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## Supplemental Material

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**Table S1.** Trace element results of the analyzed profiles in cassiterite from the Yunling deposit.

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**Figure S1.** Geochemical characterization of concentric oscillatory zones revealed by profile aa'.

**Figure S2.** Geochemical characterization of the CL-dark sector zones revealed by profile bb'.

## Text S1. Analytical methods

### *Cassiterite SEM-CL imaging*

A representative crystal, approximately 1.5 centimeter in scale, was carefully oriented, cut, and polished to a thickness close to 200  $\mu\text{m}$  (Fig. 3C). The microstructures of the crystal were then examined using the scanning electron microscope-cathodoluminescence (SEM-CL) technique at Nanjing Hongchuang Exploration Technology Service Co., Ltd, utilizing a Tescan Mira3 SEM. Prior to imaging, the thin section was ultrasonically cleaned and coated with carbon. A total of 47 SEM-CL images were captured at an acceleration voltage of 7 kV and a current of 2 nA. Each image was obtained through a 30-second accumulation with roughly 15% overlap to ensure seamless panorama stitching.

### *Cassiterite trace element determination*

For cassiterite trace element analyses, laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) was performed at Nanjing University, utilizing a Coherent 193 nm excimer laser ablation system connected to a NexION 350 ICP mass spectrometer. The cassiterite sample, along with NIST 610 and NIST 612 reference materials, was placed in the ablation cell. Before analysis, the ICP-MS was optimized to achieve maximum sensitivity and minimize the production of low oxides by maintaining ThO/Th ratios below 0.2%. During analysis, a laser beam diameter of 24  $\mu\text{m}$  and energy density of 5  $\text{J}/\text{cm}^2$  were utilized, while the repetition rate remained constant at 10 Hz. The reference glass NIST 610 was used as the external bracketing standard, with monitoring of the analysis results conducted using NIST 612. Each spot measurement consisted of a 20-second instrumental background, 20–30 seconds of sample ablation, and a 20-second wash-out time. A total of 160 spot analyses were conducted to determine trace element concentrations along two traverses (Fig. 3C-3D). Profile aa' covered the concentric zone, spanning from the core to the rim, while profile bb' encompassed both the concentric and sector zones. Data reduction was performed using the SILLs software (Guillong et al., 2008), with stoichiometric  $\text{SnO}_2$  in cassiterite and Sn serving as the internal standard.

### *Cassiterite U-Pb dating*

Cassiterite U-Pb dating was carried out at the State Key Laboratory of Geological Processes and Mineral Resources, China University of Geosciences (Wuhan), using a Thermo iCAP Qc ICP-MS instrument equipped with a RESOLUTION S-155 193 nm ArF excimer laser ablation system. In order to optimize the analytical process, we selected dark domains within the volumetrically dominated colorless cassiterite that may potentially contain higher U contents for dating analysis. The analytical

procedures employed in this study are similar to those described by Zhang et al. (2022), and a summary of these procedures is provided here. The cassiterite crystals were analyzed in situ, utilizing a laser energy density of 3.5 J/cm<sup>2</sup>. The spot size was set to 50 µm, and the laser pulse frequency was set to 8 Hz. Each analysis run included a 30-second instrumental background measurement, 40 seconds for data acquisition, and a 60-second wash-out time. The dwell times for each mass scan were set to 20 ms for <sup>238</sup>U, <sup>232</sup>Th, <sup>208</sup>Pb, <sup>206</sup>Pb, <sup>204</sup>Pb, and 40 ms for <sup>207</sup>Pb. To ensure accurate calibration and isotopic determination, a cassiterite standard AY-4, previously established by ID-TIMS to be 158.2 ± 0.4 Ma (Yuan et al., 2011), was used as an external isotopic calibration standard. Following each set of eight cassiterite analyses, three measurements of the AY-4 standard and one measurement of NIST SRM 612 were conducted for quality control purposes. U-Pb age calculations were performed using ICPMSDataCal software (Liu et al., 2010). Due to the presence of common Pb contents in cassiterite, the ages are reported as lower intercept ages in the Tera-Wasserburg diagram (Tera and Wasserburg, 1972). To compare with these lower intercept ages, the <sup>207</sup>Pb-corrected <sup>206</sup>Pb/<sup>238</sup>U ages were calculated using the common Pb composition and the two-stage model of Stacey and Kramers (1975). Concordia and weighted average age diagrams were plotted using the Isoplot 4.0 software package (Ludwig, 2012). The uncertainties of the U-Pb ages are reported as 2σ to provide an estimation of the data's precision.

