

Table S2a Detrital Monazite SIMS Th-Pb geochronology analysis

	Age (Ma)		208Pb/ 204Pb	204Pb	208Pb/ 232Th	208Pb/ 232Th 1 s.e.	ThO2/ Th	ThO2/ Th 1 s.e.	% Radio. 208Pb
	208Pb/ 232Th	208Pb/ 232Th 1 s.e.							
EC17-1B@11	332	8	12560	1.01	0.0166	0.0004	5.3650	0.0259	100
EC17-1B@12	399	10	13890	0.97	0.0199	0.0005	4.7960	0.0211	100
EC17-1B@13	461	12	10450	0.45	0.0231	0.0006	4.6620	0.0380	100
EC17-1B@14	812	16	12530	3.08	0.0410	0.0008	6.1770	0.0207	100
EC17-1B@16	952	24	26330	0.93	0.0482	0.0012	4.6910	0.0147	100
EC17-1B@17	418	14	11430	0.66	0.0209	0.0007	3.9010	0.0224	100
EC17-1B@2.	422	9	6783	1.28	0.0211	0.0005	5.1830	0.0250	99
EC17-1B@20	793	26	6426	7.50	0.0400	0.0013	3.7810	0.0074	99
EC17-1B@23	553	15	384	4.71	0.0278	0.0007	5.2790	0.0583	90
EC17-1B@26	466	16	1731	0.84	0.0233	0.0008	4.3270	0.0580	98
EC17-1B@27	824	17	34930	0.93	0.0416	0.0009	5.4130	0.0257	100
EC17-1B@29	394	7	7057	1.07	0.0197	0.0004	5.9710	0.0353	99
EC17-1B@3.	447	9	16180	0.81	0.0224	0.0005	5.5430	0.0376	100
EC17-1B@30	574	30	237	2.18	0.0288	0.0015	3.7070	0.0814	84
EC17-1B@32	404	10	6766	1.13	0.0202	0.0005	4.6430	0.0322	99
EC17-1B@33	334	7	15400	0.78	0.0167	0.0004	5.2580	0.0125	100
EC17-1B@35	393	21	159	2.42	0.0196	0.0011	8.1660	0.1676	76
EC17-1B@36	365	8	8863	1.31	0.0182	0.0004	5.4310	0.0172	100
EC17-1B@37	949	22	14890	1.90	0.0481	0.0011	5.1710	0.0134	100
EC17-1B@38	396	7	5831	1.09	0.0198	0.0004	5.8660	0.0338	99
EC17-1B@39	414	10	5898	1.22	0.0207	0.0005	4.9500	0.0284	99
EC17-1B@41	435	14	5616	0.45	0.0218	0.0007	4.0640	0.0616	99
EC17-1B@42	506	14	13040	0.48	0.0253	0.0007	4.4250	0.0495	100
EC17-1B@43	457	17	425	0.87	0.0229	0.0008	6.3960	0.1422	91
EC17-1B@44	362	11	5744	0.19	0.0181	0.0005	4.3590	0.0441	99
EC17-1B@45	393	8	7670	1.34	0.0196	0.0004	5.7290	0.0226	100
EC17-1B@46	406	9	6540	1.55	0.0203	0.0004	5.2860	0.0316	99
EC17-1B@49	483	10	3983	3.61	0.0242	0.0005	5.3110	0.0396	99
EC17-1B@5.	375	7	5786	1.43	0.0187	0.0004	5.9280	0.0398	99
EC17-1B@50	667	68	4919	0.52	0.0335	0.0035	1.9900	0.0142	99
EC17-1B@51	319	8	12370	0.98	0.0159	0.0004	4.6280	0.0146	100
EC17-1B@7	440	12	3908	0.50	0.0220	0.0006	4.2940	0.0305	99
EC17-1B@9	434	9	8833	0.75	0.0217	0.0005	5.3030	0.0327	100
EC17-2@1	439	16	8298	1.10	0.0219	0.0008	5.6080	0.0191	100
EC17-2@10	405	13	12450	0.97	0.0202	0.0007	5.9760	0.0164	100
EC17-2@11	424	14	11720	1.22	0.0212	0.0007	5.8440	0.0182	100
EC17-2@12	392	11	11450	1.23	0.0196	0.0006	6.4040	0.0168	100
EC17-2@13	413	13	5305	1.32	0.0207	0.0007	6.0350	0.0283	99
EC17-2@2	397	13	14950	0.79	0.0198	0.0007	5.9090	0.0237	100
EC17-2@3	780	29	14080	1.67	0.0393	0.0015	5.5570	0.0160	100
