	2.6337	3.3	0.2330	3.0
ECMB3_42	4.2	6.3	58.7790	6.7	0.7150	5.9	0.88	1.3986	5.9	0.5965	3.1
ECMB3_43	33.8	90.3	11.9596	4.4	0.3699	3.1	0.71	2.7034	3.1	0.2346	3.1
ECMB3_44	23.1	72.5	14.4674	4.7	0.3827	3.5	0.75	2.6130	3.5	0.2743	3.1
ECMB3_45	8.6	11.8	28.0617	5.5	0.5030	4.6	0.83	1.9881	4.6	0.4048	3.1
ECMB3_46	4.3	6.7	50.1885	6.5	0.6330	5.7	0.88	1.5798	5.7	0.5753	3.1
ECMB3_47	7.6	9.7	30.6232	5.0	0.5000	4.0	0.79	2.0000	4.0	0.4444	3.1
ECMB3_48	16.9	32.0	17.7004	5.0	0.4131	3.8	0.75	2.4207	3.8	0.3109	3.3
ECMB3_49	5.2	9.3	44.3465	8.6	0.5950	8.0	0.93	1.6807	8.0	0.5408	3.1
~~ECMB3_25~~	~~9.4~~	~~17.7~~	~~29.5612~~	~~6.0~~	~~0.5490~~	~~5.0~~	~~0.83~~	~~1.8215~~	~~5.0~~	~~0.3907~~	~~3.4~~
~~ECMB3_37~~	~~18.1~~	~~33.5~~	~~19.5908~~	~~4.7~~	~~0.4972~~	~~3.6~~	~~0.76~~	~~2.0113~~	~~3.6~~	~~0.2859~~	~~3.1~~
~~ECMB3_41~~	~~42.7~~	~~97.2~~	~~11.2835~~	~~4.5~~	~~0.3959~~	~~3.3~~	~~0.73~~	~~2.5259~~	~~3.3~~	~~0.2068~~	~~3.1~~

ECMB4											
ECMB4_1	42.2	132.0	7.9502	4.4	0.3331	3.1	0.71	3.0021	3.1	0.1732	3.1
ECMB4_2	20.5	32.1	9.9057	4.6	0.3583	3.2	0.71	2.7910	3.2	0.2006	3.2
ECMB4_3	86.8	161.3	6.4967	4.3	0.3282	3.1	0.71	3.0469	3.1	0.1436	3.0
ECMB4_4	23.4	75.2	10.1149	4.8	0.3677	3.6	0.74	2.7196	3.6	0.1996	3.3
ECMB4_5	6.8	16.9	23.2267	6.0	0.4630	4.3	0.71	2.1598	4.3	0.3640	4.2
ECMB4_6	54.4	168.0	7.0172	4.5	0.3241	3.2	0.71	3.0855	3.2	0.1571	3.1
ECMB4_7	42.2	92.3	8.1260	4.4	0.3428	3.2	0.71	2.9172	3.2	0.1720	3.1
ECMB4_8	43.1	47.8	7.8004	4.5	0.3365	3.3	0.73	2.9718	3.3	0.1682	3.1
ECMB4_9	77.4	218.3	6.9050	4.3	0.3200	3.1	0.71	3.1250	3.1	0.1566	3.1
ECMB4_10	243.4	362.4	5.3710	4.3	0.3120	3.1	0.71	3.2051	3.1	0.1249	3.0
ECMB4_11	128.9	247.7	6.2358	4.3	0.3301	3.1	0.71	3.0294	3.1	0.1371	3.1
ECMB4_12	7.9	25.3	19.9491	6.3	0.4280	5.2	0.83	2.3364	5.2	0.3382	3.5
ECMB4_13	2.6	4.4	41.3289	8.9	0.5880	8.3	0.93	1.7007	8.3	0.5100	3.3
ECMB4_14	7.8	16.4	22.8506	5.5	0.4660	4.3	0.78	2.1459	4.3	0.3558	3.4
ECMB4_15	42.9	96.1	7.9985	4.5	0.3554	3.2	0.72	2.8137	3.2	0.1633	3.1
ECMB4_16	71.2	137.0	6.5874	4.3	0.3256	3.1	0.71	3.0713	3.1	0.1468	3.0
ECMB4_17	67.9	117.3	6.4340	4.3	0.3129	3.1	0.72	3.1959	3.1	0.1492	3.0
ECMB4_18	43.6	44.7	7.5746	4.6	0.3448	3.2	0.69	2.9002	3.2	0.1594	3.3
ECMB4_19	49.5	147.3	7.8430	4.9	0.3605	3.8	0.78	2.7739	3.8	0.1579	3.1