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Table S2 Cassiterite LA-ICP-MS U-Pb age data of the Yunling deposit.

Spots	U-Pb isotopic ratios						$f_{206}$	Ages (Ma)		$^{207}\text{Pb}$ -corrected ages (Ma)	
	$^{207}\text{Pb}/^{206}\text{Pb}$		$^{207}\text{Pb}/^{235}\text{U}$		$^{206}\text{Pb}/^{238}\text{U}$			$^{206}\text{Pb}/^{238}\text{U}$		$^{206}\text{Pb}/^{238}\text{U}$	
	ratios	2sigma	ratios	2sigma	ratios	2sigma		% Age (Ma)	2sigma	Age (Ma)	2sigma
YL1-1	0.11400	0.05433	0.04787	0.02165	0.00305	0.00045	8.01	19.29	2.93	19.60	2.93
YL1-2	0.04967	0.02453	0.02336	0.01062	0.00341	0.00034	0.38	21.59	2.31	21.95	2.31
YL1-3	0.07087	0.02425	0.03222	0.01012	0.00330	0.00021	2.90	20.88	1.51	21.22	1.51
YL1-4	0.05948	0.03538	0.02486	0.01346	0.00303	0.00027	1.55	19.19	1.86	19.51	1.86
YL1-5	0.09010	0.03337	0.04254	0.01439	0.00342	0.00021	5.18	21.68	1.52	22.04	1.53
YL1-6	0.02069	0.02504	0.00959	0.01045	0.00336	0.00025	0	21.28	1.72	21.63	1.73
YL1-7	0.02182	0.03927	0.00918	0.01485	0.00305	0.00026	0	19.33	1.76	19.64	1.76
YL1-8	0.08033	0.03149	0.03892	0.01406	0.00351	0.00029	4.02	22.25	1.97	22.61	1.97
YL1-9	0.05806	0.02307	0.02571	0.00932	0.00321	0.00020	1.38	20.33	1.45	20.67	1.46
YL1-10	0.03754	0.02728	0.01586	0.01041	0.00306	0.00023	0.00	19.40	1.57	19.72	1.57
YL1-11	0.08651	0.03465	0.03670	0.01345	0.00308	0.00022	4.75	19.48	1.52	19.80	1.53
YL1-12	0.02169	0.01943	0.00950	0.00767	0.00318	0.00023	0	20.12	1.59	20.45	1.59
YL1-13	0.07851	0.03101	0.03596	0.01344	0.00332	0.00039	3.80	21.03	2.60	21.38	2.60
YL1-14	0.03791	0.02052	0.01665	0.00819	0.00319	0.00024	0	20.17	1.66	20.50	1.67
YL1-15	0.03941	0.02035	0.01637	0.00769	0.00301	0.00023	0	19.08	1.56	19.39	1.56