EC17-2@5	1012	39	55660	1.06	0.0514	0.0020	5.3420	0.0097	100

EC17-2@6	404	14	12620	0.95	0.0202	0.0007	5.7900	0.0273	100
EC17-2@7	519	17	20680	0.99	0.0260	0.0009	5.9910	0.0211	100
EC17-2@8	386	11	17610	0.74	0.0193	0.0006	6.2800	0.0229	100
EC17-2c@1	1098	43	39040	2.91	0.0558	0.0022	2.7390	0.0170	100
EC17-2c@2	972	456	5230	3.24	0.0492	0.0237	1.7130	0.0545	99
EC17-2c@3	427	8	13090	1.98	0.0214	0.0004	3.1790	0.0300	100
EC17-2c@4	438	9	11820	2.67	0.0219	0.0004	3.0900	0.0291	100
EC17-2c@5	439	9	14170	2.34	0.0220	0.0005	3.0780	0.0278	100
EC17-2c@6	438	31	1229	10.38	0.0219	0.0016	3.0690	0.0180	97
EC17-3@1.	483	31	8190	1.41	0.02418	0.00160	5.969	0.04941	100
EC17-3@10	966	62	37970	1.19	0.04893	0.00320	6.006	0.01562	100
EC17-3@12	373	41	13940	0.54	0.01865	0.00208	3.429	0.01126	100
EC17-3@14	390	28	5615	1.81	0.01947	0.00140	5.446	0.01982	99
EC17-3@16	434	28	4210	2.06	0.02172	0.00142	6.006	0.02631	99
EC17-3@17	865	59	15410	1.64	0.04372	0.00306	5.592	0.01998	100
EC17-3@18	433	31	7468	1.31	0.02163	0.00156	5.419	0.04322	99
EC17-3@19	475	31	8375	1.52	0.02378	0.00158	5.926	0.02020	100
EC17-3@20	433	28	8357	2.05	0.02166	0.00142	6.007	0.02986	100
EC17-3@21	452	37	8173	1.00	0.02263	0.00189	4.677	0.01782	100
EC17-3@22	931	75	24100	2.44	0.04716	0.00386	4.750	0.01102	100
EC17-3@23	439	32	7308	1.70	0.02197	0.00161	5.348	0.01703	99
EC17-3@24	436	29	716	2.69	0.02182	0.00146	6.213	0.05449	95
EC17-3@25	414	28	8181	1.51	0.02068	0.00139	5.843	0.02995	100
EC17-3@26	426	29	11010	1.75	0.02127	0.00147	5.655	0.02907	100
EC17-3@27	398	25	5022	1.31	0.01987	0.00126	6.277	0.02777	99
EC17-3@28	434	31	14970	0.79	0.02172	0.00156	5.486	0.01799	100
EC17-3@29	309	20	8092	1.63	0.01539	0.00099	6.088	0.01656	100
EC17-3@3.	419	30	5623	1.71	0.02092	0.00149	5.519	0.01978	99
EC17-3@30	444	27	3860	3.62	0.02219	0.00134	6.507	0.02119	99
EC17-3@31	321	25	18210	1.19	0.01603	0.00124	5.055	0.01676	100
EC17-3@32	323	25	24350	0.56	0.01609	0.00128	4.910	0.02149	100
EC17-3@33	303	25	20920	0.61	0.01511	0.00127	4.640	0.01408	100
EC17-3@34	424	32	40720	0.22	0.02122	0.00162	5.172	0.01869	100
EC17-3@35	855	55	13060	2.08	0.04320	0.00283	5.990	0.02267	100
EC17-3@36	426	30	9706	1.74	0.02127	0.00150	5.587	0.03091	100
EC17-3@37	943	67	28900	2.07	0.04774	0.00347	5.405	0.01451	100
EC17-3@38	415	29	7795	1.89	0.02073	0.00144	5.635	0.02145	100
EC17-3@39	404	28	10930	1.78	0.02017	0.00141	5.617	0.01611	100
EC17-3@4.	1017	67	30620	1.23	0.05159	0.00350	5.811	0.01678	100
EC17-3@40	332	24	10450	1.74	0.01654	0.00119	5.441	0.01571	100
EC17-3@41	417	27	5878	2.01	0.02086	0.00137	6.015	0.02242	99
EC17-3@42	974	65	15610	2.42	0.04935	0.00339	5.707	0.02146	100
