Tao Qian, Zongxiu Wang, Yu Wang, Shaofeng Liu, Wanli Gao, and Wangpeng Li, 2021, Jurassic evolution of the Qaidam Basin in western China: Constrained by stratigraphic succession, detrital zircon U-Pb geochronology and Hf isotope analysis: GSA Bulletin, <https://doi.org/10.1130/B35757.1>.

Supplemental Material

File 1. LA-ICP-MS U-Pb data of detrital zircons

File 2. Trace elements of detrital zircons

File 3. Th/U ratios of detrital zircons

Table M1. Sandstone sample (QYG-1) from Xiaomeigou Formation

Table M2. Sandstone sample (SN-1) from Dameigou Formation

Table M3. Sandstone sample (QYG-2) from Caishiling Formation

Table M4. Sandstone sample (bD-15) from Xiaomeigou Formation

Table M5. Sandstone sample (bD-49) from Xiaomeigou Formation

Table M6. Sandstone sample (bD-212) from Dameigou Formation

Table M7. Sandstone sample (LH-2) from Dameigou Formation

Table M8. Sandstone sample (JLS-1) from Dameigou Formation

Table M9. Sandstone sample (KYX-1) from Dameigou Formation

Table M10. Sandstone sample (KG-1) from Dameigou Formation

Table M11. Sandstone sample (DLH-1) from Dameigou Formation

Table M12. Sandstone sample (YCZG-2) from Caishiling Formation

File 4. Lu-Hf isotopic data for zircons

Table M1. Sample bD-15 (Early Jurassic)

Table M2. Sample bD-49 (Early Jurassic)

Table M3. Sample bD-106 (Middle Jurassic)

Table M4. Sample JLS-1 (Middle Jurassic)

Table M5. Sample DLH-1 (Middle Jurassic)

Table M6. Sample bD-303 (Late Jurassic)

Table M7. Sample YCZG-2 (Late Jurassic)

Table M1. LA-ICP-MS U-Pb data of detrital zircons of sandstone sample (QYG-1) from Xiaomeigou Formation

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	Best age	1 σ
1	0.1622	0.0034	10.1252	0.2406	0.4528	0.0104	0.1252	0.0027	2479	35	2446	22	2408	46	2479	35
2	0.0563	0.0016	0.5393	0.0166	0.0695	0.0016	0.0209	0.0005	463	64	438	11	433	10	433	10
3	0.0867	0.0018	2.6170	0.0609	0.2190	0.0050	0.0634	0.0013	1354	39	1305	17	1276	26	1354	39
4	0.0571	0.0013	0.5984	0.0152	0.0761	0.0017	0.0239	0.0005	493	51	476	10	473	10	473	10
5	0.0552	0.0017	0.5456	0.0178	0.0718	0.0017	0.0237	0.0006	418	68	442	12	447	10	447	10
6	0.0873	0.0019	2.8038	0.0687	0.2329	0.0054	0.0715	0.0016	1368	42	1357	18	1350	28	1368	42
7	0.0560	0.0013	0.5688	0.0142	0.0737	0.0017	0.0238	0.0005	452	49	457	9	458	10	458	10
8	0.0597	0.0015	0.6020	0.0162	0.0731	0.0017	0.0246	0.0006	594	53	479	10	455	10	455	10
9	0.0852	0.0017	2.6663	0.0614	0.2269	0.0052	0.0669	0.0014	1321	39	1319	17	1318	27	1321	39
10	0.0558	0.0015	0.5992	0.0170	0.0779	0.0018	0.0232	0.0005	445	58	477	11	483	11	483	11
11	0.0602	0.0014	0.6234	0.0155	0.0751	0.0017	0.0232	0.0005	612	48	492	10	467	10	467	10
12	0.0609	0.0014	0.7054	0.0179	0.0841	0.0019	0.0283	0.0006	635	49	542	11	520	11	520	11
15	0.0727	0.0019	1.5660	0.0438	0.1563	0.0036	0.0375	0.0008	1005	52	957	17	936	20	936	20
16	0.0562	0.0015	0.5527	0.0157	0.0714	0.0017	0.0225	0.0005	458	58	447	10	445	10	445	10
21	0.0804	0.0016	2.2815	0.0523	0.2057	0.0047	0.0702	0.0015	1208	40	1207	16	1206	25	1208	40
23	0.0861	0.0018	2.4456	0.0581	0.2061	0.0047	0.0754	0.0016	1340	41	1256	17	1208	25	1340	41
24	0.0896	0.0020	3.0242	0.0741	0.2449	0.0056	0.0699	0.0015	1417	42	1414	19	1412	29	1417	42
26	0.0905	0.0021	3.1389	0.0781	0.2517	0.0058	0.0736	0.0017	1435	43	1442	19	1448	30	1435	43
27	0.0607	0.0014	0.6535	0.0166	0.0781	0.0018	0.0246	0.0005	629	49	511	10	485	11	485	11

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	Best age	1 σ
28	0.0576	0.0016	0.6038	0.0180	0.0760	0.0018	0.0239	0.0006	515	61	480	11	472	11	472	11
29	0.0876	0.0018	2.8517	0.0650	0.2363	0.0054	0.0705	0.0015	1373	38	1369	17	1367	28	1373	38
30	0.0876	0.0018	2.8672	0.0663	0.2374	0.0054	0.0689	0.0014	1374	39	1373	17	1373	28	1374	39
32	0.0629	0.0014	0.7467	0.0179	0.0861	0.0020	0.0339	0.0008	705	45	566	10	532	12	532	12
33	0.0871	0.0018	2.7423	0.0629	0.2283	0.0052	0.0665	0.0014	1364	39	1340	17	1325	27	1364	39
34	0.0569	0.0013	0.5987	0.0151	0.0763	0.0017	0.0235	0.0005	487	50	476	10	474	10	474	10
35	0.0874	0.0018	2.8597	0.0656	0.2374	0.0054	0.0703	0.0015	1369	39	1371	17	1373	28	1369	39
37	0.0587	0.0017	0.6290	0.0191	0.0777	0.0018	0.0242	0.0006	556	62	496	12	483	11	483	11
40	0.0913	0.0021	3.1633	0.0781	0.2512	0.0058	0.0728	0.0016	1454	42	1448	19	1445	30	1448	19
41	0.0873	0.0018	2.8320	0.0655	0.2352	0.0053	0.0698	0.0014	1368	39	1364	17	1362	28	1368	39
42	0.0580	0.0014	0.6060	0.0159	0.0758	0.0017	0.0230	0.0005	529	53	481	10	471	10	471	10
43	0.0588	0.0013	0.6973	0.0169	0.0860	0.0020	0.0268	0.0006	559	47	537	10	532	12	532	12
46	0.0587	0.0017	0.6358	0.0190	0.0786	0.0018	0.0248	0.0006	554	61	500	12	488	11	488	11
47	0.0882	0.0018	2.8973	0.0665	0.2384	0.0054	0.0694	0.0014	1386	39	1381	17	1378	28	1386	39
48	0.0571	0.0013	0.5999	0.0145	0.0763	0.0017	0.0236	0.0005	494	47	477	9	474	10	474	10
49	0.0569	0.0014	0.5896	0.0156	0.0751	0.0017	0.0229	0.0005	488	53	471	10	467	10	467	10
50	0.0870	0.0018	2.7636	0.0638	0.2304	0.0052	0.0704	0.0015	1361	39	1346	17	1336	27	1361	39
51	0.1067	0.0024	4.7154	0.1146	0.3207	0.0073	0.0970	0.0022	1743	40	1770	20	1793	36	1743	40
53	0.0813	0.0018	2.3333	0.0564	0.2081	0.0047	0.0610	0.0013	1229	42	1223	17	1219	25	1229	42
54	0.0877	0.0018	2.9011	0.0678	0.2398	0.0055	0.0702	0.0015	1377	40	1382	18	1386	28	1377	40
55	0.0578	0.0021	0.6326	0.0236	0.0793	0.0019	0.0254	0.0007	523	78	498	15	492	11	492	11

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	Best age	1 σ
56	0.0921	0.0019	3.3099	0.0773	0.2608	0.0059	0.0755	0.0016	1469	39	1483	18	1494	30	1469	39
57	0.0572	0.0014	0.5807	0.0155	0.0737	0.0017	0.0223	0.0005	498	54	465	10	458	10	458	10
58	0.0773	0.0016	2.0164	0.0469	0.1893	0.0043	0.0565	0.0012	1128	41	1121	16	1118	23	1128	41
59	0.0570	0.0013	0.5719	0.0144	0.0728	0.0017	0.0221	0.0005	490	50	459	9	453	10	453	10
60	0.0572	0.0013	0.5720	0.0144	0.0725	0.0017	0.0222	0.0005	500	51	459	9	451	10	451	10
61	0.0574	0.0014	0.5859	0.0150	0.0740	0.0017	0.0221	0.0005	507	51	468	10	460	10	460	10
63	0.0844	0.0018	2.3613	0.0547	0.2029	0.0046	0.0613	0.0013	1302	40	1231	17	1191	25	1302	40
64	0.0575	0.0019	0.6059	0.0204	0.0765	0.0018	0.0239	0.0006	509	70	481	13	475	11	475	11
65	0.0571	0.0013	0.5809	0.0143	0.0738	0.0017	0.0224	0.0005	493	49	465	9	459	10	459	10
66	0.0576	0.0015	0.6139	0.0173	0.0773	0.0018	0.0235	0.0005	514	57	486	11	480	11	480	11
68	0.0605	0.0014	0.6265	0.0155	0.0751	0.0017	0.0245	0.0005	621	48	494	10	467	10	467	10
69	0.0583	0.0014	0.6445	0.0171	0.0802	0.0018	0.0249	0.0005	539	54	505	11	498	11	498	11
71	0.0584	0.0014	0.6887	0.0174	0.0855	0.0019	0.0267	0.0006	546	49	532	10	529	12	529	12
72	0.0584	0.0014	0.6172	0.0155	0.0766	0.0017	0.0239	0.0005	546	50	488	10	476	10	476	10
73	0.0563	0.0017	0.5899	0.0182	0.0760	0.0018	0.0224	0.0005	464	65	471	12	472	11	472	11
74	0.0609	0.0014	0.6160	0.0152	0.0734	0.0017	0.0232	0.0005	636	48	487	10	456	10	456	10
75	0.0887	0.0019	2.9466	0.0702	0.2408	0.0055	0.0721	0.0016	1399	41	1394	18	1391	28	1399	41
76	0.0564	0.0013	0.5860	0.0144	0.0754	0.0017	0.0229	0.0005	468	49	468	9	468	10	468	10
77	0.1935	0.0040	14.3865	0.3296	0.5394	0.0123	0.1429	0.0030	2772	33	2776	22	2781	51	2772	33
79	0.0609	0.0015	0.5740	0.0151	0.0684	0.0016	0.0226	0.0005	635	52	461	10	427	9	427	9
80	0.0556	0.0013	0.5794	0.0147	0.0756	0.0017	0.0236	0.0005	435	51	464	9	470	10	470	10

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	Best age	1 σ
81	0.0916	0.0019	3.0782	0.0698	0.2438	0.0055	0.0795	0.0016	1459	38	1427	17	1406	29	1459	38
82	0.0783	0.0018	2.0729	0.0525	0.1919	0.0044	0.0568	0.0013	1155	46	1140	17	1132	24	1155	46
83	0.0845	0.0018	2.4008	0.0563	0.2060	0.0047	0.0774	0.0016	1304	41	1243	17	1208	25	1304	41
88	0.0680	0.0016	1.0795	0.0273	0.1151	0.0026	0.0442	0.0010	869	48	743	13	702	15	702	15
90	0.0580	0.0015	0.6352	0.0176	0.0795	0.0018	0.0242	0.0006	529	56	499	11	493	11	493	11
91	0.0659	0.0021	1.1643	0.0389	0.1282	0.0030	0.0387	0.0009	803	66	784	18	777	17	777	17
93	0.0564	0.0015	0.5848	0.0167	0.0752	0.0017	0.0225	0.0005	468	59	468	11	467	10	467	10
94	0.0878	0.0018	2.7173	0.0611	0.2244	0.0051	0.0676	0.0014	1378	38	1333	17	1305	27	1378	38
97	0.0632	0.0016	0.7327	0.0193	0.0841	0.0019	0.0270	0.0006	714	51	558	11	521	11	521	11
98	0.0577	0.0012	0.6666	0.0157	0.0838	0.0019	0.0264	0.0006	517	46	519	10	519	11	519	11
99	0.0567	0.0013	0.5823	0.0148	0.0745	0.0017	0.0230	0.0005	478	51	466	9	463	10	463	10
101	0.0902	0.0018	3.1433	0.0710	0.2528	0.0057	0.0726	0.0015	1429	38	1443	17	1453	29	1429	38
102	0.0891	0.0034	2.8561	0.1093	0.2324	0.0058	0.0714	0.0020	1407	70	1370	29	1347	30	1407	70
103	0.0787	0.0017	2.1389	0.0507	0.1971	0.0045	0.0613	0.0013	1164	42	1162	16	1160	24	1164	42
104	0.0599	0.0016	0.6701	0.0186	0.0811	0.0019	0.0268	0.0006	601	56	521	11	503	11	503	11
106	0.0688	0.0020	1.1568	0.0353	0.1219	0.0028	0.0373	0.0009	893	59	781	17	742	16	742	16
108	0.0877	0.0018	2.8749	0.0648	0.2379	0.0053	0.0703	0.0014	1375	38	1375	17	1376	28	1375	38
109	0.0572	0.0016	0.6181	0.0182	0.0784	0.0018	0.0240	0.0006	498	61	489	11	487	11	487	11
110	0.0554	0.0014	0.5835	0.0154	0.0764	0.0017	0.0231	0.0005	427	53	467	10	475	10	475	10
111	0.0591	0.0013	0.6045	0.0148	0.0742	0.0017	0.0233	0.0005	571	48	480	9	461	10	461	10
116	0.0872	0.0018	2.7604	0.0626	0.2295	0.0052	0.0680	0.0014	1365	39	1345	17	1332	27	1365	39

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	Best age	1 σ
118	0.0788	0.0016	2.0985	0.0483	0.1932	0.0043	0.0689	0.0015	1166	41	1148	16	1139	23	1166	41
120	0.0872	0.0018	2.8442	0.0636	0.2364	0.0053	0.0688	0.0014	1366	38	1367	17	1368	28	1366	38

Table M2. LA-ICP-MS U-Pb data of detrital zircons of sandstone sample (SN-1) from Dameigou Formation

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
2	0.0527	0.0011	0.3228	0.0073	0.0447	0.0006	0.0156	0.0002	314	48	282	4	284	6	282	4
3	0.0526	0.0012	0.3179	0.0075	0.0440	0.0006	0.0138	0.0002	312	51	278	4	280	6	278	4
4	0.0528	0.0020	0.3142	0.0119	0.0433	0.0007	0.0132	0.0003	321	84	273	4	277	9	273	4
5	0.0558	0.0009	0.5160	0.0090	0.0673	0.0009	0.0200	0.0002	445	35	420	5	423	6	420	5
6	0.0556	0.0009	0.4574	0.0077	0.0599	0.0008	0.0211	0.0003	435	33	375	5	382	5	375	5
7	0.0564	0.0014	0.5481	0.0143	0.0707	0.0010	0.0215	0.0004	468	56	441	6	444	9	441	6
8	0.0509	0.0012	0.2961	0.0070	0.0424	0.0006	0.0132	0.0002	234	52	268	3	263	6	268	3
9	0.0536	0.0020	0.3106	0.0116	0.0422	0.0006	0.0132	0.0003	355	82	266	4	275	9	266	4
10	0.0528	0.0016	0.3079	0.0095	0.0425	0.0006	0.0132	0.0002	320	68	268	4	273	7	268	4
11	0.0529	0.0010	0.3050	0.0060	0.0420	0.0005	0.0136	0.0002	323	41	265	3	270	5	265	3
12	0.0536	0.0021	0.3004	0.0115	0.0408	0.0006	0.0134	0.0003	356	84	258	4	267	9	258	4
13	0.0559	0.0014	0.5310	0.0139	0.0692	0.0009	0.0211	0.0004	447	56	431	6	433	9	431	6
14	0.0560	0.0008	0.4557	0.0072	0.0593	0.0008	0.0215	0.0003	451	31	371	5	381	5	371	5
15	0.0531	0.0012	0.3216	0.0077	0.0441	0.0006	0.0137	0.0002	333	52	278	4	283	6	278	4
16	0.0560	0.0010	0.5408	0.0100	0.0703	0.0009	0.0196	0.0002	451	38	438	5	439	7	438	5
18	0.0534	0.0013	0.3239	0.0079	0.0441	0.0006	0.0143	0.0002	346	53	278	4	285	6	278	4
19	0.0532	0.0014	0.3171	0.0082	0.0434	0.0006	0.0132	0.0002	335	56	274	4	280	6	274	4
20	0.0562	0.0008	0.4796	0.0078	0.0621	0.0008	0.0210	0.0003	461	33	388	5	398	5	388	5
21	0.0549	0.0009	0.5124	0.0087	0.0680	0.0009	0.0221	0.0004	407	34	424	5	420	6	424	5

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1σ	$^{207}\text{Pb}/^{235}\text{U}$	1σ	$^{206}\text{Pb}/^{238}\text{U}$	1σ	$^{208}\text{Pb}/^{232}\text{Th}$	1σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1σ	$^{206}\text{Pb}/^{238}\text{U}$	1σ	$^{207}\text{Pb}/^{235}\text{U}$	1σ	Best age	1σ
23	0.0539	0.0021	0.3484	0.0093	0.0471	0.0006	0.0158	0.0003	366	58	296	4	304	7	296	4
24	0.0556	0.0021	0.4932	0.0082	0.0645	0.0008	0.0220	0.0003	437	33	403	5	407	6	403	5
25	0.0525	0.0021	0.2978	0.0062	0.0413	0.0005	0.0130	0.0002	306	44	261	3	265	5	261	3
26	0.0517	0.0021	0.3059	0.0079	0.0431	0.0006	0.0130	0.0002	271	57	272	4	271	6	272	4
27	0.0523	0.0021	0.3040	0.0094	0.0423	0.0006	0.0131	0.0002	298	68	267	4	270	7	267	4
28	0.0557	0.0021	0.5379	0.0109	0.0703	0.0009	0.0214	0.0003	439	42	438	5	437	7	438	5
29	0.0542	0.0021	0.3186	0.0100	0.0428	0.0006	0.0133	0.0002	378	69	270	4	281	8	270	4
30	0.0521	0.0021	0.3133	0.0077	0.0438	0.0006	0.0138	0.0002	288	54	276	4	277	6	276	4
31	0.0555	0.0021	0.4838	0.0107	0.0634	0.0008	0.0200	0.0003	433	46	396	5	401	7	396	5
32	0.0565	0.0021	0.5627	0.0143	0.0725	0.0010	0.0227	0.0005	470	55	451	6	453	9	451	6
33	0.0527	0.0021	0.3054	0.0065	0.0421	0.0006	0.0134	0.0002	317	46	266	3	271	5	266	3
34	0.0540	0.0021	0.3119	0.0101	0.0420	0.0006	0.0108	0.0002	370	71	265	4	276	8	265	4
35	0.0514	0.0021	0.2965	0.0082	0.0420	0.0006	0.0135	0.0002	258	62	265	4	264	6	265	4
36	0.0534	0.0021	0.2940	0.0105	0.0401	0.0006	0.0135	0.0003	344	79	253	4	262	8	253	4
37	0.0562	0.0021	0.4845	0.0107	0.0627	0.0008	0.0207	0.0003	458	47	392	5	401	7	392	5
38	0.0527	0.0021	0.3126	0.0074	0.0432	0.0006	0.0135	0.0002	315	52	272	4	276	6	272	4
39	0.0533	0.0021	0.2701	0.0064	0.0369	0.0005	0.0127	0.0002	340	51	233	3	243	5	233	3
40	0.0510	0.0021	0.2870	0.0074	0.0409	0.0005	0.0127	0.0002	242	57	258	3	256	6	258	3
41	0.0514	0.0021	0.2907	0.0058	0.0411	0.0005	0.0125	0.0002	259	43	260	3	259	5	260	3
42	0.0558	0.0021	0.5305	0.0095	0.0691	0.0009	0.0206	0.0003	445	37	431	5	432	6	431	5
43	0.0538	0.0020	0.3095	0.0128	0.0418	0.0006	0.0132	0.0003	362	91	264	4	274	10	264	4

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
44	0.0565	0.0020	0.5390	0.0125	0.0694	0.0009	0.0216	0.0004	470	50	433	6	438	8	433	6
45	0.0523	0.0020	0.2978	0.0066	0.0414	0.0005	0.0125	0.0002	299	48	261	3	265	5	261	3
46	0.0516	0.0020	0.2855	0.0058	0.0402	0.0005	0.0119	0.0002	267	44	254	3	255	5	254	3
48	0.0522	0.0020	0.2866	0.0061	0.0399	0.0005	0.0128	0.0002	293	46	252	3	256	5	252	3
50	0.0550	0.0020	0.5040	0.0091	0.0666	0.0008	0.0201	0.0003	412	37	416	5	414	6	416	5
51	0.0547	0.0020	0.4843	0.0094	0.0644	0.0008	0.0193	0.0003	398	41	402	5	401	6	402	5
52	0.0509	0.0020	0.2666	0.0066	0.0381	0.0005	0.0125	0.0002	237	55	241	3	240	5	241	3
53	0.0532	0.0020	0.3184	0.0098	0.0435	0.0006	0.0132	0.0003	336	68	275	4	281	8	275	4
54	0.0525	0.0020	0.2926	0.0111	0.0405	0.0006	0.0123	0.0003	308	85	256	4	261	9	256	4
55	0.0514	0.0016	0.2765	0.0088	0.0391	0.0005	0.0120	0.0002	258	71	247	3	248	7	247	3
57	0.0533	0.0023	0.3134	0.0134	0.0427	0.0007	0.0122	0.0003	343	95	270	4	277	10	270	4
58	0.0591	0.0010	0.5610	0.0102	0.0689	0.0009	0.0204	0.0003	572	37	430	5	452	7	430	5
59	0.0605	0.0009	0.5384	0.0088	0.0647	0.0008	0.0220	0.0003	621	32	404	5	437	6	404	5
60	0.0532	0.0016	0.2934	0.0087	0.0401	0.0006	0.0124	0.0002	335	65	253	3	261	7	253	3
61	0.0577	0.0013	0.3439	0.0081	0.0433	0.0006	0.0137	0.0002	518	50	273	3	300	6	273	3
62	0.0528	0.0016	0.3229	0.0098	0.0444	0.0006	0.0134	0.0002	322	67	280	4	284	8	280	4
63	0.0525	0.0012	0.3193	0.0072	0.0442	0.0006	0.0136	0.0002	306	49	279	4	281	6	279	4
64	0.0513	0.0009	0.2752	0.0049	0.0390	0.0005	0.0130	0.0002	253	38	246	3	247	4	246	3
65	0.0514	0.0011	0.2982	0.0067	0.0421	0.0005	0.0131	0.0002	259	50	266	3	265	5	266	3
66	0.0512	0.0009	0.2734	0.0048	0.0388	0.0005	0.0128	0.0002	250	38	245	3	245	4	245	3
67	0.0551	0.0009	0.4182	0.0070	0.0551	0.0007	0.0193	0.0003	417	34	346	4	355	5	346	4

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
68	0.0528	0.0012	0.3083	0.0071	0.0424	0.0006	0.0172	0.0002	319	50	268	3	273	6	268	3
69	0.0536	0.0011	0.3235	0.0069	0.0438	0.0006	0.0134	0.0002	356	46	276	3	285	5	276	3
70	0.0563	0.0008	0.5019	0.0080	0.0647	0.0008	0.0216	0.0003	464	33	404	5	413	5	404	5
71	0.0517	0.0010	0.3002	0.0060	0.0422	0.0005	0.0130	0.0002	270	44	266	3	267	5	266	3
72	0.0527	0.0010	0.3120	0.0061	0.0430	0.0005	0.0129	0.0002	316	42	271	3	276	5	271	3
73	0.0514	0.0009	0.2922	0.0055	0.0412	0.0005	0.0131	0.0002	259	41	261	3	260	4	261	3
74	0.0551	0.0008	0.5281	0.0084	0.0695	0.0009	0.0216	0.0003	417	32	433	5	431	6	433	5
75	0.0558	0.0008	0.4785	0.0073	0.0622	0.0008	0.0214	0.0003	445	31	389	5	397	5	389	5
76	0.0521	0.0009	0.2791	0.0051	0.0388	0.0005	0.0137	0.0002	292	39	246	3	250	4	246	3
77	0.0517	0.0010	0.2982	0.0061	0.0419	0.0005	0.0128	0.0002	271	45	264	3	265	5	264	3
78	0.0559	0.0011	0.4778	0.0095	0.0621	0.0008	0.0209	0.0003	446	42	388	5	397	7	388	5
79	0.0568	0.0009	0.5838	0.0099	0.0745	0.0009	0.0235	0.0003	485	35	463	5	467	6	463	5
80	0.0553	0.0007	0.4804	0.0070	0.0630	0.0008	0.0215	0.0003	424	29	394	5	398	5	394	5
81	0.0528	0.0012	0.3176	0.0072	0.0436	0.0006	0.0139	0.0002	322	49	275	3	280	6	275	3
82	0.0534	0.0015	0.3098	0.0088	0.0421	0.0006	0.0129	0.0002	344	63	266	3	274	7	266	3
83	0.0510	0.0014	0.2991	0.0085	0.0425	0.0006	0.0129	0.0002	242	64	268	4	266	7	268	4
84	0.0525	0.0012	0.3181	0.0072	0.0439	0.0006	0.0133	0.0002	309	50	277	3	280	6	277	3
85	0.0518	0.0008	0.2625	0.0044	0.0368	0.0005	0.0128	0.0002	275	36	233	3	237	4	233	3
87	0.0548	0.0013	0.2642	0.0063	0.0350	0.0005	0.0108	0.0001	402	51	222	3	238	5	222	3
88	0.0529	0.0017	0.3042	0.0095	0.0417	0.0006	0.0130	0.0002	324	69	263	4	270	7	263	4
89	0.0508	0.0011	0.3038	0.0066	0.0434	0.0006	0.0146	0.0002	230	48	274	3	269	5	274	3

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
90	0.0535	0.0013	0.3299	0.0080	0.0447	0.0006	0.0135	0.0002	351	53	282	4	290	6	282	4
91	0.0527	0.0010	0.3102	0.0062	0.0426	0.0005	0.0146	0.0002	317	43	269	3	274	5	269	3
92	0.0549	0.0009	0.5215	0.0090	0.0689	0.0008	0.0201	0.0003	406	36	430	5	426	6	430	5
93	0.0534	0.0010	0.3180	0.0060	0.0432	0.0005	0.0137	0.0002	346	40	272	3	280	5	272	3
94	0.0532	0.0012	0.3225	0.0076	0.0439	0.0006	0.0133	0.0002	338	52	277	3	284	6	277	3
95	0.0554	0.0008	0.5441	0.0085	0.0711	0.0009	0.0213	0.0002	429	32	443	5	441	6	443	5
96	0.0525	0.0011	0.3098	0.0065	0.0428	0.0005	0.0127	0.0002	307	46	270	3	274	5	270	3
97	0.0510	0.0010	0.2999	0.0061	0.0426	0.0005	0.0129	0.0002	241	45	269	3	266	5	269	3
98	0.0508	0.0009	0.2828	0.0053	0.0404	0.0005	0.0127	0.0002	231	41	255	3	253	4	255	3
99	0.0531	0.0008	0.2721	0.0042	0.0371	0.0005	0.0121	0.0001	333	33	235	3	244	3	235	3
100	0.0525	0.0011	0.3078	0.0064	0.0425	0.0005	0.0129	0.0002	306	46	268	3	272	5	268	3
102	0.0522	0.0008	0.2676	0.0045	0.0371	0.0005	0.0110	0.0001	293	36	235	3	241	4	235	3
103	0.0515	0.0008	0.2691	0.0046	0.0378	0.0005	0.0125	0.0002	265	37	239	3	242	4	239	3
104	0.0517	0.0012	0.3067	0.0069	0.0429	0.0005	0.0128	0.0002	274	50	271	3	272	5	271	3
105	0.0508	0.0009	0.2856	0.0054	0.0407	0.0005	0.0121	0.0001	233	42	257	3	255	4	257	3
106	0.0550	0.0010	0.4956	0.0094	0.0653	0.0008	0.0219	0.0003	411	40	408	5	409	6	408	5
107	0.0503	0.0010	0.2768	0.0056	0.0399	0.0005	0.0109	0.0001	208	45	252	3	248	4	252	3
108	0.0511	0.0013	0.3121	0.0080	0.0442	0.0006	0.0126	0.0002	245	57	279	4	276	6	279	4
110	0.0514	0.0007	0.2453	0.0038	0.0346	0.0004	0.0099	0.0001	257	33	219	3	223	3	219	3
111	0.0573	0.0017	0.4962	0.0143	0.0627	0.0008	0.0194	0.0004	501	63	392	5	409	10	392	5
112	0.0516	0.0011	0.2591	0.0055	0.0364	0.0005	0.0114	0.0002	266	47	230	3	234	4	230	3

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
113	0.0510	0.0009	0.3046	0.0058	0.0433	0.0005	0.0134	0.0002	239	42	273	3	270	5	273	3
114	0.0506	0.0009	0.2734	0.0050	0.0391	0.0005	0.0124	0.0002	224	40	247	3	245	4	247	3
115	0.0513	0.0009	0.2747	0.0052	0.0388	0.0005	0.0112	0.0001	254	41	245	3	246	4	245	3
117	0.0514	0.0009	0.2576	0.0045	0.0363	0.0004	0.0116	0.0001	257	38	230	3	233	4	230	3
118	0.0513	0.0009	0.2812	0.0051	0.0397	0.0005	0.0127	0.0002	254	40	251	3	252	4	251	3
119	0.0515	0.0009	0.2830	0.0051	0.0398	0.0005	0.0130	0.0002	261	39	252	3	253	4	252	3
120	0.0520	0.0023	0.3084	0.0132	0.0429	0.0007	0.0135	0.0003	284	96	271	4	273	10	271	4

Table M3. LA-ICP-MS U-Pb data of detrital zircons of sandstone sample (QYG-2) from Caishiling Formation

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
1	0.0551	0.0008	0.5133	0.0081	0.0676	0.0008	0.0198	0.0002	415	32	422	5	421	5	422	5
2	0.0552	0.0009	0.5200	0.0088	0.0683	0.0008	0.0204	0.0003	422	35	426	5	425	6	426	5
3	0.0557	0.0009	0.4539	0.0076	0.0591	0.0007	0.0195	0.0003	442	34	370	4	380	5	370	4
4	0.0552	0.0009	0.5094	0.0084	0.0670	0.0008	0.0196	0.0002	419	34	418	5	418	6	418	5
5	0.0901	0.0010	2.9000	0.0363	0.2334	0.0028	0.0663	0.0010	1428	21	1352	15	1382	9	1428	21
6	0.0509	0.0010	0.2772	0.0055	0.0395	0.0005	0.0121	0.0002	236	44	250	3	248	4	250	3
7	0.0520	0.0015	0.2791	0.0081	0.0389	0.0005	0.0116	0.0002	286	65	246	3	250	6	246	3
8	0.0514	0.0023	0.3010	0.0134	0.0425	0.0007	0.0130	0.0003	259	100	268	4	267	10	268	4
9	0.1093	0.0018	4.8284	0.0846	0.3206	0.0041	0.0934	0.0014	1787	30	1793	20	1790	15	1787	30
10	0.0520	0.0017	0.2918	0.0098	0.0407	0.0006	0.0130	0.0003	287	75	257	3	260	8	257	3
11	0.0550	0.0014	0.4809	0.0126	0.0635	0.0008	0.0198	0.0003	411	56	397	5	399	9	397	5
12	0.0520	0.0019	0.2761	0.0099	0.0385	0.0005	0.0105	0.0002	285	80	244	3	248	8	244	3
13	0.0545	0.0011	0.4642	0.0099	0.0618	0.0008	0.0193	0.0003	392	46	386	5	387	7	386	5
16	0.0553	0.0009	0.5073	0.0088	0.0665	0.0008	0.0194	0.0002	425	35	415	5	417	6	415	5
17	0.0714	0.0010	1.6255	0.0236	0.1652	0.0020	0.0457	0.0006	969	27	985	11	980	9	985	11
19	0.0524	0.0013	0.3276	0.0083	0.0453	0.0006	0.0142	0.0002	305	56	286	4	288	6	286	4
20	0.0552	0.0024	0.4839	0.0204	0.0636	0.0010	0.0204	0.0004	419	92	398	6	401	14	398	6
23	0.1058	0.0012	4.5170	0.0594	0.3097	0.0038	0.0850	0.0010	1728	21	1739	18	1734	11	1728	21
24	0.0513	0.0010	0.3012	0.0062	0.0425	0.0005	0.0129	0.0002	256	45	269	3	267	5	269	3

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
25	0.0595	0.0008	0.4964	0.0071	0.0605	0.0007	0.0219	0.0003	586	28	379	4	409	5	379	4
26	0.0550	0.0008	0.4967	0.0075	0.0655	0.0008	0.0226	0.0003	412	31	409	5	410	5	409	5
27	0.0510	0.0015	0.2824	0.0085	0.0402	0.0005	0.0120	0.0002	240	68	254	3	253	7	254	3
28	0.0568	0.0008	0.6047	0.0091	0.0773	0.0009	0.0234	0.0003	482	31	480	6	480	6	480	6
30	0.0611	0.0008	0.4982	0.0069	0.0591	0.0007	0.0132	0.0002	643	27	370	4	411	5	370	4
31	0.0560	0.0011	0.5504	0.0110	0.0713	0.0009	0.0222	0.0003	451	42	444	5	445	7	444	5
32	0.0518	0.0024	0.3198	0.0145	0.0448	0.0007	0.0141	0.0003	276	102	282	4	282	11	282	4
33	0.0512	0.0024	0.2847	0.0132	0.0404	0.0006	0.0123	0.0002	248	105	255	4	254	10	255	4
34	0.0544	0.0010	0.4783	0.0093	0.0637	0.0008	0.0212	0.0004	389	42	398	5	397	6	398	5
35	0.0548	0.0008	0.4737	0.0074	0.0627	0.0008	0.0195	0.0002	404	32	392	5	394	5	392	5
36	0.0551	0.0008	0.5038	0.0079	0.0663	0.0008	0.0202	0.0003	416	32	414	5	414	5	414	5
37	0.0528	0.0024	0.3116	0.0138	0.0428	0.0007	0.0128	0.0003	318	99	270	4	275	11	270	4
38	0.0522	0.0031	0.3173	0.0184	0.0441	0.0008	0.0135	0.0004	294	129	278	5	280	14	278	5
39	0.0527	0.0013	0.2653	0.0067	0.0365	0.0005	0.0117	0.0002	315	56	231	3	239	5	231	3
40	0.0743	0.0016	1.6480	0.0366	0.1610	0.0021	0.0514	0.0009	1048	43	962	12	989	14	962	12
41	0.0691	0.0013	1.4248	0.0272	0.1495	0.0019	0.0459	0.0007	903	38	898	11	899	11	898	11
42	0.0538	0.0011	0.4345	0.0089	0.0586	0.0007	0.0175	0.0003	361	45	367	4	366	6	367	4
43	0.0524	0.0010	0.3033	0.0061	0.0420	0.0005	0.0135	0.0002	303	43	265	3	269	5	265	3
44	0.0551	0.0009	0.4913	0.0084	0.0647	0.0008	0.0187	0.0002	415	36	404	5	406	6	404	5
45	0.0741	0.0017	1.8339	0.0433	0.1795	0.0024	0.0531	0.0013	1044	46	1064	13	1058	16	1044	46
47	0.0553	0.0010	0.5174	0.0100	0.0679	0.0008	0.0206	0.0003	423	41	423	5	423	7	423	5

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
48	0.1286	0.0016	6.4709	0.0870	0.3650	0.0044	0.0792	0.0014	2079	21	2006	21	2042	12	2079	21
49	0.0563	0.0014	0.5508	0.0139	0.0709	0.0009	0.0215	0.0003	464	55	442	6	446	9	442	6
50	0.0708	0.0009	1.1989	0.0170	0.1228	0.0015	0.0459	0.0006	952	26	747	8	800	8	747	8
51	0.0743	0.0009	1.5785	0.0220	0.1540	0.0019	0.0477	0.0006	1051	25	923	10	962	9	923	10
52	0.0518	0.0010	0.3023	0.0060	0.0423	0.0005	0.0139	0.0002	276	44	267	3	268	5	267	3
53	0.0573	0.0012	0.6325	0.0132	0.0801	0.0010	0.0251	0.0003	501	45	497	6	498	8	497	6
54	0.0574	0.0014	0.3461	0.0082	0.0438	0.0006	0.0145	0.0002	505	51	276	3	302	6	276	3
55	0.1099	0.0012	4.5792	0.0574	0.3022	0.0036	0.0866	0.0012	1798	20	1702	18	1746	10	1798	20
56	0.0563	0.0015	0.3257	0.0085	0.0420	0.0006	0.0136	0.0002	462	57	265	3	286	6	265	3
57	0.0557	0.0011	0.5254	0.0102	0.0684	0.0009	0.0216	0.0004	441	41	426	5	429	7	426	5
58	0.0548	0.0008	0.4880	0.0073	0.0646	0.0008	0.0212	0.0003	403	30	404	5	404	5	404	5
59	0.0789	0.0011	2.1485	0.0317	0.1976	0.0024	0.0575	0.0007	1169	27	1162	13	1165	10	1169	27
61	0.0559	0.0013	0.5434	0.0129	0.0705	0.0009	0.0206	0.0004	449	51	439	5	441	8	439	5
62	0.0508	0.0019	0.2765	0.0104	0.0394	0.0006	0.0124	0.0003	234	85	249	4	248	8	249	4
63	0.0515	0.0013	0.3048	0.0077	0.0429	0.0006	0.0131	0.0002	264	57	271	3	270	6	271	3
65	0.0512	0.0022	0.2842	0.0121	0.0403	0.0006	0.0125	0.0002	250	96	254	4	254	10	254	4
66	0.0517	0.0029	0.3037	0.0167	0.0426	0.0007	0.0126	0.0003	272	123	269	4	269	13	269	4
67	0.0590	0.0010	0.5913	0.0101	0.0727	0.0009	0.0220	0.0003	567	35	452	5	472	6	452	5
68	0.0589	0.0027	0.5136	0.0231	0.0633	0.0010	0.0195	0.0005	563	96	395	6	421	15	395	6
69	0.0520	0.0021	0.3096	0.0125	0.0432	0.0006	0.0139	0.0004	283	91	273	4	274	10	273	4
71	0.0707	0.0011	1.5413	0.0248	0.1582	0.0019	0.0461	0.0006	948	31	947	11	947	10	947	11