YL1-16	0.04993	0.03151	0.02074	0.01188	0.00301	0.00025	0.42	19.08	1.72	19.39	1.73
YL1-17	0.05952	0.02948	0.02518	0.01133	0.00307	0.00021	1.55	19.43	1.48	19.75	1.48
YL1-18	0.05615	0.02262	0.02293	0.00845	0.00296	0.00021	1.15	18.76	1.45	19.07	1.46
YL1-19	0.04933	0.02265	0.02106	0.00885	0.00310	0.00025	0.34	19.60	1.74	19.93	1.74
YL1-20	0.12758	0.03934	0.06197	0.01797	0.00352	0.00030	9.62	22.30	2.07	22.67	2.07
YL1-21	0.03485	0.02276	0.01503	0.00893	0.00313	0.00030	0.00	19.80	2.04	20.13	2.05
YL2-1	0.07833	0.01896	0.03523	0.00838	0.00326	0.00023	3.78	21.00	1.62	21.21	1.62
YL2-2	0.05995	0.02415	0.02556	0.00983	0.00309	0.00022	1.60	19.90	1.55	20.10	1.55
YL2-3	0.04968	0.02097	0.02386	0.00959	0.00348	0.00024	0.38	22.42	1.67	22.65	1.67
YL2-4	0.09516	0.03700	0.04505	0.01674	0.00343	0.00024	5.78	22.10	1.70	22.32	1.70
YL2-5	0.04019	0.01761	0.01801	0.00753	0.00325	0.00025	0	20.92	1.70	21.13	1.70
YL2-6	0.03141	0.01832	0.01375	0.00759	0.00318	0.00023	0	20.44	1.58	20.64	1.58
YL2-7	0.06012	0.02527	0.02835	0.01135	0.00342	0.00024	1.62	22.01	1.67	22.23	1.67
YL2-8	0.05957	0.02012	0.02837	0.00922	0.00345	0.00025	1.56	22.23	1.74	22.45	1.74
YL2-9	0.05154	0.01500	0.02345	0.00658	0.00330	0.00021	0.61	21.24	1.52	21.45	1.52
YL2-10	0.05062	0.01353	0.02208	0.00570	0.00316	0.00020	0.50	20.36	1.40	20.56	1.40
YL2-11	0.05638	0.01369	0.02672	0.00625	0.00344	0.00018	1.18	22.12	1.34	22.34	1.35
YL2-12	0.03797	0.01185	0.01764	0.00527	0.00337	0.00020	0	21.68	1.45	21.90	1.45
YL2-13	0.06234	0.01967	0.02856	0.00859	0.00332	0.00018	1.89	21.39	1.30	21.60	1.31
YL2-14	0.06913	0.02194	0.03119	0.00958	0.00327	0.00024	2.69	21.06	1.69	21.28	1.69