EC17-3@43	422	29	6975	1.53	0.02111	0.00148	5.596	0.01923	99
EC17-3@44	848	56	23360	1.43	0.04287	0.00291	5.846	0.02419	100
EC17-3@45	301	22	11560	1.66	0.01499	0.00108	5.427	0.03028	100
EC17-3@46	921	60	14850	0.94	0.04662	0.00311	5.892	0.03689	100

EC17-3@47	389	31	6201	1.44	0.01943	0.00156	4.890	0.01682	99
EC17-3@5.	988	80	5398	1.64	0.05011	0.00415	4.698	0.04355	99
EC17-3@6.	435	29	5404	1.91	0.02175	0.00147	5.856	0.04117	99
EC17-3@9.	420	27	6395	1.99	0.02100	0.00137	6.060	0.02636	99
EC17-3@48	836	77	139600	0.21	0.04222	0.00395	4.147	0.02558	100
EC17-3@49	428	27	9098	1.51	0.02139	0.00137	6.169	0.03680	100
EC17-3@50	415	29	6229	2.33	0.02075	0.00145	5.610	0.02934	99
EC17-3@51	419	27	9993	1.34	0.02096	0.00139	5.936	0.03803	100
EC17-3@52	420	29	5417	2.24	0.02100	0.00145	5.674	0.02504	99
EC17-3@53	438	30	7998	1.11	0.02192	0.00150	5.748	0.02273	100
EC17-3@54	396	25	2131	2.00	0.01979	0.00127	6.245	0.03441	98
EC17-3@55	448	33	347	8.47	0.02242	0.00169	5.254	0.03662	89
EC17-3@57	310	23	7981	1.93	0.01546	0.00115	5.280	0.03215	100
EC17-3@58	415	30	7332	1.59	0.02076	0.00152	5.385	0.02591	99
EC17-3@59	351	26	7159	2.71	0.01752	0.00130	5.292	0.01203	99
EC17-3@60	399	28	7324	1.53	0.01996	0.00140	5.601	0.03941	99
EC17-3@62	383	27	2553	2.01	0.01915	0.00135	5.578	0.07752	99
EC17-3@63	416	31	3231	3.45	0.02077	0.00157	5.155	0.01674	99
EC17-3@64	402	28	4576	1.86	0.02007	0.00140	5.651	0.03912	99
EC17-3@65	375	27	1477	5.59	0.01875	0.00136	5.412	0.02768	97
EC17-3@66	313	26	6309	1.81	0.01560	0.00129	4.707	0.01414	99
EC17-3@67	413	30	5898	2.09	0.02065	0.00150	5.383	0.01679	99
SL17-5@1	1084	142	12600	5.79	0.05511	0.00739	4.618	0.02332	100
SL17-5@4	434	47	5051	3.63	0.02171	0.00239	5.393	0.04749	99
SL17-5@6	1064	100	1544	14.80	0.05405	0.00524	5.969	0.04008	98
SL17-5@8	489	50	903	4.11	0.02447	0.00254	5.678	0.05051	96
SL17-5@9	355	30	2639	4.20	0.01772	0.00153	6.564	0.04962	99
SL17-5@10	381	54	1871	7.67	0.01904	0.00270	4.427	0.03415	98
SL17-5@12	1919	182	4995	10.83	0.09958	0.00990	5.838	0.02410	99
SL17-5@13	855	83	10510	1.96	0.04321	0.00429	5.835	0.03966	100
SL17-5@15	446	49	3981	1.82	0.02232	0.00250	5.302	0.02911	99
SL17-5@16	1546	160	11680	9.11	0.07951	0.00856	5.484	0.02242	100
SL17-5@18	457	64	440	13.99	0.02288	0.00324	4.434	0.01969	91
SL17-5@19	1116	98	6505	4.81	0.05674	0.00513	6.339	0.02252	99
SL17-5@20	2611	210	24030	3.50	0.13790	0.01182	6.594	0.05051	100
SL17-5@21	401	39	1092	7.04	0.02004	0.00195	5.941	0.02489	96
SL17-5@23	432	41	1241	10.04	0.02160	0.00205	6.071	0.05586	97
SL17-5@24	446	40	652	11.83	0.02231	0.00203	6.312	0.05349	94
SL17-5@28	957	117	7240	5.03	0.04851	0.00607	4.866	0.01300	99