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
72	0.0544	0.0008	0.4543	0.0072	0.0606	0.0007	0.0191	0.0002	388	33	379	4	380	5	379	4
73	0.0649	0.0018	1.0911	0.0295	0.1219	0.0017	0.0457	0.0015	771	56	742	9	749	14	742	9
74	0.0545	0.0010	0.4873	0.0095	0.0648	0.0008	0.0222	0.0005	392	41	405	5	403	6	405	5
75	0.0588	0.0012	0.5994	0.0126	0.0740	0.0009	0.0222	0.0003	558	44	460	6	477	8	460	6
78	0.0515	0.0010	0.3065	0.0062	0.0432	0.0005	0.0124	0.0002	262	45	273	3	272	5	273	3
79	0.0526	0.0023	0.3081	0.0133	0.0425	0.0007	0.0134	0.0003	313	97	268	4	273	10	268	4
80	0.0514	0.0012	0.3006	0.0073	0.0425	0.0005	0.0131	0.0002	257	54	268	3	267	6	268	3
81	0.0569	0.0009	0.5901	0.0099	0.0752	0.0009	0.0238	0.0003	487	35	468	5	471	6	468	5
84	0.0514	0.0018	0.3097	0.0107	0.0437	0.0006	0.0128	0.0002	259	78	276	4	274	8	276	4
85	0.0510	0.0031	0.2793	0.0168	0.0397	0.0007	0.0127	0.0004	243	135	251	4	250	13	251	4
86	0.0647	0.0014	1.1056	0.0247	0.1239	0.0016	0.0353	0.0006	765	46	753	9	756	12	753	9
87	0.0561	0.0012	0.5922	0.0132	0.0766	0.0010	0.0224	0.0004	455	48	476	6	472	8	476	6
88	0.0550	0.0009	0.4963	0.0084	0.0655	0.0008	0.0195	0.0003	411	35	409	5	409	6	409	5
89	0.0570	0.0027	0.4988	0.0229	0.0635	0.0010	0.0202	0.0006	492	100	397	6	411	16	397	6
90	0.0808	0.0011	2.3231	0.0349	0.2084	0.0025	0.0608	0.0008	1217	27	1221	13	1219	11	1217	27
91	0.0557	0.0016	0.5108	0.0146	0.0666	0.0009	0.0212	0.0004	439	62	415	5	419	10	415	5
94	0.0511	0.0014	0.3093	0.0083	0.0439	0.0006	0.0132	0.0002	244	60	277	4	274	6	277	4
95	0.0575	0.0011	0.5605	0.0109	0.0707	0.0009	0.0219	0.0003	510	41	440	5	452	7	440	5
96	0.0554	0.0010	0.5205	0.0099	0.0682	0.0008	0.0209	0.0003	427	40	425	5	426	7	425	5
98	0.0559	0.0011	0.5645	0.0109	0.0732	0.0009	0.0219	0.0004	448	41	456	5	454	7	456	5
100	0.0698	0.0009	1.4286	0.0199	0.1485	0.0018	0.0365	0.0005	921	26	893	10	901	8	893	10

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
101	0.0712	0.0010	1.5719	0.0227	0.1600	0.0019	0.0472	0.0006	964	27	957	11	959	9	957	11
102	0.0539	0.0012	0.3915	0.0091	0.0527	0.0007	0.0163	0.0002	367	51	331	4	336	7	331	4
103	0.0619	0.0011	0.6090	0.0109	0.0714	0.0009	0.0226	0.0003	670	36	444	5	483	7	444	5
104	0.0564	0.0010	0.5795	0.0108	0.0745	0.0009	0.0218	0.0003	469	40	463	5	464	7	463	5
105	0.0662	0.0009	0.9095	0.0130	0.0997	0.0012	0.0259	0.0004	812	27	613	7	657	7	613	7
106	0.0530	0.0010	0.3145	0.0060	0.0430	0.0005	0.0139	0.0002	330	41	272	3	278	5	272	3
107	0.0568	0.0009	0.5983	0.0103	0.0765	0.0009	0.0238	0.0006	481	36	475	6	476	7	475	6
108	0.0529	0.0012	0.3039	0.0068	0.0416	0.0005	0.0130	0.0002	326	49	263	3	269	5	263	3
109	0.0560	0.0008	0.4420	0.0068	0.0573	0.0007	0.0202	0.0002	451	31	359	4	372	5	359	4
110	0.0562	0.0010	0.5919	0.0109	0.0764	0.0009	0.0234	0.0003	459	39	475	6	472	7	475	6
112	0.0552	0.0018	0.4888	0.0155	0.0642	0.0009	0.0218	0.0004	420	69	401	5	404	11	401	5
114	0.0546	0.0008	0.4778	0.0074	0.0635	0.0008	0.0205	0.0003	396	32	397	5	397	5	397	5
115	0.0533	0.0009	0.3170	0.0058	0.0432	0.0005	0.0142	0.0002	340	39	272	3	280	5	272	3
116	0.0514	0.0015	0.2838	0.0082	0.0401	0.0005	0.0123	0.0002	258	65	253	3	254	6	253	3
117	0.0562	0.0008	0.4984	0.0072	0.0644	0.0008	0.0209	0.0003	459	29	402	5	411	5	402	5
118	0.0599	0.0014	0.5303	0.0122	0.0642	0.0008	0.0207	0.0003	602	48	401	5	432	8	401	5
119	0.0547	0.0016	0.3009	0.0088	0.0399	0.0005	0.0126	0.0002	402	63	252	3	267	7	252	3
120	0.0519	0.0013	0.2338	0.0060	0.0327	0.0004	0.0113	0.0002	282	57	207	3	213	5	207	3

Table M4. LA-ICP-MS U-Pb data of detrital zircons of sandstone sample (bD-15) from Xiaomeigou Formation

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	Best age	1 σ
8-1	0.1559	0.0031	9.3116	0.2232	0.4332	0.0105	0.1146	0.0024	2412	34	2369	22	2320	47	2412	34
9-1	0.1578	0.0032	10.0193	0.2406	0.4605	0.0111	0.1236	0.0026	2432	34	2437	22	2442	49	2432	34
11-1	0.1546	0.0036	9.9891	0.2659	0.4685	0.0117	0.1569	0.0036	2398	39	2434	25	2477	51	2398	39
13-1	0.1485	0.0030	8.0238	0.1933	0.3919	0.0095	0.1215	0.0025	2328	34	2234	22	2132	44	2328	34
16-1	0.1580	0.0032	9.1416	0.2206	0.4197	0.0102	0.1037	0.0022	2434	34	2352	22	2259	46	2434	34
20-1	0.1581	0.0032	9.2215	0.2210	0.4231	0.0102	0.1088	0.0023	2435	34	2360	22	2275	46	2435	34
21-1	0.1556	0.0031	9.1270	0.2196	0.4255	0.0103	0.1196	0.0025	2408	34	2351	22	2286	47	2408	34
22-1	0.1587	0.0032	10.1635	0.2469	0.4645	0.0113	0.1300	0.0028	2442	34	2450	22	2459	50	2442	34
23-1	0.1536	0.0032	9.6805	0.2364	0.4571	0.0111	0.1233	0.0026	2386	35	2405	22	2427	49	2386	35
34-1	0.1556	0.0031	9.0126	0.2161	0.4200	0.0101	0.1089	0.0023	2409	34	2339	22	2260	46	2409	34
36-1	0.1564	0.0033	9.5867	0.2356	0.4446	0.0108	0.1212	0.0025	2417	35	2396	23	2371	48	2417	35
41-1	0.1556	0.0032	8.7442	0.2140	0.4075	0.0099	0.1047	0.0023	2409	35	2312	22	2204	45	2409	35
46-1	0.1568	0.0032	9.9665	0.2432	0.4611	0.0112	0.1261	0.0027	2421	35	2432	23	2445	49	2421	35
51-1	0.1547	0.0031	8.7968	0.2118	0.4125	0.0099	0.1109	0.0023	2398	34	2317	22	2227	45	2398	34
53-1	0.1543	0.0031	8.6045	0.2083	0.4046	0.0098	0.1206	0.0026	2394	34	2297	22	2190	45	2394	34
54-1	0.1564	0.0032	9.5359	0.2319	0.4423	0.0107	0.1214	0.0026	2417	34	2391	22	2361	48	2417	34
55-1	0.1584	0.0032	10.5433	0.2533	0.4828	0.0116	0.1319	0.0028	2439	34	2484	22	2539	51	2439	34
59-1	0.1598	0.0032	9.3166	0.2246	0.4228	0.0102	0.1121	0.0024	2454	34	2370	22	2273	46	2454	34
65-1	0.1573	0.0032	9.9611	0.2400	0.4592	0.0111	0.1297	0.0027	2427	34	2431	22	2436	49	2427	34

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	Best age	1 σ
72-1	0.1563	0.0032	8.8651	0.2147	0.4114	0.0099	0.1152	0.0024	2416	34	2324	22	2221	45	2416	34
73-1	0.1552	0.0032	8.8360	0.2133	0.4129	0.0099	0.1218	0.0026	2404	34	2321	22	2228	45	2404	34
74-1	0.1580	0.0032	9.2917	0.2245	0.4266	0.0103	0.1009	0.0021	2434	34	2367	22	2291	46	2434	34
76-1	0.1581	0.0032	9.1288	0.2195	0.4189	0.0101	0.1181	0.0025	2435	34	2351	22	2255	46	2435	34
78-1	0.1571	0.0032	9.4523	0.2282	0.4363	0.0105	0.1173	0.0025	2425	34	2383	22	2334	47	2425	34
84-1	0.1588	0.0032	9.4205	0.2266	0.4304	0.0103	0.1244	0.0026	2443	34	2380	22	2307	47	2443	34
86-1	0.1528	0.0033	9.5001	0.2374	0.4510	0.0109	0.1263	0.0027	2377	36	2388	23	2400	49	2377	36
88-1	0.1590	0.0032	9.0999	0.2192	0.4150	0.0100	0.1188	0.0025	2445	34	2348	22	2238	45	2445	34
89-1	0.1604	0.0033	9.6832	0.2340	0.4379	0.0105	0.1253	0.0026	2460	34	2405	22	2341	47	2460	34
100-1	0.1562	0.0032	9.2505	0.2220	0.4295	0.0103	0.1257	0.0027	2415	34	2363	22	2304	46	2415	34
102-1	0.1559	0.0031	8.6825	0.2079	0.4038	0.0097	0.1136	0.0024	2412	34	2305	22	2187	44	2412	34
108-1	0.1585	0.0032	9.5240	0.2291	0.4360	0.0104	0.1216	0.0026	2439	34	2390	22	2333	47	2439	34
110-1	0.1582	0.0033	10.0482	0.2435	0.4607	0.0111	0.1326	0.0028	2437	34	2439	22	2443	49	2437	34
111-1	0.1567	0.0032	8.8074	0.2128	0.4077	0.0098	0.1146	0.0024	2420	34	2318	22	2205	45	2420	34
115-1	0.1568	0.0032	9.4986	0.2285	0.4393	0.0105	0.1291	0.0027	2422	34	2387	22	2348	47	2422	34
118-1	0.1579	0.0032	8.9075	0.2139	0.4093	0.0098	0.1124	0.0024	2433	34	2329	22	2212	45	2433	34
2	0.1561	0.0031	9.0589	0.1974	0.4208	0.0094	0.1129	0.0023	2414	33	2264	42	2344	20	2414	33
4	0.1539	0.0032	9.3367	0.2090	0.4401	0.0098	0.1187	0.0025	2389	35	2351	44	2372	21	2389	35
6	0.1524	0.0032	8.5819	0.1937	0.4084	0.0092	0.1088	0.0023	2373	35	2208	42	2295	21	2373	35
7	0.1530	0.0037	9.7487	0.2530	0.4620	0.0108	0.1232	0.0028	2380	41	2449	47	2411	24	2380	41
10	0.1548	0.0032	9.5867	0.2132	0.4493	0.0100	0.1127	0.0024	2399	34	2392	45	2396	20	2399	34

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	Best age	1 σ
13	0.1537	0.0032	9.4102	0.2136	0.4441	0.0100	0.1222	0.0026	2387	35	2369	44	2379	21	2387	35
15	0.1533	0.0031	8.4823	0.1889	0.4013	0.0090	0.1055	0.0022	2383	34	2175	41	2284	20	2383	34
17	0.1525	0.0032	9.1948	0.2108	0.4372	0.0098	0.1134	0.0025	2374	36	2338	44	2358	21	2374	36
22	0.1502	0.0030	8.6994	0.1907	0.4201	0.0093	0.1321	0.0029	2348	34	2261	42	2307	20	2348	34
24	0.1526	0.0035	8.3290	0.2032	0.3959	0.0090	0.1089	0.0027	2375	38	2150	42	2268	22	2375	38
27	0.1538	0.0035	8.6154	0.2090	0.4062	0.0093	0.1049	0.0023	2389	38	2197	42	2298	22	2389	38
28	0.1525	0.0032	9.4321	0.2139	0.4487	0.0101	0.1259	0.0027	2374	35	2390	45	2381	21	2374	35
30	0.1507	0.0031	9.1386	0.2057	0.4398	0.0098	0.1167	0.0025	2354	35	2350	44	2352	21	2354	35
31	0.1554	0.0031	9.8531	0.2176	0.4598	0.0102	0.1239	0.0026	2406	34	2439	45	2421	20	2406	34
39	0.1540	0.0031	8.6127	0.1914	0.4056	0.0090	0.0981	0.0020	2391	34	2195	41	2298	20	2391	34
44	0.1513	0.0030	7.2989	0.1599	0.3499	0.0078	0.0977	0.0020	2361	34	1934	37	2149	20	2361	34
47	0.1495	0.0036	8.9802	0.2270	0.4357	0.0100	0.1186	0.0029	2340	40	2331	45	2336	23	2340	40
54	0.1553	0.0038	10.3636	0.2672	0.4841	0.0113	0.1284	0.0031	2405	41	2545	49	2468	24	2405	41
55	0.1552	0.0032	9.3543	0.2118	0.4373	0.0098	0.1149	0.0024	2404	35	2338	44	2373	21	2404	35
59	0.1553	0.0034	9.7084	0.2287	0.4535	0.0103	0.1123	0.0025	2405	37	2411	45	2408	22	2405	37
71	0.1620	0.0033	10.2678	0.2300	0.4596	0.0103	0.1269	0.0027	2477	34	2438	45	2459	21	2477	34
74	0.1571	0.0032	9.4855	0.2113	0.4380	0.0098	0.1215	0.0025	2424	34	2342	44	2386	20	2424	34
76	0.1549	0.0033	9.9202	0.2279	0.4647	0.0104	0.1285	0.0027	2400	36	2460	46	2427	21	2400	36
80	0.1574	0.0032	8.9279	0.1970	0.4115	0.0091	0.1089	0.0023	2427	34	2222	42	2331	20	2427	34
83	0.1612	0.0034	10.3178	0.2370	0.4643	0.0104	0.1312	0.0027	2468	35	2458	46	2464	21	2468	35
88	0.1553	0.0032	9.1793	0.2033	0.4288	0.0095	0.1122	0.0023	2405	34	2300	43	2356	20	2405	34

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	Best age	1 σ
90	0.1550	0.0032	9.7423	0.2197	0.4560	0.0102	0.1246	0.0026	2401	35	2422	45	2411	21	2401	35
95	0.1534	0.0031	8.4391	0.1871	0.3989	0.0089	0.1043	0.0022	2385	34	2164	41	2279	20	2385	34
96	0.1411	0.0029	7.5722	0.1683	0.3892	0.0086	0.1132	0.0024	2241	35	2119	40	2182	20	2241	35
101	0.1549	0.0031	9.1151	0.2006	0.4267	0.0095	0.1130	0.0023	2401	34	2291	43	2350	20	2401	34
102	0.1086	0.0027	4.8235	0.1245	0.3223	0.0073	0.0939	0.0023	1775	44	1801	36	1789	22	1775	44
103	0.1565	0.0031	9.3700	0.2030	0.4342	0.0096	0.1251	0.0026	2419	33	2324	43	2375	20	2419	33
104	0.1507	0.0038	8.8989	0.2376	0.4282	0.0100	0.1156	0.0028	2354	43	2297	45	2328	24	2354	43
105	0.1075	0.0024	4.6660	0.1132	0.3148	0.0071	0.0759	0.0017	1758	41	1764	35	1761	20	1758	41
106	0.1069	0.0023	4.6345	0.1059	0.3143	0.0070	0.0898	0.0019	1748	38	1762	34	1756	19	1748	38
120	0.1607	0.0034	9.1301	0.2064	0.4120	0.0092	0.1097	0.0023	2463	35	2224	42	2351	21	2463	35

Table M5. LA-ICP-MS U-Pb data of detrital zircons of sandstone sample (bD-49) from Xiaomeigou Formation

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
1	0.0495	0.0012	0.2203	0.0060	0.0323	0.0008	0.0096	0.0002	172	55	205	5	202	5	205	5
2	0.0502	0.0015	0.2525	0.0080	0.0365	0.0009	0.0111	0.0003	205	67	231	6	229	7	231	6
3	0.0505	0.0013	0.2574	0.0074	0.0369	0.0009	0.0114	0.0003	219	59	234	6	233	6	234	6
5	0.0511	0.0025	0.2554	0.0129	0.0363	0.0009	0.0115	0.0004	245	110	230	6	231	10	230	6
6	0.0524	0.0030	0.2594	0.0151	0.0359	0.0010	0.0113	0.0004	302	127	227	6	234	12	227	6
7	0.0546	0.0014	0.5372	0.0156	0.0714	0.0017	0.0216	0.0005	396	58	444	10	437	10	444	10
8	0.0551	0.0016	0.5370	0.0166	0.0707	0.0017	0.0223	0.0005	416	62	440	10	436	11	440	10
9	0.1859	0.0037	13.4710	0.3176	0.5255	0.0126	0.1399	0.0029	2706	32	2723	53	2713	22	2706	32
10	0.0506	0.0014	0.2726	0.0081	0.0391	0.0010	0.0123	0.0003	221	61	247	6	245	6	247	6
11	0.0519	0.0014	0.3135	0.0091	0.0438	0.0011	0.0134	0.0003	283	59	276	7	277	7	276	7
12	0.0519	0.0020	0.2493	0.0100	0.0348	0.0009	0.0107	0.0003	282	86	221	5	226	8	221	5
13	0.0534	0.0014	0.3084	0.0087	0.0419	0.0010	0.0129	0.0003	347	56	264	6	273	7	264	6
14	0.0522	0.0022	0.3065	0.0134	0.0426	0.0011	0.0134	0.0003	292	95	269	7	272	10	269	7
15	0.0513	0.0016	0.2506	0.0084	0.0354	0.0009	0.0110	0.0003	256	71	224	5	227	7	224	5
16	0.0513	0.0013	0.2269	0.0063	0.0321	0.0008	0.0099	0.0002	253	56	204	5	208	5	204	5
17	0.0956	0.0020	3.6177	0.0878	0.2744	0.0066	0.0775	0.0017	1540	38	1563	33	1553	19	1540	38
18	0.0523	0.0016	0.3147	0.0101	0.0437	0.0011	0.0131	0.0003	297	67	276	7	278	8	276	7
19	0.0510	0.0014	0.3006	0.0090	0.0427	0.0010	0.0132	0.0003	242	62	270	6	267	7	270	6
20	0.0521	0.0018	0.2597	0.0094	0.0362	0.0009	0.0102	0.0003	289	76	229	6	234	8	229	6

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
21	0.0690	0.0020	1.4220	0.0443	0.1496	0.0037	0.0449	0.0011	898	58	898	21	898	19	898	21
23	0.0765	0.0016	1.9902	0.0492	0.1887	0.0046	0.0547	0.0012	1109	42	1114	25	1112	17	1109	42
25	0.0516	0.0021	0.2981	0.0123	0.0419	0.0011	0.0127	0.0003	269	89	264	7	265	10	264	7
26	0.0532	0.0026	0.2798	0.0138	0.0382	0.0010	0.0130	0.0004	336	106	242	6	251	11	242	6
27	0.0543	0.0013	0.4980	0.0136	0.0665	0.0016	0.0197	0.0004	385	53	415	10	410	9	415	10
28	0.0683	0.0015	1.3908	0.0345	0.1478	0.0036	0.0443	0.0010	877	43	888	20	885	15	888	20
30	0.0572	0.0016	0.5740	0.0173	0.0728	0.0018	0.0235	0.0006	500	60	453	11	461	11	453	11
31	0.0717	0.0015	1.6194	0.0398	0.1639	0.0040	0.0490	0.0010	977	42	978	22	978	15	978	22
32	0.0636	0.0015	0.2909	0.0076	0.0332	0.0008	0.0124	0.0003	727	48	211	5	259	6	211	5
33	0.0888	0.0020	2.8431	0.0733	0.2322	0.0056	0.0652	0.0014	1400	42	1346	30	1367	19	1400	42
34	0.1560	0.0033	9.4723	0.2330	0.4404	0.0107	0.1177	0.0025	2413	35	2353	48	2385	23	2413	35
35	0.0518	0.0014	0.2510	0.0073	0.0352	0.0009	0.0110	0.0002	277	59	223	5	227	6	223	5
36	0.0515	0.0014	0.2493	0.0076	0.0351	0.0009	0.0110	0.0003	265	63	222	5	226	6	222	5
37	0.0955	0.0022	3.2753	0.0848	0.2487	0.0061	0.0718	0.0015	1538	42	1432	31	1475	20	1538	42
38	0.0529	0.0016	0.2653	0.0084	0.0364	0.0009	0.0115	0.0003	325	65	230	6	239	7	230	6
39	0.0509	0.0015	0.2528	0.0079	0.0361	0.0009	0.0110	0.0003	234	66	228	6	229	6	228	6
40	0.0514	0.0013	0.2646	0.0076	0.0374	0.0009	0.0114	0.0003	257	58	237	6	238	6	237	6
41	0.1074	0.0022	4.6337	0.1125	0.3130	0.0076	0.0836	0.0018	1756	37	1755	37	1755	20	1756	37
42	0.0533	0.0014	0.3029	0.0087	0.0413	0.0010	0.0121	0.0003	339	58	261	6	269	7	261	6
43	0.0502	0.0013	0.2280	0.0066	0.0329	0.0008	0.0103	0.0002	205	59	209	5	209	5	209	5
44	0.0531	0.0023	0.2776	0.0122	0.0379	0.0010	0.0117	0.0003	332	94	240	6	249	10	240	6

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
45	0.0499	0.0012	0.2207	0.0062	0.0321	0.0008	0.0100	0.0002	188	57	204	5	203	5	204	5
46	0.0533	0.0015	0.2696	0.0081	0.0367	0.0009	0.0105	0.0002	343	61	232	6	242	6	232	6
47	0.0533	0.0023	0.2917	0.0128	0.0397	0.0010	0.0119	0.0003	342	94	251	6	260	10	251	6
49	0.0517	0.0024	0.2675	0.0128	0.0375	0.0010	0.0107	0.0003	272	104	238	6	241	10	238	6
50	0.1773	0.0035	12.3781	0.2927	0.5063	0.0122	0.1395	0.0029	2628	32	2641	52	2634	22	2628	32
52	0.0928	0.0019	3.1706	0.0761	0.2478	0.0060	0.0684	0.0014	1483	38	1427	31	1450	19	1483	38
53	0.0547	0.0012	0.5114	0.0133	0.0679	0.0016	0.0212	0.0005	398	50	423	10	419	9	423	10
57	0.1492	0.0030	8.9322	0.2157	0.4342	0.0105	0.1227	0.0026	2337	34	2325	47	2331	22	2337	34
58	0.0690	0.0014	1.4369	0.0352	0.1510	0.0037	0.0448	0.0010	899	42	907	20	904	15	907	20
59	0.0530	0.0018	0.2648	0.0095	0.0362	0.0009	0.0113	0.0003	330	75	229	6	239	8	229	6
60	0.0512	0.0013	0.3068	0.0089	0.0434	0.0011	0.0131	0.0003	252	59	274	7	272	7	274	7
61	0.0553	0.0018	0.2843	0.0097	0.0373	0.0009	0.0125	0.0003	425	70	236	6	254	8	236	6
63	0.0652	0.0014	1.1650	0.0294	0.1297	0.0031	0.0397	0.0009	780	45	786	18	784	14	786	18
65	0.0547	0.0018	0.2902	0.0102	0.0385	0.0010	0.0119	0.0003	399	72	244	6	259	8	244	6
67	0.0553	0.0014	0.5311	0.0148	0.0697	0.0017	0.0216	0.0005	424	54	434	10	433	10	434	10
69	0.0679	0.0017	1.3041	0.0361	0.1393	0.0034	0.0410	0.0009	866	50	841	19	848	16	841	19
70	0.0494	0.0019	0.2360	0.0096	0.0347	0.0009	0.0107	0.0003	166	88	220	5	215	8	220	5
71	0.0519	0.0015	0.2553	0.0079	0.0357	0.0009	0.0106	0.0002	281	64	226	5	231	6	226	5
72	0.0501	0.0018	0.2838	0.0107	0.0411	0.0010	0.0118	0.0003	200	81	260	6	254	8	260	6
73	0.0556	0.0017	0.5358	0.0180	0.0700	0.0017	0.0234	0.0008	434	68	436	10	436	12	436	10
74	0.0501	0.0021	0.2644	0.0116	0.0383	0.0010	0.0118	0.0003	200	96	242	6	238	9	242	6

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
75	0.0521	0.0015	0.2969	0.0094	0.0414	0.0010	0.0128	0.0003	288	65	261	6	264	7	261	6
76	0.0532	0.0025	0.2613	0.0127	0.0357	0.0009	0.0106	0.0003	335	104	226	6	236	10	226	6
78	0.0658	0.0014	1.2239	0.0305	0.1348	0.0033	0.0408	0.0009	801	44	815	19	812	14	815	19
80	0.0640	0.0014	1.1141	0.0289	0.1263	0.0031	0.0381	0.0008	740	47	767	18	760	14	767	18
82	0.0723	0.0017	1.5634	0.0418	0.1568	0.0038	0.0463	0.0010	995	47	939	21	956	17	939	21
83	0.0526	0.0014	0.3168	0.0094	0.0437	0.0011	0.0132	0.0003	310	60	276	7	280	7	276	7
84	0.0500	0.0013	0.2572	0.0076	0.0373	0.0009	0.0121	0.0003	194	61	236	6	232	6	236	6
85	0.0563	0.0015	0.5366	0.0162	0.0692	0.0017	0.0210	0.0005	463	60	431	10	436	11	431	10
86	0.0502	0.0015	0.2942	0.0093	0.0425	0.0011	0.0129	0.0003	203	66	269	6	262	7	269	6
87	0.0517	0.0014	0.2585	0.0079	0.0362	0.0009	0.0109	0.0003	274	62	230	6	234	6	230	6
88	0.0523	0.0014	0.3126	0.0094	0.0434	0.0011	0.0137	0.0003	297	61	274	7	276	7	274	7
89	0.0507	0.0019	0.2455	0.0095	0.0351	0.0009	0.0111	0.0003	228	83	222	6	223	8	222	6
90	0.0543	0.0016	0.5332	0.0166	0.0712	0.0018	0.0223	0.0005	384	63	443	11	434	11	443	11
91	0.0524	0.0016	0.3131	0.0101	0.0433	0.0011	0.0135	0.0003	303	66	274	7	277	8	274	7
92	0.1012	0.0021	4.1492	0.1026	0.2973	0.0073	0.0840	0.0018	1647	38	1678	36	1664	20	1647	38
93	0.0554	0.0016	0.3402	0.0109	0.0446	0.0011	0.0135	0.0003	426	64	281	7	297	8	281	7
94	0.0527	0.0013	0.3111	0.0088	0.0428	0.0011	0.0137	0.0003	315	56	270	6	275	7	270	6
95	0.0532	0.0015	0.2690	0.0083	0.0366	0.0009	0.0110	0.0002	339	63	232	6	242	7	232	6
96	0.0567	0.0015	0.5398	0.0160	0.0691	0.0017	0.0219	0.0005	477	58	431	10	438	11	431	10
97	0.1047	0.0021	4.0782	0.0993	0.2824	0.0069	0.0778	0.0018	1709	37	1604	35	1650	20	1709	37
98	0.0583	0.0018	0.5809	0.0195	0.0722	0.0018	0.0223	0.0005	543	67	450	11	465	12	450	11

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
99	0.0491	0.0014	0.2358	0.0072	0.0348	0.0009	0.0111	0.0003	153	63	221	5	215	6	221	5
100	0.0541	0.0014	0.4526	0.0132	0.0607	0.0015	0.0187	0.0004	374	58	380	9	379	9	380	9
101	0.0493	0.0013	0.2328	0.0069	0.0343	0.0008	0.0104	0.0002	161	61	217	5	213	6	217	5
103	0.0496	0.0021	0.2470	0.0108	0.0361	0.0009	0.0109	0.0003	176	96	229	6	224	9	229	6
104	0.0726	0.0018	1.6297	0.0450	0.1629	0.0040	0.0503	0.0012	1002	49	973	22	982	17	973	22
105	0.0532	0.0015	0.3206	0.0101	0.0437	0.0011	0.0137	0.0003	339	64	276	7	282	8	276	7
106	0.1821	0.0036	12.8869	0.3097	0.5134	0.0125	0.1392	0.0030	2672	33	2671	53	2671	23	2672	33
107	0.0640	0.0014	0.9594	0.0247	0.1087	0.0027	0.0341	0.0011	743	46	665	15	683	13	665	15
108	0.0762	0.0016	1.8992	0.0470	0.1807	0.0044	0.0427	0.0010	1101	41	1071	24	1081	16	1101	41
109	0.0550	0.0014	0.5225	0.0153	0.0689	0.0017	0.0214	0.0005	412	57	430	10	427	10	430	10
111	0.0576	0.0014	0.5816	0.0158	0.0732	0.0018	0.0219	0.0005	514	52	456	11	466	10	456	11
112	0.0504	0.0017	0.2742	0.0096	0.0394	0.0010	0.0118	0.0003	215	74	249	6	246	8	249	6
114	0.0516	0.0019	0.2963	0.0115	0.0416	0.0011	0.0129	0.0003	269	82	263	7	264	9	263	7
115	0.0508	0.0015	0.2510	0.0081	0.0358	0.0009	0.0112	0.0003	231	67	227	6	227	7	227	6
116	0.0508	0.0024	0.2346	0.0114	0.0335	0.0009	0.0104	0.0003	232	106	212	5	214	9	212	5
117	0.0964	0.0021	3.6570	0.0931	0.2752	0.0068	0.0783	0.0017	1555	40	1567	34	1562	20	1555	40
118	0.0524	0.0014	0.3035	0.0089	0.0420	0.0010	0.0127	0.0003	301	59	266	6	269	7	266	6
119	0.0640	0.0017	0.8402	0.0250	0.0952	0.0024	0.0286	0.0007	742	56	586	14	619	14	586	14
120	0.0660	0.0015	1.1671	0.0310	0.1282	0.0032	0.0413	0.0009	807	48	778	18	785	15	778	18

Table M6. LA-ICP-MS U-Pb data of detrital zircons of sandstone sample (bD-212) from Dameigou Formation

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	Best age	1 σ
1	0.1633	0.0035	10.1720	0.2334	0.4521	0.0100	0.1215	0.0025	2490	36	2451	21	2405	44	2490	36
5	0.1602	0.0033	9.9487	0.2219	0.4507	0.0099	0.1204	0.0025	2457	35	2430	21	2398	44	2457	35
8	0.1619	0.0036	10.3734	0.2481	0.4648	0.0104	0.1274	0.0027	2476	37	2469	22	2461	46	2476	37
10	0.1581	0.0035	9.6027	0.2253	0.4406	0.0098	0.1196	0.0025	2436	37	2397	22	2353	44	2436	37
11	0.1616	0.0037	10.3798	0.2528	0.4661	0.0105	0.1237	0.0028	2472	38	2469	23	2466	46	2472	38
12	0.1609	0.0035	9.8077	0.2277	0.4421	0.0098	0.1219	0.0027	2466	36	2417	21	2360	44	2466	36
16	0.1623	0.0034	10.2853	0.2318	0.4598	0.0101	0.1226	0.0026	2480	35	2461	21	2439	45	2480	35
17	0.1592	0.0033	9.8689	0.2198	0.4498	0.0099	0.1190	0.0024	2447	34	2423	21	2394	44	2447	34
18	0.1605	0.0034	10.6707	0.2409	0.4825	0.0106	0.1279	0.0027	2460	35	2495	21	2538	46	2460	35
20	0.1585	0.0033	9.4981	0.2103	0.4347	0.0095	0.1147	0.0023	2440	34	2387	20	2327	43	2440	34
24	0.1594	0.0033	9.8979	0.2190	0.4504	0.0099	0.1175	0.0024	2450	34	2425	20	2397	44	2450	34
26	0.1629	0.0035	10.1344	0.2311	0.4512	0.0100	0.1213	0.0026	2486	35	2447	21	2401	44	2486	35
28	0.1600	0.0038	10.0222	0.2513	0.4543	0.0103	0.1220	0.0026	2456	39	2437	23	2414	46	2456	39
29	0.1591	0.0034	9.9955	0.2270	0.4558	0.0101	0.1211	0.0025	2446	35	2434	21	2421	45	2446	35
31	0.1592	0.0033	10.3953	0.2340	0.4736	0.0104	0.1277	0.0027	2448	35	2471	21	2499	46	2448	35
32	0.1586	0.0034	10.0359	0.2308	0.4591	0.0102	0.1265	0.0027	2441	36	2438	21	2436	45	2441	36
33	0.1568	0.0033	9.8015	0.2212	0.4534	0.0100	0.1217	0.0025	2422	35	2416	21	2411	44	2422	35
36	0.1595	0.0033	9.3852	0.2085	0.4268	0.0094	0.1150	0.0024	2450	34	2376	20	2291	42	2450	34
38	0.1592	0.0033	9.9044	0.2198	0.4513	0.0099	0.1182	0.0024	2447	34	2426	20	2401	44	2447	34

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	Best age	1 σ
39	0.1604	0.0033	10.1574	0.2277	0.4593	0.0101	0.1250	0.0026	2460	35	2449	21	2436	45	2460	35
41	0.1628	0.0033	10.5019	0.2327	0.4680	0.0103	0.1243	0.0025	2485	34	2480	21	2475	45	2485	34
45	0.1619	0.0035	9.8617	0.2262	0.4417	0.0098	0.1224	0.0025	2476	36	2422	21	2358	44	2476	36
48	0.1457	0.0037	8.4948	0.2245	0.4229	0.0098	0.1243	0.0029	2296	43	2285	24	2274	44	2296	43
49	0.1603	0.0034	10.1055	0.2301	0.4573	0.0101	0.1189	0.0025	2459	35	2445	21	2428	45	2459	35
52	0.1608	0.0033	10.1884	0.2270	0.4596	0.0101	0.1246	0.0026	2464	34	2452	21	2438	45	2464	34
59	0.1577	0.0033	9.5616	0.2180	0.4396	0.0098	0.1166	0.0025	2432	35	2394	21	2349	44	2432	35
61	0.1559	0.0035	9.7538	0.2313	0.4537	0.0102	0.1224	0.0026	2412	37	2412	22	2412	45	2412	37
62	0.1633	0.0034	9.6213	0.2182	0.4273	0.0095	0.1338	0.0028	2490	35	2399	21	2293	43	2490	35
64	0.1614	0.0033	9.6112	0.2112	0.4318	0.0095	0.1142	0.0023	2471	34	2398	20	2314	43	2471	34
67	0.1642	0.0035	10.2955	0.2348	0.4548	0.0101	0.1251	0.0026	2499	35	2462	21	2417	45	2499	35
68	0.1587	0.0032	9.0904	0.2018	0.4153	0.0092	0.1073	0.0022	2442	34	2347	20	2239	42	2442	34
69	0.1561	0.0031	9.4484	0.2071	0.4390	0.0097	0.1144	0.0023	2414	34	2383	20	2346	43	2414	34
70	0.1594	0.0032	10.2585	0.2268	0.4669	0.0103	0.1391	0.0028	2449	34	2458	20	2470	45	2449	34
71	0.1576	0.0032	9.6239	0.2122	0.4429	0.0098	0.1207	0.0025	2430	34	2400	20	2363	44	2430	34
72	0.1590	0.0033	10.0646	0.2263	0.4591	0.0102	0.1253	0.0026	2445	35	2441	21	2436	45	2445	35
74	0.1640	0.0035	10.5109	0.2421	0.4649	0.0104	0.1268	0.0026	2497	35	2481	21	2461	46	2497	35
76	0.1595	0.0033	10.1130	0.2276	0.4599	0.0102	0.1255	0.0026	2450	35	2445	21	2439	45	2450	35
79	0.1596	0.0033	10.4209	0.2313	0.4735	0.0105	0.1301	0.0027	2451	34	2473	21	2499	46	2451	34
82	0.1593	0.0033	10.2283	0.2272	0.4656	0.0103	0.1261	0.0026	2448	34	2456	21	2464	45	2448	34
83	0.1560	0.0032	9.6144	0.2122	0.4469	0.0099	0.1269	0.0027	2413	34	2399	20	2381	44	2413	34