YL2-15	0.03511	0.01590	0.01710	0.00735	0.00353	0.00024	0	22.73	1.66	22.95	1.66
YL2-16	0.03574	0.01189	0.01606	0.00509	0.00326	0.00018	0	20.97	1.29	21.18	1.30
YL2-17	0.04030	0.01052	0.01913	0.00480	0.00344	0.00018	0	22.16	1.35	22.38	1.35
YL2-18	0.04757	0.01321	0.02153	0.00576	0.00328	0.00020	0.13	21.13	1.44	21.34	1.45
YL2-19	0.04030	0.01182	0.01783	0.00499	0.00321	0.00016	0	20.66	1.23	20.86	1.23
YL2-20	0.06018	0.01305	0.02739	0.00577	0.00330	0.00018	1.63	21.25	1.33	21.46	1.33
YL2-21	0.04249	0.01192	0.01875	0.00505	0.00320	0.00018	0	20.60	1.30	20.81	1.30
YL2-22	0.03745	0.00896	0.01743	0.00401	0.00338	0.00017	0	21.72	1.27	21.94	1.28
YL2-23	0.03622	0.01120	0.01681	0.00496	0.00337	0.00018	0	21.67	1.33	21.88	1.34
YL2-24	0.05344	0.01065	0.02519	0.00488	0.00342	0.00018	0.83	22.00	1.31	22.22	1.31
YL4-1	0.04202	0.01917	0.02052	0.00844	0.00354	0.00025	0	22.79	1.76	22.57	1.75
YL4-2	0.01845	0.02164	0.00921	0.00961	0.00362	0.00023	0	23.28	1.61	23.06	1.61
YL4-3	0.07291	0.02856	0.03678	0.01302	0.00366	0.00024	3.14	23.54	1.68	23.31	1.68
YL4-4	0.03892	0.02448	0.01700	0.00959	0.00317	0.00024	0	20.38	1.67	20.18	1.67
YL4-5	0.00949	0.01359	0.00460	0.00586	0.00352	0.00021	0	22.63	1.53	22.41	1.53
YL4-6	0.05725	0.04513	0.02841	0.01998	0.00360	0.00023	1.28	23.16	1.64	22.94	1.63
YL4-7	0.07207	0.02562	0.03221	0.01038	0.00324	0.00021	3.04	20.86	1.48	20.66	1.47
YL4-8	0.02128	0.02095	0.00976	0.00857	0.00333	0.00024	0	21.41	1.66	21.21	1.66
YL4-9	0.04019	0.01691	0.01955	0.00741	0.00353	0.00023	0	22.70	1.60	22.48	1.60
YL4-10	0.07340	0.02556	0.03295	0.01043	0.00326	0.00022	3.20	20.96	1.53	20.75	1.53
YL4-11	0.02927	0.01897	0.01398	0.00811	0.00346	0.00024	0	22.29	1.66	22.08	1.66
YL4-12	0.11979	0.05201	0.05417	0.02135	0.00328	0.00026	8.70	21.11	1.81	20.90	1.81
YL4-13	0.06195	0.02360	0.02864	0.00987	0.00335	0.00022	1.84	21.58	1.56	21.37	1.55
YL4-14	0.08597	0.02683	0.04110	0.01171	0.00347	0.00023	4.69	22.31	1.61	22.09	1.61
YL4-15	0.04857	0.02538	0.02202	0.01035	0.00329	0.00024	0.25	21.16	1.69	20.95	1.69
YL4-16	0.07296	0.02901	0.03298	0.01186	0.00328	0.00022	3.15	21.10	1.55	20.89	1.55
YL4-17	0.02604	0.01664	0.01165	0.00666	0.00325	0.00022	0	20.89	1.57	20.68	1.57
YL4-18	0.01783	0.01984	0.00800	0.00794	0.00325	0.00028	0	20.94	1.90	20.73	1.90
YL4-19	0.03447	0.02241	0.01508	0.00877	0.00317	0.00021	0	20.43	1.50	20.23	1.50
YL4-20	0.06933	0.03108	0.02988	0.01209	0.00313	0.00022	2.71	20.12	1.56	19.92	1.56
YL4-21	0.06096	0.02560	0.02799	0.01062	0.00333	0.00023	1.72	21.43	1.62	21.22	1.62
YL4-22	0.09711	0.05155	0.04339	0.02090	0.00324	0.00032	6.01	20.86	2.14	20.65	2.13
YL4-23	0.04564	0.02184	0.02137	0.00920	0.00340	0.00023	0	21.86	1.59	21.64	1.59
YL4-24	0.06506	0.02592	0.03358	0.01213	0.00374	0.00027	2.21	24.09	1.85	23.85	1.85
YL4-25	0.06814	0.02750	0.03275	0.01197	0.00349	0.00025	2.57	22.43	1.73	22.21	1.73
YL4-26	0.10405	0.06124	0.04952	0.02636	0.00345	0.00034	6.83	22.21	2.30	21.99	2.30
YL4-27	0.09816	0.03123	0.04995	0.01447	0.00369	0.00023	6.13	23.75	1.66	23.52	1.66
YL4-28	0.04508	0.02346	0.02241	0.01048	0.00361	0.00025	0	23.20	1.78	22.97	1.77
YL4-29	0.03912	0.03300	0.01966	0.01482	0.00364	0.00030	0	23.45	2.06	23.22	2.06