SL17-5@29	424	40	5094	2.17	0.02118	0.00200	6.094	0.03552	99
SL17-5@30	415	47	824	10.62	0.02074	0.00236	5.238	0.04685	95
SL17-5@32	1774	164	20880	4.31	0.09174	0.00885	5.975	0.02111	100
SL17-5b@1	366	9	4324	1.81	0.01828	0.00046	6.367	0.03243	99
SL17-5b@10	413	10	18310	0.93	0.02064	0.00051	6.356	0.02594	100
SL17-5b@11	901	24	21280	0.88	0.04556	0.00124	5.654	0.02841	100
SL17-5b@12	312	9	4611	1.24	0.01557	0.00046	4.521	0.03324	99

SL17-5b@13	390	10	9897	1.23	0.01949	0.00049	6.114	0.01576	100
SL17-5b@15	846	21	47080	1.00	0.04275	0.00111	5.809	0.02430	100
SL17-5b@16	374	9	13800	1.21	0.01868	0.00046	6.505	0.02226	100
SL17-5b@2	2251	56	16450	4.72	0.11780	0.00312	6.872	0.04251	100
SL17-5b@3	2328	57	2038	59.91	0.12210	0.00315	6.345	0.03787	98
SL17-5b@4	437	10	2466	1.08	0.02186	0.00052	7.447	0.08736	98
SL17-5b@5	384	10	3161	1.63	0.01918	0.00052	5.760	0.06654	99
SL17-5b@7	397	11	5616	1.97	0.01982	0.00054	5.312	0.02274	99
SL17-5b@8	973	25	13130	2.74	0.04932	0.00132	5.810	0.02806	100
SL17-5b@9	848	21	8096	3.16	0.04286	0.00108	6.375	0.02548	100
SL17-5c@1	441	9	15890	2.26	0.02204	0.00048	2.96	0.05667	100
SL17-5c@2	391	8	1139	23.61	0.01953	0.00038	3.13	0.04729	97
SL17-5c@3	433	9	11340	2.72	0.02167	0.00045	3.08	0.01300	100
SL17-5c@4	450	9	15990	2.72	0.02253	0.00048	2.99	0.03552	100
SL17-5c@5	957	16	12320	2.64	0.04850	0.00082	3.44	0.04685	100
SL17-5c@6	433	9	3974	5.42	0.02165	0.00044	3.26	0.13120	99
SL17-5c@7	440	9	1447	17.19	0.02202	0.00047	3.11	0.02111	97
SL17-5c@8	1789	38	52280	3.54	0.09257	0.00206	2.88	0.04028	100
SL17-5c@9	439	11	1145	23.16	0.02194	0.00055	3.06	0.02332	97
SL17-5c@10	1108	21	47240	1.83	0.05636	0.00109	3.15	0.10940	100
SL17-5c@11	1051	21	38590	3.00	0.05335	0.00109	3.05	0.05761	100
SL17-5c@12	501	64	4732	3.25	0.02511	0.00323	2.66	0.04749	99
SL17-5c@13	428	8	15750	1.69	0.02142	0.00041	3.14	0.01831	100
SL17-5c@14	459	10	7373	3.93	0.02295	0.00052	2.90	0.04008	99
SL17-5c@15	1052	27	14610	4.33	0.05342	0.00140	2.96	0.10400	100
SL17-5c@16	432	8	7726	3.95	0.02159	0.00043	3.13	0.05051	100
SL17-5c@17	977	18	38220	2.34	0.04952	0.00094	3.14	0.04962	100
SL17-5c@18	425	8	3866	7.19	0.02125	0.00041	3.29	0.03415	99
SL17-5c@19	409	7	8495	2.82	0.02046	0.00036	3.29	0.07855	100
SL17-5c@20	416	8	10410	2.22	0.02080	0.00040	3.21	0.02410	100
SL17-5c@21	375	8	8677	3.13	0.01874	0.00040	2.96	0.03966	100
SL17-5c@22	365	7	1674	11.92	0.01821	0.00037	3.28	0.02911	98
SL17-5c@23	374	7	2940	7.08	0.01867	0.00036	3.55	0.02242	99
SL17-5c@25	1124	24	1904	36.97	0.05719	0.00126	3.06	0.01831	98

Table 2b: Detrital Diagenetic Monazite Th-Pb geochronology analysis

	Age (Ma)	Age (Ma)							% Radio.