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	Best age	1 σ
84	0.1580	0.0032	8.9429	0.1965	0.4106	0.0091	0.1146	0.0023	2434	34	2332	20	2218	41	2434	34
88	0.1509	0.0031	8.3116	0.1844	0.3994	0.0088	0.0877	0.0018	2356	34	2266	20	2166	41	2356	34
90	0.1436	0.0033	7.9247	0.1940	0.4002	0.0091	0.1164	0.0025	2271	39	2223	22	2170	42	2271	39
91	0.1539	0.0032	9.7056	0.2161	0.4573	0.0101	0.1230	0.0025	2390	34	2407	21	2428	45	2390	34
93	0.1570	0.0032	9.8131	0.2159	0.4533	0.0100	0.1249	0.0026	2424	34	2417	20	2410	44	2424	34
94	0.1491	0.0031	8.6034	0.1934	0.4184	0.0093	0.1189	0.0025	2336	35	2297	20	2253	42	2336	35
95	0.1580	0.0032	9.8601	0.2169	0.4525	0.0100	0.1250	0.0026	2435	34	2422	20	2406	44	2435	34
96	0.1577	0.0032	10.5545	0.2357	0.4854	0.0108	0.1307	0.0027	2394	34	2413	20	2433	45	2394	34
97	0.1572	0.0033	9.6859	0.2198	0.4469	0.0100	0.1213	0.0025	2398	34	2432	20	2468	45	2398	34
99	0.1558	0.0032	9.4170	0.2082	0.4382	0.0097	0.1184	0.0024	2402	34	2450	20	2503	46	2402	34
100	0.1594	0.0033	10.1932	0.2319	0.4636	0.0104	0.1248	0.0027	2406	34	2469	20	2538	47	2406	34
101	0.1587	0.0039	9.7927	0.2552	0.4476	0.0104	0.1218	0.0031	2410	34	2488	20	2573	47	2410	34
102	0.1593	0.0032	10.2259	0.2272	0.4656	0.0103	0.1242	0.0025	2414	34	2507	20	2608	48	2414	34
103	0.1588	0.0033	10.3234	0.2304	0.4713	0.0105	0.1273	0.0026	2418	33	2526	20	2643	48	2418	33
105	0.1585	0.0032	9.5234	0.2094	0.4357	0.0097	0.1201	0.0024	2422	33	2544	20	2678	49	2422	33
106	0.1555	0.0033	9.9055	0.2285	0.4618	0.0104	0.1262	0.0026	2426	33	2563	20	2713	49	2426	33
108	0.1588	0.0032	8.9721	0.1958	0.4096	0.0091	0.1197	0.0026	2430	33	2582	20	2748	50	2430	33
110	0.1557	0.0031	9.6869	0.2123	0.4512	0.0100	0.1220	0.0025	2434	33	2601	20	2783	50	2434	33
111	0.1519	0.0032	9.1706	0.2086	0.4379	0.0098	0.1343	0.0030	2438	33	2620	20	2818	51	2438	33
112	0.1580	0.0034	10.1412	0.2346	0.4655	0.0105	0.1306	0.0027	2442	33	2638	20	2853	51	2442	33
113	0.1499	0.0032	9.0060	0.2062	0.4356	0.0098	0.1200	0.0025	2446	32	2657	20	2888	52	2446	32

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	Best age	1 σ
114	0.1519	0.0031	9.2117	0.2064	0.4398	0.0098	0.1213	0.0025	2367	35	2359	21	2350	44	2367	35
115	0.1596	0.0034	10.3699	0.2378	0.4711	0.0106	0.1294	0.0027	2452	35	2468	21	2488	46	2452	35
116	0.1563	0.0032	9.3957	0.2090	0.4360	0.0097	0.0703	0.0015	2416	34	2377	20	2333	44	2416	34
117	0.1563	0.0032	9.8799	0.2218	0.4584	0.0102	0.1268	0.0026	2416	35	2424	21	2433	45	2416	35
119	0.1580	0.0039	10.5739	0.2752	0.4854	0.0113	0.1332	0.0029	2434	41	2486	24	2551	49	2434	41
120	0.1589	0.0032	10.1236	0.2227	0.4621	0.0103	0.1217	0.0025	2444	34	2446	20	2449	45	2444	34
3-1	0.1582	0.0032	8.8842	0.2123	0.4073	0.0097	0.1149	0.0024	2437	34	2326	22	2203	44	2437	34
18-1	0.1507	0.0038	8.7978	0.2478	0.4235	0.0106	0.1229	0.0030	2354	43	2317	26	2276	48	2354	43
19-1	0.1648	0.0038	10.6596	0.2810	0.4692	0.0115	0.1288	0.0030	2505	38	2494	24	2480	51	2505	38
20-1	0.1607	0.0034	9.6395	0.2404	0.4351	0.0105	0.1213	0.0027	2463	36	2401	23	2329	47	2463	36
26-1	0.1574	0.0033	9.6078	0.2343	0.4428	0.0107	0.1122	0.0024	2428	35	2398	22	2363	48	2428	35
27-1	0.1576	0.0032	10.1104	0.2447	0.4654	0.0112	0.1241	0.0027	2430	34	2445	22	2463	49	2430	34
29-1	0.1543	0.0032	9.1604	0.2220	0.4306	0.0104	0.1139	0.0024	2394	34	2354	22	2309	47	2394	34
30-1	0.1616	0.0033	10.1209	0.2461	0.4541	0.0109	0.1212	0.0026	2473	34	2446	22	2414	49	2473	34
31-1	0.1612	0.0036	10.3774	0.2691	0.4669	0.0115	0.1243	0.0029	2468	38	2469	24	2470	50	2468	38
40-1	0.1584	0.0032	9.9825	0.2410	0.4570	0.0110	0.1217	0.0026	2439	34	2433	22	2427	49	2439	34
42-1	0.1600	0.0033	10.1390	0.2462	0.4597	0.0111	0.1281	0.0028	2455	34	2448	22	2438	49	2455	34
43-1	0.1503	0.0032	8.0957	0.2012	0.3907	0.0095	0.1048	0.0023	2349	36	2242	22	2126	44	2349	36
45-1	0.1610	0.0033	9.1943	0.2215	0.4141	0.0100	0.1173	0.0025	2467	34	2358	22	2234	46	2467	34
49-1	0.1564	0.0032	9.2905	0.2258	0.4308	0.0105	0.1204	0.0026	2417	34	2367	22	2310	47	2417	34
54-1	0.1581	0.0032	9.5260	0.2298	0.4370	0.0106	0.1225	0.0026	2435	34	2390	22	2337	48	2435	34

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	Best age	1 σ
58-1	0.1596	0.0032	10.0906	0.2444	0.4586	0.0112	0.1256	0.0027	2451	34	2443	22	2433	49	2451	34
69-1	0.1610	0.0033	10.2177	0.2522	0.4603	0.0113	0.1300	0.0028	2466	35	2455	23	2441	50	2466	35
84-1	0.1554	0.0034	9.9653	0.2569	0.4650	0.0116	0.1011	0.0023	2407	37	2432	24	2462	51	2407	37
85-1	0.1311	0.0026	7.3321	0.1769	0.4058	0.0100	0.1581	0.0034	2112	34	2153	22	2196	46	2112	34
90-1	0.1489	0.0030	8.7040	0.2121	0.4240	0.0104	0.1226	0.0026	2333	34	2308	22	2279	47	2333	34
92-1	0.1555	0.0031	9.7853	0.2379	0.4565	0.0113	0.1258	0.0027	2407	34	2415	22	2424	50	2407	34
93-1	0.1558	0.0031	10.0827	0.2444	0.4694	0.0116	0.1287	0.0028	2410	34	2442	22	2481	51	2410	34
95-1	0.1202	0.0025	5.9268	0.1494	0.3576	0.0089	0.0986	0.0021	1959	37	1965	22	1971	42	1959	37
100-1	0.1536	0.0031	9.8395	0.2391	0.4648	0.0115	0.1297	0.0028	2386	34	2420	22	2461	51	2386	34
109-1	0.1488	0.0030	8.4358	0.2059	0.4114	0.0102	0.0806	0.0017	2332	34	2279	22	2221	47	2332	34
111-1	0.1494	0.0030	8.5891	0.2089	0.4171	0.0104	0.1211	0.0026	2339	34	2295	22	2247	47	2339	34
117-1	0.1561	0.0033	10.3968	0.2641	0.4833	0.0122	0.1326	0.0029	2414	36	2471	24	2542	53	2414	36
119-1	0.1513	0.0030	9.0596	0.2209	0.4345	0.0108	0.1371	0.0030	2361	34	2344	22	2326	49	2361	34
120-1	0.1588	0.0032	10.3373	0.2560	0.4724	0.0118	0.1314	0.0029	2442	34	2465	23	2494	52	2442	34

Table M7. LA-ICP-MS U-Pb data of detrital zircons of sandstone sample (LH-2) from Dameigou Formation

Spot	Isotopic ratios								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
2	0.0537	0.0018	0.3651	0.0123	0.0493	0.0007	0.0158	0.0004	360	74	310	4	316	9	310	4
3	0.0531	0.0011	0.2972	0.0063	0.0406	0.0005	0.0119	0.0002	333	46	257	3	264	5	257	3
4	0.0521	0.0026	0.2897	0.0145	0.0403	0.0006	0.0125	0.0002	289	112	255	4	258	11	255	4
5	0.0511	0.0039	0.2827	0.0213	0.0401	0.0008	0.0123	0.0003	246	166	254	5	253	17	254	5
6	0.0523	0.0010	0.2449	0.0049	0.0340	0.0004	0.0112	0.0002	298	43	215	3	223	4	215	3
7	0.0530	0.0013	0.2948	0.0072	0.0404	0.0005	0.0125	0.0002	328	54	255	3	262	6	255	3
8	0.0532	0.0017	0.3620	0.0113	0.0493	0.0007	0.0160	0.0003	338	69	310	4	314	8	310	4
9	0.0552	0.0018	0.3842	0.0122	0.0505	0.0007	0.0159	0.0004	422	69	317	4	330	9	317	4
10	0.0545	0.0018	0.3515	0.0115	0.0468	0.0007	0.0147	0.0003	390	71	295	4	306	9	295	4
11	0.0502	0.0010	0.2635	0.0052	0.0381	0.0005	0.0120	0.0002	205	43	241	3	238	4	241	3
12	0.0545	0.0019	0.3746	0.0131	0.0498	0.0007	0.0163	0.0004	393	77	313	4	323	10	313	4
13	0.0527	0.0015	0.3479	0.0100	0.0479	0.0006	0.0153	0.0003	314	64	302	4	303	8	302	4
16	0.0521	0.0013	0.2892	0.0071	0.0403	0.0005	0.0130	0.0002	289	54	255	3	258	6	255	3
17	0.0518	0.0014	0.2833	0.0078	0.0397	0.0005	0.0127	0.0002	276	61	251	3	253	6	251	3
21	0.0571	0.0013	0.5854	0.0138	0.0744	0.0010	0.0225	0.0003	494	51	463	6	468	9	463	6
22	0.0541	0.0017	0.3803	0.0116	0.0510	0.0007	0.0154	0.0003	375	67	321	4	327	9	321	4
23	0.0577	0.0017	0.3295	0.0098	0.0414	0.0006	0.0135	0.0002	517	64	262	3	289	7	262	3
24	0.0523	0.0013	0.2746	0.0069	0.0381	0.0005	0.0116	0.0002	297	56	241	3	246	6	241	3
25	0.0665	0.0009	1.1341	0.0162	0.1238	0.0015	0.0357	0.0005	821	27	752	9	770	8	752	9

Spot	Isotopic ratios								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
27	0.1116	0.0015	5.3084	0.0775	0.3451	0.0043	0.0986	0.0012	1825	24	1911	20	1870	12	1825	24
28	0.0505	0.0015	0.2720	0.0081	0.0391	0.0005	0.0123	0.0002	216	68	247	3	244	6	247	3
29	0.0518	0.0010	0.2532	0.0052	0.0354	0.0004	0.0113	0.0001	278	45	225	3	229	4	225	3
30	0.0526	0.0011	0.2951	0.0062	0.0407	0.0005	0.0132	0.0002	311	46	257	3	263	5	257	3
31	0.0536	0.0014	0.3430	0.0093	0.0465	0.0006	0.0146	0.0003	353	60	293	4	299	7	293	4
32	0.0532	0.0015	0.2875	0.0080	0.0392	0.0005	0.0124	0.0002	338	62	248	3	257	6	248	3
33	0.0531	0.0012	0.3579	0.0080	0.0489	0.0006	0.0160	0.0003	331	49	308	4	311	6	308	4
34	0.0547	0.0016	0.3928	0.0112	0.0521	0.0007	0.0168	0.0003	398	62	328	4	336	8	328	4
35	0.0551	0.0052	0.3742	0.0343	0.0493	0.0012	0.0170	0.0010	417	196	310	7	323	25	310	7
36	0.0525	0.0010	0.2875	0.0055	0.0397	0.0005	0.0124	0.0002	307	42	251	3	257	4	251	3
38	0.0563	0.0014	0.5258	0.0128	0.0677	0.0009	0.0212	0.0004	463	53	423	5	429	9	423	5
41	0.0526	0.0015	0.2939	0.0084	0.0405	0.0005	0.0129	0.0002	313	64	256	3	262	7	256	3
42	0.0522	0.0019	0.2837	0.0101	0.0394	0.0006	0.0118	0.0002	295	79	249	3	254	8	249	3
43	0.0524	0.0011	0.2967	0.0065	0.0411	0.0005	0.0128	0.0002	301	48	260	3	264	5	260	3
44	0.0529	0.0014	0.3009	0.0082	0.0412	0.0005	0.0125	0.0002	325	60	261	3	267	6	261	3
45	0.0513	0.0023	0.3440	0.0151	0.0487	0.0007	0.0170	0.0005	254	99	306	4	300	11	306	4
47	0.0516	0.0011	0.2889	0.0061	0.0406	0.0005	0.0126	0.0002	268	47	257	3	258	5	257	3
49	0.0544	0.0020	0.4279	0.0152	0.0571	0.0008	0.0176	0.0004	388	78	358	5	362	11	358	5
50	0.0523	0.0013	0.2876	0.0073	0.0399	0.0005	0.0124	0.0002	297	56	252	3	257	6	252	3
54	0.0524	0.0014	0.3035	0.0080	0.0420	0.0006	0.0137	0.0002	303	58	265	3	269	6	265	3
55	0.0515	0.0018	0.2796	0.0098	0.0394	0.0006	0.0121	0.0002	262	79	249	3	250	8	249	3

Spot	Isotopic ratios								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1σ	$^{207}\text{Pb}/^{235}\text{U}$	1σ	$^{206}\text{Pb}/^{238}\text{U}$	1σ	$^{208}\text{Pb}/^{232}\text{Th}$	1σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1σ	$^{206}\text{Pb}/^{238}\text{U}$	1σ	$^{207}\text{Pb}/^{235}\text{U}$	1σ	Best age	1σ
56	0.0556	0.0010	0.5187	0.0100	0.0676	0.0008	0.0205	0.0003	438	41	422	5	424	7	422	5
58	0.0529	0.0015	0.2985	0.0082	0.0409	0.0005	0.0124	0.0002	325	61	258	3	265	6	258	3
59	0.0523	0.0010	0.2916	0.0058	0.0405	0.0005	0.0124	0.0001	296	44	256	3	260	5	256	3
60	0.0522	0.0019	0.3286	0.0116	0.0457	0.0006	0.0143	0.0003	292	79	288	4	289	9	288	4
61	0.0543	0.0023	0.3811	0.0160	0.0510	0.0008	0.0153	0.0005	382	92	320	5	328	12	320	5
62	0.1131	0.0017	5.1246	0.0811	0.3285	0.0041	0.0958	0.0013	1850	27	1831	20	1840	13	1850	27
65	0.0513	0.0012	0.2786	0.0067	0.0394	0.0005	0.0123	0.0002	256	54	249	3	250	5	249	3
66	0.0527	0.0013	0.3495	0.0086	0.0481	0.0006	0.0147	0.0002	317	54	303	4	304	6	303	4
68	0.0554	0.0037	0.4212	0.0279	0.0551	0.0011	0.0173	0.0011	429	144	346	7	357	20	346	7
69	0.0524	0.0009	0.2780	0.0049	0.0385	0.0005	0.0101	0.0001	302	38	244	3	249	4	244	3
70	0.0541	0.0016	0.3662	0.0110	0.0491	0.0007	0.0151	0.0003	377	66	309	4	317	8	309	4
72	0.0512	0.0013	0.2868	0.0071	0.0406	0.0005	0.0128	0.0002	250	56	257	3	256	6	257	3
73	0.0526	0.0012	0.3339	0.0077	0.0461	0.0006	0.0140	0.0002	311	51	290	4	293	6	290	4
75	0.0554	0.0012	0.5185	0.0112	0.0679	0.0009	0.0209	0.0003	429	46	423	5	424	7	423	5
76	0.0531	0.0012	0.2901	0.0066	0.0396	0.0005	0.0117	0.0002	332	50	251	3	259	5	251	3
77	0.0535	0.0015	0.3413	0.0093	0.0463	0.0006	0.0149	0.0003	349	61	292	4	298	7	292	4
78	0.0538	0.0016	0.2754	0.0081	0.0372	0.0005	0.0107	0.0002	360	65	235	3	247	6	235	3
80	0.0526	0.0047	0.3507	0.0309	0.0484	0.0012	0.0140	0.0011	311	192	304	7	305	23	304	7
82	0.0532	0.0011	0.3318	0.0068	0.0453	0.0006	0.0141	0.0002	336	44	285	3	291	5	285	3
83	0.0530	0.0011	0.3040	0.0065	0.0416	0.0005	0.0129	0.0002	329	47	263	3	270	5	263	3
84	0.0553	0.0009	0.4546	0.0077	0.0596	0.0007	0.0210	0.0003	425	35	373	4	381	5	373	4

Spot	Isotopic ratios								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
86	0.0526	0.0009	0.3926	0.0073	0.0541	0.0007	0.0167	0.0002	312	40	340	4	336	5	340	4
88	0.0524	0.0011	0.2900	0.0062	0.0401	0.0005	0.0119	0.0001	303	47	254	3	259	5	254	3
89	0.0993	0.0014	3.9391	0.0590	0.2879	0.0035	0.0852	0.0011	1610	26	1631	18	1622	12	1610	26
91	0.0525	0.0016	0.2828	0.0088	0.0391	0.0005	0.0121	0.0002	306	69	247	3	253	7	247	3
93	0.0529	0.0011	0.2913	0.0059	0.0400	0.0005	0.0125	0.0002	323	44	253	3	260	5	253	3
94	0.0528	0.0013	0.2975	0.0075	0.0409	0.0005	0.0128	0.0002	321	55	258	3	264	6	258	3
95	0.0551	0.0009	0.4880	0.0084	0.0643	0.0008	0.0195	0.0003	415	36	401	5	404	6	401	5
96	0.0518	0.0010	0.3462	0.0066	0.0485	0.0006	0.0147	0.0002	277	41	305	4	302	5	305	4
97	0.0565	0.0008	0.5258	0.0081	0.0675	0.0008	0.0216	0.0003	471	32	421	5	429	5	421	5
98	0.0508	0.0011	0.2795	0.0062	0.0399	0.0005	0.0121	0.0001	234	49	252	3	250	5	252	3
99	0.0541	0.0011	0.3606	0.0074	0.0484	0.0006	0.0142	0.0002	373	45	305	4	313	6	305	4
100	0.0546	0.0016	0.5358	0.0155	0.0712	0.0009	0.0240	0.0004	395	63	443	6	436	10	443	6
102	0.0559	0.0010	0.4725	0.0086	0.0613	0.0008	0.0193	0.0003	448	38	384	5	393	6	384	5
103	0.0524	0.0014	0.3543	0.0093	0.0491	0.0006	0.0146	0.0003	302	59	309	4	308	7	309	4
104	0.0523	0.0010	0.2953	0.0060	0.0410	0.0005	0.0126	0.0002	297	45	259	3	263	5	259	3
106	0.0542	0.0016	0.3635	0.0105	0.0487	0.0007	0.0155	0.0002	378	63	306	4	315	8	306	4
107	0.0523	0.0010	0.3477	0.0067	0.0482	0.0006	0.0144	0.0002	299	42	304	4	303	5	304	4
108	0.0535	0.0009	0.3315	0.0061	0.0449	0.0006	0.0139	0.0002	351	39	283	3	291	5	283	3
109	0.0534	0.0010	0.3451	0.0065	0.0469	0.0006	0.0143	0.0002	346	40	295	4	301	5	295	4
111	0.0512	0.0012	0.2939	0.0067	0.0416	0.0005	0.0132	0.0002	250	51	263	3	262	5	263	3
112	0.0527	0.0011	0.2943	0.0062	0.0405	0.0005	0.0122	0.0002	314	46	256	3	262	5	256	3

Spot	Isotopic ratios								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
114	0.0514	0.0010	0.2883	0.0057	0.0407	0.0005	0.0123	0.0002	260	43	257	3	257	4	257	3
115	0.0527	0.0012	0.3001	0.0068	0.0413	0.0005	0.0128	0.0002	316	50	261	3	267	5	261	3
117	0.0551	0.0010	0.5204	0.0101	0.0685	0.0008	0.0208	0.0003	418	41	427	5	425	7	427	5
118	0.0518	0.0011	0.2808	0.0062	0.0394	0.0005	0.0111	0.0001	274	49	249	3	251	5	249	3

Table M8. LA-ICP-MS U-Pb data of detrital zircons of sandstone sample (JLS-1) from Dameigou Formation

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
2	0.0553	0.0013	0.5090	0.0119	0.0668	0.0008	0.0218	0.0003	422	50	417	5	418	8	417	5
4	0.0508	0.0009	0.2385	0.0045	0.0340	0.0004	0.0115	0.0002	234	41	216	3	217	4	216	3
5	0.0569	0.0010	0.5310	0.0093	0.0677	0.0008	0.0219	0.0003	486	37	422	5	433	6	422	5
6	0.0713	0.0009	1.1147	0.0147	0.1134	0.0013	0.0346	0.0004	965	24	692	8	760	7	692	8
7	0.0702	0.0011	1.4546	0.0232	0.1503	0.0018	0.0462	0.0007	934	31	902	10	912	10	902	10
8	0.1544	0.0016	9.7267	0.1154	0.4568	0.0054	0.1289	0.0015	2395	18	2425	24	2409	11	2395	18
9	0.0524	0.0011	0.2539	0.0055	0.0352	0.0004	0.0126	0.0002	302	48	223	3	230	4	223	3
11	0.0535	0.0013	0.3865	0.0096	0.0524	0.0007	0.0168	0.0003	351	55	329	4	332	7	329	4
12	0.0515	0.0013	0.2816	0.0071	0.0396	0.0005	0.0124	0.0002	264	57	251	3	252	6	251	3
13	0.1613	0.0019	10.307	0.1363	0.4632	0.0056	0.1282	0.0016	2470	20	2454	25	2463	12	2470	20
14	0.0527	0.0011	0.2877	0.0059	0.0396	0.0005	0.0137	0.0002	317	45	250	3	257	5	250	3
15	0.1059	0.0012	4.3967	0.0564	0.3011	0.0036	0.0857	0.0010	1730	21	1697	18	1712	11	1730	21
18	0.0547	0.0009	0.4599	0.0076	0.0610	0.0007	0.0193	0.0002	398	35	382	4	384	5	382	4
19	0.0511	0.0014	0.3050	0.0081	0.0433	0.0006	0.0137	0.0002	247	60	273	3	270	6	273	3
20	0.1612	0.0017	10.338	0.1239	0.4650	0.0055	0.1268	0.0015	2468	18	2462	24	2466	11	2468	18
21	0.0691	0.0010	1.3930	0.0214	0.1461	0.0018	0.0455	0.0007	902	30	879	10	886	9	879	10
22	0.0691	0.0010	1.3976	0.0218	0.1467	0.0018	0.0456	0.0007	902	30	882	10	888	9	882	10
23	0.0501	0.0011	0.2463	0.0055	0.0357	0.0004	0.0117	0.0002	199	50	226	3	224	4	226	3
24	0.0524	0.0023	0.2596	0.0110	0.0359	0.0005	0.0114	0.0002	304	95	227	3	234	9	227	3

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
25	0.0556	0.0010	0.5129	0.0092	0.0668	0.0008	0.0206	0.0003	438	38	417	5	420	6	417	5
26	0.0564	0.0011	0.5709	0.0113	0.0734	0.0009	0.0233	0.0003	468	43	457	5	459	7	457	5
27	0.1015	0.0013	4.1390	0.0576	0.2956	0.0036	0.0847	0.0011	1653	23	1669	18	1662	11	1653	23
28	0.0663	0.0009	1.1515	0.0167	0.1260	0.0015	0.0398	0.0005	815	28	765	9	778	8	765	9
29	0.0693	0.0011	1.3465	0.0221	0.1408	0.0017	0.0448	0.0007	909	32	849	10	866	10	849	10
30	0.0690	0.0008	1.4958	0.0199	0.1572	0.0019	0.0444	0.0005	899	25	941	10	929	8	941	10
32	0.0567	0.0017	0.5462	0.0164	0.0698	0.0010	0.0215	0.0003	480	66	435	6	443	11	435	6
33	0.0504	0.0009	0.2306	0.0042	0.0332	0.0004	0.0118	0.0002	212	41	211	3	211	4	211	3
34	0.0510	0.0011	0.2409	0.0054	0.0342	0.0004	0.0114	0.0002	241	50	217	3	219	4	217	3
35	0.0556	0.0014	0.5261	0.0135	0.0686	0.0009	0.0214	0.0003	438	56	428	5	429	9	428	5
36	0.0553	0.0011	0.4901	0.0097	0.0643	0.0008	0.0210	0.0003	425	42	402	5	405	7	402	5
39	0.0537	0.0019	0.4373	0.0157	0.0591	0.0008	0.0186	0.0003	358	79	370	5	368	11	370	5
40	0.0513	0.0010	0.2636	0.0054	0.0373	0.0005	0.0118	0.0002	255	45	236	3	238	4	236	3
41	0.0510	0.0011	0.2654	0.0059	0.0377	0.0005	0.0116	0.0002	241	49	239	3	239	5	239	3
42	0.1511	0.0018	9.2339	0.1218	0.4431	0.0054	0.1221	0.0014	2359	20	2365	24	2362	12	2359	20
44	0.0529	0.0015	0.2967	0.0081	0.0407	0.0005	0.0130	0.0002	323	61	257	3	264	6	257	3
46	0.0548	0.0010	0.5142	0.0094	0.0681	0.0008	0.0206	0.0003	404	38	425	5	421	6	425	5
47	0.0525	0.0010	0.2973	0.0056	0.0410	0.0005	0.0137	0.0002	308	41	259	3	264	4	259	3
48	0.1576	0.0019	9.8224	0.1286	0.4519	0.0055	0.1340	0.0020	2431	20	2404	24	2418	12	2431	20
49	0.1434	0.0017	8.2360	0.1080	0.4167	0.0050	0.1182	0.0019	2268	20	2245	23	2257	12	2268	20
50	0.0508	0.0010	0.2519	0.0050	0.0360	0.0004	0.0117	0.0002	230	43	228	3	228	4	228	3

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
51	0.0713	0.0012	1.5287	0.0259	0.1555	0.0019	0.0457	0.0006	967	33	932	11	942	10	932	11
53	0.0519	0.0012	0.2725	0.0066	0.0381	0.0005	0.0124	0.0002	280	54	241	3	245	5	241	3
54	0.0544	0.0017	0.4926	0.0151	0.0657	0.0009	0.0204	0.0003	387	67	410	5	407	10	410	5
56	0.0743	0.0011	1.6842	0.0263	0.1643	0.0020	0.0599	0.0009	1051	29	981	11	1003	10	981	11
57	0.0551	0.0010	0.5482	0.0102	0.0721	0.0009	0.0219	0.0003	418	39	449	5	444	7	449	5
58	0.0526	0.0016	0.3020	0.0091	0.0416	0.0006	0.0134	0.0002	311	67	263	3	268	7	263	3
60	0.0551	0.0011	0.5367	0.0108	0.0707	0.0009	0.0233	0.0003	415	43	440	5	436	7	440	5
62	0.1562	0.0016	9.6794	0.1169	0.4495	0.0053	0.1256	0.0014	2415	18	2393	24	2405	11	2415	18
63	0.0555	0.0010	0.4665	0.0086	0.0610	0.0008	0.0192	0.0002	432	38	382	5	389	6	382	5
64	0.0508	0.0013	0.2613	0.0065	0.0373	0.0005	0.0116	0.0002	232	56	236	3	236	5	236	3
65	0.0553	0.0008	0.4594	0.0069	0.0602	0.0007	0.0230	0.0004	426	30	377	4	384	5	377	4
66	0.0586	0.0024	0.5842	0.0232	0.0723	0.0011	0.0238	0.0006	552	85	450	7	467	15	450	7
68	0.0557	0.0008	0.4580	0.0070	0.0596	0.0007	0.0254	0.0006	441	31	373	4	383	5	373	4
69	0.0547	0.0011	0.5376	0.0109	0.0712	0.0009	0.0225	0.0003	402	43	444	5	437	7	444	5
70	0.0543	0.0014	0.2861	0.0076	0.0382	0.0005	0.0118	0.0002	383	58	242	3	256	6	242	3
71	0.0510	0.0010	0.2623	0.0052	0.0373	0.0005	0.0115	0.0002	239	44	236	3	237	4	236	3
72	0.0526	0.0022	0.2613	0.0108	0.0360	0.0005	0.0112	0.0003	313	93	228	3	236	9	228	3
73	0.0546	0.0011	0.4709	0.0097	0.0626	0.0008	0.0198	0.0003	394	44	391	5	392	7	391	5
74	0.1266	0.0014	6.0187	0.0748	0.3448	0.0041	0.1002	0.0012	2051	19	1910	20	1979	11	2051	19
75	0.1135	0.0016	5.1881	0.0804	0.3317	0.0041	0.0924	0.0012	1856	26	1846	20	1851	13	1856	26
78	0.0518	0.0010	0.2425	0.0048	0.0340	0.0004	0.0126	0.0002	276	43	215	3	221	4	215	3

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
79	0.0507	0.0010	0.2592	0.0054	0.0371	0.0005	0.0115	0.0002	226	47	235	3	234	4	235	3
80	0.0571	0.0018	0.3087	0.0095	0.0392	0.0005	0.0129	0.0002	494	67	248	3	273	7	248	3
81	0.0573	0.0013	0.4783	0.0109	0.0605	0.0008	0.0193	0.0003	504	49	379	5	397	7	379	5
82	0.0554	0.0011	0.4845	0.0097	0.0635	0.0008	0.0198	0.0003	426	42	397	5	401	7	397	5
84	0.0562	0.0012	0.5428	0.0114	0.0701	0.0009	0.0223	0.0003	459	45	437	5	440	8	437	5
85	0.0871	0.0013	2.8520	0.0448	0.2376	0.0029	0.0704	0.0009	1362	28	1374	15	1369	12	1362	28
86	0.0565	0.0011	0.5565	0.0110	0.0715	0.0009	0.0228	0.0003	470	42	445	5	449	7	445	5
88	0.0576	0.0016	0.4971	0.0134	0.0627	0.0008	0.0208	0.0003	513	58	392	5	410	9	392	5
89	0.0506	0.0010	0.2690	0.0057	0.0385	0.0005	0.0115	0.0002	225	47	244	3	242	5	244	3
90	0.0710	0.0010	1.5226	0.0239	0.1556	0.0019	0.0467	0.0006	957	30	933	11	940	10	933	11
91	0.0511	0.0011	0.2540	0.0058	0.0361	0.0005	0.0110	0.0001	244	50	228	3	230	5	228	3
92	0.0553	0.0008	0.4635	0.0073	0.0608	0.0007	0.0223	0.0012	425	32	380	4	387	5	380	4
93	0.1524	0.0019	9.2143	0.1298	0.4387	0.0054	0.1216	0.0017	2373	22	2345	24	2360	13	2373	22
94	0.0811	0.0010	2.3951	0.0330	0.2143	0.0026	0.0623	0.0007	1224	24	1251	14	1241	10	1224	24
96	0.0527	0.0015	0.2553	0.0072	0.0352	0.0005	0.0114	0.0002	316	62	223	3	231	6	223	3
97	0.1017	0.0011	4.0963	0.0510	0.2922	0.0035	0.0747	0.0008	1655	20	1653	17	1654	10	1655	20
99	0.0677	0.0010	1.2771	0.0194	0.1368	0.0017	0.0416	0.0005	860	29	826	9	836	9	826	9
100	0.0550	0.0018	0.4573	0.0147	0.0603	0.0008	0.0183	0.0004	413	70	377	5	382	10	377	5
101	0.0521	0.0011	0.2818	0.0063	0.0392	0.0005	0.0125	0.0002	289	49	248	3	252	5	248	3
102	0.0575	0.0017	0.5269	0.0159	0.0665	0.0009	0.0215	0.0004	510	65	415	6	430	11	415	6
103	0.0519	0.0011	0.2808	0.0062	0.0393	0.0005	0.0128	0.0002	281	48	248	3	251	5	248	3

Spot	Isotopic ration								Apparent ages (Ma)							
	$\frac{^{207}\text{Pb}}{^{206}\text{Pb}}$	1 σ	$\frac{^{207}\text{Pb}}{^{235}\text{U}}$	1 σ	$\frac{^{206}\text{Pb}}{^{238}\text{U}}$	1 σ	$\frac{^{208}\text{Pb}}{^{232}\text{Th}}$	1 σ	$\frac{^{207}\text{Pb}}{^{206}\text{Pb}}$	1 σ	$\frac{^{206}\text{Pb}}{^{238}\text{U}}$	1 σ	$\frac{^{207}\text{Pb}}{^{235}\text{U}}$	1 σ	Best age	1 σ
104	0.0547	0.0010	0.4784	0.0090	0.0635	0.0008	0.0198	0.0003	399	40	397	5	397	6	397	5
105	0.0562	0.0019	0.4592	0.0155	0.0593	0.0008	0.0184	0.0003	460	74	371	5	384	11	371	5
106	0.0533	0.0022	0.3012	0.0123	0.0410	0.0006	0.0138	0.0003	343	90	259	4	267	10	259	4
107	0.0655	0.0013	1.1215	0.0221	0.1242	0.0016	0.0409	0.0007	790	40	755	9	764	11	755	9
110	0.0568	0.0028	0.5149	0.0246	0.0658	0.0011	0.0210	0.0004	482	104	411	7	422	16	411	7
112	0.0522	0.0017	0.2537	0.0081	0.0353	0.0005	0.0108	0.0002	294	72	223	3	230	7	223	3
113	0.0552	0.0012	0.4836	0.0106	0.0636	0.0008	0.0190	0.0003	418	46	398	5	401	7	398	5
114	0.0525	0.0019	0.2561	0.0093	0.0354	0.0005	0.0109	0.0002	305	81	224	3	232	8	224	3
115	0.0708	0.0011	1.1758	0.0189	0.1204	0.0015	0.0379	0.0004	953	30	733	8	789	9	733	8
118	0.0560	0.0011	0.5449	0.0112	0.0706	0.0009	0.0222	0.0003	451	43	440	5	442	7	440	5
119	0.0519	0.0010	0.2501	0.0052	0.0349	0.0004	0.0129	0.0002	283	45	221	3	227	4	221	3
120	0.0530	0.0011	0.2655	0.0057	0.0363	0.0005	0.0117	0.0002	330	47	230	3	239	5	230	3

Table M9. LA-ICP-MS U-Pb data of detrital zircons of sandstone sample (KYG-1) from Dameigou Formation

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
1	0.0522	0.0017	0.2533	0.0086	0.0352	0.0009	0.0103	0.0002	292	71	223	5	229	7	223	5
2	0.0506	0.0013	0.2499	0.0073	0.0359	0.0009	0.0111	0.0003	221	60	227	5	227	6	227	5
3	0.0560	0.0014	0.5273	0.0143	0.0683	0.0016	0.0193	0.0004	453	53	426	10	430	10	426	10
4	0.0518	0.0015	0.2680	0.0086	0.0375	0.0009	0.0118	0.0003	276	67	238	6	241	7	238	6
5	0.0512	0.0014	0.3032	0.0093	0.0430	0.0010	0.0136	0.0003	249	64	271	6	269	7	271	6
6	0.0549	0.0014	0.4237	0.0117	0.0559	0.0013	0.0166	0.0004	410	54	351	8	359	8	351	8
7	0.0508	0.0020	0.3216	0.0133	0.0459	0.0011	0.0143	0.0004	232	90	289	7	283	10	289	7
8	0.0544	0.0022	0.4892	0.0202	0.0652	0.0016	0.0206	0.0005	389	87	407	10	404	14	407	10
9	0.0518	0.0015	0.2291	0.0070	0.0321	0.0008	0.0091	0.0002	278	63	204	5	210	6	204	5
10	0.0506	0.0014	0.2429	0.0073	0.0349	0.0008	0.0108	0.0002	220	63	221	5	221	6	221	5
11	0.0516	0.0023	0.2464	0.0113	0.0347	0.0009	0.0110	0.0003	265	100	220	5	224	9	220	5
12	0.0538	0.0020	0.3125	0.0120	0.0422	0.0010	0.0123	0.0003	361	81	266	6	276	9	266	6
13	0.0526	0.0015	0.2784	0.0087	0.0384	0.0009	0.0124	0.0003	313	65	243	6	249	7	243	6
14	0.0529	0.0013	0.2191	0.0059	0.0301	0.0007	0.0111	0.0002	322	53	191	4	201	5	191	4
15	0.0531	0.0017	0.2666	0.0092	0.0364	0.0009	0.0118	0.0003	334	72	231	6	240	7	231	6
16	0.0506	0.0023	0.2425	0.0113	0.0348	0.0009	0.0106	0.0003	223	102	220	5	220	9	220	5
17	0.0502	0.0015	0.2953	0.0094	0.0427	0.0010	0.0122	0.0003	205	68	269	6	263	7	269	6
18	0.3580	0.0071	40.786	0.9585	0.8264	0.0196	0.2175	0.0045	3741	30	3883	69	3790	23	3741	30
19	0.0713	0.0019	1.5588	0.0449	0.1586	0.0038	0.0474	0.0011	965	53	949	21	954	18	949	21