YL4-30	0.04924	0.02142	0.02296	0.00905	0.00338	0.00026	0.33	21.76	1.80	21.55	1.80
YL5-1	0.02460	0.01911	0.01116	0.00841	0.00329	0.00024	0	21.18	1.66	21.68	1.66
YL5-2	0.05115	0.01837	0.02184	0.00772	0.00310	0.00021	0.56	19.93	1.49	20.73	1.50
YL5-3	0.05363	0.01702	0.02528	0.00791	0.00342	0.00022	0.85	22.00	1.53	22.04	1.53
YL5-4	0.16726	0.03884	0.08249	0.01953	0.00358	0.00027	14.3	23.02	1.89	23.19	1.89
YL5-5	0.06747	0.02594	0.02990	0.01135	0.00321	0.00026	2.49	20.69	1.77	20.96	1.77
YL5-6	0.04216	0.03581	0.01751	0.01441	0.00301	0.00022	0.00	19.39	1.55	20.17	1.56
YL5-7	0.09378	0.04100	0.03840	0.01647	0.00297	0.00023	5.61	19.12	1.58	19.88	1.58
YL5-8	0.06324	0.02857	0.02710	0.01203	0.00311	0.00026	1.99	20.00	1.76	20.81	1.77
YL6-1	0.03912	0.02018	0.01730	0.00829	0.00321	0.00019	0	20.65	1.37	20.70	1.37
YL6-2	0.06037	0.02567	0.02309	0.00925	0.00277	0.00023	1.65	17.85	1.58	17.90	1.58
YL6-3	0.05392	0.03067	0.02214	0.01171	0.00298	0.00022	0.89	19.17	1.50	19.21	1.50
YL6-4	0.07261	0.03002	0.03186	0.01241	0.00318	0.00026	3.10	20.49	1.77	20.54	1.77
YL6-5	0.01253	0.01413	0.00506	0.00527	0.00293	0.00021	0	18.85	1.45	18.90	1.45
YL6-6	0.04623	0.01788	0.01875	0.00679	0.00294	0.00019	0	18.94	1.33	18.98	1.34
YL6-7	0.05135	0.01652	0.02320	0.00704	0.00328	0.00021	0.58	21.09	1.49	21.14	1.49
YL6-8	0.04709	0.02063	0.01706	0.00703	0.00263	0.00022	0.08	16.92	1.48	16.96	1.48
YL6-9	0.03938	0.01949	0.01530	0.00705	0.00282	0.00019	0	18.14	1.32	18.19	1.32
YL6-10	0.04558	0.02120	0.01896	0.00825	0.00302	0.00023	0	19.41	1.57	19.46	1.57
YL6-11	0.05053	0.01739	0.02168	0.00703	0.00311	0.00021	0.49	20.03	1.47	20.08	1.47
YL6-12	0.02212	0.01558	0.00882	0.00576	0.00289	0.00021	0	18.62	1.47	18.67	1.47
YL6-13	0.15464	0.04400	0.06629	0.01796	0.00311	0.00021	12.8	20.01	1.49	20.06	1.49
YL6-14	0.09138	0.02549	0.03915	0.01048	0.00311	0.00023	5.33	20.00	1.61	20.05	1.61
YL6-15	0.04029	0.02004	0.01562	0.00726	0.00281	0.00022	0	18.10	1.52	18.15	1.52
YL6-16	0.08370	0.03142	0.03656	0.01297	0.00317	0.00025	4.42	20.39	1.72	20.44	1.72
YL6-17	0.07162	0.02868	0.02976	0.01123	0.00301	0.00024	2.99	19.40	1.64	19.45	1.64
YL6-18	0.06341	0.04834	0.02577	0.01822	0.00295	0.00023	2.01	18.97	1.58	19.02	1.58
YL6-19	0.04637	0.02088	0.01819	0.00765	0.00284	0.00020	0	18.31	1.40	18.36	1.41
YL6-20	0.02079	0.02038	0.00800	0.00725	0.00279	0.00021	0	17.96	1.48	18.01	1.48
YL6-21	0.06001	0.02159	0.02437	0.00824	0.00294	0.00020	1.61	18.96	1.38	19.00	1.39
YL6-22	0.09984	0.03448	0.03930	0.01284	0.00286	0.00021	6.33	18.38	1.46	18.42	1.46
YL6-23	0.06880	0.02840	0.02888	0.01125	0.00304	0.00025	2.65	19.59	1.74	19.64	1.74
YL6-24	0.02394	0.02041	0.01051	0.00831	0.00318	0.00027	0	20.49	1.87	20.54	1.87
YL6-25	0.07316	0.02686	0.02840	0.00985	0.00282	0.00021	3.17	18.13	1.49	18.17	1.49
YL6-26	0.11804	0.05229	0.04292	0.01801	0.00264	0.00025	8.49	16.98	1.72	17.02	1.72
YL7-1	0.05255	0.02957	0.02209	0.01155	0.00305	0.00022	0.73	19.63	1.56	19.73	1.56
YL7-2	0.07728	0.02915	0.03259	0.01157	0.00306	0.00023	3.66	19.69	1.60	19.79	1.60
YL7-3	0.05809	0.03269	0.02385	0.01250	0.00298	0.00024	1.38	19.17	1.67	19.27	1.67
YL7-4	0.09917	0.03256	0.04456	0.01382	0.00326	0.00023	6.25	20.97	1.61	21.08	1.61

