

**Table S1. LA-ICP-MS U-Pb data of zircons for the samples from the Lulong area**

Sample	U	Th	Th/U	<sup>207</sup> Pb/ <sup>206</sup> Pb		<sup>207</sup> Pb/ <sup>235</sup> U		<sup>206</sup> Pb/ <sup>238</sup> U		<sup>207</sup> Pb/ <sup>206</sup> Pb		<sup>207</sup> Pb/ <sup>235</sup> U		<sup>206</sup> Pb/ <sup>238</sup> U		Disconcordance
spot	ppm	ppm		ratio	1σ	ratio	1σ	ratio	1σ	age (Ma)	1σ	age (Ma)	1σ	age (Ma)	1σ	
20JD03-1 Fuchsite quartzite																
20JD03-1-01	694.66	481.15	0.69	0.3147	0.0065	27.5102	0.1423	0.6344	0.0031	3544	32	3402	5	3167	12	7.41%
20JD03-1-03	308.23	87.00	0.28	0.3344	0.0070	28.9034	0.1588	0.6272	0.0032	3638	32	3450	5	3139	13	9.93%
20JD03-1-04	303.41	167.78	0.55	0.3621	0.0075	32.6645	0.1794	0.6548	0.0034	3759	31	3571	5	3247	13	9.97%
20JD03-1-05	154.12	59.92	0.39	0.3556	0.0074	31.8346	0.1842	0.6497	0.0035	3731	31	3545	6	3227	14	9.86%
20JD03-1-06	114.75	66.86	0.58	0.3394	0.0079	30.1086	0.2790	0.6442	0.0050	3660	35	3490	9	3206	19	8.88%
20JD03-1-07	241.91	146.68	0.61	0.3268	0.0077	30.6020	0.3129	0.6800	0.0057	3602	36	3506	10	3344	22	4.85%
20JD03-1-08	244.53	132.12	0.54	0.3515	0.0082	29.7947	0.2689	0.6155	0.0046	3714	35	3480	9	3092	18	12.56%
20JD03-1-09	240.84	43.25	0.18	0.3144	0.0072	21.6143	0.1735	0.4992	0.0034	3543	35	3167	8	2610	15	21.31%
20JD03-1-10	633.36	404.79	0.64	0.3426	0.0080	34.5992	0.3233	0.7333	0.0057	3674	35	3627	9	3546	21	2.30%
20JD03-1-11	133.19	79.95	0.60	0.3487	0.0087	30.0248	0.4075	0.6253	0.0067	3701	38	3488	13	3131	27	11.39%
20JD03-1-13	655.16	304.87	0.47	0.3005	0.0073	24.5662	0.2814	0.5936	0.0053	3473	37	3291	11	3004	21	9.55%
20JD03-1-14	386.83	263.20	0.68	0.3239	0.0075	19.6380	0.1589	0.4403	0.0030	3588	35	3074	8	2352	13	30.68%
20JD03-1-15	252.01	50.64	0.20	0.4059	0.0096	33.3975	0.3228	0.5974	0.0048	3931	35	3592	10	3019	20	18.98%
20JD03-1-16	164.78	89.97	0.55	0.3252	0.0066	33.4201	0.2812	0.7460	0.0061	3595	31	3593	8	3593	22	0.01%
20JD03-1-17	444.62	163.46	0.37	0.3158	0.0064	25.7867	0.2107	0.5927	0.0047	3550	31	3339	8	3000	19	11.27%
20JD03-1-18	157.68	89.76	0.57	0.3541	0.0074	36.8828	0.3587	0.7562	0.0068	3725	31	3690	10	3630	25	1.66%
20JD03-1-19	209.41	106.13	0.51	0.3248	0.0068	30.9090	0.2997	0.6909	0.0062	3593	32	3516	10	3386	23	3.85%
20JD03-1-20	236.58	159.14	0.67	0.3684	0.0075	38.1510	0.3297	0.7518	0.0062	3785	31	3724	9	3614	23	3.03%