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
22	0.0555	0.0012	0.4255	0.0107	0.0556	0.0013	0.0219	0.0008	434	48	349	8	360	8	349	8
23	0.0570	0.0016	0.5738	0.0170	0.0731	0.0018	0.0233	0.0006	489	59	455	11	461	11	455	11
24	0.0517	0.0015	0.2398	0.0074	0.0337	0.0008	0.0104	0.0002	270	65	214	5	218	6	214	5
25	0.0714	0.0015	1.5007	0.0372	0.1525	0.0036	0.0450	0.0010	968	43	915	20	931	15	915	20
26	0.0565	0.0016	0.5255	0.0163	0.0675	0.0016	0.0299	0.0024	469	63	421	10	429	11	421	10
27	0.0527	0.0013	0.2302	0.0064	0.0317	0.0008	0.0104	0.0002	315	55	201	5	210	5	201	5
29	0.0570	0.0013	0.5213	0.0138	0.0664	0.0016	0.0174	0.0004	489	51	414	10	426	9	414	10
30	0.0656	0.0015	1.0414	0.0269	0.1152	0.0028	0.0320	0.0007	793	47	703	16	725	13	703	16
33	0.0525	0.0017	0.2656	0.0090	0.0367	0.0009	0.0114	0.0003	307	71	232	6	239	7	232	6
36	0.0569	0.0013	0.5277	0.0135	0.0672	0.0016	0.0204	0.0004	488	49	419	10	430	9	419	10
37	0.0518	0.0014	0.2654	0.0079	0.0372	0.0009	0.0117	0.0003	275	62	235	6	239	6	235	6
38	0.0516	0.0016	0.2161	0.0070	0.0304	0.0007	0.0097	0.0002	267	67	193	5	199	6	193	5
39	0.0554	0.0014	0.5316	0.0151	0.0696	0.0017	0.0214	0.0005	428	56	434	10	433	10	434	10
40	0.0549	0.0017	0.4336	0.0145	0.0573	0.0014	0.0166	0.0004	408	68	359	9	366	10	359	9
42	0.0566	0.0017	0.5679	0.0187	0.0728	0.0018	0.0236	0.0006	474	67	453	11	457	12	453	11
43	0.0522	0.0013	0.2052	0.0057	0.0285	0.0007	0.0099	0.0002	295	56	181	4	190	5	181	4
44	0.0560	0.0015	0.4523	0.0129	0.0586	0.0014	0.0174	0.0004	452	56	367	9	379	9	367	9
45	0.0530	0.0014	0.2458	0.0073	0.0336	0.0008	0.0106	0.0002	329	60	213	5	223	6	213	5
46	0.0716	0.0018	1.4803	0.0404	0.1499	0.0036	0.0463	0.0010	976	49	900	20	922	17	900	20
47	0.0521	0.0013	0.3071	0.0087	0.0428	0.0010	0.0131	0.0003	288	58	270	6	272	7	270	6
48	0.0564	0.0014	0.5365	0.0147	0.0691	0.0017	0.0202	0.0004	465	54	431	10	436	10	431	10

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
49	0.0564	0.0013	0.4510	0.0115	0.0580	0.0014	0.0193	0.0004	468	49	363	8	378	8	363	8
50	0.0520	0.0015	0.2399	0.0074	0.0334	0.0008	0.0101	0.0002	286	64	212	5	218	6	212	5
53	0.0514	0.0015	0.2524	0.0078	0.0356	0.0009	0.0111	0.0003	257	65	226	5	229	6	226	5
54	0.0531	0.0015	0.3134	0.0094	0.0428	0.0010	0.0137	0.0003	333	61	270	6	277	7	270	6
56	0.2384	0.0047	19.928	0.4694	0.6063	0.0145	0.1551	0.0032	3109	31	3055	58	3088	23	3109	31
57	0.1057	0.0022	4.2188	0.1032	0.2895	0.0069	0.0783	0.0017	1726	38	1639	35	1678	20	1726	38
58	0.0686	0.0015	1.2497	0.0313	0.1322	0.0032	0.0302	0.0007	885	44	801	18	823	14	801	18
59	0.0540	0.0014	0.2079	0.0058	0.0280	0.0007	0.0072	0.0002	369	56	178	4	192	5	178	4
60	0.0551	0.0013	0.4502	0.0119	0.0593	0.0014	0.0210	0.0005	416	51	371	9	377	8	371	9
61	0.0538	0.0013	0.1914	0.0052	0.0258	0.0006	0.0082	0.0002	360	54	164	4	178	4	164	4
62	0.0640	0.0014	1.0284	0.0260	0.1165	0.0028	0.0353	0.0007	743	46	710	16	718	13	710	16
67	0.0520	0.0016	0.2613	0.0087	0.0365	0.0009	0.0113	0.0003	284	70	231	6	236	7	231	6
68	0.0700	0.0015	1.6257	0.0401	0.1684	0.0040	0.0489	0.0010	929	43	1003	22	980	16	1003	22
69	0.0789	0.0016	2.1543	0.0523	0.1981	0.0047	0.0636	0.0014	1169	41	1165	25	1166	17	1169	41
70	0.0513	0.0013	0.2601	0.0074	0.0368	0.0009	0.0115	0.0003	255	58	233	6	235	6	233	6
72	0.0558	0.0014	0.5059	0.0137	0.0657	0.0016	0.0193	0.0004	446	52	410	10	416	9	410	10
73	0.0566	0.0013	0.5691	0.0150	0.0730	0.0018	0.0222	0.0005	474	51	454	11	458	10	454	11
74	0.1120	0.0023	5.1806	0.1228	0.3354	0.0080	0.0981	0.0021	1832	36	1865	39	1849	20	1832	36
75	0.0514	0.0012	0.2170	0.0059	0.0306	0.0007	0.0104	0.0002	260	54	194	5	199	5	194	5
79	0.0507	0.0014	0.2678	0.0080	0.0384	0.0009	0.0119	0.0003	225	62	243	6	241	6	243	6
80	0.0523	0.0019	0.2516	0.0097	0.0349	0.0009	0.0110	0.0003	296	82	221	5	228	8	221	5

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
81	0.0505	0.0012	0.2062	0.0055	0.0296	0.0007	0.0090	0.0002	218	54	188	4	190	5	188	4
82	0.0504	0.0012	0.2217	0.0061	0.0319	0.0008	0.0116	0.0003	215	55	202	5	203	5	202	5
83	0.0514	0.0013	0.2347	0.0066	0.0331	0.0008	0.0111	0.0002	260	57	210	5	214	5	210	5
84	0.0587	0.0014	0.6849	0.0180	0.0847	0.0020	0.0319	0.0008	554	50	524	12	530	11	524	12
85	0.0530	0.0013	0.2678	0.0075	0.0367	0.0009	0.0122	0.0003	328	56	232	6	241	6	232	6
86	0.0516	0.0017	0.2513	0.0086	0.0353	0.0009	0.0112	0.0003	270	72	224	5	228	7	224	5
87	0.0516	0.0015	0.2412	0.0075	0.0339	0.0008	0.0104	0.0002	267	65	215	5	219	6	215	5
88	0.0560	0.0014	0.5430	0.0150	0.0703	0.0017	0.0223	0.0005	453	54	438	10	440	10	438	10
89	0.0514	0.0014	0.2685	0.0079	0.0379	0.0009	0.0120	0.0003	257	60	240	6	242	6	240	6
90	0.1064	0.0022	4.2930	0.1046	0.2927	0.0070	0.0852	0.0018	1738	38	1655	35	1692	20	1738	38
91	0.0508	0.0013	0.2133	0.0059	0.0305	0.0007	0.0111	0.0002	229	56	194	5	196	5	194	5
93	0.0543	0.0014	0.5299	0.0151	0.0707	0.0017	0.0222	0.0005	385	56	441	10	432	10	441	10
94	0.0527	0.0014	0.2324	0.0069	0.0320	0.0008	0.0110	0.0003	316	60	203	5	212	6	203	5
96	0.0754	0.0016	1.8554	0.0463	0.1784	0.0043	0.0565	0.0012	1080	43	1058	23	1065	16	1080	43
97	0.0525	0.0013	0.1938	0.0053	0.0268	0.0007	0.0071	0.0002	309	55	170	4	180	5	170	4
98	0.1601	0.0033	10.445	0.2505	0.4732	0.0114	0.1304	0.0027	2457	34	2498	50	2475	22	2457	34
99	0.0667	0.0014	1.0074	0.0245	0.1096	0.0026	0.0308	0.0007	827	43	671	15	708	12	671	15
100	0.0527	0.0015	0.2778	0.0087	0.0383	0.0009	0.0118	0.0003	315	64	242	6	249	7	242	6
101	0.0619	0.0014	0.8909	0.0227	0.1045	0.0025	0.0311	0.0007	669	47	641	15	647	12	641	15
102	0.0618	0.0014	1.0154	0.0259	0.1192	0.0029	0.0374	0.0008	667	47	726	17	712	13	726	17
103	0.0509	0.0014	0.3012	0.0092	0.0429	0.0010	0.0134	0.0003	237	64	271	6	267	7	271	6

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
104	0.0496	0.0013	0.2733	0.0077	0.0400	0.0010	0.0129	0.0003	177	58	253	6	245	6	253	6
105	0.0565	0.0015	0.5931	0.0175	0.0761	0.0019	0.0238	0.0006	473	59	473	11	473	11	473	11
106	0.0492	0.0014	0.2399	0.0073	0.0354	0.0009	0.0115	0.0003	156	65	224	5	218	6	224	5
107	0.0548	0.0016	0.4919	0.0157	0.0651	0.0016	0.0177	0.0005	405	64	406	10	406	11	406	10
108	0.1895	0.0038	14.200	0.3381	0.5436	0.0131	0.1463	0.0031	2738	33	2799	55	2763	23	2738	33
109	0.0709	0.0016	1.5334	0.0386	0.1568	0.0038	0.0462	0.0010	955	44	939	21	944	15	939	21
111	0.0521	0.0014	0.2264	0.0066	0.0315	0.0008	0.0085	0.0002	289	59	200	5	207	5	200	5
112	0.0529	0.0013	0.2207	0.0059	0.0303	0.0007	0.0093	0.0002	323	53	192	5	203	5	192	5
113	0.0491	0.0014	0.2435	0.0074	0.0360	0.0009	0.0102	0.0002	154	64	228	5	221	6	228	5
114	0.0903	0.0020	3.1855	0.0810	0.2558	0.0062	0.0763	0.0017	1432	42	1468	32	1454	20	1432	42
115	0.0555	0.0012	0.4390	0.0107	0.0574	0.0014	0.0205	0.0004	430	46	360	8	370	8	360	8
116	0.0515	0.0013	0.2722	0.0077	0.0383	0.0009	0.0118	0.0003	265	57	242	6	245	6	242	6
117	0.0518	0.0014	0.2570	0.0075	0.0360	0.0009	0.0114	0.0003	278	60	228	5	232	6	228	5
118	0.0564	0.0013	0.5019	0.0130	0.0646	0.0016	0.0223	0.0005	466	50	404	9	413	9	404	9
119	0.0666	0.0015	1.2864	0.0330	0.1401	0.0034	0.0399	0.0009	825	46	846	19	840	15	846	19
120	0.0684	0.0014	1.4259	0.0351	0.1512	0.0036	0.0447	0.0010	881	43	908	20	900	15	908	20

Table M10. LA-ICP-MS U-Pb data of detrital zircons of sandstone sample (KG-1) from Dameigou Formation

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
1	0.0706	0.0011	1.4928	0.0240	0.1535	0.0019	0.0397	0.0005	945	31	920	10	928	10	920	10
2	0.0561	0.0010	0.5357	0.0102	0.0693	0.0009	0.0217	0.0003	454	40	432	5	436	7	432	5
3	0.0673	0.0017	1.1798	0.0299	0.1271	0.0017	0.0398	0.0007	847	52	772	10	791	14	772	10
5	0.0520	0.0011	0.2615	0.0057	0.0365	0.0005	0.0120	0.0002	285	48	231	3	236	5	231	3
6	0.0569	0.0009	0.5345	0.0086	0.0681	0.0008	0.0220	0.0003	488	33	425	5	435	6	425	5
7	0.0608	0.0015	0.8364	0.0210	0.0997	0.0013	0.0306	0.0004	634	53	613	8	617	12	613	8
8	0.0534	0.0014	0.3511	0.0090	0.0477	0.0006	0.0157	0.0002	347	56	300	4	306	7	300	4
10	0.0521	0.0025	0.2866	0.0134	0.0399	0.0006	0.0125	0.0003	288	105	252	4	256	11	252	4
12	0.0515	0.0014	0.2389	0.0064	0.0337	0.0004	0.0107	0.0002	261	60	214	3	218	5	214	3
13	0.0506	0.0012	0.2561	0.0060	0.0367	0.0005	0.0116	0.0002	223	52	232	3	232	5	232	3
14	0.0545	0.0009	0.4606	0.0076	0.0613	0.0007	0.0197	0.0002	392	34	384	4	385	5	384	4
15	0.0563	0.0011	0.5225	0.0101	0.0673	0.0008	0.0212	0.0003	465	41	420	5	427	7	420	5
17	0.0634	0.0015	0.6465	0.0152	0.0739	0.0010	0.0245	0.0004	723	49	460	6	506	9	460	6
18	0.0728	0.0009	1.6713	0.0229	0.1666	0.0020	0.0519	0.0007	1007	25	994	11	998	9	994	11
19	0.0704	0.0008	1.0717	0.0139	0.1105	0.0013	0.0393	0.0004	939	24	676	8	740	7	676	8
21	0.0504	0.0013	0.2401	0.0063	0.0346	0.0005	0.0110	0.0002	212	60	219	3	219	5	219	3
23	0.0579	0.0014	0.6153	0.0154	0.0771	0.0010	0.0246	0.0003	526	54	479	6	487	10	479	6
24	0.0705	0.0010	1.4807	0.0225	0.1524	0.0018	0.0466	0.0007	942	29	915	10	923	9	915	10
25	0.0522	0.0012	0.2551	0.0057	0.0355	0.0004	0.0114	0.0002	292	49	225	3	231	5	225	3

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
27	0.1042	0.0012	4.1061	0.0515	0.2859	0.0034	0.0813	0.0009	1700	20	1621	17	1656	10	1700	20
28	0.1643	0.0028	10.638	0.1889	0.4697	0.0064	0.1267	0.0017	2500	28	2482	28	2492	16	2500	28
29	0.1611	0.0018	10.284	0.1297	0.4630	0.0055	0.1280	0.0015	2467	19	2453	24	2461	12	2467	19
30	0.0763	0.0019	1.8127	0.0447	0.1722	0.0023	0.0388	0.0008	1104	48	1024	13	1050	16	1104	48
31	0.0773	0.0011	2.0327	0.0304	0.1907	0.0023	0.0573	0.0007	1129	27	1125	12	1127	10	1129	27
32	0.0562	0.0010	0.4616	0.0085	0.0595	0.0007	0.0202	0.0003	461	39	373	4	385	6	373	4
36	0.1406	0.0016	7.7074	0.0996	0.3975	0.0048	0.1165	0.0016	2235	20	2158	22	2198	12	2235	20
37	0.0507	0.0012	0.2488	0.0061	0.0356	0.0005	0.0114	0.0002	229	55	225	3	226	5	225	3
38	0.0768	0.0010	1.9017	0.0279	0.1797	0.0022	0.0453	0.0007	1115	27	1065	12	1082	10	1115	27
39	0.0566	0.0009	0.5787	0.0098	0.0742	0.0009	0.0234	0.0003	475	36	461	5	464	6	461	5
40	0.0533	0.0008	0.3771	0.0058	0.0513	0.0006	0.0164	0.0002	341	32	323	4	325	4	323	4
41	0.0764	0.0011	1.7039	0.0254	0.1617	0.0020	0.0510	0.0006	1106	28	966	11	1010	10	966	11
42	0.0687	0.0010	1.2916	0.0199	0.1365	0.0017	0.0433	0.0007	888	30	825	9	842	9	825	9
43	0.0517	0.0011	0.2647	0.0055	0.0372	0.0005	0.0117	0.0002	271	46	235	3	239	4	235	3
44	0.0509	0.0010	0.2587	0.0052	0.0369	0.0005	0.0115	0.0002	236	44	233	3	234	4	233	3
46	0.0513	0.0026	0.2669	0.0134	0.0377	0.0006	0.0123	0.0003	254	113	239	4	240	11	239	4
48	0.0560	0.0009	0.5294	0.0091	0.0685	0.0008	0.0220	0.0003	454	36	427	5	431	6	427	5
49	0.0521	0.0013	0.2777	0.0068	0.0386	0.0005	0.0127	0.0002	291	55	244	3	249	5	244	3
50	0.0512	0.0010	0.2574	0.0051	0.0364	0.0005	0.0119	0.0002	251	44	231	3	233	4	231	3
54	0.0568	0.0011	0.5632	0.0112	0.0720	0.0009	0.0209	0.0003	482	42	448	5	454	7	448	5
55	0.1388	0.0015	7.5895	0.0934	0.3965	0.0047	0.1097	0.0012	2213	19	2153	22	2184	11	2213	19

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
56	0.0561	0.0013	0.5284	0.0128	0.0684	0.0009	0.0228	0.0004	454	52	426	5	431	9	426	5
58	0.0506	0.0011	0.2142	0.0046	0.0307	0.0004	0.0104	0.0001	225	47	195	2	197	4	195	2
59	0.0661	0.0013	1.1553	0.0235	0.1269	0.0016	0.0386	0.0006	808	41	770	9	780	11	770	9
61	0.0559	0.0010	0.4729	0.0086	0.0613	0.0008	0.0223	0.0003	449	38	384	5	393	6	384	5
63	0.0507	0.0010	0.2593	0.0051	0.0371	0.0005	0.0119	0.0002	228	43	235	3	234	4	235	3
65	0.1485	0.0017	8.9270	0.1165	0.4361	0.0053	0.1211	0.0016	2328	20	2333	24	2331	12	2328	20
66	0.0502	0.0013	0.2474	0.0063	0.0358	0.0005	0.0114	0.0002	204	58	226	3	225	5	226	3
67	0.0525	0.0011	0.2799	0.0059	0.0386	0.0005	0.0125	0.0002	309	46	244	3	251	5	244	3
68	0.0506	0.0013	0.2651	0.0067	0.0380	0.0005	0.0119	0.0002	225	56	240	3	239	5	240	3
69	0.0527	0.0013	0.2418	0.0058	0.0333	0.0004	0.0115	0.0002	316	53	211	3	220	5	211	3
71	0.0550	0.0009	0.5139	0.0084	0.0678	0.0008	0.0209	0.0003	411	34	423	5	421	6	423	5
73	0.0642	0.0013	1.1330	0.0234	0.1280	0.0016	0.0388	0.0005	748	42	777	9	769	11	777	9
74	0.0523	0.0011	0.2279	0.0050	0.0316	0.0004	0.0123	0.0002	299	48	201	2	209	4	201	2
75	0.1308	0.0014	6.9743	0.0832	0.3866	0.0046	0.1169	0.0014	2109	18	2107	21	2108	11	2109	18
77	0.0518	0.0009	0.2413	0.0042	0.0338	0.0004	0.0128	0.0002	277	37	214	3	220	3	214	3
79	0.0596	0.0010	0.4708	0.0083	0.0573	0.0007	0.0340	0.0009	590	36	359	4	392	6	359	4
80	0.1475	0.0017	8.7739	0.1142	0.4314	0.0052	0.1220	0.0014	2317	20	2312	24	2315	12	2317	20
84	0.0811	0.0011	2.3819	0.0355	0.2130	0.0026	0.0621	0.0007	1224	27	1245	14	1237	11	1224	27
85	0.0514	0.0010	0.2557	0.0053	0.0361	0.0005	0.0120	0.0002	258	46	229	3	231	4	229	3
87	0.0550	0.0008	0.4986	0.0080	0.0658	0.0008	0.0214	0.0003	412	33	411	5	411	5	411	5
90	0.0629	0.0013	1.0286	0.0213	0.1185	0.0015	0.0361	0.0005	706	42	722	9	718	11	722	9

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
91	0.0586	0.0017	0.5851	0.0172	0.0725	0.0010	0.0233	0.0004	551	63	451	6	468	11	451	6
93	0.0505	0.0011	0.2614	0.0056	0.0375	0.0005	0.0114	0.0002	219	48	238	3	236	4	238	3
94	0.0503	0.0009	0.2189	0.0040	0.0316	0.0004	0.0112	0.0002	208	40	200	2	201	3	200	2
97	0.0505	0.0012	0.2522	0.0059	0.0363	0.0005	0.0109	0.0002	217	52	230	3	228	5	230	3
99	0.0517	0.0011	0.2687	0.0059	0.0377	0.0005	0.0131	0.0002	273	49	239	3	242	5	239	3
101	0.0503	0.0009	0.2320	0.0044	0.0335	0.0004	0.0110	0.0001	207	42	212	3	212	4	212	3
103	0.0751	0.0010	1.8582	0.0267	0.1795	0.0022	0.0565	0.0008	1071	26	1064	12	1066	9	1071	26
104	0.0555	0.0010	0.5479	0.0101	0.0715	0.0009	0.0220	0.0003	434	38	446	5	444	7	446	5
105	0.0797	0.0010	2.2222	0.0306	0.2022	0.0024	0.0592	0.0006	1190	24	1187	13	1188	10	1190	24
106	0.1542	0.0017	9.5362	0.1187	0.4486	0.0054	0.1250	0.0014	2393	18	2389	24	2391	11	2393	18
107	0.1599	0.0017	10.2968	0.1236	0.4672	0.0056	0.1314	0.0015	2454	17	2471	24	2462	11	2454	17
108	0.0574	0.0009	0.6295	0.0107	0.0795	0.0010	0.0266	0.0003	507	35	493	6	496	7	493	6
110	0.0521	0.0010	0.3053	0.0058	0.0425	0.0005	0.0136	0.0002	288	42	269	3	271	5	269	3
112	0.0551	0.0008	0.4963	0.0075	0.0653	0.0008	0.0220	0.0003	416	31	408	5	409	5	408	5
114	0.0512	0.0011	0.2550	0.0057	0.0361	0.0005	0.0112	0.0002	252	50	229	3	231	5	229	3
115	0.0528	0.0013	0.2553	0.0061	0.0351	0.0005	0.0120	0.0002	320	53	222	3	231	5	222	3
117	0.0633	0.0010	0.8561	0.0140	0.0981	0.0012	0.0246	0.0004	719	32	603	7	628	8	603	7
118	0.0561	0.0009	0.4463	0.0075	0.0577	0.0007	0.0186	0.0004	457	34	361	4	375	5	361	4
119	0.1320	0.0014	6.4551	0.0798	0.3548	0.0042	0.1259	0.0022	2124	19	1958	20	2040	11	2124	19
120	0.0514	0.0010	0.2704	0.0055	0.0381	0.0005	0.0120	0.0002	260	45	241	3	243	4	241	3

Table M11. LA-ICP-MS U-Pb data of detrital zircons of sandstone sample (DLH-1) from Dameigou Formation

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
1	0.0509	0.0015	0.3000	0.0093	0.0428	0.0010	0.0133	0.0003	237	65	270	6	266	7	270	6
2	0.0551	0.0018	0.5544	0.0193	0.0731	0.0018	0.0225	0.0006	414	72	455	11	448	13	455	11
3	0.0728	0.0016	1.6810	0.0416	0.1675	0.0040	0.0540	0.0012	1008	43	999	22	1001	16	999	22
4	0.1084	0.0022	4.7137	0.1136	0.3154	0.0075	0.0902	0.0020	1773	37	1767	37	1770	20	1773	37
5	0.0556	0.0013	0.5081	0.0134	0.0663	0.0016	0.0209	0.0005	437	51	414	10	417	9	414	10
6	0.0544	0.0013	0.4574	0.0123	0.0610	0.0015	0.0195	0.0004	387	53	382	9	383	9	382	9
7	0.0534	0.0024	0.4216	0.0191	0.0573	0.0015	0.0177	0.0005	345	97	359	9	357	14	359	9
8	0.0641	0.0021	1.1176	0.0388	0.1264	0.0031	0.0376	0.0009	746	68	768	18	762	19	768	18
9	0.0525	0.0018	0.2866	0.0103	0.0396	0.0010	0.0121	0.0003	309	76	250	6	256	8	250	6
10	0.1421	0.0030	8.0772	0.1968	0.4124	0.0098	0.1126	0.0024	2253	36	2226	45	2240	22	2253	36
11	0.1131	0.0024	5.2090	0.1265	0.3341	0.0079	0.0930	0.0020	1850	37	1858	38	1854	21	1850	37
12	0.0552	0.0017	0.5600	0.0179	0.0736	0.0018	0.0231	0.0005	420	65	458	11	452	12	458	11
14	0.0662	0.0015	1.2248	0.0307	0.1342	0.0032	0.0405	0.0009	813	45	812	18	812	14	812	18
15	0.0574	0.0016	0.5668	0.0175	0.0716	0.0017	0.0220	0.0005	507	62	446	10	456	11	446	10
16	0.0564	0.0012	0.4466	0.0111	0.0575	0.0014	0.0217	0.0005	467	48	360	8	375	8	360	8
17	0.0525	0.0016	0.3222	0.0104	0.0445	0.0011	0.0140	0.0003	309	67	281	7	284	8	281	7
18	0.1139	0.0026	4.8475	0.1236	0.3088	0.0074	0.0871	0.0019	1862	40	1735	36	1793	21	1862	40
19	0.1095	0.0025	4.8260	0.1243	0.3197	0.0077	0.0917	0.0020	1791	41	1788	37	1789	22	1791	41
21	0.0551	0.0012	0.4155	0.0105	0.0547	0.0013	0.0188	0.0004	416	48	343	8	353	8	343	8

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
22	0.1135	0.0029	5.0423	0.1419	0.3221	0.0079	0.0924	0.0021	1857	45	1800	38	1827	24	1857	45
23	0.1470	0.0038	8.6885	0.2450	0.4289	0.0106	0.1188	0.0030	2311	43	2301	48	2306	26	2311	43
24	0.1657	0.0036	10.4431	0.2624	0.4573	0.0110	0.1360	0.0037	2514	36	2428	49	2475	23	2514	36
25	0.0527	0.0016	0.3057	0.0100	0.0421	0.0010	0.0135	0.0003	316	68	266	6	271	8	266	6
26	0.0715	0.0015	1.5370	0.0376	0.1559	0.0037	0.0445	0.0009	973	43	934	21	945	15	934	21
27	0.0552	0.0013	0.5379	0.0140	0.0707	0.0017	0.0223	0.0005	420	50	440	10	437	9	440	10
28	0.0713	0.0018	1.6203	0.0457	0.1648	0.0040	0.0497	0.0012	966	51	984	22	978	18	984	22
29	0.0574	0.0020	0.5233	0.0192	0.0661	0.0016	0.0209	0.0006	507	76	413	10	427	13	413	10
30	0.0573	0.0015	0.5872	0.0168	0.0743	0.0018	0.0235	0.0005	503	57	462	11	469	11	462	11
31	0.0563	0.0013	0.5142	0.0135	0.0662	0.0016	0.0221	0.0005	464	51	413	10	421	9	413	10
32	0.0734	0.0017	1.7014	0.0452	0.1681	0.0040	0.0511	0.0011	1025	47	1002	22	1009	17	1025	47
33	0.0571	0.0014	0.5798	0.0159	0.0737	0.0018	0.0230	0.0005	494	54	458	11	464	10	458	11
34	0.0566	0.0012	0.4591	0.0113	0.0588	0.0014	0.0221	0.0005	477	47	368	8	384	8	368	8
35	0.0535	0.0018	0.3171	0.0112	0.0430	0.0011	0.0134	0.0003	351	74	271	6	280	9	271	6
36	0.0546	0.0015	0.3027	0.0092	0.0402	0.0010	0.0128	0.0003	396	62	254	6	269	7	254	6
37	0.0551	0.0015	0.5161	0.0152	0.0679	0.0016	0.0212	0.0005	417	58	424	10	423	10	424	10
38	0.1620	0.0033	10.4139	0.2470	0.4662	0.0110	0.1205	0.0026	2477	34	2467	49	2472	22	2477	34
40	0.0569	0.0016	0.5566	0.0170	0.0710	0.0017	0.0224	0.0005	487	62	442	10	449	11	442	10
41	0.0503	0.0013	0.3323	0.0097	0.0479	0.0012	0.0153	0.0004	209	61	302	7	291	7	302	7
43	0.0698	0.0017	1.4540	0.0396	0.1510	0.0036	0.0459	0.0011	924	50	907	20	912	16	907	20
44	0.1630	0.0034	10.5287	0.2530	0.4686	0.0111	0.1318	0.0028	2487	34	2478	49	2483	22	2487	34

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
46	0.1136	0.0025	4.9806	0.1256	0.3181	0.0076	0.0934	0.0020	1857	39	1781	37	1816	21	1857	39
47	0.0574	0.0016	0.5458	0.0162	0.0689	0.0017	0.0214	0.0005	508	59	430	10	442	11	430	10
48	0.0686	0.0014	1.3066	0.0318	0.1382	0.0033	0.0438	0.0009	886	43	834	19	849	14	834	19
49	0.0528	0.0019	0.3145	0.0117	0.0433	0.0011	0.0135	0.0003	318	79	273	7	278	9	273	7
50	0.0559	0.0015	0.2688	0.0078	0.0349	0.0008	0.0137	0.0003	449	58	221	5	242	6	221	5
51	0.0535	0.0049	0.3568	0.0320	0.0483	0.0015	0.0153	0.0007	351	193	304	9	310	24	304	9
52	0.1544	0.0031	8.5246	0.2022	0.4004	0.0095	0.1123	0.0024	2396	34	2171	44	2289	22	2396	34
53	0.0551	0.0014	0.5220	0.0142	0.0687	0.0016	0.0209	0.0005	416	53	429	10	427	9	429	10
54	0.0593	0.0016	0.5835	0.0167	0.0713	0.0017	0.0232	0.0005	579	56	444	10	467	11	444	10
55	0.0537	0.0014	0.2957	0.0083	0.0399	0.0010	0.0156	0.0003	358	56	253	6	263	6	253	6
56	0.0520	0.0017	0.2659	0.0090	0.0371	0.0009	0.0117	0.0003	285	71	235	6	239	7	235	6
58	0.1412	0.0029	7.5049	0.1776	0.3855	0.0091	0.1094	0.0024	2242	35	2102	42	2174	21	2242	35
59	0.0577	0.0019	0.6406	0.0221	0.0806	0.0020	0.0248	0.0006	516	70	500	12	503	14	500	12
60	0.0546	0.0016	0.2737	0.0085	0.0364	0.0009	0.0115	0.0003	396	63	230	5	246	7	230	5
61	0.0622	0.0014	0.6079	0.0154	0.0709	0.0017	0.0533	0.0012	681	47	442	10	482	10	442	10
62	0.0564	0.0012	0.4503	0.0111	0.0579	0.0014	0.0216	0.0005	467	47	363	8	378	8	363	8
63	0.1052	0.0021	4.1753	0.0988	0.2879	0.0068	0.0892	0.0019	1718	37	1631	34	1669	19	1718	37
65	0.0536	0.0026	0.3285	0.0162	0.0445	0.0011	0.0149	0.0005	353	106	281	7	288	12	281	7
66	0.1087	0.0027	4.6225	0.1261	0.3085	0.0075	0.0886	0.0021	1778	44	1733	37	1753	23	1778	44
67	0.1588	0.0032	9.3080	0.2187	0.4251	0.0100	0.1264	0.0026	2443	33	2284	45	2369	22	2443	33
68	0.0976	0.0020	3.6803	0.0885	0.2736	0.0065	0.0805	0.0017	1578	38	1559	33	1567	19	1578	38

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
69	0.0573	0.0019	0.5710	0.0197	0.0723	0.0018	0.0224	0.0005	502	71	450	11	459	13	450	11
70	0.0543	0.0017	0.3409	0.0115	0.0455	0.0011	0.0153	0.0004	385	69	287	7	298	9	287	7
73	0.0535	0.0019	0.3002	0.0110	0.0407	0.0010	0.0135	0.0003	351	77	257	6	267	9	257	6
75	0.0604	0.0014	0.5783	0.0149	0.0694	0.0017	0.0287	0.0006	619	48	433	10	463	10	433	10
76	0.0565	0.0016	0.5672	0.0172	0.0729	0.0018	0.0216	0.0005	470	61	453	11	456	11	453	11
78	0.1445	0.0037	7.8006	0.2185	0.3915	0.0097	0.1080	0.0025	2282	43	2130	45	2208	25	2282	43
79	0.0555	0.0016	0.5625	0.0173	0.0735	0.0018	0.0231	0.0006	433	62	457	11	453	11	457	11
80	0.0533	0.0021	0.3054	0.0124	0.0416	0.0010	0.0134	0.0003	340	87	263	6	271	10	263	6
81	0.0526	0.0015	0.3262	0.0098	0.0450	0.0011	0.0142	0.0003	310	62	284	7	287	8	284	7
82	0.1139	0.0025	5.2789	0.1311	0.3361	0.0080	0.0975	0.0021	1863	39	1868	39	1866	21	1863	39
83	0.0523	0.0016	0.3250	0.0107	0.0451	0.0011	0.0141	0.0003	300	69	284	7	286	8	284	7
84	0.0571	0.0013	0.5554	0.0147	0.0706	0.0017	0.0225	0.0005	494	52	440	10	449	10	440	10
85	0.0508	0.0014	0.2948	0.0086	0.0421	0.0010	0.0132	0.0003	233	61	266	6	262	7	266	6
86	0.0661	0.0014	1.2174	0.0302	0.1336	0.0032	0.0407	0.0009	810	45	808	18	809	14	808	18
87	0.0666	0.0015	1.2259	0.0317	0.1336	0.0032	0.0415	0.0009	824	47	808	18	812	14	808	18
88	0.0713	0.0016	1.6088	0.0410	0.1636	0.0039	0.0507	0.0011	967	45	977	22	974	16	977	22
89	0.0524	0.0012	0.2515	0.0063	0.0348	0.0008	0.0110	0.0002	302	50	221	5	228	5	221	5
90	0.0541	0.0014	0.4750	0.0133	0.0637	0.0015	0.0196	0.0004	376	56	398	9	395	9	398	9
91	0.0555	0.0017	0.5573	0.0181	0.0728	0.0018	0.0225	0.0005	434	66	453	11	450	12	453	11
92	0.1125	0.0025	5.0710	0.1284	0.3271	0.0078	0.0930	0.0019	1840	40	1824	38	1831	21	1840	40

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
94	0.1048	0.0023	4.4064	0.1111	0.3051	0.0073	0.0872	0.0019	1710	40	1716	36	1714	21	1710	40
95	0.0553	0.0013	0.5345	0.0144	0.0702	0.0017	0.0222	0.0005	422	52	437	10	435	10	437	10
97	0.0573	0.0017	0.5194	0.0164	0.0658	0.0016	0.0210	0.0005	503	64	411	10	425	11	411	10
98	0.0551	0.0015	0.2897	0.0084	0.0381	0.0009	0.0123	0.0003	418	57	241	6	258	7	241	6
99	0.1648	0.0035	10.4070	0.2524	0.4580	0.0109	0.1621	0.0035	2506	35	2431	48	2472	22	2506	35
101	0.0578	0.0018	0.3274	0.0107	0.0411	0.0010	0.0120	0.0003	522	66	260	6	288	8	260	6
102	0.1023	0.0022	4.4165	0.1081	0.3133	0.0074	0.0896	0.0019	1665	39	1757	37	1715	20	1665	39
103	0.0902	0.0020	3.1851	0.0803	0.2561	0.0061	0.0735	0.0016	1430	42	1470	31	1454	19	1430	42
106	0.0543	0.0012	0.2719	0.0068	0.0363	0.0009	0.0135	0.0003	383	48	230	5	244	5	230	5
107	0.0563	0.0014	0.5593	0.0156	0.0721	0.0017	0.0225	0.0005	463	55	449	10	451	10	449	10
108	0.0564	0.0014	0.5380	0.0147	0.0693	0.0017	0.0232	0.0006	465	54	432	10	437	10	432	10
109	0.1074	0.0029	4.6123	0.1372	0.3117	0.0077	0.0907	0.0024	1755	49	1749	38	1752	25	1755	49
110	0.0722	0.0015	1.5900	0.0388	0.1598	0.0038	0.0470	0.0010	991	42	956	21	966	15	956	21
111	0.1561	0.0031	9.2208	0.2173	0.4285	0.0101	0.1206	0.0025	2414	34	2299	46	2360	22	2414	34
112	0.0514	0.0015	0.3188	0.0099	0.0450	0.0011	0.0140	0.0003	261	65	283	7	281	8	283	7
113	0.0555	0.0014	0.5383	0.0153	0.0703	0.0017	0.0218	0.0005	434	56	438	10	437	10	438	10
114	0.0549	0.0015	0.5258	0.0158	0.0694	0.0017	0.0210	0.0005	410	60	433	10	429	11	433	10
115	0.1561	0.0031	9.7231	0.2291	0.4519	0.0107	0.1121	0.0023	2414	34	2404	47	2409	22	2414	34
116	0.0533	0.0013	0.2629	0.0071	0.0358	0.0009	0.0127	0.0003	343	54	226	5	237	6	226	5
118	0.0520	0.0012	0.2390	0.0062	0.0333	0.0008	0.0118	0.0003	285	52	211	5	218	5	211	5
119	0.0557	0.0013	0.5679	0.0146	0.0740	0.0018	0.0225	0.0005	439	50	460	11	457	9	460	11