	208Pb/ 232Th	208Pb/ 232Th	208Pb/ 204Pb	204Pb	208Pb/ 232Th	208Pb/ 232Th	ThO2/ Th	ThO2/ Th	208Pb
		1 s.e.				1 s.e.		1 s.e.	
EC17-1B@18	418	18	2580	0.2169	0.0209	0.0009	3.2830	0.0326	99
EC17-1B@19	941	24	11030	3.2590	0.0477	0.0012	4.9130	0.0153	100
EC17-1B@22	526	21	327	1.5600	0.0264	0.0011	4.1470	0.0619	88
EC17-1B@24	395	9	2880	1.5420	0.0197	0.0005	5.1040	0.0480	99
EC17-1B@25	445	18	356	1.3170	0.0223	0.0009	4.0440	0.0830	89
EC17-1B@28	514	11	5245	2.7600	0.0258	0.0006	5.0800	0.0134	99
EC17-1B@31	442	14	725	1.1340	0.0221	0.0007	5.4100	0.1297	95
EC17-1B@34	484	17	248	2.3910	0.0243	0.0009	4.7420	0.1008	85
EC17-1B@4.	433	9	7884	1.3500	0.0217	0.0005	5.4050	0.0251	100
EC17-1B@40	692	61	527	0.6924	0.0348	0.0031	2.1860	0.0373	93
EC17-1B@47	420	11	3092	1.8600	0.0210	0.0006	4.5120	0.0246	99
EC17-1B@6.	461	10	6585	1.9850	0.0231	0.0005	5.2110	0.0198	99
EC17-1B@8.	410	11	1882	1.2750	0.0205	0.0006	4.4110	0.0535	98
EC17-2b@4	398	13	8165	1.2090	0.0199	0.0006	5.9630	0.0440	100
EC17-2b@9	472	24	601	1.6840	0.0236	0.0012	4.8050	0.0426	94
EC17-3@2	413	43	563	1.60	0.02062	0.00219	3.688	0.05779	93
EC17-3@7	463	29	2484	1.66	0.02316	0.00148	6.242	0.06007	98
EC17-3@8	776	55	1465	1.59	0.03916	0.00284	5.522	0.07363	97
SL17-5@2.	460	60	469	1.639	0.02302	0.00306	4.845	0.10940	92
SL17-5@3.	1625	153	10170	8.018	0.08371	0.00822	5.895	0.05761	100
SL17-5@5.	2137	233	20290	2.525	0.11150	0.01283	5.195	0.01831	100
SL17-5@7.	541	56	380	5.163	0.02711	0.00286	5.655	0.10400	90
SL17-5@11	920	124	166	9.954	0.04658	0.00640	4.642	0.07855	77
SL17-5@22	728	173	197	9.139	0.03669	0.00889	3.089	0.03457	81
SL17-5@25	713	100	261	8.067	0.03590	0.00511	4.442	0.04380	85
SL17-5@26	642	199	4508	0.300	0.03228	0.01016	2.627	0.05667	99
SL17-5@27	708	85	260	10.890	0.03565	0.00437	4.996	0.04729	85
SL17-5@31	736	90	117	10.030	0.03707	0.00460	5.281	0.13120	67
SL17-5b@14	441	14	275	8.71	0.02206	0.00072	4.854	0.08301	86
SL17-5b@17	407	11	7950	1.70	0.02032	0.00053	5.739	0.01999	100
SL17-5b@18	394	11	393	4.34	0.01970	0.00056	5.582	0.09417	90
SL17-5b@6.	2031	51	15480	1.18	0.10570	0.00281	5.759	0.03549	100