20JD03-1-21	511.84	298.45	0.58	0.3408	0.0070	34.4312	0.2886	0.7334	0.0060	3666	31	3623	8	3546	22	2.16%
20JD03-1-22	159.70	71.26	0.45	0.3358	0.0069	30.7160	0.2563	0.6639	0.0054	3644	31	3510	8	3282	21	6.93%
20JD03-1-23	154.98	103.14	0.67	0.3395	0.0070	28.4220	0.2485	0.6077	0.0051	3660	31	3434	9	3061	20	12.18%
20JD03-1-24	921.47	213.86	0.23	0.2825	0.0057	26.0281	0.2104	0.6688	0.0053	3377	31	3348	8	3301	20	1.41%
20JD03-1-25	205.29	118.48	0.58	0.3220	0.0066	29.4553	0.2437	0.6640	0.0053	3579	31	3469	8	3283	21	5.67%
20JD03-1-26	287.42	144.41	0.50	0.3209	0.0065	30.7343	0.2526	0.6953	0.0056	3574	31	3511	8	3403	21	3.17%
20JD03-1-27	255.10	117.62	0.46	0.3250	0.0066	30.9542	0.2562	0.6913	0.0056	3594	31	3518	8	3388	21	3.83%
20JD03-1-28	575.67	383.19	0.67	0.3343	0.0068	34.4723	0.2786	0.7485	0.0059	3637	31	3624	8	3602	22	0.60%
20JD03-1-29	926.80	279.96	0.30	0.3250	0.0066	26.8257	0.2203	0.5991	0.0048	3594	31	3377	8	3026	19	11.59%

20JD03-1-30	663.00	336.62	0.51	0.3540	0.0072	29.9094	0.2447	0.6133	0.0049	3725	31	3484	8	3083	20	13.00%
20JD03-1-31	377.61	238.24	0.63	0.3828	0.0078	32.3955	0.2721	0.6144	0.0050	3843	30	3562	8	3087	20	15.39%
20JD03-1-32	349.11	653.89	1.87	0.3106	0.0063	25.6687	0.2139	0.5999	0.0048	3524	31	3334	8	3030	19	10.05%
20JD03-1-33	167.77	66.32	0.40	0.3247	0.0066	27.1509	0.2293	0.6070	0.0049	3592	31	3389	8	3058	20	10.82%
20JD03-1-34	380.73	1486.37	3.90	0.3781	0.0077	32.0534	0.2656	0.6153	0.0050	3824	30	3552	8	3091	20	14.90%
20JD03-1-35	399.24	106.36	0.27	0.3334	0.0069	27.2521	0.2378	0.5934	0.0049	3633	31	3393	9	3003	20	12.97%
20JD03-1-36	546.27	358.45	0.66	0.3245	0.0068	22.5617	0.2103	0.5048	0.0043	3591	32	3208	9	2634	19	21.79%
20JD03-1-37	205.39	81.11	0.39	0.3783	0.0077	41.9027	0.3457	0.8042	0.0065	3825	30	3817	8	3804	23	0.34%
20JD03-1-38	358.95	80.50	0.22	0.3396	0.0069	27.7203	0.2285	0.5926	0.0048	3661	31	3409	8	3000	19	13.65%
20JD03-1-39	266.17	119.26	0.45	0.3274	0.0067	30.3869	0.2514	0.6737	0.0054	3605	31	3499	8	3320	21	5.40%
20JD03-1-40	405.63	178.31	0.44	0.3350	0.0069	31.1861	0.2723	0.6758	0.0056	3640	31	3525	9	3328	22	5.91%
20JD03-1-41	136.82	34.03	0.25	0.3198	0.0066	27.9754	0.2431	0.6350	0.0053	3569	31	3418	9	3169	21	7.85%
20JD03-1-42	249.04	143.96	0.58	0.3551	0.0072	37.4967	0.3086	0.7664	0.0062	3729	31	3707	8	3668	22	1.06%