Spot	Isotopic ration								Apparent ages (Ma)							
	$\frac{^{207}\text{Pb}}{^{206}\text{Pb}}$	1 σ	$\frac{^{207}\text{Pb}}{^{235}\text{U}}$	1 σ	$\frac{^{206}\text{Pb}}{^{238}\text{U}}$	1 σ	$\frac{^{208}\text{Pb}}{^{232}\text{Th}}$	1 σ	$\frac{^{207}\text{Pb}}{^{206}\text{Pb}}$	1 σ	$\frac{^{206}\text{Pb}}{^{238}\text{U}}$	1 σ	$\frac{^{207}\text{Pb}}{^{235}\text{U}}$	1 σ	Best age	1 σ
120	0.1572	0.0031	8.9011	0.2088	0.4107	0.0097	0.1177	0.0024	2426	33	2218	44	2328	21	2426	33

Table M12. LA-ICP-MS U-Pb data of detrital zircons of sandstone sample (YCZG-2) from Caishiling Formation

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
2	0.0546	0.0017	0.2867	0.0088	0.0381	0.0005	0.0122	0.0002	394	66	241	3	256	7	241	3
3	0.0513	0.0012	0.2670	0.0064	0.0377	0.0005	0.0120	0.0002	255	53	239	3	240	5	239	3
4	0.1142	0.0014	5.2907	0.0741	0.3361	0.0042	0.0969	0.0013	1867	22	1868	20	1867	12	1867	22
5	0.0529	0.0013	0.3414	0.0087	0.0468	0.0006	0.0149	0.0002	323	56	295	4	298	7	295	4
6	0.0508	0.0012	0.2547	0.0060	0.0364	0.0005	0.0114	0.0002	230	52	231	3	230	5	231	3
7	0.0522	0.0010	0.2942	0.0057	0.0409	0.0005	0.0137	0.0002	293	42	258	3	262	5	258	3
8	0.1642	0.0017	10.4888	0.1306	0.4633	0.0057	0.1265	0.0014	2500	17	2454	25	2479	12	2500	17
9	0.0558	0.0010	0.5556	0.0105	0.0722	0.0009	0.0226	0.0003	443	39	450	6	449	7	450	6
10	0.0551	0.0015	0.4971	0.0134	0.0654	0.0009	0.0230	0.0005	418	58	408	5	410	9	408	5
11	0.1230	0.0015	6.1728	0.0858	0.3640	0.0046	0.0997	0.0012	2000	21	2001	22	2001	12	2000	21
12	0.1098	0.0015	4.8393	0.0740	0.3198	0.0041	0.0911	0.0011	1795	25	1789	20	1792	13	1795	25
13	0.0525	0.0013	0.3357	0.0087	0.0464	0.0006	0.0154	0.0002	306	57	292	4	294	7	292	4
14	0.1184	0.0016	5.4888	0.0814	0.3363	0.0043	0.0970	0.0014	1932	24	1869	21	1899	13	1932	24
15	0.0688	0.0010	1.4518	0.0239	0.1530	0.0019	0.0476	0.0008	893	31	918	11	911	10	918	11
16	0.0566	0.0019	0.2989	0.0100	0.0383	0.0006	0.0140	0.0003	475	73	242	3	266	8	242	3
17	0.1576	0.0019	9.3917	0.1289	0.4322	0.0055	0.1154	0.0014	2430	20	2316	25	2377	13	2430	20
18	0.0514	0.0014	0.2621	0.0072	0.0370	0.0005	0.0125	0.0002	258	61	234	3	236	6	234	3
19	0.0526	0.0014	0.3001	0.0081	0.0414	0.0006	0.0129	0.0003	310	59	262	3	267	6	262	3
20	0.0512	0.0012	0.2614	0.0064	0.0371	0.0005	0.0115	0.0002	248	54	235	3	236	5	235	3

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
22	0.1551	0.0017	9.6927	0.1265	0.4532	0.0057	0.1276	0.0015	2403	19	2409	25	2406	12	2403	19
23	0.0551	0.0012	0.5065	0.0112	0.0667	0.0009	0.0207	0.0004	415	46	416	5	416	8	416	5
25	0.0566	0.0011	0.5983	0.0125	0.0767	0.0010	0.0240	0.0003	476	44	476	6	476	8	476	6
27	0.1148	0.0014	5.2485	0.0716	0.3317	0.0042	0.0958	0.0012	1876	21	1847	20	1861	12	1876	21
28	0.0541	0.0016	0.3406	0.0101	0.0456	0.0006	0.0150	0.0003	377	65	288	4	298	8	288	4
29	0.1277	0.0014	6.6259	0.0857	0.3763	0.0047	0.1099	0.0013	2067	19	2059	22	2063	11	2067	19
30	0.1382	0.0016	7.7202	0.1017	0.4051	0.0051	0.1133	0.0017	2205	19	2193	23	2199	12	2205	19
31	0.0565	0.0019	0.3397	0.0115	0.0436	0.0006	0.0136	0.0003	471	74	275	4	297	9	275	4
32	0.0785	0.0014	2.1003	0.0405	0.1940	0.0026	0.0591	0.0008	1161	36	1143	14	1149	13	1161	36
33	0.1531	0.0017	9.3556	0.1225	0.4434	0.0056	0.1235	0.0015	2380	19	2366	25	2374	12	2380	19
34	0.0794	0.0016	2.2024	0.0466	0.2011	0.0027	0.0602	0.0009	1183	40	1181	15	1182	15	1183	40
35	0.1628	0.0019	9.9143	0.1317	0.4416	0.0056	0.1225	0.0015	2485	19	2358	25	2427	12	2485	19
36	0.1073	0.0019	4.5237	0.0847	0.3057	0.0041	0.0911	0.0015	1755	32	1719	20	1735	16	1755	32
37	0.1653	0.0018	10.5969	0.1367	0.4651	0.0058	0.1235	0.0014	2510	18	2462	26	2488	12	2510	18
38	0.1686	0.0032	11.1879	0.2207	0.4814	0.0071	0.1296	0.0020	2543	31	2534	31	2539	18	2543	31
39	0.1620	0.0022	9.2593	0.1422	0.4146	0.0055	0.1254	0.0016	2477	23	2236	25	2364	14	2477	23
40	0.0547	0.0021	0.5083	0.0190	0.0674	0.0010	0.0208	0.0005	400	82	420	6	417	13	420	6
41	0.0537	0.0016	0.3933	0.0116	0.0531	0.0007	0.0165	0.0003	360	64	333	4	337	8	333	4
42	0.0512	0.0013	0.2498	0.0064	0.0354	0.0005	0.0116	0.0002	248	57	224	3	226	5	224	3
43	0.0516	0.0014	0.3027	0.0085	0.0426	0.0006	0.0135	0.0002	267	63	269	4	269	7	269	4
44	0.0534	0.0038	0.2875	0.0200	0.0391	0.0008	0.0128	0.0004	345	152	247	5	257	16	247	5

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
46	0.1099	0.0013	4.3867	0.0603	0.2896	0.0036	0.0843	0.0010	1797	22	1640	18	1710	11	1797	22
47	0.0521	0.0014	0.2851	0.0079	0.0397	0.0005	0.0133	0.0002	290	61	251	3	255	6	251	3
48	0.0525	0.0012	0.2641	0.0064	0.0365	0.0005	0.0118	0.0002	308	53	231	3	238	5	231	3
49	0.1461	0.0016	8.2759	0.1075	0.4108	0.0051	0.1141	0.0013	2301	19	2219	23	2262	12	2301	19
50	0.1530	0.0017	8.9955	0.1152	0.4264	0.0053	0.1199	0.0014	2380	18	2290	24	2338	12	2380	18
51	0.0546	0.0019	0.2612	0.0091	0.0347	0.0005	0.0115	0.0002	398	76	220	3	236	7	220	3
52	0.1344	0.0020	6.7909	0.1115	0.3664	0.0049	0.1042	0.0016	2156	26	2013	23	2085	15	2156	26
53	0.1283	0.0017	6.6287	0.0980	0.3746	0.0048	0.0930	0.0013	2075	23	2051	23	2063	13	2075	23
54	0.0523	0.0016	0.2988	0.0092	0.0414	0.0006	0.0148	0.0005	299	68	262	4	266	7	262	4
55	0.1301	0.0015	6.5833	0.0867	0.3670	0.0046	0.1060	0.0013	2100	20	2015	22	2057	12	2100	20
56	0.1226	0.0015	6.2475	0.0880	0.3696	0.0047	0.0991	0.0013	1994	22	2028	22	2011	12	1994	22
57	0.0503	0.0017	0.2475	0.0082	0.0357	0.0005	0.0121	0.0003	209	75	226	3	225	7	226	3
58	0.1136	0.0013	5.2086	0.0711	0.3327	0.0042	0.0951	0.0012	1857	21	1852	20	1854	12	1857	21
59	0.0642	0.0012	0.7018	0.0140	0.0793	0.0010	0.0265	0.0004	747	40	492	6	540	8	492	6
60	0.1137	0.0019	5.0962	0.0924	0.3253	0.0044	0.0894	0.0013	1859	30	1815	21	1836	15	1859	30
61	0.0517	0.0013	0.2861	0.0071	0.0402	0.0005	0.0124	0.0002	272	54	254	3	256	6	254	3
62	0.1642	0.0032	10.6300	0.2146	0.4695	0.0070	0.1349	0.0030	2500	32	2482	30	2491	19	2500	32
63	0.1116	0.0017	5.0164	0.0847	0.3260	0.0043	0.0889	0.0014	1826	28	1819	21	1822	14	1826	28
64	0.1015	0.0019	3.7410	0.0751	0.2675	0.0037	0.0824	0.0013	1651	35	1528	19	1580	16	1651	35
65	0.1641	0.0017	10.7126	0.1364	0.4734	0.0059	0.1354	0.0016	2499	18	2498	26	2499	12	2499	18
66	0.0517	0.0021	0.2828	0.0112	0.0397	0.0006	0.0130	0.0003	272	89	251	4	253	9	251	4

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
67	0.1745	0.0020	12.3402	0.1640	0.5130	0.0065	0.1414	0.0019	2601	19	2669	28	2631	12	2601	19
68	0.1000	0.0015	3.9600	0.0647	0.2871	0.0037	0.0794	0.0010	1625	28	1627	19	1626	13	1625	28
69	0.1579	0.0021	9.7315	0.1427	0.4469	0.0058	0.1313	0.0021	2434	22	2382	26	2410	14	2434	22
70	0.1639	0.0018	10.8610	0.1388	0.4806	0.0060	0.1303	0.0015	2496	18	2530	26	2511	12	2496	18
71	0.0552	0.0015	0.5252	0.0141	0.0690	0.0009	0.0213	0.0004	420	58	430	6	429	9	430	6
72	0.0550	0.0013	0.4757	0.0112	0.0628	0.0008	0.0194	0.0003	411	50	392	5	395	8	392	5
73	0.0607	0.0013	0.6580	0.0149	0.0787	0.0011	0.0711	0.0021	627	47	488	6	513	9	488	6
74	0.1479	0.0016	7.8269	0.1025	0.3838	0.0048	0.1122	0.0014	2322	19	2094	22	2211	12	2322	19
75	0.0568	0.0012	0.5548	0.0118	0.0709	0.0009	0.0214	0.0003	483	45	441	6	448	8	441	6
76	0.0509	0.0018	0.2594	0.0092	0.0370	0.0005	0.0122	0.0003	235	80	234	3	234	7	234	3
77	0.1274	0.0014	6.3563	0.0834	0.3619	0.0045	0.1056	0.0013	2063	19	1991	21	2026	12	2063	19
78	0.0534	0.0024	0.3705	0.0161	0.0503	0.0008	0.0154	0.0003	348	96	316	5	320	12	316	5
79	0.0515	0.0012	0.2618	0.0060	0.0368	0.0005	0.0125	0.0002	265	50	233	3	236	5	233	3
80	0.1138	0.0015	5.2435	0.0758	0.3343	0.0043	0.0953	0.0012	1860	23	1859	21	1860	12	1860	23
81	0.1569	0.0021	9.4205	0.1430	0.4356	0.0057	0.1212	0.0018	2422	23	2331	26	2380	14	2422	23
84	0.0686	0.0015	1.4243	0.0319	0.1506	0.0020	0.0452	0.0007	886	44	905	11	899	13	905	11
85	0.0530	0.0027	0.2982	0.0149	0.0408	0.0007	0.0120	0.0003	328	110	258	4	265	12	258	4
86	0.0553	0.0008	0.4969	0.0082	0.0652	0.0008	0.0209	0.0004	425	33	407	5	410	6	407	5
87	0.0573	0.0015	0.6408	0.0169	0.0811	0.0011	0.0249	0.0004	504	57	503	7	503	10	503	7
88	0.1038	0.0018	4.3957	0.0797	0.3072	0.0041	0.0877	0.0014	1693	31	1727	20	1712	15	1693	31
89	0.0511	0.0025	0.2529	0.0121	0.0359	0.0006	0.0107	0.0002	245	108	227	4	229	10	227	4

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
90	0.1016	0.0019	3.9538	0.0783	0.2823	0.0039	0.0837	0.0013	1653	35	1603	19	1625	16	1653	35
91	0.1193	0.0015	5.5959	0.0805	0.3402	0.0043	0.0927	0.0014	1946	22	1888	21	1916	12	1946	22
92	0.1661	0.0019	10.9494	0.1470	0.4782	0.0061	0.1318	0.0016	2518	19	2520	26	2519	12	2518	19
93	0.0783	0.0010	1.9927	0.0280	0.1846	0.0023	0.0559	0.0008	1154	24	1092	13	1113	10	1154	24
94	0.1630	0.0018	10.6140	0.1413	0.4722	0.0060	0.1240	0.0015	2487	19	2493	26	2490	12	2487	19
95	0.0523	0.0017	0.3145	0.0100	0.0436	0.0006	0.0138	0.0002	299	70	275	4	278	8	275	4
96	0.0536	0.0018	0.3987	0.0136	0.0540	0.0008	0.0166	0.0003	353	75	339	5	341	10	339	5
97	0.0505	0.0013	0.2550	0.0068	0.0366	0.0005	0.0117	0.0002	219	59	232	3	231	5	232	3
98	0.0502	0.0013	0.2490	0.0064	0.0360	0.0005	0.0113	0.0002	203	57	228	3	226	5	228	3
99	0.1607	0.0018	10.0939	0.1309	0.4556	0.0057	0.1273	0.0015	2463	18	2420	25	2443	12	2463	18
100	0.0503	0.0013	0.2700	0.0072	0.0389	0.0005	0.0124	0.0003	209	60	246	3	243	6	246	3
101	0.1352	0.0015	6.6710	0.0860	0.3580	0.0045	0.0983	0.0012	2166	19	1973	21	2069	11	2166	19
102	0.0577	0.0015	0.5767	0.0156	0.0725	0.0010	0.0208	0.0003	519	58	451	6	462	10	451	6
104	0.0616	0.0013	0.6478	0.0140	0.0763	0.0010	0.0260	0.0004	659	44	474	6	507	9	474	6
105	0.0559	0.0027	0.4537	0.0217	0.0589	0.0010	0.0189	0.0005	447	104	369	6	380	15	369	6
106	0.1115	0.0020	5.0706	0.0980	0.3298	0.0045	0.0891	0.0018	1824	33	1837	22	1831	16	1824	33
107	0.1615	0.0018	10.3795	0.1351	0.4662	0.0059	0.1255	0.0015	2471	18	2467	26	2469	12	2471	18
108	0.0989	0.0017	3.8284	0.0687	0.2807	0.0037	0.0829	0.0012	1604	31	1595	19	1599	14	1604	31
109	0.1582	0.0021	10.0389	0.1501	0.4602	0.0060	0.1280	0.0018	2437	22	2440	27	2438	14	2437	22
110	0.0563	0.0012	0.5571	0.0119	0.0718	0.0009	0.0221	0.0003	462	45	447	6	450	8	447	6
112	0.1141	0.0016	5.2341	0.0810	0.3326	0.0043	0.0939	0.0012	1866	25	1851	21	1858	13	1866	25

Spot	Isotopic ration								Apparent ages (Ma)							
	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{208}\text{Pb}/^{232}\text{Th}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	Best age	1 σ
113	0.0690	0.0009	1.0001	0.0147	0.1051	0.0013	0.0388	0.0005	900	27	644	8	704	7	644	8
114	0.0531	0.0013	0.3487	0.0090	0.0477	0.0006	0.0158	0.0003	332	56	300	4	304	7	300	4
115	0.0578	0.0013	0.5662	0.0133	0.0711	0.0010	0.0229	0.0003	521	50	443	6	456	9	443	6
116	0.1040	0.0015	4.2996	0.0674	0.2998	0.0039	0.0887	0.0013	1697	26	1690	19	1693	13	1697	26
117	0.0652	0.0019	1.1280	0.0329	0.1254	0.0018	0.0382	0.0006	781	60	762	10	767	16	762	10
118	0.1251	0.0015	6.3448	0.0865	0.3680	0.0046	0.1028	0.0013	2030	20	2020	22	2025	12	2030	20
119	0.0581	0.0010	0.6719	0.0122	0.0839	0.0011	0.0254	0.0006	533	37	519	6	522	7	519	6
120	0.1517	0.0017	9.2962	0.1210	0.4445	0.0056	0.1219	0.0014	2365	18	2371	25	2368	12	2365	18

Table M1. Trace elements of detrital zircons of sandstone sample (QYG-1) from Xiaomeigou Formation

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
1	0.03	48.95	0.13	2.17	3.63	0.81	16.05	5.39	66.78	25.70	118.79	25.95	256.75	51.10	0.28	25.76	63.66
2	0.18	13.14	0.13	1.00	1.33	0.54	6.56	2.39	27.62	11.02	56.65	14.69	173.04	40.81	0.46	50.33	117.36
3	0.66	12.68	0.78	5.94	6.92	0.95	23.55	7.85	87.56	31.87	142.00	29.44	279.14	53.57	0.20	18.40	36.30
4	0.01	35.57	0.10	1.79	3.45	1.25	19.88	7.53	97.57	38.92	187.13	41.37	420.36	86.45	0.36	35.18	109.66
5	0.05	5.89	0.01	0.30	0.60	0.21	2.58	1.01	13.10	5.61	29.42	7.42	86.40	20.22	0.44	63.41	128.96
6	1.80	21.52	1.84	12.91	10.42	2.09	27.26	7.56	73.04	23.86	103.93	22.06	214.82	41.98	0.36	12.46	18.55
7	3.03	74.39	1.41	8.16	6.36	1.37	23.34	8.13	94.60	36.48	170.41	37.78	378.06	72.99	0.30	25.30	53.50
8	3.17	48.32	2.99	18.65	17.11	4.63	51.23	13.48	120.22	38.45	170.47	38.10	383.82	74.81	0.44	11.81	20.19
9	0.01	4.88	0.04	0.80	2.00	0.08	11.31	4.26	52.75	21.01	97.97	21.29	213.89	43.01	0.04	30.77	96.15
10	1.28	27.51	0.67	4.69	5.14	2.05	27.07	7.98	82.48	28.41	128.40	27.59	297.87	57.70	0.43	17.25	52.16
11	349.95	947.85	94.86	432.89	130.51	25.88	216.60	50.06	461.06	144.68	570.64	109.92	983.63	178.74	0.47	6.68	6.78
12	0.46	12.53	0.23	2.16	2.84	0.72	15.00	5.20	58.45	22.03	105.78	24.97	263.74	54.57	0.27	29.43	83.58
15	837.59	1399.43	138.96	462.99	60.67	9.84	69.07	13.70	110.00	31.02	113.33	21.28	189.17	34.47	0.46	4.04	2.81
16	7.86	48.58	2.40	12.28	5.76	0.93	19.33	6.44	76.39	29.33	141.67	31.81	320.05	63.04	0.24	26.39	50.01
21	0.02	4.49	0.03	0.48	0.94	0.06	6.58	3.18	44.69	19.75	105.83	27.30	327.57	72.46	0.06	89.09	312.63
23	1.43	23.79	1.00	5.73	4.85	0.85	16.89	5.66	71.04	27.32	128.91	29.39	306.60	61.98	0.26	29.69	56.89
24	0.22	4.19	0.29	4.52	9.23	0.77	42.21	14.50	166.65	60.60	258.85	51.31	472.01	89.59	0.10	17.17	46.02
26	0.00	12.93	0.02	0.57	1.23	0.08	7.39	2.98	38.60	16.67	80.54	18.46	189.46	38.74	0.06	42.41	138.29
27	28.16	86.90	7.97	34.01	8.42	1.62	20.49	5.64	57.10	20.68	94.56	21.44	221.65	45.57	0.36	17.99	23.69

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
28	0.02	7.89	0.04	0.52	1.08	0.40	5.35	1.88	24.93	10.69	55.99	13.71	155.77	36.39	0.42	55.03	129.57
29	1.40	22.06	0.70	5.02	4.84	0.22	22.41	8.62	106.79	42.29	193.25	40.56	381.54	72.31	0.05	26.11	70.95
30	0.97	10.11	0.42	2.78	4.12	0.35	21.53	7.39	85.75	31.84	141.15	29.55	274.88	52.53	0.09	19.74	60.05
32	1.88	19.38	1.10	8.49	13.83	6.60	65.02	17.32	130.79	32.09	96.45	16.41	130.81	20.11	0.56	2.50	8.51
33	26.51	83.95	9.66	48.29	20.27	1.06	44.67	13.07	139.50	49.42	210.50	41.59	381.46	69.41	0.10	12.57	16.94
34	8.43	45.47	2.36	11.69	4.00	0.51	13.69	5.00	63.68	25.76	124.18	27.96	288.45	57.95	0.19	34.25	64.90
35	0.94	13.61	0.56	3.84	4.08	0.19	19.48	6.98	85.94	33.31	149.85	31.01	288.40	54.82	0.05	22.77	63.62
37	70.80	192.72	19.09	78.79	17.80	3.25	35.91	10.62	118.26	44.80	202.05	45.08	438.59	86.43	0.39	19.47	22.18
40	1.14	14.32	0.43	3.50	3.99	0.15	18.55	6.41	76.36	28.45	125.78	25.83	239.94	45.31	0.05	19.76	54.12
41	0.02	28.45	0.32	5.04	8.95	0.17	41.02	15.24	180.37	67.67	290.51	58.32	523.15	92.46	0.02	18.24	52.61
42	0.75	74.38	0.33	3.46	5.51	1.61	26.13	9.15	112.20	42.54	193.30	40.77	393.79	75.67	0.34	23.43	64.32
43	4.40	22.19	1.09	5.32	3.06	0.22	13.18	4.95	64.20	26.13	126.70	29.16	298.85	59.63	0.09	36.60	87.90
46	0.37	37.78	0.46	4.10	5.45	1.45	23.92	7.64	80.46	28.88	125.84	26.70	262.17	50.15	0.33	16.96	43.29
47	0.01	11.71	0.04	1.13	3.07	0.09	16.23	6.07	74.78	28.50	128.48	26.25	246.33	46.21	0.03	23.04	72.21
48	13.28	72.75	4.07	19.16	7.18	1.04	24.14	8.53	104.54	41.77	196.00	43.48	432.39	85.51	0.22	28.66	54.20
49	0.02	22.57	0.06	1.03	2.03	0.71	9.80	3.74	46.65	18.99	94.99	22.19	239.70	51.31	0.40	42.36	106.17
50	0.09	7.76	0.09	1.47	2.99	0.16	16.55	5.99	73.04	27.43	119.76	24.17	221.60	41.63	0.05	20.35	66.70
51	0.01	3.38	0.06	1.08	2.55	0.31	15.06	5.76	67.63	26.43	119.36	24.97	240.90	46.04	0.12	24.73	85.02
53	76.79	212.25	27.50	132.53	32.80	0.37	44.80	11.28	113.47	39.18	163.16	33.05	298.44	53.60	0.03	9.68	8.19
54	15.48	63.90	6.11	31.94	12.56	0.38	36.36	12.89	154.01	57.85	252.82	50.26	452.95	80.39	0.05	17.89	32.46

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
55	1.26	12.68	0.31	1.89	1.45	0.60	6.94	2.42	31.00	13.05	67.48	16.37	182.60	42.57	0.48	49.63	113.57
57	0.10	10.77	0.15	2.16	3.25	1.18	15.74	5.38	64.88	25.59	123.17	28.18	299.27	64.71	0.41	33.26	82.87
58	0.05	4.63	0.07	1.30	3.97	0.26	28.75	12.46	164.33	63.52	290.80	61.60	582.75	110.09	0.05	30.98	132.11
59	0.71	115.10	0.52	5.63	8.99	2.94	41.68	14.02	155.31	55.87	233.32	45.84	420.34	78.97	0.39	15.33	42.08
60	54.26	151.31	13.92	57.40	11.57	1.88	19.11	5.97	68.35	26.59	126.99	28.36	290.85	58.82	0.38	24.90	22.62
61	0.04	31.29	0.08	1.06	2.79	0.76	14.69	5.42	63.85	24.42	115.04	25.65	259.53	51.70	0.29	28.47	83.72
63	0.05	10.22	0.07	1.13	2.43	0.13	13.46	5.33	66.46	26.09	116.36	24.46	227.57	43.19	0.05	25.96	84.29
64	0.05	32.95	0.12	1.57	3.39	1.09	15.84	5.46	61.02	22.08	95.20	19.82	187.44	37.12	0.38	18.96	49.76
65	41.15	132.55	12.62	55.62	13.74	2.02	26.04	7.82	91.28	35.56	168.66	37.28	374.72	74.73	0.32	23.22	24.54
66	0.02	10.87	0.03	0.49	1.07	0.38	5.18	1.91	24.32	10.12	50.98	12.64	144.95	31.87	0.41	49.78	121.69
68	6.11	48.69	2.67	13.74	7.68	1.50	22.80	7.34	84.61	32.52	154.67	35.80	370.46	75.44	0.32	26.77	43.41
69	12.39	85.32	3.82	19.88	8.80	2.15	29.29	9.65	111.50	41.51	182.42	36.97	349.45	65.44	0.37	18.08	35.74
71	0.09	8.08	0.05	0.46	1.33	0.17	6.85	2.66	35.86	14.81	73.62	17.10	179.29	36.55	0.14	43.17	121.42
72	0.31	114.49	0.50	5.80	9.84	3.54	47.82	15.70	171.14	59.05	241.21	46.64	427.51	77.70	0.41	13.15	39.10
73	0.10	16.72	0.42	5.95	10.10	2.76	46.60	16.19	184.35	68.12	300.29	61.56	577.15	111.85	0.33	19.42	51.43
74	0.40	37.90	0.60	7.02	10.57	3.24	44.67	14.65	162.91	58.52	252.27	52.03	494.52	95.28	0.39	17.26	42.11
75	0.62	23.43	0.81	8.42	8.19	0.59	31.19	10.76	131.51	49.28	218.59	44.25	408.70	73.97	0.10	19.19	44.91
76	0.04	40.94	0.13	1.82	4.24	1.50	22.76	8.67	107.60	44.61	220.95	50.91	544.16	116.58	0.37	41.44	115.51
77	0.00	20.10	0.03	0.60	1.01	0.46	5.43	1.72	21.17	8.42	42.59	10.72	120.86	27.76	0.48	41.36	107.80
79	4.49	47.06	2.77	19.51	26.64	10.88	125.19	32.75	252.93	69.43	265.49	55.57	527.84	104.21	0.48	6.73	17.83

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
80	0.66	18.91	0.17	1.30	1.42	0.62	7.04	2.49	31.76	13.93	69.20	16.63	181.86	39.36	0.49	45.23	115.67
81	11.60	63.29	5.95	30.13	13.58	2.02	32.62	9.18	92.38	32.47	139.97	29.14	275.11	51.05	0.28	12.66	18.23
82	37.17	120.04	13.52	66.73	19.68	1.35	46.06	15.01	167.09	61.33	254.84	49.38	420.05	70.56	0.13	12.39	19.21
83	1.24	23.98	1.10	7.08	6.17	1.25	19.41	6.50	75.67	28.27	127.25	26.72	259.69	52.22	0.32	21.77	37.88
88	0.36	9.87	0.24	1.82	3.13	0.27	14.80	5.78	69.90	26.87	123.79	26.34	260.83	51.73	0.10	28.28	75.00
90	0.04	11.38	0.05	0.50	1.07	0.39	4.18	1.70	20.50	8.51	44.11	11.02	128.21	29.53	0.49	57.16	107.74
91	0.60	7.03	0.62	6.37	10.63	2.72	53.27	16.57	179.84	62.30	245.90	46.17	399.48	72.98	0.29	11.08	33.82
93	0.01	10.65	0.05	0.90	1.70	0.60	7.14	2.69	33.01	13.86	71.52	17.13	192.65	43.53	0.45	49.33	101.87
94	0.43	29.99	0.48	5.67	10.34	0.87	59.34	22.14	274.05	104.96	454.34	87.25	775.27	138.76	0.08	18.92	67.48
97	0.40	12.92	0.45	3.31	4.18	1.30	19.10	5.24	46.46	13.14	55.85	12.95	140.02	31.05	0.37	13.15	30.15
98	0.03	16.34	0.05	0.75	1.53	0.21	9.50	3.87	50.43	21.13	107.53	25.57	269.74	54.02	0.13	46.01	158.57
99	0.89	23.37	0.61	4.83	5.21	1.41	19.13	6.05	65.97	23.98	107.37	23.25	227.04	44.98	0.38	19.02	39.22
101	3.51	27.72	1.32	7.56	4.83	0.21	18.99	6.79	84.31	32.17	145.37	31.24	302.01	56.82	0.06	24.21	56.28
102	3.80	11.13	1.34	10.69	9.99	1.12	34.39	10.67	111.75	38.42	158.98	31.25	294.18	53.54	0.17	12.60	26.50
103	0.11	15.83	0.15	2.10	4.76	0.46	25.76	9.31	108.00	39.53	170.68	33.80	308.25	56.30	0.10	17.68	58.28
104	0.97	10.39	0.15	0.91	0.97	0.36	4.49	1.62	20.92	8.96	46.94	11.40	130.57	30.44	0.44	54.85	121.78
106	0.20	16.78	0.34	3.33	4.78	1.07	22.28	7.95	90.20	33.62	148.80	31.09	295.63	55.85	0.26	20.28	55.66
108	5.59	24.11	2.09	11.44	7.99	0.29	28.67	10.04	120.08	44.74	195.24	39.31	361.79	66.18	0.05	18.68	40.75
109	0.00	7.79	0.03	0.42	0.80	0.36	3.77	1.44	19.04	8.06	41.75	10.14	114.92	26.41	0.52	56.68	128.64
111	82.45	249.47	28.93	127.03	28.35	5.38	40.17	10.27	100.79	35.72	155.44	33.18	328.22	65.14	0.49	13.12	10.42
116	28.20	98.18	13.98	76.66	29.11	0.79	50.83	12.56	125.12	44.94	192.11	38.00	348.71	62.64	0.06	9.97	10.78

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
118	0.04	6.31	0.08	0.97	2.06	0.11	11.11	4.19	53.32	21.00	97.96	21.49	212.65	41.11	0.06	29.94	92.91
120	7.42	39.25	1.76	13.99	14.45	1.07	67.76	24.84	296.13	113.75	483.42	93.55	828.24	147.19	0.09	17.57	51.59

Table M2. Trace elements of detrital zircons of sandstone sample (SN-1) from Dameigou Formation

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
2	0.53	25.74	0.21	2.06	3.56	0.36	17.76	7.13	90.44	36.66	170.83	37.33	369.90	72.09	0.11	32.84	93.51
3	3.12	25.07	1.09	5.94	3.61	0.28	16.65	6.47	83.45	34.00	162.55	35.93	353.64	68.65	0.09	33.36	88.17
4	3.26	31.73	1.25	7.52	5.68	1.09	26.93	10.23	120.72	46.79	209.02	43.00	410.51	77.33	0.22	23.23	65.05
5	0.06	184.71	0.72	12.46	22.92	6.61	106.01	34.21	367.43	132.44	565.54	113.33	1044.91	193.46	0.34	14.76	41.03
6	0.10	15.05	0.05	0.63	1.86	0.44	12.80	5.71	78.40	34.55	176.34	43.55	481.38	102.58	0.20	64.84	232.93
8	0.01	14.47	0.03	0.52	1.68	0.13	9.87	4.05	54.81	23.55	117.09	27.21	278.57	56.83	0.08	46.58	149.32
9	6.79	40.16	1.97	10.68	4.96	0.42	22.52	8.61	105.75	41.98	192.51	41.25	398.06	75.20	0.10	27.02	72.23
10	5.91	51.49	1.78	7.92	4.47	0.57	17.74	6.35	78.61	30.19	139.82	30.09	292.82	55.95	0.17	25.52	58.96
11	5.64	48.58	1.63	8.20	5.88	0.45	28.05	10.45	131.60	52.42	242.69	53.18	519.53	100.11	0.09	28.88	79.52
12	0.01	37.77	0.07	1.55	2.96	0.58	17.16	6.64	81.67	32.64	150.28	32.53	314.21	60.89	0.19	28.71	95.54
13	0.01	4.38	0.10	2.04	4.27	0.48	23.61	8.43	106.46	41.79	188.03	39.26	373.19	72.20	0.12	24.74	78.66
14	7.43	33.20	3.31	16.63	5.30	1.20	14.97	4.54	50.40	19.55	93.99	21.87	235.43	52.81	0.38	28.54	39.98
15	0.01	20.17	0.04	1.01	2.35	0.27	14.53	5.78	74.35	31.38	154.24	35.57	360.12	72.58	0.11	40.41	137.92
16	0.12	41.39	0.85	10.99	11.72	4.84	36.59	10.50	105.63	36.44	165.38	37.76	402.18	88.94	0.66	19.67	30.88
18	286.09	765.65	96.72	427.87	84.44	4.21	82.27	14.78	121.70	39.95	171.56	36.49	355.26	69.49	0.15	6.83	3.79
19	21.27	74.53	6.50	30.95	8.50	0.63	21.10	7.05	85.08	34.02	158.01	34.65	338.79	64.74	0.14	24.82	35.87
23	36.38	97.89	9.91	41.40	8.93	0.52	19.29	6.18	75.61	30.84	149.99	34.58	353.62	71.46	0.12	29.97	35.64
25	15.74	69.92	4.48	21.90	7.46	0.68	28.37	10.62	128.39	50.96	237.13	50.28	490.07	93.55	0.13	26.68	59.12
26	0.75	42.79	0.36	2.60	3.37	0.50	16.32	6.44	80.40	32.03	152.85	33.99	335.87	65.96	0.17	32.70	89.70

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
27	0.09	12.47	0.07	1.34	2.97	0.51	16.11	6.23	78.72	31.11	140.45	30.10	284.18	54.92	0.18	27.58	86.12
28	0.04	4.39	0.11	1.85	4.25	0.49	22.79	8.23	102.71	41.69	192.55	40.99	395.30	78.35	0.12	27.81	83.71
29	6.03	36.94	1.66	7.51	4.36	0.44	19.48	7.49	95.64	38.98	185.79	40.65	400.84	77.88	0.12	32.35	82.74
31	3.38	16.33	0.85	4.15	1.96	0.53	9.31	3.69	49.04	20.79	104.70	24.69	261.71	56.66	0.32	49.24	120.17
32	2.49	8.93	0.89	5.30	3.49	0.34	14.39	5.23	62.64	25.18	118.61	26.09	261.30	52.53	0.13	29.53	67.38
33	3.05	28.47	0.98	5.70	4.03	0.30	19.62	8.22	105.03	44.03	210.04	46.49	463.24	90.11	0.09	37.16	103.45
34	1.23	96.73	0.97	10.53	19.71	5.22	86.39	26.60	258.99	82.03	335.07	65.21	588.44	103.34	0.33	9.68	26.87
35	1.57	14.42	0.60	3.04	1.63	0.20	9.20	3.85	50.56	22.13	110.15	25.76	262.14	53.55	0.12	47.09	144.74
36	13.11	41.46	4.02	19.58	9.07	1.04	30.23	10.59	124.15	47.61	216.10	45.36	431.57	82.14	0.17	21.98	42.82
37	3.47	33.01	1.39	11.25	12.07	2.87	46.83	14.85	161.01	59.80	267.32	56.87	575.56	115.30	0.32	19.92	42.92
38	38.91	115.21	10.50	44.00	11.18	0.78	27.40	9.21	114.27	46.12	225.58	51.52	516.09	102.38	0.13	30.23	41.55
39	0.02	37.91	0.07	1.41	4.29	0.59	27.78	11.34	143.11	58.71	279.66	62.79	628.13	120.51	0.13	35.10	131.78
40	1.13	28.64	0.39	2.31	1.57	0.35	9.91	4.08	54.89	23.40	117.38	28.06	300.57	61.66	0.20	50.34	172.63
41	3.09	44.61	1.05	5.52	5.78	0.37	29.79	11.39	147.82	58.30	271.74	58.53	574.94	109.96	0.07	29.86	89.52
42	0.00	3.48	0.02	0.84	2.27	0.07	16.83	7.18	96.03	39.69	188.01	40.35	390.62	76.32	0.03	36.69	154.87
43	23.02	69.37	6.82	30.97	9.95	0.78	29.45	9.88	116.78	44.16	198.22	42.15	412.36	79.27	0.13	21.78	37.30
44	0.01	6.76	0.11	2.29	4.65	0.60	27.50	9.79	121.80	47.80	217.26	45.57	432.35	84.92	0.13	24.98	83.68
45	15.04	73.26	4.68	20.77	6.53	0.59	18.72	6.49	80.65	33.77	164.12	37.39	384.27	75.62	0.15	32.68	52.96
47	1.20	35.43	0.50	3.23	3.99	0.40	23.05	9.09	114.96	45.63	212.12	46.94	462.10	90.00	0.10	31.59	104.23
48	5.75	45.77	2.17	13.64	11.64	3.00	54.41	18.34	193.88	66.53	276.77	55.30	504.78	92.11	0.30	13.70	39.03