YL7-5	0.03233	0.02021	0.01402	0.00811	0.00315	0.00020	0	20.24	1.43	20.35	1.43
YL7-6	0.01463	0.02138	0.00671	0.00904	0.00333	0.00023	0	21.41	1.62	21.53	1.62
YL7-7	0.02604	0.02498	0.01180	0.01044	0.00329	0.00022	0	21.16	1.52	21.27	1.52
YL7-8	0.06841	0.03086	0.02985	0.01261	0.00316	0.00025	2.61	20.37	1.72	20.48	1.72
YL7-9	0.02348	0.02366	0.01018	0.00946	0.00314	0.00022	0	20.24	1.52	20.35	1.52
YL7-10	0.06797	0.03075	0.03091	0.01308	0.00330	0.00025	2.55	21.23	1.76	21.34	1.76
YL7-11	0.07341	0.02771	0.03274	0.01162	0.00323	0.00024	3.20	20.82	1.64	20.93	1.65
YL7-12	0.01109	0.02458	0.00468	0.00954	0.00306	0.00022	0	19.68	1.51	19.78	1.51
YL7-13	0.03818	0.02221	0.01575	0.00851	0.00299	0.00022	0	19.26	1.55	19.36	1.55
YL7-14	0.04205	0.03069	0.01813	0.01224	0.00313	0.00022	0	20.13	1.54	20.24	1.54
YL7-15	0.02088	0.02305	0.00853	0.00869	0.00296	0.00023	0	19.08	1.58	19.18	1.58
YL7-16	0.01010	0.02362	0.00424	0.00913	0.00305	0.00026	0	19.61	1.75	19.71	1.75
YL7-17	0.07709	0.02685	0.03296	0.01080	0.00310	0.00021	3.63	19.96	1.49	20.07	1.49
YL7-18	0.05168	0.02860	0.02127	0.01091	0.00299	0.00019	0.62	19.22	1.33	19.32	1.34
YL7-19	0.03033	0.02360	0.01290	0.00929	0.00308	0.00025	0	19.85	1.74	19.95	1.74
YL8-1	0.05473	0.01174	0.02267	0.00457	0.00300	0.00013	0.98	19.33	1.01	20.07	1.03
YL8-2	0.05321	0.01197	0.02202	0.00467	0.00300	0.00014	0.80	19.32	1.07	19.40	1.07
YL8-3	0.05146	0.01259	0.02132	0.00489	0.00300	0.00013	0.60	19.34	1.04	19.44	1.04
YL8-4	0.05149	0.01146	0.02211	0.00463	0.00311	0.00013	0.60	20.05	1.05	20.21	1.05
YL8-5	0.03476	0.01234	0.01418	0.00467	0.00296	0.00014	0	19.04	1.05	19.22	1.05
YL8-6	0.04308	0.01159	0.01813	0.00458	0.00305	0.00015	0	19.64	1.15	19.85	1.16
YL8-7	0.03994	0.01150	0.01588	0.00427	0.00288	0.00013	0	18.57	1.01	18.79	1.01
YL8-8	0.05050	0.01198	0.02035	0.00452	0.00292	0.00013	0.48	18.81	0.99	19.06	0.99
YL8-9	0.04788	0.01311	0.01923	0.00492	0.00291	0.00013	0.17	18.76	1.00	19.03	1.00
YL8-10	0.03775	0.01289	0.01506	0.00477	0.00289	0.00012	0	18.63	0.96	18.92	0.96
YL8-11	0.04960	0.01076	0.02037	0.00416	0.00298	0.00013	0.38	19.18	1.01	19.51	1.01
YL8-12	0.06980	0.01970	0.03091	0.00827	0.00321	0.00021	2.77	20.67	1.48	21.08	1.49
YL8-13	0.03936	0.01696	0.01637	0.00658	0.00302	0.00020	0	19.42	1.43	19.83	1.44
YL8-14	0.05481	0.01640	0.02288	0.00640	0.00303	0.00015	0.99	19.49	1.15	19.93	1.15
YL8-15	0.04989	0.01483	0.02030	0.00564	0.00295	0.00015	0.41	19.00	1.12	19.45	1.13
YL8-16	0.03797	0.01296	0.01602	0.00510	0.00306	0.00016	0	19.70	1.18	20.22	1.19
YL8-17	0.04778	0.01359	0.01991	0.00531	0.00302	0.00016	0.16	19.45	1.17	19.99	1.18
YL8-18	0.03798	0.01502	0.01645	0.00605	0.00314	0.00017	0	20.21	1.24	20.80	1.25
YL8-19	0.03929	0.01290	0.01614	0.00494	0.00298	0.00015	0	19.18	1.14	19.76	1.15
YL8-20	0.05465	0.01306	0.02181	0.00489	0.00289	0.00013	0.97	18.63	1.01	19.23	1.02
YL8-21	0.05023	0.01224	0.02006	0.00458	0.00290	0.00013	0.45	18.65	1.01	19.26	1.02
YL8-22	0.02969	0.01619	0.01157	0.00584	0.00283	0.00017	0	18.19	1.23	18.82	1.24
YL8-23	0.04986	0.00912	0.02087	0.00364	0.00304	0.00014	0.41	19.54	1.07	20.24	1.08
YL8-24	0.04021	0.01311	0.01674	0.00511	0.00302	0.00017	0	19.44	1.24	20.17	1.25