20JD03-1-43	161.36	64.91	0.40	0.3499	0.0071	33.5552	0.2821	0.6962	0.0057	3707	31	3597	8	3406	22	5.61%
20JD03-1-44	612.99	103.93	0.17	0.3071	0.0063	30.7988	0.2686	0.7281	0.0060	3506	31	3513	9	3526	23	-0.39%
20JD03-1-45	367.10	120.52	0.33	0.3451	0.0070	32.6657	0.2747	0.6870	0.0056	3686	31	3571	8	3371	21	5.91%
20JD03-1-46	259.23	165.68	0.64	0.2698	0.0056	24.9084	0.2408	0.6702	0.0059	3305	32	3305	9	3307	23	-0.06%
20JD03-1-47	1001.83	9.02	0.01	0.2593	0.0054	16.8362	0.1503	0.4713	0.0039	3243	32	2926	9	2489	17	17.54%
20JD03-1-48	168.79	89.66	0.53	0.3282	0.0067	33.9464	0.2823	0.7507	0.0061	3609	31	3609	8	3610	22	-0.05%
20JD03-1-49	447.20	268.47	0.60	0.3219	0.0065	27.1933	0.2221	0.6132	0.0049	3579	31	3390	8	3083	20	9.98%
20JD03-1-50	159.33	70.69	0.44	0.3327	0.0068	33.3846	0.2791	0.7283	0.0059	3630	31	3592	8	3527	22	1.84%
20JD03-1-51	344.28	174.76	0.51	0.3347	0.0068	29.6640	0.1956	0.6438	0.0041	3639	31	3476	6	3204	16	8.49%
20JD03-1-52	1005.14	779.27	0.78	0.3155	0.0064	22.6744	0.1500	0.5220	0.0033	3548	31	3213	6	2708	14	18.67%
20JD03-1-53	444.36	178.28	0.40	0.3251	0.0067	29.4280	0.1981	0.6576	0.0042	3594	31	3468	7	3258	16	6.45%
20JD03-1-54	788.18	338.20	0.43	0.2924	0.0060	16.5806	0.1068	0.4120	0.0026	3430	31	2911	6	2224	12	30.89%
20JD03-1-55	254.31	167.57	0.66	0.3177	0.0066	20.9209	0.1513	0.4783	0.0032	3559	31	3135	7	2520	14	24.40%
20JD03-1-56	225.64	189.64	0.84	0.3879	0.0079	43.4618	0.2836	0.8140	0.0052	3863	30	3853	6	3839	18	0.37%
20JD03-1-57	342.21	140.48	0.41	0.3432	0.0070	35.3774	0.2285	0.7488	0.0047	3677	31	3649	6	3603	17	1.29%
20JD03-1-58	151.02	93.95	0.62	0.3273	0.0067	29.0459	0.1933	0.6447	0.0041	3604	31	3455	7	3208	16	7.72%
20JD03-1-59	265.02	171.65	0.65	0.3227	0.0066	28.9318	0.1936	0.6513	0.0042	3583	31	3451	7	3233	16	6.74%
20JD03-1-60	362.22	274.56	0.76	0.2892	0.0059	26.6320	0.1894	0.6690	0.0044	3413	32	3370	7	3302	17	2.07%

20JD03-1-61	389.59	217.49	0.56	0.3198	0.0065	29.2528	0.1942	0.6645	0.0042	3569	31	3462	7	3285	16	5.40%
20JD03-1-62	836.55	417.51	0.50	0.3511	0.0071	37.9177	0.2386	0.7846	0.0048	3712	31	3718	6	3734	17	-0.43%
20JD03-1-63	81.39	51.83	0.64	0.3726	0.0087	37.0611	0.5453	0.7225	0.0090	3802	35	3695	15	3506	34	5.41%
20JD03-1-64	867.00	348.62	0.40	0.3063	0.0062	29.3214	0.1870	0.6955	0.0043	3502	31	3464	6	3403	16	1.79%