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
50	0.11	5.73	0.20	3.36	6.14	0.45	27.87	9.72	116.41	43.12	193.26	39.82	376.85	71.37	0.09	20.72	55.24
52	0.23	15.73	0.29	4.14	7.74	0.85	41.05	14.32	170.24	63.52	276.28	55.29	511.09	95.43	0.12	18.81	59.43
53	0.01	21.14	0.05	1.02	2.72	0.41	15.11	6.16	76.31	30.15	142.96	31.31	308.28	61.20	0.16	32.77	102.00
54	3.77	27.21	1.18	7.85	3.39	0.24	17.16	6.76	86.91	36.06	172.31	38.06	369.61	71.73	0.08	33.82	98.13
55	0.01	43.99	0.09	1.72	2.68	0.69	15.20	5.22	68.36	25.91	118.79	25.00	241.75	49.13	0.26	26.15	81.18
57	52.65	103.75	11.92	47.04	10.11	1.92	18.54	5.70	65.80	26.13	123.44	28.61	301.64	63.50	0.42	27.71	26.85
58	35.55	161.50	16.23	93.21	52.39	15.48	143.72	38.16	314.04	83.36	300.17	55.09	490.46	83.96	0.51	4.73	8.43
59	13.03	59.47	5.93	32.47	11.73	1.55	23.81	6.92	74.08	27.42	125.29	26.97	272.80	54.02	0.28	18.36	20.93
60	34.36	98.43	10.68	48.68	12.14	0.43	21.90	6.96	83.03	33.22	159.78	35.36	350.93	68.78	0.08	25.41	26.02
61	43.72	126.35	12.52	50.95	12.34	0.49	23.56	7.57	89.51	35.32	167.81	37.38	370.71	71.89	0.09	24.69	27.04
62	1.61	33.47	0.67	3.49	2.17	0.31	10.86	4.08	54.33	22.12	106.43	23.76	237.32	46.57	0.16	34.69	98.43
63	13.35	45.56	4.27	20.86	6.62	0.76	20.54	7.40	89.93	35.16	161.30	34.22	331.79	64.83	0.18	25.54	45.11
64	4.63	30.18	1.96	9.92	6.57	0.20	31.24	11.83	142.36	54.46	238.61	48.07	434.71	79.78	0.04	20.66	59.55
65	0.19	14.38	0.13	1.38	2.97	0.53	16.46	6.41	80.90	31.57	147.09	31.87	311.50	60.67	0.18	29.82	94.39
66	23.72	83.47	6.59	28.51	7.87	0.58	24.39	9.06	111.97	45.19	217.58	48.78	487.36	95.05	0.12	31.53	55.73
67	0.01	18.11	0.03	0.90	2.24	0.73	11.72	4.46	52.65	21.48	105.93	24.56	263.42	55.62	0.35	38.40	105.84
68	21.57	70.50	6.84	30.96	8.60	0.45	20.50	6.76	81.88	32.19	149.25	32.62	312.96	60.48	0.10	23.87	32.75
69	0.02	18.12	0.21	3.48	7.56	1.34	38.83	13.84	159.64	61.06	263.96	53.43	492.33	93.35	0.19	19.45	58.61
70	0.23	19.00	0.13	1.39	2.71	0.49	13.11	4.98	60.73	23.93	112.89	25.19	254.90	51.56	0.21	31.82	84.65
71	5.25	32.49	1.48	7.06	3.93	0.53	17.88	6.85	86.91	35.40	167.26	36.67	360.19	71.06	0.16	32.15	82.49

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
72	15.67	63.70	4.39	19.53	7.36	0.71	26.51	9.83	122.89	48.12	222.72	47.97	461.12	89.36	0.14	27.27	56.39
73	1.14	19.35	0.42	2.81	3.36	0.29	17.08	7.27	93.17	38.31	179.35	38.95	378.50	73.15	0.10	34.65	101.38
74	0.05	12.90	0.05	0.73	1.26	0.33	6.52	2.45	31.68	12.89	66.04	16.15	179.68	39.91	0.28	49.52	128.75
75	8.40	39.83	3.71	21.24	10.61	2.27	29.20	8.96	98.10	36.11	165.02	36.15	368.43	74.89	0.37	20.75	31.25
76	0.02	10.75	0.04	0.85	2.61	0.18	18.10	7.49	103.31	42.82	204.07	44.05	432.80	82.57	0.06	36.91	149.24
77	0.58	11.87	0.21	1.57	2.23	0.37	13.62	5.67	73.80	31.43	155.60	36.02	371.45	74.63	0.16	44.33	149.91
78	1.48	18.46	0.62	4.07	3.75	1.08	15.91	5.58	64.53	24.61	114.77	26.17	267.91	55.03	0.36	27.98	64.30
79	0.04	38.61	0.05	1.14	2.28	0.66	13.26	4.91	61.42	24.75	118.44	26.68	268.90	53.25	0.28	32.49	106.14
80	0.53	6.33	0.25	1.94	3.27	0.16	18.58	7.62	97.05	38.31	179.22	39.38	380.94	72.94	0.05	31.76	104.85
81	34.54	100.67	11.01	50.64	13.09	0.89	26.33	8.65	102.07	41.09	191.66	41.71	403.94	78.33	0.14	24.07	27.77
82	64.63	172.28	18.19	78.49	16.91	1.22	27.37	7.95	90.27	34.00	157.21	33.81	329.58	64.48	0.17	19.06	17.54
83	0.00	6.68	0.05	1.15	2.60	0.97	16.04	6.02	77.18	30.21	142.05	30.69	302.24	61.58	0.35	31.06	104.62
84	31.14	85.72	8.05	33.70	7.69	0.37	15.80	5.42	65.26	27.07	132.05	30.66	316.03	63.27	0.10	32.40	36.99
85	13.19	42.71	4.43	19.98	6.08	0.23	16.33	6.24	79.31	32.58	159.92	35.98	357.37	69.82	0.07	34.59	52.90
87	0.11	86.91	0.28	5.07	16.34	5.13	78.00	23.11	207.36	65.77	266.70	52.93	484.06	88.56	0.36	9.19	26.66
88	27.34	108.06	8.55	37.44	10.00	1.34	24.18	7.69	90.56	35.37	163.79	35.41	347.12	69.83	0.25	23.36	31.24
89	15.39	48.45	4.47	19.53	4.31	0.26	8.92	3.13	39.97	17.11	85.40	19.72	204.93	41.79	0.13	37.90	42.79
90	0.80	22.56	0.36	3.36	5.09	0.99	26.82	9.89	121.00	47.63	226.77	50.31	503.19	99.61	0.21	30.05	88.97
91	19.36	62.52	5.65	25.09	6.74	0.70	18.05	5.66	68.49	27.04	130.40	29.84	304.01	61.30	0.18	27.48	40.59
92	2.53	11.31	0.97	6.12	5.86	0.52	27.02	9.82	118.23	45.86	203.34	41.72	395.10	75.81	0.11	22.70	60.68
93	2.98	19.33	1.02	5.97	3.82	0.17	19.10	7.37	90.61	34.64	156.02	32.50	302.53	56.47	0.05	23.92	71.28

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
94	0.35	13.84	0.18	2.78	5.52	1.03	29.71	11.33	140.21	53.99	236.47	47.87	441.79	82.70	0.20	22.52	72.03
95	0.11	9.76	0.62	9.26	13.57	0.87	70.63	23.36	260.91	94.72	384.05	70.70	599.25	107.97	0.07	12.37	39.74
96	56.47	162.39	17.62	81.35	27.95	2.76	76.55	23.98	263.15	94.61	401.42	79.87	730.61	134.62	0.17	14.23	23.53
97	6.17	31.09	2.23	10.86	4.87	0.42	16.36	6.36	79.85	31.67	146.69	31.43	305.00	59.11	0.13	29.23	56.37
98	0.64	22.52	0.29	2.47	4.16	0.59	23.02	9.05	114.06	46.08	215.80	46.62	453.37	89.01	0.15	31.28	98.08
99	42.29	147.82	17.35	84.82	24.58	0.75	44.07	13.61	156.54	59.51	275.91	60.15	580.88	111.12	0.07	20.40	21.27
100	12.05	44.59	3.12	13.99	4.74	0.50	16.82	6.20	78.47	32.28	155.36	35.01	354.86	71.44	0.15	34.36	67.38
102	50.86	163.33	14.29	67.01	21.15	3.00	56.74	17.73	194.43	70.50	300.19	61.47	572.88	106.67	0.25	15.21	24.38
103	1.57	23.66	0.60	3.15	2.48	0.30	10.71	4.29	58.19	24.77	127.52	30.89	331.07	68.37	0.15	51.65	120.15
104	0.02	12.39	0.08	1.18	3.30	0.57	17.31	6.60	83.82	32.52	148.17	31.31	295.00	56.41	0.19	26.37	80.45
105	5.58	55.59	1.69	8.26	5.05	0.61	20.39	7.70	95.56	37.34	171.25	36.64	350.76	67.12	0.16	26.63	62.51
106	23.56	62.49	6.61	30.29	7.21	0.72	12.83	3.78	42.33	16.22	75.06	16.97	174.43	35.07	0.23	22.12	21.77
107	0.45	80.09	0.26	3.05	5.91	1.51	30.10	10.86	130.65	49.25	223.83	47.43	460.27	87.22	0.28	23.44	70.09
108	0.29	10.74	0.19	2.06	3.27	0.72	19.67	8.11	104.89	43.63	202.04	42.30	403.22	79.07	0.21	32.52	110.98
110	98.42	300.58	29.09	127.17	30.19	1.33	53.27	15.60	175.44	65.49	293.51	62.13	586.94	110.46	0.10	16.78	17.50
111	0.09	19.85	0.03	0.67	1.65	0.18	11.21	4.80	63.53	26.79	132.06	29.65	304.04	61.32	0.09	44.26	165.84
112	0.03	10.49	0.35	5.93	9.78	2.44	39.87	13.10	141.72	49.95	217.16	44.74	430.27	83.61	0.33	16.97	39.60
113	1.67	21.66	0.56	3.06	2.33	0.26	10.17	4.03	52.19	21.58	105.58	24.16	244.30	48.64	0.14	38.69	94.36
114	14.95	58.16	5.05	24.46	8.36	0.52	23.76	8.65	107.81	43.11	198.76	43.12	414.10	79.21	0.11	26.97	44.58
115	8.98	63.25	3.02	19.18	18.13	2.94	78.84	26.80	297.22	105.49	442.10	87.78	792.51	145.69	0.20	14.95	39.34
117	3.58	25.59	0.99	4.72	3.28	0.39	15.01	6.17	80.93	33.08	159.60	36.40	368.36	72.38	0.14	39.01	101.07

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
118	0.67	19.55	0.19	1.39	1.84	0.29	10.20	4.30	56.06	23.99	119.90	28.47	301.75	62.32	0.16	49.43	147.60
119	54.45	137.63	12.85	50.94	10.21	0.79	18.64	5.80	69.28	28.02	135.89	31.16	325.01	65.96	0.17	28.63	28.65
120	27.50	80.50	7.06	29.69	6.91	0.48	16.96	6.05	74.27	29.94	144.11	32.63	323.84	64.21	0.13	30.63	42.18

Table M3. Trace elements of detrital zircons of sandstone sample (QYG-2) from Caishiling Formation

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
1	0.22	19.04	0.77	5.86	6.21	1.90	22.11	7.61	91.03	34.06	156.41	34.49	347.34	70.20	0.44	25.69	50.34
2	0.01	10.31	0.03	0.44	1.75	0.49	9.73	3.58	44.34	16.73	78.20	17.21	178.92	37.07	0.29	30.82	92.02
3	0.13	23.09	0.39	3.23	2.95	1.27	11.43	4.41	54.23	22.38	113.79	28.21	318.87	72.18	0.58	51.09	97.28
4	0.06	11.76	0.40	6.69	9.34	1.90	35.74	11.20	121.87	43.29	190.54	39.79	382.65	74.69	0.28	16.91	36.87
5	0.38	4.43	0.82	6.21	6.43	1.43	29.14	12.70	170.87	69.26	322.89	70.06	671.32	124.99	0.27	34.70	93.96
6	3.45	24.21	1.12	6.15	4.59	0.89	18.36	6.32	73.37	27.43	121.82	25.38	241.95	46.95	0.26	20.69	47.44
7	0.01	15.89	0.11	1.73	3.33	1.41	21.67	7.48	90.25	35.58	159.66	33.56	329.55	67.00	0.38	25.01	89.07
9	0.00	5.36	0.06	1.04	2.04	0.11	10.21	3.40	38.72	14.61	63.68	12.76	121.05	22.85	0.06	18.11	53.40
10	0.10	7.72	0.06	0.83	1.94	0.92	11.05	3.96	47.62	18.60	87.11	19.20	199.98	42.49	0.48	31.11	92.77
11	2.62	19.10	1.17	6.84	5.06	0.75	26.72	10.58	138.65	57.43	270.22	57.59	562.12	110.51	0.16	33.46	99.98
12	3.10	16.44	1.01	6.44	5.91	0.82	23.69	8.14	89.13	30.72	128.36	25.24	227.83	42.41	0.18	14.48	34.69
13	51.92	165.26	22.65	124.31	40.61	1.00	73.43	18.28	179.31	60.47	241.11	45.73	399.11	71.77	0.06	7.91	8.85
16	1.75	28.26	1.86	12.35	9.43	2.72	23.46	7.77	85.02	29.09	130.51	28.35	286.88	56.72	0.53	19.56	27.38
17	0.42	5.19	0.26	3.35	5.74	0.93	34.39	12.74	165.84	65.67	303.08	64.06	612.47	119.38	0.16	28.09	96.03
20	56.59	162.84	19.17	98.70	25.93	2.99	43.98	11.68	123.72	45.56	200.00	41.55	391.23	76.07	0.27	13.99	13.58
23	0.10	5.87	0.23	3.88	7.46	1.23	41.40	16.15	203.55	79.38	357.25	73.96	705.51	134.45	0.17	26.27	85.12
24	3.68	26.71	1.40	6.80	4.39	0.82	19.39	6.73	81.59	32.18	152.65	34.45	349.34	71.99	0.23	30.04	71.62
25	13.93	53.94	7.24	36.03	15.68	2.48	30.76	9.87	105.05	34.81	146.81	31.91	300.14	55.67	0.34	14.64	17.23
26	1.55	18.43	0.62	3.79	3.14	0.81	13.36	4.88	59.18	23.61	116.36	27.50	289.80	61.84	0.32	37.45	83.06

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
28	4.11	17.54	1.49	8.03	5.08	0.17	22.45	7.68	94.18	36.34	163.01	33.46	321.00	60.69	0.04	21.87	56.87
30	1.59	32.40	4.10	27.20	21.09	7.08	43.74	14.35	131.21	35.23	123.19	22.95	191.14	31.19	0.70	5.77	8.16
32	45.06	122.73	13.53	58.21	14.63	1.11	29.44	9.10	104.56	39.82	176.35	36.68	346.84	66.57	0.16	18.29	21.34
33	0.70	27.80	0.30	3.58	4.76	1.94	25.30	8.62	95.79	35.86	160.13	33.45	325.81	64.20	0.43	20.53	61.60
34	0.01	1.65	0.05	0.79	1.93	0.27	11.09	4.50	44.97	13.34	50.97	10.90	104.68	20.72	0.14	15.12	48.81
35	0.00	23.76	0.04	1.16	2.83	0.42	14.57	5.64	68.28	26.80	124.75	27.22	271.94	53.87	0.16	29.91	86.48
36	0.03	5.77	0.16	2.04	4.31	0.62	25.33	9.51	118.60	46.54	210.20	44.04	423.76	82.47	0.14	26.34	88.49
37	0.97	24.83	0.55	5.43	6.81	2.37	27.06	8.22	88.71	32.09	140.96	31.01	311.92	65.18	0.46	19.49	41.22
38	0.64	14.35	0.23	1.45	1.39	0.45	5.84	1.93	23.84	9.58	46.12	10.56	114.77	24.93	0.41	34.54	74.31
39	5.61	52.07	1.69	8.35	5.32	0.68	22.57	8.22	102.72	40.96	193.53	43.14	429.12	86.30	0.16	30.94	72.60
40	0.36	14.28	1.05	10.65	17.64	8.09	69.55	22.90	242.04	78.26	317.17	62.98	572.81	106.45	0.61	12.38	29.23
42	1.18	28.27	3.08	20.70	15.85	4.37	40.11	14.59	159.66	57.43	255.35	55.53	550.28	106.98	0.50	21.58	31.25
43	14.18	62.27	5.08	23.04	7.45	0.91	25.06	8.71	111.84	46.23	225.48	52.02	532.05	107.71	0.18	34.77	64.27
44	0.30	21.78	0.15	0.97	1.47	0.57	7.33	2.85	37.65	16.54	86.06	22.02	253.31	61.12	0.43	67.46	155.09
45	0.00	1.82	0.00	0.03	0.06	0.04	0.43	0.17	2.75	1.21	6.24	1.56	18.23	3.56	0.51	66.98	282.88
47	0.01	22.70	0.02	0.43	0.92	0.49	6.19	2.02	26.63	11.22	56.95	13.97	164.83	39.23	0.47	51.28	162.13
48	0.03	4.62	0.09	0.71	1.13	0.41	5.82	2.30	28.82	11.23	54.83	12.71	136.05	29.02	0.40	40.34	108.55
49	0.02	42.73	0.09	1.72	3.26	1.05	14.38	4.97	61.27	23.77	112.50	25.15	249.74	49.81	0.40	28.02	68.95
50	2.82	32.88	6.37	39.72	28.22	8.40	66.58	26.09	299.62	106.34	467.36	98.62	911.85	161.93	0.57	19.68	29.08
51	0.29	18.83	0.72	6.90	10.92	1.27	50.03	17.95	205.76	74.54	318.26	62.61	565.66	101.52	0.14	16.42	46.62

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
52	0.66	19.94	0.66	4.80	4.51	0.81	20.38	8.14	103.51	41.68	202.06	46.64	460.11	91.64	0.22	36.38	91.82
53	0.01	11.27	0.20	3.11	5.23	1.53	27.19	10.38	127.86	51.49	237.78	50.40	487.49	97.26	0.32	28.94	83.89
54	2.04	25.80	1.25	8.06	6.30	1.67	18.18	6.57	78.61	29.31	137.07	30.72	310.99	61.00	0.44	27.15	44.43
55	0.01	0.99	0.07	1.13	3.66	0.10	27.04	11.33	136.60	49.50	210.44	42.52	385.64	70.61	0.02	21.13	94.83
56	9.15	56.80	6.93	38.53	23.41	6.36	47.79	15.58	156.71	50.68	216.52	45.47	437.37	82.83	0.57	14.02	16.81
57	1.11	26.87	2.72	17.57	12.98	4.40	29.04	10.27	112.19	39.82	189.11	44.98	497.96	111.09	0.67	30.95	34.53
58	0.02	7.64	0.05	0.73	1.81	0.16	12.10	5.11	68.02	28.87	141.82	31.85	324.98	65.78	0.08	43.98	161.59
59	0.01	65.02	0.11	2.08	4.90	0.61	27.35	10.39	127.88	49.63	225.77	47.00	444.27	83.87	0.13	24.81	81.60
61	0.01	9.09	0.04	0.80	2.45	0.25	16.91	6.55	86.68	35.60	162.94	34.65	332.40	64.29	0.09	30.76	122.11
62	0.01	25.11	0.09	2.13	5.46	1.82	36.32	14.28	181.45	72.25	328.42	69.58	689.93	132.54	0.30	29.52	113.72
63	0.16	10.89	0.25	2.62	4.89	1.26	28.40	11.17	139.85	54.91	243.92	49.98	465.69	88.13	0.26	25.11	85.71
66	4.58	26.83	1.31	5.85	2.56	0.76	10.43	3.73	44.76	17.97	89.52	20.33	212.07	46.01	0.39	35.69	74.56
67	11.34	65.74	5.44	27.92	14.23	4.32	29.07	9.32	96.51	31.47	140.77	31.73	330.35	69.31	0.64	19.29	20.89
68	41.54	114.79	13.59	65.17	14.61	1.24	21.50	5.45	58.36	22.06	101.83	22.25	220.48	44.58	0.21	16.78	13.58
69	0.00	20.76	0.03	0.59	1.70	0.46	9.22	3.66	45.70	18.07	84.16	18.35	180.13	36.88	0.29	32.36	95.36
71	0.01	15.57	0.08	1.67	3.28	0.23	17.15	5.86	65.67	23.85	102.23	20.35	187.33	35.21	0.07	16.61	51.40
72	0.04	14.11	0.09	1.85	4.52	1.39	35.24	15.82	220.03	93.13	437.89	95.28	949.78	189.56	0.24	43.52	189.12
73	0.01	0.52	0.02	0.32	1.65	0.12	13.10	6.10	78.84	31.53	144.80	30.06	280.09	52.39	0.05	32.36	152.78
74	0.59	7.63	1.50	10.35	9.53	2.06	40.64	17.56	204.84	68.50	272.48	54.09	482.95	85.35	0.27	16.99	45.61
75	0.16	6.76	0.38	2.87	4.36	0.65	18.65	6.78	80.16	29.79	127.48	26.14	244.00	45.61	0.19	19.79	50.37

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
78	8.51	74.36	2.67	13.59	6.65	1.00	26.20	9.10	111.46	43.83	204.01	44.88	452.61	89.51	0.20	27.64	61.26
79	3.87	34.55	2.35	15.12	11.70	3.05	39.14	15.15	175.88	62.32	277.27	60.49	587.42	113.15	0.39	23.39	45.19
80	3.33	29.73	1.83	10.33	6.31	0.67	25.56	9.03	107.91	41.52	184.89	38.39	355.91	67.28	0.14	21.30	50.76
81	0.28	17.13	0.57	4.59	4.53	1.27	19.35	7.70	100.85	41.75	204.03	46.63	478.34	96.71	0.35	40.44	95.03
85	0.16	13.21	0.20	3.17	5.25	1.83	24.66	8.55	95.71	35.31	150.91	30.84	291.89	55.98	0.41	18.37	50.04
86	6.81	51.76	1.89	8.40	3.59	0.47	14.37	5.89	77.98	34.30	172.06	40.44	423.68	89.76	0.17	50.54	106.22
87	0.15	8.48	0.32	5.18	9.80	1.06	49.27	16.61	185.03	67.94	293.10	58.76	542.82	100.60	0.12	16.52	49.85
88	0.46	19.58	0.77	5.61	6.87	1.02	28.10	10.75	123.79	45.03	193.60	39.03	355.91	64.91	0.19	18.69	46.63
89	1.33	22.95	0.51	2.89	2.67	0.49	12.42	4.71	57.15	21.66	100.83	21.88	215.41	42.15	0.22	27.46	72.61
90	0.03	41.45	0.13	2.73	6.04	1.82	32.56	12.54	154.42	60.87	270.74	54.98	496.83	89.73	0.32	22.30	74.03
91	0.03	20.01	0.08	1.17	2.12	0.46	10.95	3.91	46.33	17.38	78.52	17.11	169.57	34.02	0.24	25.14	71.99
94	1.38	18.64	0.69	4.84	5.14	1.80	26.21	9.35	105.25	38.26	158.60	31.64	288.92	54.46	0.39	16.81	50.59
95	0.08	14.36	0.13	1.97	4.45	0.60	27.16	10.58	131.86	52.21	231.72	47.25	438.88	82.32	0.13	24.52	88.76
96	0.00	19.16	0.05	0.92	2.25	0.47	11.01	3.95	45.19	17.00	77.59	16.52	162.84	32.57	0.24	23.93	65.14
98	0.01	2.43	0.07	1.57	3.58	0.28	21.63	8.18	102.72	41.78	192.08	40.83	401.42	79.62	0.08	29.78	100.92
100	0.57	6.18	1.00	6.76	6.00	1.55	26.05	11.82	160.99	67.49	331.03	74.68	739.88	142.76	0.32	44.34	110.98
101	0.01	12.78	0.02	0.70	2.37	0.07	13.68	5.39	69.28	27.25	124.92	26.46	249.27	46.20	0.03	27.32	94.66
102	0.01	33.26	0.04	0.85	1.99	0.82	13.35	5.53	75.10	31.54	163.44	39.52	427.47	91.05	0.36	55.18	193.33
103	1.10	45.38	1.28	9.51	7.53	2.75	20.25	6.26	61.41	19.97	83.08	17.41	174.53	35.40	0.64	14.14	20.86
104	1.09	29.82	1.06	6.90	5.62	1.47	16.74	5.64	61.73	21.98	97.23	21.38	216.01	43.19	0.43	20.87	34.59
105	0.15	12.69	0.10	1.16	2.50	0.22	19.11	10.20	146.54	61.81	294.61	65.20	614.70	114.90	0.07	48.64	221.29

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
106	0.02	14.73	0.10	1.79	5.17	0.13	29.31	11.14	135.66	51.69	225.30	46.10	426.21	78.79	0.02	21.75	74.20
107	0.00	3.14	0.01	0.08	0.52	0.30	2.69	1.09	14.52	6.27	32.57	8.15	92.48	21.70	0.62	65.27	160.37
108	0.26	37.54	0.17	2.15	3.47	0.62	18.23	6.93	91.67	38.57	190.70	44.23	462.35	94.87	0.19	42.10	119.92
109	22.25	82.83	7.42	35.02	12.48	1.27	30.34	11.05	137.61	55.87	272.99	61.69	633.53	124.44	0.19	33.18	45.69
110	0.12	13.64	0.08	0.82	2.09	0.48	11.20	4.25	54.06	21.99	104.63	23.41	235.58	47.23	0.24	34.12	101.45
112	20.58	63.38	7.44	37.66	11.28	1.07	24.47	7.19	77.45	28.67	126.31	25.77	246.27	47.19	0.19	15.60	19.65
114	0.00	11.46	0.10	1.37	4.00	0.18	20.93	7.70	96.24	36.85	161.53	33.44	309.52	57.09	0.05	22.07	69.64
115	18.11	56.43	6.24	41.06	35.19	6.19	96.12	27.26	261.45	79.86	295.65	55.48	507.78	93.76	0.31	7.89	12.99
116	0.67	57.16	0.50	3.97	5.29	1.65	24.73	9.71	121.57	49.55	236.08	53.45	549.55	109.29	0.37	35.75	93.50
117	0.01	13.63	0.07	0.86	1.63	0.17	8.29	2.57	28.91	10.42	46.15	9.95	99.28	19.71	0.11	19.24	54.82
118	3.19	39.03	6.37	42.17	29.77	9.18	63.87	21.56	215.96	67.61	275.63	55.73	527.25	97.33	0.63	12.33	15.94
119	179.29	442.17	51.89	222.73	42.13	1.62	46.21	10.42	100.55	35.23	157.79	33.48	327.44	62.47	0.11	10.94	6.99
120	0.52	21.33	0.30	2.38	3.99	0.96	22.42	8.38	105.64	42.70	200.15	44.03	444.27	88.27	0.24	31.85	100.21

Table M4. Trace elements of detrital zircons of sandstone sample (bD-15) from Xiaomeigou Formation

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
8-1	0.68	65.94	0.52	5.05	5.92	1.64	23.27	7.49	85.85	32.76	153.93	34.70	352.42	71.00	0.37	24.69	17.36
9-1	0.29	55.05	0.64	9.58	7.85	1.95	19.64	6.21	73.77	28.87	140.96	32.76	354.00	75.25	0.46	31.00	39.85
11-1	0.71	39.39	2.34	21.79	15.85	6.88	32.91	9.36	93.37	31.02	135.20	29.65	305.71	58.58	0.90	14.40	26.34
13-1	0.40	58.32	0.78	8.51	10.66	3.32	38.52	11.75	128.54	46.77	213.54	47.13	472.06	96.15	0.45	20.19	22.42
16-1	0.35	76.20	0.79	9.62	10.09	3.87	29.12	7.57	79.47	28.52	129.42	28.70	295.26	59.53	0.64	16.54	35.91
20-1	8.51	96.94	5.06	28.94	16.35	5.29	37.20	11.67	122.23	42.68	191.51	42.08	407.37	78.10	0.63	16.99	49.18
21-1	0.72	63.96	1.51	16.07	9.29	3.64	23.44	7.10	80.91	30.90	148.57	34.47	370.66	79.97	0.72	27.60	70.92
22-1	0.18	39.45	0.46	4.83	5.31	1.90	16.96	5.19	58.86	23.29	113.31	26.75	290.15	61.12	0.56	29.16	13.14
23-1	0.46	53.82	0.30	3.11	3.60	1.23	15.37	5.06	58.76	23.62	114.86	26.66	283.69	57.85	0.43	30.45	31.72
34-1	1.80	59.07	4.58	34.59	26.55	10.21	50.73	15.38	149.05	45.08	183.60	39.26	387.53	73.32	0.84	11.69	29.41
36-1	0.08	23.16	0.68	9.87	13.07	2.99	58.91	17.32	179.77	62.38	259.55	50.60	460.70	85.77	0.28	11.78	108.32
41-1	0.59	44.63	0.87	10.89	7.04	6.65	13.91	4.01	46.63	18.43	91.81	21.76	230.02	48.58	2.02	28.26	20.86
46-1	0.01	55.75	0.09	1.58	3.37	1.29	17.40	6.16	75.22	31.36	159.72	38.05	405.60	86.87	0.42	40.39	9.56
51-1	1.68	67.14	3.55	29.50	19.98	11.87	44.63	14.10	147.55	49.22	213.83	47.06	463.04	85.98	1.18	15.59	36.30
53-1	4.24	93.32	12.33	93.20	65.45	26.28	97.95	30.12	289.10	85.57	347.91	73.19	695.52	121.11	1.00	10.00	79.85
54-1	12.53	93.88	4.55	22.53	8.28	1.93	21.21	6.51	75.35	29.42	139.60	32.04	333.96	68.26	0.42	26.04	12.14
55-1	0.23	45.49	0.31	2.79	3.74	1.11	15.71	5.77	70.02	28.09	138.21	31.39	331.81	66.17	0.38	34.08	31.68
59-1	37.91	158.13	15.14	79.91	32.96	9.85	61.27	18.56	182.62	57.77	230.13	47.07	444.53	79.48	0.66	10.50	17.36
65-1	0.85	49.75	2.22	16.78	7.62	3.08	16.01	5.03	58.63	21.76	105.93	25.32	268.26	52.67	0.83	26.62	39.85

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
72-1	0.87	59.20	2.40	20.46	19.07	8.13	47.56	14.90	158.05	52.92	227.11	49.52	502.04	91.91	0.79	15.64	23.69
73-1	1.06	56.78	2.58	24.39	15.42	9.86	30.06	9.16	97.16	34.03	149.98	33.52	339.05	62.13	1.38	16.72	19.79
74-1	0.78	61.79	1.26	11.63	11.84	4.66	33.96	10.98	120.78	41.77	181.27	39.49	385.94	71.94	0.66	17.14	29.34
76-1	0.72	71.19	1.40	13.67	10.81	4.89	29.55	8.25	86.66	29.88	135.27	30.46	314.35	62.78	0.79	17.19	26.17
78-1	0.07	57.06	0.22	2.50	3.44	1.02	14.03	5.37	70.35	28.71	143.54	34.14	357.84	68.98	0.39	39.78	93.62
84-1	0.45	65.67	1.04	9.93	9.93	3.67	26.51	8.31	94.01	35.40	164.42	37.86	389.63	74.11	0.65	22.62	35.31
86-1	0.05	31.85	0.28	4.34	5.74	2.98	22.59	7.45	84.52	32.06	149.72	33.71	356.26	72.56	0.70	25.99	55.86
88-1	1.24	69.68	3.47	31.87	18.55	9.54	34.07	11.23	124.55	45.26	213.15	50.41	520.32	95.14	1.15	22.59	25.24
89-1	0.46	63.60	1.11	10.35	8.79	3.62	25.07	7.70	88.13	33.56	158.84	36.72	390.42	77.53	0.70	25.02	39.97
100-1	1.02	52.40	1.36	15.34	10.31	12.12	20.60	3.94	41.52	16.17	80.50	19.69	221.18	45.55	2.49	17.89	19.31
102-1	1.73	70.59	3.61	24.33	17.44	6.10	36.25	10.73	108.04	36.03	159.40	35.89	372.10	72.35	0.72	16.15	19.20
108-1	1.44	75.54	3.60	27.89	19.47	7.14	41.62	13.49	146.44	49.89	221.48	50.14	503.13	87.42	0.75	16.99	23.26
110-1	0.02	32.21	0.07	0.82	1.68	0.46	7.28	2.49	28.67	11.65	58.88	14.64	162.69	33.18	0.34	36.87	87.16
111-1	1.51	104.79	3.97	33.42	24.89	9.74	58.51	17.35	178.69	58.70	248.52	52.84	507.08	92.01	0.75	12.72	18.34
115-1	0.64	38.87	1.48	12.10	10.67	4.27	24.61	7.92	80.66	26.83	114.23	25.62	260.90	49.61	0.78	16.31	22.01
118-1	1.34	96.74	3.05	24.40	22.26	8.10	57.47	17.32	180.20	59.92	249.04	52.46	505.67	88.04	0.66	12.39	20.44
2	2.40	63.23	1.24	7.68	7.38	2.41	27.00	9.26	107.28	39.10	172.60	35.63	331.26	61.41	0.46	18.40	40.40
4	3.84	42.61	2.02	15.70	14.43	2.46	46.63	13.39	138.27	47.82	202.70	40.51	380.23	71.44	0.26	12.40	23.71
6	5.79	84.50	2.78	16.80	9.28	2.88	24.17	7.70	87.47	32.34	145.41	31.38	314.50	61.93	0.56	20.73	30.50
7	0.03	21.58	0.14	2.24	2.98	1.40	10.81	3.01	31.20	11.74	53.98	11.90	123.62	26.55	0.67	19.87	37.33

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
10	0.19	33.58	0.35	3.68	5.65	2.68	21.12	6.98	79.84	29.51	131.26	27.42	263.24	51.89	0.66	19.88	41.93
13	0.07	23.24	0.23	3.86	3.98	1.30	15.42	4.86	54.00	19.13	84.22	17.71	175.63	34.63	0.44	18.17	39.72
15	0.15	48.58	0.44	4.97	4.92	1.67	15.96	5.09	60.30	22.73	110.14	25.24	273.85	57.60	0.52	29.20	50.09
17	0.07	40.05	0.20	2.64	3.65	1.45	15.88	5.29	65.96	27.11	135.65	31.67	340.17	72.14	0.49	36.75	83.88
22	0.04	15.90	0.06	0.67	0.86	0.16	3.94	1.48	20.29	8.64	46.74	11.86	136.74	29.46	0.23	60.49	143.60
24	0.06	3.06	0.12	1.47	1.87	0.28	7.73	2.56	31.58	11.99	55.86	11.67	115.23	22.76	0.19	23.82	55.34
27	0.38	16.47	0.55	5.04	3.73	1.17	10.81	3.34	38.37	15.12	73.61	16.98	184.84	39.27	0.53	29.39	44.60
28	0.02	25.58	0.07	1.27	2.66	0.63	11.10	3.51	38.84	13.85	63.26	13.76	139.67	28.21	0.31	20.56	47.26
30	4.97	54.45	2.20	10.99	4.83	1.40	17.85	5.99	71.00	28.21	137.78	31.11	319.60	64.40	0.41	29.19	59.55
31	4.64	63.67	4.07	26.71	15.29	5.87	34.29	10.81	118.43	40.57	175.68	36.87	361.07	68.14	0.76	16.08	21.25
39	1.17	89.77	2.03	21.18	21.70	13.47	53.39	11.80	116.69	41.13	179.19	37.62	368.03	71.06	1.16	10.77	15.26
47	0.06	17.11	0.12	1.37	1.27	0.66	5.21	1.68	21.58	8.64	42.84	10.07	110.55	24.23	0.68	37.63	78.22
54	0.01	19.73	0.05	1.09	2.92	1.67	16.05	6.25	79.74	33.09	164.51	37.16	394.27	84.18	0.59	42.43	121.52
55	0.04	26.77	0.14	1.53	2.78	0.82	11.40	3.54	40.11	14.87	68.82	14.92	154.78	31.37	0.39	22.26	50.11
59	0.07	35.66	0.18	1.96	3.51	1.14	18.77	6.62	81.07	30.76	141.38	29.75	296.21	54.34	0.34	23.42	75.95
71	0.03	29.10	0.10	1.78	3.21	0.27	14.62	4.86	56.61	21.06	94.50	19.78	188.82	35.53	0.10	19.66	52.94
74	0.09	42.78	0.28	4.03	6.57	3.34	30.96	10.26	120.11	44.29	203.80	44.03	449.01	91.10	0.59	23.81	61.51
76	0.19	71.24	0.91	12.20	16.11	5.97	51.45	14.95	160.86	58.44	267.08	57.58	597.71	119.97	0.58	18.87	33.39
80	1.38	61.73	2.21	15.22	11.81	3.86	29.55	9.76	106.56	37.31	165.81	35.57	352.09	66.67	0.60	18.25	26.83
83	0.54	78.21	1.13	10.68	10.32	3.66	35.71	10.52	112.39	37.73	157.30	30.90	299.02	55.24	0.52	12.52	26.08