ECMB4_20	12.3	20.5	11.8828	5.4	0.3752	4.2	0.78	2.6652	4.2	0.2298	3.3
ECMB4_21	15.2	37.2	12.2956	4.8	0.3612	3.6	0.75	2.7685	3.6	0.2470	3.2
Standards											
MAD_1	28.4	713.3	1.5713	3.3	0.0860	2.3	0.69	11.6306	2.3	0.1326	2.4
MAD_2	28.0	709.2	1.5796	3.2	0.0855	2.2	0.68	11.7000	2.2	0.1341	2.4
MAD_3	27.8	700.3	1.5342	3.4	0.0846	2.2	0.65	11.8217	2.2	0.1316	2.6
MAD_4	27.8	690.6	1.5090	3.3	0.0831	2.2	0.66	12.0279	2.2	0.1317	2.5
MAD_5	27.9	696.4	1.5248	3.3	0.0863	2.4	0.71	11.5875	2.4	0.1282	2.4
MAD_6	28.1	693.6	1.5438	3.3	0.0855	2.3	0.70	11.6945	2.3	0.1310	2.3
MAD_7	27.1	673.7	1.4123	3.2	0.0839	2.2	0.67	11.9246	2.2	0.1222	2.4
MAD_8	27.6	692.1	1.5598	3.3	0.0860	2.3	0.67	11.6279	2.3	0.1316	2.5
MAD_9	28.2	704.0	1.5330	3.5	0.0846	2.3	0.66	11.8217	2.3	0.1315	2.6
MAD_10	28.1	697.2	1.5045	3.3	0.0847	2.1	0.65	11.8078	2.1	0.1289	2.5
MAD_11	28.0	691.9	1.5490	3.3	0.0852	2.2	0.65	11.7440	2.2	0.1320	2.5
MAD_12	28.0	702.9	1.5404	3.2	0.0836	2.2	0.70	11.9617	2.2	0.1337	2.3
MAD_13	28.3	712.3	1.4711	3.4	0.0834	2.2	0.66	11.9919	2.2	0.1280	2.5
MAD_14	28.0	701.2	1.5407	3.4	0.0843	2.3	0.67	11.8610	2.3	0.1326	2.6
MAD_15	28.1	704.5	1.5307	3.4	0.0847	2.2	0.66	11.8036	2.2	0.1311	2.5
MAD_16	28.1	700.1	1.5184	3.5	0.0851	2.1	0.61	11.7454	2.1	0.1294	2.8
MAD_17	27.2	680.8	1.4555	3.3	0.0847	2.2	0.66	11.8078	2.2	0.1247	2.5
MAD_18	28.7	725.3	1.6133	3.2	0.0858	2.2	0.68	11.6605	2.2	0.1365	2.3
McClure_1	31.5	65.0	2.5769	3.4	0.1009	2.2	0.64	9.9157	2.2	0.1854	2.6
McClure_2	16.5	34.0	3.5750	3.5	0.1089	2.4	0.69	9.1827	2.4	0.2382	2.5
McClure_3	15.2	33.9	3.7798	3.7	0.1101	2.6	0.71	9.0827	2.6	0.2491	2.6
McClure_4	13.6	29.4	3.8994	3.5	0.1125	2.6	0.72	8.8889	2.6	0.2515	2.4
McClure_5	14.6	31.3	3.7320	3.4	0.1099	2.4	0.71	9.0992	2.4	0.2464	2.4
McClure_6	15.0	31.0	3.7084	4.2	0.1085	2.4	0.57	9.2166	2.4	0.2480	3.4
McClure_7	14.5	30.3	3.5285	3.7	0.1078	2.7	0.72	9.2764	2.7	0.2375	2.5
McClure_8	14.7	32.0	4.0311	3.6	0.1105	2.5	0.68	9.0498	2.5	0.2647	2.7
McClure_9	15.3	31.7	3.3715	3.8	0.1099	2.5	0.65	9.0992	2.5	0.2226	2.9
OD306_1	24.3	69.8	5.1614	6.1	0.2861	2.4	0.39	3.4953	2.4	0.1309	5.6
OD306_2	24.8	67.1	4.5124	3.4	0.2825	2.3	0.66	3.5398	2.3	0.1159	2.6
OD306_3	14.0	56.0	4.9799	6.3	0.2893	2.6	0.42	3.4566	2.6	0.1249	5.7