20JD03-1-65	776.25	116.40	0.15	0.2814	0.0058	26.6785	0.1773	0.6887	0.0044	3371	32	3372	7	3378	17	-0.18%
20JD03-1-66	84.38	14.82	0.18	0.3408	0.0072	30.6126	0.2872	0.6526	0.0054	3666	32	3507	9	3238	21	8.29%
20JD03-1-67	196.38	138.00	0.70	0.3505	0.0072	36.1533	0.2435	0.7494	0.0048	3709	31	3671	7	3605	18	1.82%
20JD03-1-68	545.71	445.62	0.82	0.3177	0.0065	30.6125	0.1970	0.7000	0.0044	3559	31	3507	6	3421	17	2.51%
20JD03-1-69	270.46	177.46	0.66	0.2833	0.0061	23.6396	0.2331	0.6062	0.0050	3381	33	3254	10	3055	20	6.51%
20JD03-1-70	149.02	78.09	0.52	0.3364	0.0069	29.3062	0.2072	0.6329	0.0042	3646	31	3464	7	3161	17	9.58%
20JD03-1-71	530.03	270.55	0.51	0.2881	0.0059	16.5392	0.1097	0.4170	0.0026	3408	31	2909	6	2247	12	29.45%
20JD03-1-72	249.05	151.86	0.61	0.3496	0.0071	37.7864	0.2474	0.7852	0.0050	3705	31	3714	6	3736	18	-0.57%
20JD03-1-73	82.26	46.03	0.56	0.3535	0.0073	38.4075	0.3096	0.7893	0.0058	3722	31	3731	8	3751	21	-0.54%
20JD03-1-74	455.36	217.91	0.48	0.3319	0.0068	29.9554	0.1966	0.6557	0.0042	3626	31	3485	6	3250	16	7.23%
20JD03-1-75	236.37	59.23	0.25	0.3093	0.0063	28.1792	0.1846	0.6619	0.0042	3517	31	3425	6	3274	16	4.61%
20JD03-1-76	385.90	324.18	0.84	0.3617	0.0079	27.8431	0.1661	0.5592	0.0030	3757	33	3414	6	2863	13	19.23%
20JD03-1-77	385.29	285.88	0.74	0.3029	0.0067	22.8015	0.1819	0.5467	0.0036	3485	34	3219	8	2812	15	14.48%
20JD03-1-78	459.31	279.07	0.61	0.3191	0.0072	22.7758	0.2093	0.5184	0.0039	3565	34	3217	9	2693	17	19.49%
20JD03-1-79	441.58	188.67	0.43	0.2978	0.0065	26.6046	0.1766	0.6489	0.0038	3459	33	3369	6	3224	15	4.50%
20JD03-1-80	952.77	41.23	0.04	0.2420	0.0053	11.2314	0.0753	0.3371	0.0019	3133	34	2543	6	1873	9	35.75%
20JD03-1-81	204.20	106.67	0.52	0.3297	0.0076	22.7853	0.2337	0.5019	0.0042	3616	35	3218	10	2622	18	22.72%
20JD03-1-82	333.58	116.8	0.35	0.3419	0.0074	36.0654	0.2131	0.7662	0.0041	3671	33	3668	6	3667	15	0.04%
20JD03-1-83	627.47	174.88	0.28	0.3163	0.0069	24.0563	0.1576	0.5523	0.0032	3552	33	3271	6	2835	13	15.38%
20JD03-1-84	556.70	158.39	0.28	0.3272	0.0072	25.6997	0.1905	0.5705	0.0036	3604	33	3335	7	2910	15	14.62%
20JD03-1-85	69.65	29.87	0.43	0.3425	0.0079	30.7942	0.3225	0.6531	0.0057	3674	35	3513	10	3240	22	8.40%
20JD03-1-86	280.92	227.94	0.81	0.3138	0.0068	24.9685	0.1540	0.5778	0.0032	3540	33	3307	6	2940	13	12.49%