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
88	0.56	50.50	0.81	5.95	6.72	2.71	23.35	8.00	92.55	33.21	146.74	30.84	308.34	58.00	0.59	20.10	41.30
90	0.26	32.00	0.58	7.39	9.85	3.70	37.76	11.64	128.03	45.72	206.50	44.41	452.72	88.16	0.51	18.89	41.37
95	1.40	56.49	0.97	7.92	10.07	4.97	38.42	12.44	134.68	43.90	177.86	34.95	333.91	64.85	0.68	13.66	29.84
96	4.77	50.34	1.98	11.61	8.06	3.25	25.05	7.71	83.79	29.11	128.17	27.06	273.18	54.78	0.64	17.69	30.50
101	0.19	54.27	0.44	4.91	6.32	2.22	22.63	7.32	87.30	32.10	145.65	31.10	318.43	62.62	0.51	22.39	45.35
102	0.03	5.04	0.06	0.99	1.87	0.07	8.17	2.63	30.01	11.33	49.45	10.07	97.33	17.90	0.04	17.73	46.87
103	8.83	68.09	4.52	25.27	10.09	3.70	18.50	5.37	59.58	22.98	117.43	29.18	343.12	79.17	0.82	34.62	30.61
104	0.02	22.55	0.14	2.30	3.74	0.85	14.84	4.56	49.48	17.79	79.29	16.24	160.19	30.55	0.30	16.66	38.55
105	0.02	7.76	0.18	3.00	5.29	0.19	22.27	7.12	79.39	28.22	119.00	23.24	213.23	38.03	0.05	13.82	36.28
106	0.11	9.12	0.64	9.61	10.59	0.45	37.23	10.51	109.84	37.16	153.58	29.16	265.68	48.01	0.06	10.43	22.58
118	0.08	17.21	0.39	5.75	8.62	0.90	33.06	11.40	126.70	44.95	192.23	38.72	365.76	64.37	0.14	15.75	38.19
120	187.68	204.24	25.67	91.32	30.66	8.48	66.10	17.50	177.80	59.64	254.61	53.30	530.14	101.23	0.56	12.39	15.56

Table M5. Trace elements of detrital zircons of sandstone sample (bD-49) from Xiaomeigou Formation

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
1	0.01	51.53	0.17	3.04	6.35	0.96	30.44	10.65	126.96	48.64	219.43	46.32	450.73	88.08	0.17	23.41	63.88
2	0.49	36.06	0.20	1.88	2.81	0.95	17.61	7.10	94.25	40.15	200.67	47.34	498.60	105.76	0.32	48.59	159.69
3	0.74	17.06	0.22	1.56	2.13	0.38	10.89	4.17	51.62	21.29	105.74	24.79	263.45	56.12	0.19	41.69	111.11
4	0.01	12.40	0.09	1.64	2.96	1.17	12.58	4.40	55.81	23.81	118.58	27.31	288.43	63.21	0.50	40.65	87.70
5	0.13	3.88	0.40	5.52	9.66	1.06	47.47	15.46	172.72	62.38	257.51	49.58	447.37	83.68	0.12	14.26	41.68
6	0.01	6.88	0.09	2.04	4.05	0.55	24.68	8.38	102.84	38.49	163.91	31.61	281.68	52.07	0.13	17.07	62.60
7	0.18	17.00	0.19	2.21	3.80	0.70	17.84	6.70	78.88	31.50	144.27	31.38	306.47	61.73	0.21	27.99	72.59
8	11.19	87.42	3.69	18.70	7.51	1.47	25.26	9.11	115.97	47.34	231.86	53.12	535.61	106.29	0.29	34.04	64.19
9	0.12	28.18	0.13	2.22	4.30	1.21	21.76	7.66	93.45	36.39	166.64	35.74	354.93	69.98	0.31	26.02	74.29
10	35.41	130.49	6.93	25.63	6.18	0.83	17.66	6.80	93.47	41.00	212.06	50.30	527.86	108.26	0.23	49.60	76.87
11	8.26	78.82	2.74	14.32	8.46	1.53	33.23	12.56	155.89	61.08	286.83	62.69	616.33	118.78	0.24	28.92	65.57
12	0.04	27.36	0.08	1.79	3.26	1.14	18.84	7.30	93.95	39.25	194.78	44.84	478.66	101.43	0.35	43.56	132.15
13	0.50	23.01	0.42	3.46	4.93	0.95	26.56	10.81	136.37	55.28	264.12	58.68	588.61	117.16	0.20	35.69	107.45
14	0.06	6.47	0.09	1.54	3.06	0.13	16.63	6.37	78.45	30.16	135.30	27.92	266.68	49.57	0.04	24.12	78.44
15	0.05	40.17	0.18	1.67	3.00	0.79	16.09	6.51	87.84	37.29	188.53	43.80	455.96	91.32	0.28	45.92	136.79
16	8.21	45.26	2.44	11.83	4.22	1.19	16.09	5.74	73.18	30.86	154.83	36.59	401.11	87.68	0.39	44.09	85.54
17	0.14	27.28	0.14	2.26	3.58	1.13	17.14	6.27	77.63	30.95	149.90	34.48	362.52	76.60	0.37	36.16	91.14
18	0.76	8.47	0.27	2.39	2.70	0.46	14.72	5.43	67.02	25.39	115.00	23.70	229.48	44.12	0.18	24.25	63.88
19	0.62	45.64	0.28	2.61	4.14	1.47	22.71	8.21	100.39	38.53	176.20	36.97	352.57	68.11	0.37	24.26	159.69

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
20	0.44	27.30	0.45	6.38	9.50	3.85	41.45	13.48	155.17	57.06	255.75	54.42	535.67	104.06	0.50	20.31	76.49
21	5.80	29.95	2.24	12.59	9.90	2.45	37.37	12.34	141.34	52.96	238.06	49.84	490.82	95.54	0.34	20.68	76.65
22	0.30	15.74	0.10	1.03	1.91	0.59	10.34	3.78	45.40	18.40	88.24	20.18	216.16	46.30	0.33	36.23	50.75
23	0.02	0.85	0.07	1.30	4.89	0.10	40.01	17.65	202.70	65.48	247.33	45.97	396.51	69.02	0.02	13.96	44.62
24	0.00	6.05	0.03	1.22	3.23	0.21	18.08	6.64	77.88	30.18	134.15	27.39	255.58	48.61	0.07	21.75	101.80
25	1.89	19.18	0.67	4.56	4.37	0.51	23.65	8.32	101.57	39.22	173.35	35.93	333.49	63.05	0.12	21.57	72.98
26	0.01	10.86	0.07	1.46	2.90	0.29	18.14	6.98	85.94	33.65	150.62	31.19	295.88	56.17	0.09	25.05	71.21
27	0.10	48.55	0.42	5.37	7.07	2.71	27.91	8.85	98.12	36.01	165.27	35.82	361.68	73.20	0.51	21.22	68.68
28	62.91	159.20	13.88	55.82	14.40	3.18	29.01	8.45	92.52	35.57	175.06	41.61	458.32	104.03	0.47	29.01	91.82
29	0.01	41.18	0.07	1.45	3.84	1.21	19.92	7.95	104.80	43.60	216.19	50.76	534.47	111.67	0.34	45.36	46.04
30	0.83	21.32	0.54	6.57	8.65	1.81	36.64	11.82	126.19	45.42	188.75	37.30	334.91	62.21	0.27	13.74	28.65
31	0.01	36.80	0.12	1.81	4.38	1.55	24.24	9.58	122.80	50.40	244.27	56.34	581.62	120.51	0.36	40.22	125.27
32	21.51	63.91	6.05	28.18	8.17	0.63	19.82	6.40	72.00	27.17	119.99	24.43	231.32	44.50	0.15	18.16	34.85
33	1.31	14.99	0.30	1.56	1.34	0.36	6.70	2.66	33.36	13.75	70.50	17.29	191.04	42.57	0.30	51.41	119.51
34	0.27	48.90	0.21	2.28	3.84	1.04	18.48	7.46	95.76	39.52	196.24	45.68	475.07	95.36	0.31	41.75	25.48
35	0.01	43.49	0.11	2.37	5.15	0.87	24.56	8.82	106.07	40.49	182.82	38.99	381.79	74.76	0.20	24.63	128.69
36	0.25	28.45	0.31	2.39	2.68	0.78	10.54	3.72	48.31	20.74	109.39	27.44	311.64	69.39	0.39	53.26	111.34
37	19.70	79.00	5.53	25.19	9.89	1.76	36.19	11.68	136.52	51.06	224.36	46.05	441.14	85.49	0.25	19.11	66.72
38	0.32	34.97	0.90	8.01	8.57	2.56	25.82	8.81	92.66	32.65	144.15	31.96	333.34	69.26	0.49	21.70	104.66
39	25.69	116.95	7.22	34.00	12.16	2.07	31.64	10.77	132.46	52.29	246.81	54.40	544.30	105.39	0.31	26.95	40.14

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
40	0.57	20.05	0.85	7.41	8.70	2.03	39.25	13.86	167.74	64.43	290.00	61.75	604.97	118.66	0.28	24.46	35.01
41	26.28	70.13	6.21	28.09	13.79	1.06	40.06	13.81	146.02	48.92	198.64	39.91	364.88	65.16	0.13	13.16	40.29
42	0.01	14.66	0.05	1.30	3.55	0.76	17.91	6.03	67.50	24.52	105.25	21.67	203.10	39.41	0.24	17.80	62.58
43	1.21	8.31	0.50	2.91	2.57	0.15	15.60	6.39	80.24	32.26	150.21	32.27	310.85	59.13	0.06	30.67	23.81
44	7.77	35.94	2.11	10.57	5.39	0.97	19.68	6.41	72.31	27.42	127.17	28.14	284.96	58.06	0.26	23.87	51.49
45	0.05	3.87	0.45	8.48	16.06	0.92	80.50	26.90	309.83	116.49	495.34	98.95	913.79	169.45	0.06	17.03	108.86
46	0.04	11.91	0.05	0.97	2.50	0.55	13.15	5.04	62.44	25.64	121.53	27.13	269.19	55.31	0.24	34.03	47.58
47	1.14	62.56	0.32	2.08	3.17	0.73	18.99	7.35	100.46	42.74	213.42	49.51	524.51	108.16	0.22	46.08	51.21
48	0.20	29.44	0.08	0.87	1.94	0.47	10.50	4.24	56.81	24.92	129.96	31.27	343.59	74.53	0.25	57.43	96.91
49	0.03	22.55	0.08	1.71	3.63	0.77	17.90	6.47	75.70	28.75	129.23	27.69	271.16	53.02	0.24	23.96	148.91
50	3.92	47.85	2.04	12.46	9.47	2.50	23.62	7.27	78.08	28.42	132.06	30.96	332.09	69.79	0.49	23.91	159.32
51	0.57	5.53	0.28	2.21	3.29	0.17	18.62	7.05	88.89	34.80	159.65	33.56	323.13	62.91	0.05	27.33	67.23
52	0.01	19.79	0.03	0.74	1.58	0.32	8.56	3.28	40.12	16.21	78.31	17.30	175.68	35.88	0.21	33.91	31.56
53	0.01	32.60	0.05	2.35	4.42	1.61	21.75	7.74	92.86	37.47	179.02	40.48	412.97	85.09	0.41	31.65	88.39
54	0.09	50.10	0.10	1.11	2.42	0.78	14.27	5.85	75.84	32.35	163.56	39.24	422.53	90.57	0.32	51.35	99.88
55	0.02	77.80	0.37	6.38	10.42	3.15	57.68	21.91	275.73	108.25	498.19	108.49	1079.25	205.50	0.31	28.82	84.09
56	0.01	1.35	0.01	0.15	0.41	0.03	2.45	1.03	16.58	7.63	40.12	10.16	111.13	23.32	0.07	77.01	157.14
57	0.09	39.39	0.11	1.62	3.54	1.23	25.15	9.10	119.30	47.94	224.96	48.82	479.20	94.77	0.29	30.49	93.22
58	0.55	56.94	0.21	1.92	3.24	0.51	18.10	7.55	97.45	40.57	197.31	44.45	456.91	91.23	0.16	40.78	242.76
59	0.04	17.91	0.09	1.31	2.62	0.85	15.01	5.50	68.70	27.34	128.58	28.31	286.23	57.92	0.33	31.22	121.83

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
60	0.01	12.72	0.03	0.44	2.59	2.38	25.84	11.93	161.54	70.34	343.16	76.45	777.17	161.23	0.58	50.48	126.92
61	0.04	16.67	0.10	1.72	3.58	0.26	19.02	6.94	82.06	31.30	137.93	28.05	263.62	49.04	0.08	20.86	98.32
62	0.01	8.28	0.05	1.01	2.29	0.32	11.12	3.82	44.15	16.97	75.11	16.05	155.22	29.91	0.16	21.76	270.06
63	0.05	58.51	0.06	1.15	3.28	0.64	20.74	8.82	116.52	48.40	235.12	52.80	524.16	100.98	0.18	39.39	66.27
64	0.07	15.63	0.06	0.92	1.94	0.39	12.11	4.48	59.23	24.24	117.81	26.52	273.88	57.44	0.19	38.38	61.00
65	0.20	45.38	0.12	1.15	2.21	0.48	14.55	6.02	84.21	35.16	178.55	41.62	425.16	85.25	0.19	47.40	143.82
66	0.07	34.06	0.08	1.44	2.92	0.94	16.31	6.05	79.13	32.62	160.15	37.12	394.99	81.55	0.33	40.45	126.80
67	20.90	109.42	7.10	34.39	10.45	1.20	24.86	9.26	114.20	46.45	223.53	50.02	497.60	95.01	0.22	30.92	172.99
68	1.46	20.20	0.53	4.33	3.94	0.75	16.94	5.21	58.26	22.19	97.49	20.40	194.70	39.54	0.24	18.88	121.74
69	0.01	4.58	0.02	0.78	1.98	0.17	13.18	5.07	61.12	23.95	107.54	21.79	206.87	40.12	0.08	24.63	42.86
70	0.12	20.92	0.09	1.31	2.23	0.74	12.91	5.33	70.16	30.30	154.94	37.45	413.82	91.48	0.33	57.33	44.47
71	4.88	74.06	2.97	18.07	13.17	3.17	32.20	10.60	116.89	45.06	213.48	48.73	498.21	97.64	0.45	24.53	94.27
72	0.39	66.70	0.21	2.14	3.60	0.92	21.45	8.61	114.12	47.01	234.47	54.33	550.72	109.21	0.25	41.19	167.01
73	115.36	296.24	33.88	164.14	37.77	4.10	63.39	15.60	149.51	50.85	208.17	40.72	371.61	69.83	0.25	8.91	34.05
74	0.37	5.56	0.16	1.35	2.29	0.17	12.95	4.80	59.25	22.80	101.83	20.95	196.90	37.88	0.07	23.67	137.68
75	0.03	1.41	0.06	1.40	3.68	0.13	21.29	7.70	87.70	30.39	125.08	24.57	230.70	42.26	0.03	16.06	8.85
76	0.08	11.39	0.35	6.14	10.94	1.66	51.10	17.23	194.92	72.98	318.91	63.55	587.78	107.95	0.18	17.09	77.38
77	0.76	12.69	0.29	2.56	3.71	0.78	19.65	7.55	95.01	39.93	194.56	42.51	429.77	85.89	0.22	35.36	56.42
78	0.00	9.56	0.04	0.81	2.12	0.30	13.95	5.54	67.00	26.64	120.55	25.53	253.13	49.45	0.13	28.68	48.35
79	5.85	37.62	1.36	8.13	6.13	1.46	24.13	8.60	104.66	39.68	182.22	38.73	379.86	73.25	0.32	24.56	104.26

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
80	0.05	13.37	0.11	1.83	3.02	0.54	12.08	3.80	41.88	15.91	70.76	15.16	149.40	31.02	0.24	20.78	107.51
81	0.01	16.57	0.07	1.58	3.35	0.41	19.56	7.60	96.39	38.39	180.25	38.89	386.90	75.16	0.12	31.09	55.77
82	9.30	70.58	2.68	13.41	5.87	1.01	20.49	8.17	106.38	44.20	215.33	48.58	493.64	97.29	0.25	38.42	44.52
83	0.01	5.84	0.06	1.21	2.49	0.30	15.46	5.56	66.63	26.06	114.72	23.31	217.26	40.47	0.11	21.18	103.94
84	0.05	2.07	0.03	0.47	1.42	0.13	10.81	5.86	87.46	36.47	180.70	43.72	465.51	90.97	0.07	68.08	75.69
85	2.09	23.38	6.53	52.95	48.58	11.83	107.14	29.86	247.10	60.06	190.45	32.24	254.93	39.96	0.49	3.02	78.53
86	6.09	20.86	2.48	14.78	7.03	0.54	23.35	7.47	86.04	32.13	142.13	29.35	276.69	53.61	0.12	18.58	296.08
87	0.07	4.83	0.20	2.14	2.99	0.67	16.09	6.11	74.87	28.38	132.61	28.07	273.62	53.38	0.24	26.84	4.72
88	0.06	27.14	0.40	5.96	8.43	3.16	34.75	10.59	119.65	43.48	189.48	39.90	396.32	76.83	0.49	17.89	35.42
89	0.01	33.71	0.16	2.65	4.91	1.63	26.44	9.76	119.29	46.65	213.47	46.00	461.79	89.80	0.35	27.48	82.36
90	0.03	47.35	0.08	1.01	2.54	0.89	14.78	5.63	71.54	29.77	145.72	34.01	357.52	74.67	0.35	40.87	42.31
91	0.01	20.24	0.09	2.03	4.10	0.96	19.00	6.61	80.99	31.13	142.66	29.67	297.60	58.15	0.28	24.76	84.65
92	0.00	58.00	0.10	1.91	3.94	0.73	17.57	5.75	64.20	22.45	92.46	18.41	167.75	32.11	0.23	14.79	126.68
93	0.01	29.92	0.11	1.56	2.88	1.36	18.59	7.04	92.85	38.15	190.75	44.27	478.29	102.63	0.43	44.67	65.33
94	0.81	12.52	2.52	22.06	21.70	5.87	47.17	12.16	96.93	25.79	93.78	18.39	173.57	30.83	0.55	5.29	38.32
95	0.01	1.94	0.11	2.40	6.89	0.21	43.44	15.43	183.35	70.43	312.28	62.99	580.28	105.59	0.03	19.67	149.47

Table M6. Trace elements of detrital zircons of sandstone sample (bD-212) from Dameigou Formation

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
29	16.62	76.49	7.41	9.32	17.06	8.52	33.45	55.61	82.47	90.65	132.21	92.22	271.50	90.66	1.07	21.93	14.32
31	0.09	47.21	0.41	1.72	5.73	2.27	15.24	23.90	43.41	49.22	81.40	57.47	188.58	65.01	0.70	34.51	29.62
32	1875.03	568.95	369.30	320.04	74.57	29.78	37.96	35.33	52.63	48.72	71.79	45.37	144.30	50.20	1.53	10.70	1.74
62	0.27	38.08	0.33	2.85	3.43	0.80	11.73	6.90	46.47	30.05	91.45	36.91	227.14	62.13	0.35	42.85	59.60
69	3.06	74.86	6.91	42.68	31.99	12.36	51.31	22.54	142.88	70.12	207.78	69.84	439.46	105.87	0.93	16.69	12.36
70	4.68	73.45	7.22	44.39	31.34	24.32	39.47	15.23	88.55	43.19	129.94	44.99	294.34	70.73	2.11	14.50	8.45
83	0.77	21.78	1.97	13.00	11.92	4.76	19.11	8.37	68.07	28.52	102.66	30.11	246.60	59.45	0.96	25.17	18.62
84	6.32	78.00	2.94	17.89	16.14	8.14	44.43	17.20	141.88	62.97	224.31	59.73	450.47	100.04	0.87	18.22	25.12
111	1.31	22.15	2.47	19.62	12.50	4.34	21.66	6.09	64.42	22.23	97.91	20.06	196.93	38.60	0.80	14.42	14.18
114	30.94	98.05	9.01	43.27	9.46	1.86	17.08	4.63	52.16	20.10	102.32	23.09	254.94	54.19	0.44	25.67	24.25
116	1.01	30.28	0.69	4.04	3.78	1.14	13.89	5.24	67.38	26.15	133.73	28.74	300.63	57.46	0.43	33.47	71.58
117	0.15	30.56	0.15	2.78	3.81	1.50	17.01	5.41	68.60	25.63	133.19	28.38	317.15	65.19	0.48	31.01	74.92
3-1	0.80	73.69	2.22	20.97	9.93	3.70	29.47	9.69	112.31	40.43	181.91	38.54	366.35	69.22	0.61	19.00	33.20
18-1	0.00	17.53	0.03	0.65	1.55	0.49	7.33	2.51	31.38	12.59	62.46	14.19	154.13	32.18	0.37	35.52	89.49
27-1	0.02	40.65	0.04	0.84	1.79	0.45	8.57	3.52	45.59	20.10	104.95	25.88	281.17	58.27	0.29	55.01	141.37
31-1	408.22	1058.21	115.65	475.93	77.06	12.37	66.19	10.50	79.60	25.50	109.53	23.44	240.05	47.05	0.52	5.75	2.80
43-1	4.08	67.26	5.13	34.23	19.67	7.30	38.71	11.39	114.82	38.12	167.36	36.28	351.86	68.92	0.79	14.40	16.10
54-1	0.64	75.75	2.01	22.85	5.38	1.91	18.14	5.89	71.35	27.96	138.47	31.89	339.40	69.77	0.53	31.12	56.78
84-1	0.33	22.81	0.22	1.53	1.43	0.44	6.60	2.62	35.46	15.50	81.18	19.86	216.28	44.89	0.36	55.03	136.12

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
85-1	4.81	43.08	9.96	76.61	49.91	17.09	83.35	21.27	182.78	50.86	188.40	38.27	363.29	4.81	0.81	6.70	6.55
90-1	0.03	44.20	0.12	1.53	3.43	0.53	18.34	6.60	81.72	33.61	161.44	35.67	361.08	0.03	0.16	30.80	94.74
109-1	2.22	57.33	2.55	15.67	14.93	6.55	39.47	16.26	175.71	57.27	244.86	52.90	502.76	2.22	0.78	17.87	30.31
111-1	2.31	82.34	5.11	43.64	34.69	12.00	59.95	12.49	107.78	33.31	142.33	31.48	317.62	2.31	0.80	8.35	8.24
119-1	1.45	39.39	1.67	11.77	7.88	10.54	19.33	6.02	62.41	21.05	91.79	20.57	218.09	1.45	2.50	17.49	24.91

Table M7. Trace elements of detrital zircons of sandstone sample (LH-2) from Dameigou Formation

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
1	0.01	51.53	0.17	3.04	6.35	0.96	30.44	10.65	126.96	48.64	219.43	46.32	450.73	88.08	0.17	23.41	63.88
2	0.49	36.06	0.20	1.88	2.81	0.95	17.61	7.10	94.25	40.15	200.67	47.34	498.60	105.76	0.32	48.59	159.69
3	0.74	17.06	0.22	1.56	2.13	0.38	10.89	4.17	51.62	21.29	105.74	24.79	263.45	56.12	0.19	41.69	111.11
4	0.01	12.40	0.09	1.64	2.96	1.17	12.58	4.40	55.81	23.81	118.58	27.31	288.43	63.21	0.50	40.65	87.70
5	0.13	3.88	0.40	5.52	9.66	1.06	47.47	15.46	172.72	62.38	257.51	49.58	447.37	83.68	0.12	14.26	41.68
6	0.01	6.88	0.09	2.04	4.05	0.55	24.68	8.38	102.84	38.49	163.91	31.61	281.68	52.07	0.13	17.07	62.60
7	0.18	17.00	0.19	2.21	3.80	0.70	17.84	6.70	78.88	31.50	144.27	31.38	306.47	61.73	0.21	27.99	72.59
8	11.19	87.42	3.69	18.70	7.51	1.47	25.26	9.11	115.97	47.34	231.86	53.12	535.61	106.29	0.29	34.04	64.19
9	0.12	28.18	0.13	2.22	4.30	1.21	21.76	7.66	93.45	36.39	166.64	35.74	354.93	69.98	0.31	26.02	74.29
10	35.41	130.49	6.93	25.63	6.18	0.83	17.66	6.80	93.47	41.00	212.06	50.30	527.86	108.26	0.23	49.60	76.87
11	8.26	78.82	2.74	14.32	8.46	1.53	33.23	12.56	155.89	61.08	286.83	62.69	616.33	118.78	0.24	28.92	65.57
12	0.04	27.36	0.08	1.79	3.26	1.14	18.84	7.30	93.95	39.25	194.78	44.84	478.66	101.43	0.35	43.56	132.15
13	0.50	23.01	0.42	3.46	4.93	0.95	26.56	10.81	136.37	55.28	264.12	58.68	588.61	117.16	0.20	35.69	107.45
16	0.06	6.47	0.09	1.54	3.06	0.13	16.63	6.37	78.45	30.16	135.30	27.92	266.68	49.57	0.04	24.12	78.44
17	0.05	40.17	0.18	1.67	3.00	0.79	16.09	6.51	87.84	37.29	188.53	43.80	455.96	91.32	0.28	45.92	136.79
21	8.21	45.26	2.44	11.83	4.22	1.19	16.09	5.74	73.18	30.86	154.83	36.59	401.11	87.68	0.39	44.09	85.54
22	0.14	27.28	0.14	2.26	3.58	1.13	17.14	6.27	77.63	30.95	149.90	34.48	362.52	76.60	0.37	36.16	91.14
23	0.76	8.47	0.27	2.39	2.70	0.46	14.72	5.43	67.02	25.39	115.00	23.70	229.48	44.12	0.18	24.25	76.49
24	0.62	45.64	0.28	2.61	4.14	1.47	22.71	8.21	100.39	38.53	176.20	36.97	352.57	68.11	0.37	24.26	76.65

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
25	0.44	27.30	0.45	6.38	9.50	3.85	41.45	13.48	155.17	57.06	255.75	54.42	535.67	104.06	0.50	20.31	50.75
27	5.80	29.95	2.24	12.59	9.90	2.45	37.37	12.34	141.34	52.96	238.06	49.84	490.82	95.54	0.34	20.68	44.62
28	0.30	15.74	0.10	1.03	1.91	0.59	10.34	3.78	45.40	18.40	88.24	20.18	216.16	46.30	0.33	36.23	101.80
29	0.02	0.85	0.07	1.30	4.89	0.10	40.01	17.65	202.70	65.48	247.33	45.97	396.51	69.02	0.02	13.96	72.98
30	0.00	6.05	0.03	1.22	3.23	0.21	18.08	6.64	77.88	30.18	134.15	27.39	255.58	48.61	0.07	21.75	71.21
31	1.89	19.18	0.67	4.56	4.37	0.51	23.65	8.32	101.57	39.22	173.35	35.93	333.49	63.05	0.12	21.57	68.68
32	0.01	10.86	0.07	1.46	2.90	0.29	18.14	6.98	85.94	33.65	150.62	31.19	295.88	56.17	0.09	25.05	91.82
33	0.10	48.55	0.42	5.37	7.07	2.71	27.91	8.85	98.12	36.01	165.27	35.82	361.68	73.20	0.51	21.22	46.04
34	62.91	159.20	13.88	55.82	14.40	3.18	29.01	8.45	92.52	35.57	175.06	41.61	458.32	104.03	0.47	29.01	28.65
35	0.01	41.18	0.07	1.45	3.84	1.21	19.92	7.95	104.80	43.60	216.19	50.76	534.47	111.67	0.34	45.36	125.27
36	0.83	21.32	0.54	6.57	8.65	1.81	36.64	11.82	126.19	45.42	188.75	37.30	334.91	62.21	0.27	13.74	34.85
38	0.01	36.80	0.12	1.81	4.38	1.55	24.24	9.58	122.80	50.40	244.27	56.34	581.62	120.51	0.36	40.22	119.51
41	21.51	63.91	6.05	28.18	8.17	0.63	19.82	6.40	72.00	27.17	119.99	24.43	231.32	44.50	0.15	18.16	25.48
42	1.31	14.99	0.30	1.56	1.34	0.36	6.70	2.66	33.36	13.75	70.50	17.29	191.04	42.57	0.30	51.41	128.69
43	0.27	48.90	0.21	2.28	3.84	1.04	18.48	7.46	95.76	39.52	196.24	45.68	475.07	95.36	0.31	41.75	111.34
44	0.01	43.49	0.11	2.37	5.15	0.87	24.56	8.82	106.07	40.49	182.82	38.99	381.79	74.76	0.20	24.63	66.72
45	0.25	28.45	0.31	2.39	2.68	0.78	10.54	3.72	48.31	20.74	109.39	27.44	311.64	69.39	0.39	53.26	104.66
47	19.70	79.00	5.53	25.19	9.89	1.76	36.19	11.68	136.52	51.06	224.36	46.05	441.14	85.49	0.25	19.11	40.14
49	0.32	34.97	0.90	8.01	8.57	2.56	25.82	8.81	92.66	32.65	144.15	31.96	333.34	69.26	0.49	21.70	35.01
50	25.69	116.95	7.22	34.00	12.16	2.07	31.64	10.77	132.46	52.29	246.81	54.40	544.30	105.39	0.31	26.95	40.29

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
54	0.57	20.05	0.85	7.41	8.70	2.03	39.25	13.86	167.74	64.43	290.00	61.75	604.97	118.66	0.28	24.46	62.58
55	26.28	70.13	6.21	28.09	13.79	1.06	40.06	13.81	146.02	48.92	198.64	39.91	364.88	65.16	0.13	13.16	23.81
56	0.01	14.66	0.05	1.30	3.55	0.76	17.91	6.03	67.50	24.52	105.25	21.67	203.10	39.41	0.24	17.80	51.49
58	1.21	8.31	0.50	2.91	2.57	0.15	15.60	6.39	80.24	32.26	150.21	32.27	310.85	59.13	0.06	30.67	108.86
59	7.77	35.94	2.11	10.57	5.39	0.97	19.68	6.41	72.31	27.42	127.17	28.14	284.96	58.06	0.26	23.87	47.58
60	0.05	3.87	0.45	8.48	16.06	0.92	80.50	26.90	309.83	116.49	495.34	98.95	913.79	169.45	0.06	17.03	51.21
61	0.04	11.91	0.05	0.97	2.50	0.55	13.15	5.04	62.44	25.64	121.53	27.13	269.19	55.31	0.24	34.03	96.91
62	1.14	62.56	0.32	2.08	3.17	0.73	18.99	7.35	100.46	42.74	213.42	49.51	524.51	108.16	0.22	46.08	148.91
63	0.20	29.44	0.08	0.87	1.94	0.47	10.50	4.24	56.81	24.92	129.96	31.27	343.59	74.53	0.25	57.43	159.32
65	0.03	22.55	0.08	1.71	3.63	0.77	17.90	6.47	75.70	28.75	129.23	27.69	271.16	53.02	0.24	23.96	67.23
66	3.92	47.85	2.04	12.46	9.47	2.50	23.62	7.27	78.08	28.42	132.06	30.96	332.09	69.79	0.49	23.91	31.56
68	0.57	5.53	0.28	2.21	3.29	0.17	18.62	7.05	88.89	34.80	159.65	33.56	323.13	62.91	0.05	27.33	88.39
69	0.01	19.79	0.03	0.74	1.58	0.32	8.56	3.28	40.12	16.21	78.31	17.30	175.68	35.88	0.21	33.91	99.88
70	0.01	32.60	0.05	2.35	4.42	1.61	21.75	7.74	92.86	37.47	179.02	40.48	412.97	85.09	0.41	31.65	84.09
72	0.09	50.10	0.10	1.11	2.42	0.78	14.27	5.85	75.84	32.35	163.56	39.24	422.53	90.57	0.32	51.35	157.14
73	0.02	77.80	0.37	6.38	10.42	3.15	57.68	21.91	275.73	108.25	498.19	108.49	1079.25	205.50	0.31	28.82	93.22
75	0.01	1.35	0.01	0.15	0.41	0.03	2.45	1.03	16.58	7.63	40.12	10.16	111.13	23.32	0.07	77.01	242.76
76	0.09	39.39	0.11	1.62	3.54	1.23	25.15	9.10	119.30	47.94	224.96	48.82	479.20	94.77	0.29	30.49	121.83
77	0.55	56.94	0.21	1.92	3.24	0.51	18.10	7.55	97.45	40.57	197.31	44.45	456.91	91.23	0.16	40.78	126.92
78	0.04	17.91	0.09	1.31	2.62	0.85	15.01	5.50	68.70	27.34	128.58	28.31	286.23	57.92	0.33	31.22	98.32

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
80	0.01	12.72	0.03	0.44	2.59	2.38	25.84	11.93	161.54	70.34	343.16	76.45	777.17	161.23	0.58	50.48	270.06
82	0.04	16.67	0.10	1.72	3.58	0.26	19.02	6.94	82.06	31.30	137.93	28.05	263.62	49.04	0.08	20.86	66.27
83	0.01	8.28	0.05	1.01	2.29	0.32	11.12	3.82	44.15	16.97	75.11	16.05	155.22	29.91	0.16	21.76	61.00
84	0.05	58.51	0.06	1.15	3.28	0.64	20.74	8.82	116.52	48.40	235.12	52.80	524.16	100.98	0.18	39.39	143.82
86	0.07	15.63	0.06	0.92	1.94	0.39	12.11	4.48	59.23	24.24	117.81	26.52	273.88	57.44	0.19	38.38	126.80
88	0.20	45.38	0.12	1.15	2.21	0.48	14.55	6.02	84.21	35.16	178.55	41.62	425.16	85.25	0.19	47.40	172.99
89	0.07	34.06	0.08	1.44	2.92	0.94	16.31	6.05	79.13	32.62	160.15	37.12	394.99	81.55	0.33	40.45	121.74
91	20.90	109.42	7.10	34.39	10.45	1.20	24.86	9.26	114.20	46.45	223.53	50.02	497.60	95.01	0.22	30.92	42.86
93	1.46	20.20	0.53	4.33	3.94	0.75	16.94	5.21	58.26	22.19	97.49	20.40	194.70	39.54	0.24	18.88	44.47
94	0.01	4.58	0.02	0.78	1.98	0.17	13.18	5.07	61.12	23.95	107.54	21.79	206.87	40.12	0.08	24.63	94.27
95	0.12	20.92	0.09	1.31	2.23	0.74	12.91	5.33	70.16	30.30	154.94	37.45	413.82	91.48	0.33	57.33	167.01
96	4.88	74.06	2.97	18.07	13.17	3.17	32.20	10.60	116.89	45.06	213.48	48.73	498.21	97.64	0.45	24.53	34.05
97	0.39	66.70	0.21	2.14	3.60	0.92	21.45	8.61	114.12	47.01	234.47	54.33	550.72	109.21	0.25	41.19	137.68
98	115.36	296.24	33.88	164.14	37.77	4.10	63.39	15.60	149.51	50.85	208.17	40.72	371.61	69.83	0.25	8.91	8.85
99	0.37	5.56	0.16	1.35	2.29	0.17	12.95	4.80	59.25	22.80	101.83	20.95	196.90	37.88	0.07	23.67	77.38
100	0.03	1.41	0.06	1.40	3.68	0.13	21.29	7.70	87.70	30.39	125.08	24.57	230.70	42.26	0.03	16.06	56.42
102	0.08	11.39	0.35	6.14	10.94	1.66	51.10	17.23	194.92	72.98	318.91	63.55	587.78	107.95	0.18	17.09	48.35
103	0.76	12.69	0.29	2.56	3.71	0.78	19.65	7.55	95.01	39.93	194.56	42.51	429.77	85.89	0.22	35.36	104.26
104	0.00	9.56	0.04	0.81	2.12	0.30	13.95	5.54	67.00	26.64	120.55	25.53	253.13	49.45	0.13	28.68	107.51
106	5.85	37.62	1.36	8.13	6.13	1.46	24.13	8.60	104.66	39.68	182.22	38.73	379.86	73.25	0.32	24.56	55.77

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
107	0.05	13.37	0.11	1.83	3.02	0.54	12.08	3.80	41.88	15.91	70.76	15.16	149.40	31.02	0.24	20.78	44.52
108	0.01	16.57	0.07	1.58	3.35	0.41	19.56	7.60	96.39	38.39	180.25	38.89	386.90	75.16	0.12	31.09	103.94
109	9.30	70.58	2.68	13.41	5.87	1.01	20.49	8.17	106.38	44.20	215.33	48.58	493.64	97.29	0.25	38.42	75.69
111	0.01	5.84	0.06	1.21	2.49	0.30	15.46	5.56	66.63	26.06	114.72	23.31	217.26	40.47	0.11	21.18	78.53
112	0.05	2.07	0.03	0.47	1.42	0.13	10.81	5.86	87.46	36.47	180.70	43.72	465.51	90.97	0.07	68.08	296.08
114	2.09	23.38	6.53	52.95	48.58	11.83	107.14	29.86	247.10	60.06	190.45	32.24	254.93	39.96	0.49	3.02	4.72
115	6.09	20.86	2.48	14.78	7.03	0.54	23.35	7.47	86.04	32.13	142.13	29.35	276.69	53.61	0.12	18.58	35.42

Table M8. Trace elements of detrital zircons of sandstone sample (JLS-1) from Dameigou Formation