OD306_4	22.9	67.7	4.9913	4.1	0.2845	2.4	0.59	3.5149	2.4	0.1273	3.3
OD306_5	23.8	68.6	4.1846	3.1	0.2813	2.1	0.70	3.5549	2.1	0.1079	2.2
OD306_6	18.3	36.9	4.4793	3.3	0.2889	2.3	0.71	3.4614	2.3	0.1125	2.3
OD306_7	20.3	48.6	4.3296	3.3	0.2843	2.3	0.69	3.5174	2.3	0.1105	2.4
OD306_8	19.8	40.4	4.4902	3.4	0.2909	2.3	0.68	3.4376	2.3	0.1120	2.5
OD306_9	23.9	62.4	5.2166	3.8	0.2861	2.2	0.58	3.4953	2.2	0.1323	3.1
OD306_10	19.7	39.8	4.2460	3.7	0.2811	2.4	0.64	3.5575	2.4	0.1096	2.8
OD306_11	22.9	45.4	4.3426	3.2	0.2849	2.2	0.69	3.5100	2.2	0.1106	2.3
OD306_12	24.0	73.8	4.6749	4.0	0.2815	2.2	0.57	3.5524	2.2	0.1205	3.3
OD306_13	11.3	25.1	4.2567	3.4	0.2831	2.5	0.72	3.5323	2.5	0.1091	2.4
OD306_14	24.0	65.6	4.8882	3.6	0.2784	2.4	0.67	3.5920	2.4	0.1274	2.7
OD306_15	26.1	80.7	4.4955	3.1	0.2812	2.1	0.69	3.5562	2.1	0.1160	2.3
OD306_16	19.0	38.6	5.6322	5.0	0.2880	2.4	0.48	3.4722	2.4	0.1419	4.4
OD306_17	9.5	20.9	9.2240	6.4	0.3210	4.0	0.62	3.1153	4.0	0.2085	5.1
OD306_18	24.1	67.8	5.1256	3.5	0.2901	2.2	0.62	3.4471	2.2	0.1282	2.7
401_1	19.3	139.5	1.0279	4.2	0.0890	2.5	0.59	11.2360	2.5	0.0838	3.4
401_2	19.0	144.6	1.2461	4.4	0.0917	2.4	0.55	10.9051	2.4	0.0986	3.6
401_3	19.1	140.0	0.9271	4.1	0.0884	2.4	0.58	11.3122	2.4	0.0761	3.3
401_4	18.3	137.1	0.9784	4.8	0.0883	2.4	0.49	11.3250	2.4	0.0804	4.2
401_5	19.0	132.4	0.8781	3.6	0.0861	2.3	0.62	11.6144	2.3	0.0740	2.8
401_6	19.7	138.0	0.8524	3.8	0.0859	2.6	0.68	11.6414	2.6	0.0720	2.8
401_7	19.6	137.3	0.8867	4.5	0.0871	2.2	0.49	11.4863	2.2	0.0739	3.9
401_8	19.2	140.3	1.0044	4.6	0.0892	2.8	0.60	11.2108	2.8	0.0817	3.7
401_9	19.1	139.2	0.8821	3.6	0.0872	2.2	0.61	11.4679	2.2	0.0734	2.9
401_10	19.8	143.1	0.8847	3.8	0.0855	2.2	0.58	11.6986	2.2	0.0751	3.1
401_11	19.6	141.1	0.8927	3.6	0.0873	2.4	0.67	11.4548	2.4	0.0742	2.7
401_12	20.1	149.2	0.8859	3.7	0.0852	2.2	0.59	11.7302	2.2	0.0754	3.0
401_13	19.1	139.5	0.9152	4.3	0.0877	2.2	0.52	11.3999	2.2	0.0757	3.6
401_14	19.4	140.3	0.8451	4.1	0.0853	2.3	0.55	11.7247	2.3	0.0719	3.4
401_15	19.6	140.1	0.8696	3.8	0.0855	2.3	0.60	11.6959	2.3	0.0738	3.1
401_16	19.6	140.9	0.9218	4.3	0.0851	2.5	0.58	11.7509	2.5	0.0786	3.5

Strikethrough indicates data discarded because final integrations were not flat