20JD03-1-87	104.26	55.00	0.53	0.3422	0.0076	36.0375	0.3069	0.7649	0.0056	3673	34	3668	8	3662	20	0.15%
20JD03-1-88	304.53	123.78	0.41	0.3422	0.0075	25.1974	0.1673	0.5348	0.0031	3673	33	3316	6	2762	13	20.06%
20JD03-1-89	837.56	266.53	0.32	0.3432	0.0075	28.1671	0.1960	0.5962	0.0036	3677	33	3425	7	3014	15	13.62%
20JD03-1-90	162.47	84.02	0.52	0.3928	0.0087	44.1973	0.3683	0.8172	0.0060	3882	33	3870	8	3850	21	0.50%
20JD03-1-91	291.04	1593.32	5.47	0.3382	0.0075	24.4023	0.1868	0.5240	0.0034	3655	33	3285	7	2716	14	20.93%

20JD03-1-92	190.47	76.22	0.40	0.3710	0.0082	41.2517	0.3312	0.8075	0.0057	3796	33	3801	8	3816	20	-0.39%
20JD03-1-93	184.79	135.09	0.73	0.3616	0.0081	33.5885	0.3079	0.6747	0.0053	3756	34	3598	9	3324	20	8.24%
20JD03-1-94	357.84	90.50	0.25	0.3186	0.0069	25.2064	0.1569	0.5746	0.0032	3563	33	3316	6	2927	13	13.32%
20JD03-1-95	291.90	266.32	0.91	0.2909	0.0064	27.6556	0.1999	0.6905	0.0043	3423	34	3407	7	3384	16	0.67%
20JD03-1-96	383.91	215.35	0.56	0.3029	0.0066	29.6454	0.1976	0.7108	0.0042	3485	33	3475	7	3462	16	0.39%
20JD03-1-97	190.03	82.87	0.44	0.3195	0.0071	26.3732	0.2187	0.5995	0.0042	3567	34	3361	8	3028	17	10.98%
20JD03-1-98	333.16	185.30	0.56	0.3115	0.0072	25.3830	0.2820	0.5919	0.0053	3528	35	3323	11	2997	21	10.87%
20JD03-1-99	113.30	50.35	0.44	0.3190	0.0075	23.4189	0.2796	0.5332	0.0050	3565	36	3245	12	2755	21	17.77%
<b>20JD03-2 Metagabbro</b>																
20JD03-2-1	125.70	151.25	1.20	0.1679	0.0034	11.4030	0.2399	0.4931	0.0103	2537	34	2557	20	2584	44	-1.05%
20JD03-2-2	96.60	61.57	0.64	0.1682	0.0038	11.4315	0.2640	0.4936	0.0105	2539	37	2559	22	2586	45	-1.05%
20JD03-2-3	217.60	58.27	0.27	0.1676	0.0034	11.1830	0.2353	0.4845	0.0101	2534	34	2539	20	2547	44	-0.32%
20JD03-2-4	95.50	63.74	0.67	0.1672	0.0034	11.2705	0.2397	0.4895	0.0102	2530	34	2546	20	2569	44	-0.89%
20JD03-2-5	62.87	68.16	1.08	0.1681	0.0044	11.2470	0.2988	0.4858	0.0107	2539	44	2544	25	2553	47	-0.34%
20JD03-2-6	41.16	63.33	1.54	0.1674	0.0037	11.9317	0.2667	0.5175	0.0109	2532	36	2599	21	2689	46	-3.33%
20JD03-2-7	26.15	45.56	1.74	0.1674	0.0037	11.2445	0.2533	0.4878	0.0103	2532	36	2544	21	2561	45	-0.69%
20JD03-2-8	136.03	72.33	0.53	0.1679	0.0034	11.4303	0.2417	0.4942	0.0103	2537	34	2559	20	2589	44	-1.16%
20JD03-2-9	61.73	46.64	0.76	0.1681	0.0038	11.2050	0.2563	0.4841	0.0103	2539	37	2540	21	2545	45	-0.18%