YL8-25	0.05090	0.01259	0.02167	0.00504	0.00309	0.00015	0.53	19.88	1.14	20.61	1.16
YL8-26	0.04881	0.01276	0.02022	0.00497	0.00300	0.00015	0.28	19.34	1.13	20.03	1.14
YL8-27	0.04150	0.01246	0.01668	0.00470	0.00292	0.00016	0	18.77	1.18	19.43	1.19
YL8-28	0.06685	0.01439	0.02916	0.00596	0.00316	0.00016	2.42	20.36	1.20	21.06	1.21
YL9-1	0.04530	0.00955	0.02093	0.00413	0.00335	0.00013	0	21.57	1.05	21.80	1.06
YL9-2	0.05825	0.00920	0.02822	0.00424	0.00351	0.00014	1.40	22.61	1.10	22.86	1.11
YL9-3	0.05574	0.00919	0.02675	0.00420	0.00348	0.00014	1.10	22.40	1.15	22.64	1.15
YL9-4	0.04012	0.01106	0.01845	0.00474	0.00334	0.00015	0	21.46	1.14	21.70	1.14
YL9-5	0.07382	0.01467	0.03329	0.00634	0.00327	0.00018	3.25	21.05	1.31	21.13	1.37
YL9-6	0.03866	0.00986	0.01621	0.00387	0.00304	0.00014	0	19.57	1.08	19.78	1.09
YL9-7	0.05106	0.01135	0.02338	0.00487	0.00332	0.00014	0.55	21.37	1.11	21.60	1.11
YL9-8	0.03479	0.00956	0.01519	0.00391	0.00317	0.00016	0	20.39	1.20	20.61	1.20
YL9-9	0.06245	0.01229	0.02643	0.00498	0.00307	0.00017	1.90	19.76	1.22	19.97	1.22
YL9-10	0.04977	0.01472	0.02168	0.00604	0.00316	0.00019	0.40	20.33	1.38	20.55	1.38
YL9-11	0.04874	0.01575	0.02285	0.00690	0.00340	0.00019	0.27	21.89	1.41	22.12	1.41
YL9-12	0.05319	0.01364	0.02340	0.00565	0.00319	0.00017	0.80	20.54	1.27	20.76	1.27
YL9-13	0.05106	0.01058	0.02297	0.00452	0.00326	0.00016	0.55	21.00	1.23	21.22	1.23
YL9-14	0.04605	0.00840	0.02157	0.00369	0.00340	0.00012	0	21.86	1.01	22.10	1.01
YL9-15	0.04878	0.00814	0.02254	0.00360	0.00335	0.00015	0.28	21.57	1.16	21.81	1.17

**NOTES:**

$f_{206}$ , common  $^{206}\text{Pb}$  in total  $^{206}\text{Pb}$ ;  $f_{206} = [(^{207}\text{Pb}/^{206}\text{Pb})_{\text{measured}} - (^{207}\text{Pb}/^{206}\text{Pb})_{\text{radiogenic}}] / [(^{207}\text{Pb}/^{206}\text{Pb})_{\text{common}} - (^{207}\text{Pb}/^{206}\text{Pb})_{\text{radiogenic}}]$ .