20JD03-2-10	23.89	95.73	4.01	0.1677	0.0048	11.1927	0.3178	0.4845	0.0109	2535	47	2539	26	2547	47	-0.29%
20JD03-2-11	140.03	79.86	0.57	0.1677	0.0034	11.5312	0.2433	0.4993	0.0104	2535	34	2567	20	2611	45	-1.67%
20JD03-2-12	145.58	115.77	0.80	0.1681	0.0034	11.3569	0.2387	0.4906	0.0102	2539	34	2553	20	2573	44	-0.79%
20JD03-2-13	160.06	76.35	0.48	0.1682	0.0034	11.0945	0.2334	0.4790	0.0100	2540	34	2531	20	2523	43	0.33%
20JD03-2-14	38.56	38.10	0.99	0.1681	0.0044	11.2373	0.2932	0.4854	0.0107	2539	43	2543	24	2551	46	-0.31%
20JD03-2-15	102.20	73.85	0.72	0.1676	0.0036	11.5273	0.2549	0.4994	0.0105	2534	36	2567	21	2611	45	-1.71%
20JD03-2-16	83.30	86.00	1.03	0.1678	0.0035	11.7581	0.2528	0.5087	0.0106	2536	35	2585	20	2651	45	-2.48%
20JD03-2-17	133.85	69.07	0.52	0.1673	0.0034	11.1015	0.2331	0.4817	0.0100	2531	34	2532	20	2535	44	-0.12%
20JD03-2-18	21.15	35.21	1.66	0.1680	0.0043	11.3663	0.2915	0.4912	0.0108	2538	42	2554	24	2576	46	-0.86%
20JD03-2-19	146.19	37.92	0.26	0.1679	0.0034	11.0219	0.2331	0.4767	0.0099	2537	34	2525	20	2513	43	0.48%
20JD03-2-20	153.03	141.95	0.93	0.1673	0.0035	11.2906	0.2413	0.4900	0.0102	2531	34	2547	20	2571	44	-0.90%
20JD03-2-21	135.77	131.77	0.97	0.1677	0.0034	11.0273	0.2323	0.4775	0.0099	2535	34	2525	20	2516	43	0.37%
20JD03-2-22	132.24	118.12	0.89	0.1676	0.0034	11.6322	0.2461	0.5038	0.0105	2534	34	2575	20	2630	45	-2.09%

20JD03-2-23	252.06	142.83	0.57	0.1676	0.0034	11.1555	0.2365	0.4832	0.0101	2534	34	2536	20	2541	44	-0.19%
20JD03-2-24	115.34	144.30	1.25	0.1677	0.0037	11.2841	0.2547	0.4887	0.0103	2535	37	2547	21	2565	45	-0.70%
20JD03-2-25	16.72	64.54	3.86	0.1668	0.0040	11.0971	0.2686	0.4831	0.0104	2526	39	2531	23	2541	45	-0.37%
20JD03-2-26	145.68	142.32	0.98	0.1679	0.0036	11.1803	0.2441	0.4835	0.0101	2537	35	2538	20	2543	44	-0.17%
20JD03-2-27	119.08	66.34	0.56	0.1674	0.0036	11.2211	0.2450	0.4867	0.0102	2532	35	2542	20	2556	44	-0.57%
20JD03-2-28	241.83	70.18	0.29	0.1678	0.0034	11.6683	0.2459	0.5048	0.0105	2536	34	2578	20	2635	45	-2.14%
20JD03-2-29	35.37	91.83	2.60	0.1676	0.0036	10.9242	0.2428	0.4734	0.0100	2534	36	2517	21	2498	44	0.74%
20JD03-2-30	130.60	213.52	1.63	0.1678	0.0034	11.6123	0.2457	0.5024	0.0105	2536	34	2574	20	2624	45	-1.92%

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