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_N$	$(\text{Yb/Sm})_N$
2	0.87	48.45	14.15	2740.75	3833.60	254.48	1499.95	424.17	138.78	469.53	87.25	268.54	135.13	157.19	0.27	0.85	0.03
4	17.81	280.36	15.16	2319.36	5760.46	67.70	3185.88	1066.26	382.57	1308.98	234.71	649.32	282.70	285.67	0.04	0.73	0.04
5	330.96	675.78	345.71	25548.24	11989.30	421.69	3279.19	950.17	296.55	967.08	173.61	493.11	222.48	229.31	0.15	0.57	0.02
6	30.68	208.55	138.79	16394.65	26172.55	499.24	14084.98	4911.97	1628.56	4962.86	784.14	1902.61	726.81	649.16	0.07	0.37	0.02
7	6.44	80.15	37.13	4887.12	9666.30	109.65	6323.77	2317.96	838.47	2811.36	500.65	1343.83	564.38	533.14	0.04	0.68	0.05
8	0.05	151.41	2.16	999.60	3649.93	41.03	2738.20	974.72	350.21	1157.38	199.17	533.48	235.73	237.82	0.04	0.70	0.06
9	15.64	284.08	39.94	5288.01	6790.75	408.75	3308.00	1181.90	438.30	1517.21	296.68	895.36	430.42	471.66	0.23	1.15	0.06
11	678.39	1022.99	497.33	34420.71	12493.24	221.43	3734.64	1117.72	360.65	1140.18	195.51	503.80	216.07	213.65	0.08	0.46	0.02
12	0.17	181.48	3.15	997.02	2086.76	114.87	1482.83	502.78	193.72	696.95	140.95	439.72	222.35	254.34	0.19	1.39	0.10
13	231.69	614.27	116.68	8432.81	4512.50	255.01	1879.63	565.09	182.62	592.32	110.66	305.82	142.26	154.84	0.23	0.67	0.03
14	26.97	1325.59	84.34	8210.40	9077.04	595.12	3229.12	1158.08	415.42	1492.83	307.87	984.96	507.81	588.51	0.27	1.47	0.05
15	0.18	259.12	8.44	2285.19	6491.72	73.50	3789.31	1343.05	468.74	1546.00	276.23	739.02	315.36	309.25	0.04	0.66	0.04
18	1.36	459.24	25.10	5928.96	11767.75	623.93	6758.58	2276.34	813.33	2692.14	513.39	1457.31	675.33	722.44	0.20	0.86	0.05
19	64.62	1033.23	30.32	3310.04	4764.07	222.30	3142.14	1254.69	476.08	1631.48	320.24	915.75	421.49	428.35	0.17	1.10	0.08
20	0.69	44.16	21.77	7251.15	17158.22	70.73	9621.83	2861.62	909.36	2714.55	463.15	1147.71	483.13	471.61	0.02	0.40	0.03
22	0.45	15.56	4.21	1371.81	4940.35	20.10	4383.44	1891.71	744.75	2540.71	488.21	1294.30	566.40	558.08	0.01	1.03	0.10
23	0.08	304.18	6.09	1647.02	3750.85	154.59	2241.73	748.10	251.84	802.46	147.94	396.06	182.55	190.41	0.15	0.69	0.04
24	14.34	720.44	25.63	4088.54	6836.47	668.81	3861.03	1243.92	424.90	1315.84	240.29	640.86	289.55	296.98	0.36	0.62	0.04
25	1.16	523.94	14.15	4012.37	7730.09	339.11	3359.27	969.38	285.73	793.78	134.27	339.61	145.34	142.40	0.17	0.34	0.02

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
26	0.15	264.46	8.65	2571.01	6986.42	37.73	4508.11	1582.25	544.03	1671.98	296.40	745.89	311.59	306.44	0.02	0.55	0.04
27	0.45	384.87	14.31	4129.64	9126.52	58.78	6501.80	2079.82	665.96	1920.86	309.67	693.01	267.57	243.94	0.02	0.30	0.03
28	96.40	98.84	56.25	4781.94	9176.67	51.45	7636.85	3265.54	1238.89	4052.90	771.97	1997.37	861.67	824.17	0.02	0.87	0.08
29	4.55	39.06	18.19	3410.18	9324.67	81.29	7246.38	3075.03	1164.90	3774.56	707.60	1808.36	773.83	736.20	0.03	0.82	0.07
30	1.33	90.78	17.46	4374.00	10116.46	32.89	7029.45	2644.65	970.74	2978.97	553.81	1436.04	619.41	594.71	0.01	0.68	0.06
32	6.72	250.60	50.58	10686.54	18142.18	177.58	9921.69	2964.46	930.89	2593.58	441.28	1043.38	434.12	417.29	0.04	0.34	0.02
33	141.70	263.06	134.07	9841.35	7628.08	122.13	3996.58	1388.52	467.23	1332.05	234.07	577.25	248.20	235.98	0.06	0.48	0.03
34	118.82	322.71	138.48	16722.97	20762.27	555.49	10782.12	3275.60	1038.11	2835.96	483.99	1153.09	484.19	462.87	0.10	0.35	0.02
35	36.57	627.61	121.43	13934.81	15828.20	1047.75	7745.23	2667.05	910.60	2743.91	511.40	1307.26	589.58	593.81	0.26	0.62	0.03
36	436.00	886.92	337.27	24418.76	15422.53	346.14	7990.48	2635.72	935.75	2886.75	548.15	1404.08	621.23	627.98	0.09	0.64	0.04
37	1248.46	5777.96	2539.92	194176.47	120908.95	10417.18	26609.23	8108.08	2301.84	5667.88	1033.80	2731.07	1269.67	1248.02	0.39	0.38	0.01
38	1902.75	2313.07	1028.82	79138.81	69959.78	4787.13	36723.05	11518.04	3655.76	9803.41	1660.40	3840.49	1554.86	1452.17	0.26	0.32	0.02
39	0.39	945.04	16.57	3531.17	5125.98	518.93	3291.61	1138.66	399.28	1276.19	257.95	699.64	331.33	359.90	0.36	0.88	0.06
40	409.46	635.77	186.09	9523.56	3630.51	169.46	1682.15	655.44	250.37	820.06	180.98	518.97	270.06	305.31	0.18	1.47	0.07
41	333.08	648.97	241.60	14530.14	7242.99	313.74	4170.81	1609.60	617.84	1947.06	392.99	1018.02	469.94	490.63	0.16	0.95	0.06
42	59.86	597.34	98.24	12264.04	14803.49	540.56	7521.77	2297.40	729.30	1968.32	360.20	877.78	383.91	375.86	0.14	0.40	0.02
44	12.66	1170.59	21.33	3396.84	6754.76	405.67	4828.27	1912.11	735.02	2273.44	461.29	1226.83	575.94	604.10	0.21	1.01	0.08
46	0.37	341.90	4.39	1426.08	3186.54	270.91	2184.62	864.31	322.99	1000.42	218.57	596.55	304.24	346.80	0.30	1.28	0.09
47	1380.51	2151.15	1042.55	56503.06	17420.74	639.21	7219.63	2746.11	1026.83	3132.12	631.09	1634.54	757.95	787.11	0.15	0.88	0.04
48	12.22	248.57	23.10	2405.55	3591.53	263.46	2821.90	1194.30	442.06	1321.50	267.45	707.47	349.18	368.53	0.24	1.06	0.09

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
49	0.74	193.80	7.88	1946.16	3551.27	81.98	2349.43	783.58	279.13	797.84	161.17	405.03	190.26	202.06	0.08	0.70	0.05
50	415.28	759.77	292.74	17682.72	8269.32	197.49	4598.02	1782.89	682.54	2026.43	413.03	1045.68	479.58	489.94	0.09	0.86	0.05
51	1.10	94.73	79.48	16223.14	29140.85	297.66	20967.09	7626.04	2649.51	7141.67	1330.70	2978.26	1265.14	1198.89	0.04	0.46	0.04
53	15.22	675.20	32.85	4514.26	6270.38	508.63	4467.81	1795.28	712.39	2194.44	502.65	1396.05	724.41	819.92	0.28	1.48	0.10
54	1.07	347.19	20.61	4391.48	7009.21	792.22	5806.90	2240.84	798.55	2200.05	436.52	1026.50	470.55	470.27	0.37	0.66	0.06
56	0.37	27.90	12.99	1707.97	6348.50	48.00	7389.02	3877.62	1678.86	5078.96	1088.82	2619.77	1165.80	1133.66	0.02	1.24	0.17
57	42.64	713.10	50.36	3277.43	2743.66	307.43	1560.61	614.37	237.66	738.62	177.54	509.07	283.52	345.86	0.42	1.79	0.09
58	24.95	1286.86	28.73	2100.99	4835.91	353.87	4023.48	1774.60	736.01	2191.25	481.54	1208.61	580.39	619.21	0.24	1.25	0.11
60	5.65	241.63	18.95	2930.76	4880.11	105.60	3921.72	1680.41	625.30	1694.05	349.46	830.92	381.52	382.06	0.07	0.79	0.07
62	1.76	2241.47	33.57	6091.10	8369.64	1017.69	5779.14	2248.76	848.56	2295.33	528.78	1316.16	679.30	741.23	0.42	1.04	0.07
63	269.04	2670.51	196.09	11625.45	9646.63	1190.05	7174.56	3003.07	1171.83	3287.17	753.56	1868.08	937.19	1021.60	0.42	1.15	0.09
64	9.63	516.08	12.81	1935.73	4006.60	223.62	3543.93	1613.05	662.65	1794.73	404.45	968.30	467.35	487.31	0.18	1.11	0.10
65	0.14	90.82	2.14	405.37	881.37	138.61	836.49	383.04	143.08	318.36	60.10	124.59	53.36	49.78	0.49	0.48	0.05
66	0.62	72.08	21.74	4016.26	6876.32	373.02	5609.85	2341.03	895.20	2279.07	498.52	1113.68	526.29	544.43	0.18	0.79	0.07
68	9.91	259.86	41.84	5297.82	6059.81	823.00	2791.99	840.82	219.58	368.79	60.18	117.41	46.80	40.08	0.53	0.12	0.01
69	0.30	185.65	9.15	1671.78	4515.60	59.70	4057.83	2110.98	917.98	2487.14	587.52	1344.21	646.39	645.44	0.04	1.29	0.13
70	9386.09	7777.56	6303.50	271607.19	56901.50	5218.64	17492.30	6215.77	2261.20	5562.96	1261.94	2831.30	1355.69	1398.01	0.39	0.65	0.02
71	144.38	849.11	110.88	6119.73	5247.66	214.74	4345.54	2088.03	952.09	2586.65	660.77	1560.49	791.63	852.05	0.13	1.59	0.14
72	12.39	1259.49	29.84	3597.10	5446.82	626.10	4101.98	1872.18	769.07	1910.14	455.57	1017.90	512.61	537.15	0.39	1.06	0.08
73	1.32	1155.45	61.43	10009.87	12893.73	64.68	9710.80	4164.87	1608.95	3770.06	852.53	1776.41	838.48	853.54	0.02	0.71	0.06

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
74	0.65	686.04	12.55	1755.47	3442.32	243.46	3155.99	1549.73	704.50	1848.21	502.88	1257.49	681.02	733.30	0.22	1.88	0.18
75	0.98	620.14	23.25	3563.68	3989.60	274.46	2272.18	888.46	316.69	669.71	146.77	295.32	135.75	136.70	0.25	0.49	0.03
78	9.66	837.94	51.94	4426.81	3973.14	377.13	3061.09	1525.10	647.64	1579.73	431.37	1006.61	545.10	606.31	0.32	1.60	0.12
79	1.04	743.98	15.38	2672.88	4337.99	352.45	3636.95	1855.85	798.68	1888.75	493.33	1073.23	546.83	581.48	0.26	1.29	0.11
80	40.17	640.39	62.01	6762.63	8567.45	847.63	7789.68	3910.50	1706.59	3970.37	1024.68	2122.60	1054.97	1105.95	0.31	1.15	0.11
81	6872.36	8236.58	4833.67	158940.81	29321.71	2056.82	9723.73	4259.02	1790.01	3937.51	1082.62	2277.59	1188.32	1233.28	0.30	1.03	0.04
82	1413.52	2121.18	1037.05	36088.15	10001.18	706.17	6436.28	3146.48	1450.56	3271.19	886.97	1840.65	943.99	986.84	0.25	1.24	0.08
84	1.06	188.91	43.43	5408.54	9568.36	124.40	10875.56	6110.61	2845.88	6251.24	1685.93	3245.04	1614.42	1619.18	0.04	1.20	0.15
86	2277.51	2302.25	3588.55	149528.08	36094.39	914.80	10338.88	3832.29	1441.33	2725.00	732.93	1354.83	674.68	683.80	0.11	0.54	0.02
88	151.47	2890.10	543.74	23013.15	12418.15	2483.88	5853.30	3016.79	1344.49	2706.92	832.03	1697.22	973.91	1114.23	0.78	1.54	0.07
89	1048.19	1393.31	645.78	21011.65	6594.67	457.78	5339.31	3045.34	1553.56	3388.71	1059.28	2065.43	1137.35	1236.64	0.23	1.87	0.16
90	13.94	170.00	100.49	9637.68	12189.16	128.83	11262.70	6767.92	3316.61	6478.99	1885.66	3370.09	1699.21	1685.84	0.03	1.21	0.13
91	3787.12	2813.98	2214.71	61590.29	23413.07	2887.98	15511.80	7695.53	3513.75	6046.61	1815.82	3093.77	1650.34	1713.23	0.44	0.89	0.06
92	1.15	91.66	15.62	1418.11	4696.58	1754.51	4289.13	2027.65	699.49	854.13	192.78	270.92	124.74	111.22	1.17	0.21	0.02
93	34.32	975.33	145.24	11684.57	10405.67	1426.74	7646.46	4040.68	1848.04	3133.30	977.15	1647.63	893.66	932.12	0.47	0.99	0.08
94	13163.16	9774.49	14124.22	359192.94	49193.81	1388.94	13676.17	5796.90	2575.25	4262.07	1404.75	2343.56	1241.40	1236.51	0.12	0.73	0.02
96	8515.69	4214.05	4334.74	79667.08	8744.10	1021.53	2545.68	1349.91	710.49	1254.67	496.82	914.08	595.91	732.68	0.51	2.33	0.06
97	58.40	7098.54	314.23	18127.23	14792.53	4549.35	11477.46	6411.91	3165.58	4862.90	1690.48	2613.04	1480.71	1582.11	1.03	1.12	0.09
99	3898.94	3185.87	2582.96	52296.82	11712.70	2059.02	6662.56	3816.01	2028.53	3113.54	1195.24	1896.84	1112.48	1197.69	0.65	1.45	0.09
100	3.13	1337.75	50.49	3914.01	4833.78	953.90	5092.13	3082.81	1786.82	2811.78	1107.32	1680.09	999.21	1092.99	0.58	1.74	0.19
101	17.28	819.75	232.08	9481.24	7065.36	1741.45	6130.44	4088.64	2673.82	3840.23	1801.39	2598.04	1713.03	2013.05	0.79	2.66	0.22

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
102	58811.23	21129.97	32196.07	388653.16	33410.79	2531.90	7274.56	3408.58	1965.11	2660.48	1327.13	1915.70	1299.27	1567.86	0.34	1.74	0.03
103	12621.85	5563.54	8185.61	105709.17	13522.12	1026.57	6877.52	4452.06	3036.83	4111.87	2037.28	2646.77	1693.65	1913.56	0.29	2.25	0.11
104	154.21	1555.74	308.13	11010.80	7844.24	1086.49	7000.64	4901.56	3360.47	4220.27	2111.60	2616.39	1658.45	1819.20	0.44	2.10	0.19
105	4.57	3763.73	130.84	5154.85	5151.08	1877.33	4461.82	3340.33	2437.17	3077.53	1654.19	2068.17	1416.68	1630.84	1.17	2.96	0.25
106	18.27	1718.42	133.04	5015.39	5084.74	1590.64	5289.79	4183.19	3341.45	3982.33	2396.35	2773.45	1947.13	2302.05	0.93	3.52	0.34
107	45.53	1341.03	125.36	2188.58	1995.15	533.59	2168.53	1992.68	1748.02	2097.01	1455.52	1812.89	1423.72	1727.41	0.78	6.44	0.64
110	454.50	2913.01	642.31	9354.40	5885.00	1922.03	4911.31	3834.39	3455.42	3166.43	2421.50	2203.20	1676.97	2033.01	1.06	3.35	0.26

Table M9. Trace elements of detrital zircons of sandstone sample (KXY-1) from Dameigou Formation

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
1	0.0109	53.29	0.199	3.74	6.54	2.81	32.86	11.5	132.49	48.14	205.47	41.64	387.96	73.92	0.48	18.20	53.39
2	0.007	46.95	0.116	1.82	4.22	1.399	22.98	9.47	125.68	52.44	260.89	60.58	638.18	132.63	0.35	46.69	136.10
3	0.294	22.8	0.357	2.9	3.85	0.962	16.22	5.67	64.16	23.81	109.67	23.9	244.26	49.83	0.32	24.86	57.10
4	0.186	15.64	0.101	0.642	2.06	0.353	10.09	4.18	51.68	21.16	102.24	22.81	234.65	47.21	0.19	37.85	102.52
5	0.432	16.93	0.302	3.41	5.5	1.483	29.66	10.55	132.46	52.39	246.87	53.88	531.42	105.65	0.28	28.82	86.96
6	0.778	56.48	2.55	20.25	19.67	5.03	54.15	15.9	151.47	46.29	182.04	35.77	337.94	64.59	0.44	9.65	15.46
7	12.81	53.06	3.35	14.05	6.39	1.59	23.04	8.17	96.2	39.68	196.26	46.01	480.1	97.24	0.36	34.15	67.62
8	0.0459	9.58	0.136	2.24	3.25	1.247	15.61	4.78	49.69	17.37	69.47	13.75	128.44	23.69	0.44	12.28	35.57
9	1.118	95.9	0.613	6.71	10.4	4.16	52.96	18.78	221.57	83.82	365.58	74.91	707.97	132.24	0.44	20.20	61.27
10	0.379	36.8	0.165	1.97	3.52	1.18	21.69	8.75	112.19	46.42	230.07	54.04	567.54	116.88	0.32	43.60	145.11
11	0.099	23.12	0.093	1.63	2.96	0.688	14.42	5.33	61.12	23.31	104.41	22.47	220.59	43.51	0.27	24.41	67.07
12	12.34	76.22	3.08	14.04	5.92	1.38	18.19	6.73	84.99	35	173.8	41.32	458.85	94.24	0.37	41.92	69.76
13	0.88	70.85	1.84	14.65	12.52	4.32	42.88	14.4	162.36	61.79	291.66	66.33	702.37	147.73	0.51	27.87	50.49
14	3.36	27.51	1.571	9.77	7.13	2.06	19.4	6.11	66.48	24.52	116.57	27.86	309.36	66.58	0.50	27.77	39.05
15	0.0096	21.32	0.149	2.89	4.56	1.499	23.52	8.47	110.4	44.49	208.58	46.33	465.77	93.95	0.36	32.32	91.93
16	0.163	35.33	0.353	6.04	9.05	2.25	37.76	11.97	130.98	48.66	212.47	44.2	429.79	83.46	0.32	17.88	42.74
17	0.0702	14.28	0.197	2.03	3.91	1.229	17.16	6.31	78.06	30.95	153.12	36.24	393.05	85.45	0.39	40.29	90.47
18	0.0101	3.88	0.0451	0.646	1.37	0.252	9.93	4.56	61.82	26.12	126.49	27.64	270.43	51.98	0.15	42.35	177.65
19	0.0692	5.83	0.525	8.68	14.69	1.173	61.74	19.3	201.38	68.79	271.57	51.76	470.78	86.31	0.10	11.31	28.84

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
20	30.96	102.76	14.06	68.27	20.36	1.07	41.96	12.58	136.35	51.28	225.21	46.08	437.15	82.29	0.11	15.87	19.32
22	0.0035	1.599	0.0103	0.155	0.984	0.519	7.66	2.71	24.13	6.49	21.35	3.67	30.2	5.01	0.41	5.29	27.62
23	0.0051	3.62	0.0572	1.018	2.68	0.376	13.39	4.66	56.96	21.79	100.73	21.19	205.93	40.77	0.16	24.63	69.16
24	0.125	31.83	0.0723	1.18	2.59	0.754	13.68	5.45	69.12	28.27	139.32	32.34	338.95	69.79	0.31	41.27	117.78
26	0.0028	0.677	0.0096	0.087	0.624	0.476	5.75	2.43	22.27	5.51	17.34	2.9	23.03	3.92	0.51	5.52	33.22
27	0.951	41.79	1.169	8.53	7.47	2.29	20.87	6.54	72.18	27.87	139.55	34.98	411.14	96.03	0.53	37.23	49.53
29	1.734	13.04	1.523	10.49	10.18	2.05	35.64	12.4	136.97	49.57	215.36	44.87	431.7	82.57	0.29	18.74	38.17
30	0.536	33.33	1.375	9.72	9.38	2.97	23.85	6.87	60.66	18.39	74.58	15.92	167.55	36.26	0.58	12.30	16.08
33	0.139	27.88	0.251	2.6	3.64	1.172	17.12	6.45	81.62	33.11	165.17	38.62	413.38	85.68	0.38	40.49	102.21
36	5.54	54.84	1.914	11.38	7.53	2.15	32.12	10.97	127.73	48.57	219.3	47.19	463.81	90.71	0.36	22.85	55.44
37	4.96	47.91	1.658	10.33	8.52	2.35	35.08	12.56	146.82	56.17	262.16	58.32	591.37	119.45	0.36	27.55	62.47
38	0.802	47.64	0.799	6.21	6.09	2.2	25.59	9.69	114.51	46.64	242.26	59.05	652.54	142.08	0.46	44.92	96.43
39	0.0365	6.47	0.0647	1.58	3.47	0.577	18.68	6.44	77.59	29.4	131	27.01	260.72	49.37	0.18	21.38	67.62
40	2.32	47.94	1.247	10.58	13.23	4.13	46.79	14.43	156.41	55.3	239.85	51.2	493.14	98.63	0.45	17.05	33.55
42	0.063	3.37	0.0431	0.88	1.63	0.418	11.51	4.68	63.33	27.44	136.13	30.1	303.66	63.54	0.22	44.66	167.67
43	4.33	44.13	1.425	7.71	4.5	1.143	14.17	5.12	64.01	27.19	147.34	38.28	451.28	103.41	0.40	59.04	90.26
44	0.0095	12.75	0.0624	1.11	2.88	0.675	19.51	7.71	97.87	40.21	194.87	44.03	448.77	91.86	0.20	38.09	140.24
45	1.1	64.96	2.92	20.08	21.44	6.04	65.3	20.41	205.33	69.53	308.67	68.17	709.67	150.27	0.45	18.62	29.79
46	0.102	6.22	0.216	2.62	5.29	0.498	28.58	9.82	114.68	43.34	186.72	37.24	338.48	61.07	0.10	17.29	57.59
48	0.071	17.94	0.244	2.11	2.9	1.115	13.01	4.84	57.07	23.28	116.71	29	332.23	76.59	0.47	47.63	103.11

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
49	6.57	27.47	4	25.32	12.42	1.077	31.41	10.01	112.65	41.99	187.55	39.33	374.08	71.21	0.16	18.34	27.11
50	0.091	39.08	0.386	5.62	9.61	3.24	43.43	15.35	179.92	67.83	308.46	68.05	681.22	134.73	0.41	25.10	63.80
53	0.973	36.97	0.383	3.35	5.28	1.689	24.96	9.82	122.73	49.57	241.75	55.31	571.03	118.63	0.37	38.45	97.33
54	16.43	85.79	4.95	24.08	10.46	1.96	26.81	9.17	112.42	44.55	213.76	49.4	509.07	98.33	0.34	29.67	43.80
56	0.073	21.55	0.118	1.91	4.44	0.305	26.28	10.56	137.24	55.2	253.26	53.22	506.72	93.17	0.07	28.68	102.71
57	0.38	19.23	0.275	2.4	3.38	0.723	13.16	4.71	54.75	21.11	98.09	23	234.54	48	0.29	29.51	62.45
58	0.293	4.94	1.075	7.8	7.89	1.79	32.51	13.34	157.97	56.64	233.62	46.2	416.59	72.55	0.29	18.06	47.52
59	1.466	28.65	3.4	25.85	24.17	6.11	63.19	19.75	192.37	59.68	251.85	53.51	523.62	101.48	0.45	12.99	19.50
60	0.392	5.45	0.174	1.04	1.61	0.109	11.75	5.12	74.14	32.21	161.02	37.47	389.08	79.05	0.06	54.43	217.50
61	6.91	71.57	12.24	84.94	65.49	17.6	136.8	35.98	294.7	73.89	261.64	50.89	464.75	84.57	0.55	5.00	6.39
62	0.0052	13.78	0.0694	1.61	4.17	0.105	25.14	10.23	127.74	49.62	222.85	45.91	430.08	78.77	0.02	25.35	92.82
67	0.0491	36.41	0.216	3.79	6.82	2.15	35.44	11.93	144.6	57.39	263.95	56.06	546.56	108.53	0.34	24.78	72.13
68	4.31	21.89	2.74	17.19	9.57	0.138	32.53	10.84	124.79	44.64	188.69	37.46	333.9	58.95	0.02	14.66	31.40
69	0.023	4.76	0.0876	1.58	4.24	0.348	27.03	10.71	129.3	48.58	211.47	43.6	405.87	76.12	0.08	22.78	86.15
70	0.362	43.56	0.206	2.28	4.21	1.372	28.13	11.29	149.61	63.66	311.08	71.73	728.57	147.39	0.29	42.39	155.75
72	1.725	21.87	0.508	2.89	2.47	0.759	12.49	4.4	50.95	19.81	93.41	21.4	221.62	46.04	0.34	29.82	80.75
73	0.0013	3.92	0.0203	0.555	1.9	0.09	13.41	5.42	70.14	28.01	131.69	29.08	283.67	55.16	0.04	33.28	134.37
74	0.0256	1.99	0.105	1.49	4.02	0.283	21.83	8.18	94.62	35.32	155.38	32.78	303.55	56.6	0.07	20.98	67.96
75	0.687	44.19	0.484	5.66	10.63	1.84	58.49	19.58	219.9	78.06	323.72	61.89	549.21	100.13	0.18	13.85	46.50
79	0.0061	18.8	0.0543	1.43	3.43	0.645	18.58	6.98	86.51	34.23	158.76	33.72	328.94	63.61	0.20	27.70	86.31

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
80	0.0063	41.36	0.208	3.22	5.61	2.78	29.08	9.73	114.34	44.83	203.19	43.25	428.4	84.24	0.54	23.44	68.73
81	5.89	116.98	1.98	11.78	9.58	2.67	45.03	15.75	185.21	68.98	304.49	63.33	605.6	115.87	0.33	20.82	56.89
82	12.9	41.23	2.94	13.01	3.47	0.573	9.69	3.52	44.37	18.37	95.37	23.54	262.29	56.64	0.28	47.29	68.03
83	6.45	70.5	2.52	13.4	7.94	1.95	24.93	8.64	101.01	38.98	181.47	41.32	422.2	85.33	0.39	27.69	47.86
84	0.0073	1.248	0.0454	0.866	2.28	0.235	15.06	5.75	70.5	27.32	121.99	25.69	241.13	45.18	0.09	24.27	95.18
85	0.257	30.03	0.584	3.94	4.48	1.415	13.74	4.81	53.28	21.51	107.29	26.26	297.41	67.77	0.51	39.91	59.75
86	5.04	48.15	1.236	6.13	3.23	0.792	12.76	4.47	53.7	21.22	102.66	23.23	237.57	48.25	0.33	30.59	66.20
87	0.241	43.42	0.258	4.01	6.44	1.389	28.2	9.42	108.46	41.02	186.76	40.63	409.95	82.01	0.27	23.53	57.29
88	2.26	11.77	1.004	5.83	3.91	0.217	16.09	5.72	69.08	26.72	117.5	24.55	230.58	43.98	0.07	22.11	53.07
90	0.0022	16.89	0.0174	0.476	1.32	0.359	7.99	3.18	38.67	15.81	77.18	17.86	184.16	36.98	0.26	37.45	125.56
91	0.111	38.14	0.148	1.23	1.96	0.624	11.04	4.04	51.04	21.76	114.22	28.32	322.42	71.79	0.32	52.61	148.05
93	0.0083	20.51	0.0784	1.35	2.71	1.272	16.79	6.23	76.66	31.28	150.81	34.08	361.71	80.73	0.44	38.90	120.13
94	0.0323	19.1	0.209	2.64	4.95	1.148	24.45	8.59	102.92	39.09	174.79	38.08	372.79	72.49	0.26	23.99	67.78
96	0.451	14.12	0.893	6.17	8.25	1.87	30.06	10.69	122.52	45.45	200.05	41.83	400.38	76.82	0.32	20.68	43.68
97	2.13	76.36	6.12	43.29	39.59	10.58	91.53	27.76	246.82	71.55	288.58	62.95	649.9	132.82	0.52	11.74	14.77
98	1.6	31.46	2.53	25.49	21.77	3.96	63.29	16.64	150.51	45.06	161.74	28.83	243.57	41.12	0.30	5.26	10.07
99	0.22	2.37	0.484	4.49	6.12	0.94	32.08	11.93	109.24	29.12	94.84	16.19	132.12	21	0.17	5.30	19.43
100	0.946	50.12	1.92	14	13.26	4.39	36.56	11.26	108.26	37.15	170.22	39.37	429.06	95.12	0.57	21.05	29.12
101	0.462	23.44	1.034	11.24	17.42	5.12	78.41	27.98	326.97	113.96	481.04	96.32	866.77	156.59	0.36	16.16	44.78
102	0.0402	12.86	0.113	1.56	3.33	0.172	18.94	7.4	87.39	35.02	153.76	31.81	291.94	52.65	0.05	22.49	78.90
103	0.176	40.07	0.0612	0.84	1.62	0.491	10.6	4.8	66.38	29.48	152.63	37.18	400.33	81.19	0.27	61.97	222.41

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
104	0.0188	25.21	0.0529	0.909	1.89	0.632	11.34	4.63	62.12	27.03	141.93	34.82	395.52	87.46	0.32	62.40	188.34
105	0.0013	3.21	0.0754	1.34	3.14	0.418	15.45	5.24	61.48	23.21	103.72	21.35	208.23	39.65	0.15	20.76	59.68
106	0.0096	23.62	0.0288	0.533	1.73	0.517	10.65	4.37	57.67	23.85	120.68	28.77	311.68	64.36	0.28	48.89	162.15
107	1.67	21.98	4.29	31.25	27.31	6.69	70.34	21.77	210.45	66.14	269.04	53.24	495.72	91.74	0.44	10.55	16.34
108	0.0123	2.25	0.091	1.59	3.32	0.825	17.37	6.2	73.2	27	116.56	24	222.66	41.91	0.27	19.52	60.36
109	0.062	4.99	0.233	3.25	7.37	0.521	41.65	15.4	183.74	67.37	290.17	57.37	514.72	89.76	0.07	17.44	62.86
111	0.593	49.1	1.483	12.29	13.8	3.72	47.74	17.24	187.21	67.27	298.94	64.92	645.21	124.95	0.40	21.18	42.08
112	2.08	83	1.288	11.32	16.94	2.65	87.64	28.46	308.79	106.59	419.54	78	668.86	117.06	0.17	10.81	35.54
113	7.25	89.27	2.08	11.16	7.46	2.36	32.95	11.69	145.26	57.91	267.85	58.99	594.09	115.62	0.39	28.39	71.67
114	0.0026	5.3	0.0568	0.851	1.95	0.131	10.28	3.74	46.34	17.33	76.28	16.32	154.68	28.59	0.07	22.50	71.39
115	0.874	12.35	1.86	13.19	12.07	2.82	36.48	12.76	138.84	49.73	221.01	46.05	438.87	80.26	0.38	17.80	32.72
116	1.396	118.44	0.593	4.94	7.57	1.83	41.7	16.2	202.7	78.99	360.15	78.68	763.83	138.9	0.25	26.95	90.81
117	0.0303	47.14	0.126	1.81	3.86	1.46	23.98	9.78	128.99	53.12	262.17	61.3	636.17	126.93	0.35	42.82	148.33
118	43.94	118.3	15.28	72.19	17.6	0.263	27.2	7.51	82.64	31.51	142.21	30.69	297.66	55.47	0.04	16.50	15.22
119	0.081	2.96	0.344	5.24	10.26	0.229	55.83	20.89	266.35	103.73	454.96	90.93	808.74	136.13	0.02	19.73	70.94
120	0.0024	1.97	0.0725	1.65	4.43	0.069	29.5	12	138.42	47.47	194.7	37.83	334.01	56.94	0.01	15.62	67.86

Table M10. Trace elements of detrital zircons of sandstone sample (KG-1) from Dameigou Formation

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
1	1.67	18.74	0.59	4.39	4.38	0.58	18.56	6.75	77.35	28.85	126.55	26.29	249.68	46.52	0.17	20.28	51.30
2	0.00	6.71	0.05	1.06	3.22	0.14	22.71	9.46	122.41	49.53	226.41	47.78	441.87	83.68	0.04	29.81	123.50
3	0.07	11.59	0.15	1.39	2.27	0.93	6.79	2.19	21.25	6.81	29.20	6.74	77.35	19.19	0.67	22.87	30.72
4	0.01	11.86	0.04	0.74	1.41	0.35	8.05	3.06	40.05	17.02	87.94	21.41	235.79	52.43	0.25	52.69	150.83
6	0.07	19.41	0.41	4.91	5.90	1.19	17.93	5.23	48.11	14.87	59.01	11.73	112.38	21.11	0.32	9.53	17.14
7	0.05	42.13	0.19	2.34	2.94	1.75	10.28	2.98	30.90	11.10	50.38	11.27	118.98	25.07	0.87	19.73	36.42
8	1.20	14.88	0.30	2.36	3.16	0.88	13.20	4.97	60.54	23.54	108.77	23.40	231.91	46.06	0.36	28.23	66.05
10	0.00	10.51	0.05	0.83	1.60	0.51	7.78	3.20	40.93	17.35	86.84	20.72	223.29	48.49	0.37	50.43	125.52
12	0.11	65.51	0.17	2.80	5.27	1.44	26.24	9.25	110.82	41.58	184.97	38.29	369.47	70.37	0.31	21.70	63.10
13	0.01	10.46	0.10	1.72	3.27	0.58	16.25	5.85	68.70	26.25	117.09	24.18	229.82	44.30	0.20	22.06	63.25
14	0.14	62.06	0.08	0.99	2.29	0.60	14.14	5.86	80.41	37.16	200.80	50.11	555.32	119.85	0.25	68.58	218.15
15	0.08	23.82	0.09	1.33	2.96	0.54	15.92	5.93	73.64	28.97	134.30	29.10	288.84	56.19	0.19	28.56	87.82
17	0.04	29.82	0.09	1.50	3.29	0.75	18.20	6.83	83.53	33.18	151.20	32.10	311.98	60.25	0.23	26.78	85.34
18	0.13	1.74	0.20	2.86	6.47	0.43	34.17	11.21	96.71	24.17	76.37	12.75	101.99	17.19	0.07	4.07	14.19
19	0.22	28.76	0.62	5.56	7.26	1.21	27.82	9.56	111.89	42.31	186.03	39.22	366.15	68.57	0.23	19.94	45.39
21	0.02	31.09	0.08	1.71	3.94	1.46	19.19	7.17	88.36	35.34	164.67	36.09	368.50	75.12	0.42	31.67	84.18
23	0.32	26.61	0.19	2.16	4.89	1.36	24.15	8.51	102.00	40.06	182.07	37.59	365.43	72.35	0.31	24.24	67.26
24	0.00	0.96	0.05	1.31	4.60	0.08	37.46	17.59	239.96	96.85	443.01	93.07	868.96	160.36	0.01	34.63	170.01
25	1.60	23.29	0.67	4.93	5.04	0.55	29.08	11.26	138.86	54.61	246.97	51.04	482.82	92.01	0.11	25.60	86.22

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
27	0.01	17.13	0.10	1.71	3.61	0.18	15.72	5.40	61.94	22.24	98.43	20.41	194.60	36.45	0.06	18.76	48.52
28	0.03	8.47	0.02	0.57	1.25	0.22	6.26	2.02	21.39	7.60	33.88	7.76	82.52	18.18	0.20	23.50	59.61
30	0.04	2.35	0.10	0.99	1.78	0.63	7.87	2.88	33.39	12.18	55.45	12.54	132.57	28.33	0.44	29.12	67.22
32	41.31	135.12	15.63	73.75	20.42	0.72	40.63	12.56	143.23	54.25	244.49	50.45	482.27	91.05	0.07	18.13	21.26
36	0.13	24.85	0.23	2.64	3.60	1.07	16.21	5.92	73.50	29.35	139.99	32.01	335.99	69.24	0.36	34.56	84.00
37	0.00	30.23	0.12	2.18	4.55	1.65	24.89	9.88	127.79	52.56	256.76	58.12	609.31	125.44	0.38	40.77	120.52
38	0.08	1.95	0.25	2.89	5.74	0.86	34.80	14.21	153.30	46.71	173.20	31.23	267.83	45.26	0.14	10.52	41.99
39	0.02	7.96	0.07	1.45	4.18	0.19	27.71	11.71	148.30	59.53	268.66	56.16	522.05	96.70	0.04	28.23	112.40
40	0.03	19.04	0.12	1.91	4.58	0.68	27.49	10.22	125.60	48.89	217.43	43.87	415.15	78.88	0.14	23.22	81.58
41	24.74	57.53	4.65	19.66	5.00	1.03	9.65	3.02	35.57	13.90	68.99	16.41	178.42	38.19	0.45	32.02	32.12
42	0.01	0.91	0.06	0.94	4.37	0.13	36.28	17.66	230.10	86.76	373.06	75.10	690.24	126.15	0.02	28.13	142.15
43	0.00	16.09	0.05	0.85	1.90	0.37	11.58	4.37	55.35	22.28	108.03	23.87	239.06	48.43	0.19	33.84	113.48
44	0.19	13.99	0.10	1.15	1.98	0.55	10.97	4.34	54.97	23.12	118.12	28.19	309.89	68.08	0.29	50.21	140.86
46	0.47	19.06	0.24	3.04	4.65	1.73	21.63	7.01	80.69	31.05	140.99	29.67	291.21	58.75	0.44	21.98	56.36
48	0.01	6.27	0.07	1.40	4.06	0.22	23.18	8.43	103.16	39.60	178.94	36.99	349.12	66.01	0.06	23.04	77.39
49	0.03	13.12	0.12	1.46	2.62	0.94	11.32	4.31	50.21	19.57	96.52	22.79	247.76	55.19	0.45	39.45	85.11
50	1.33	17.15	0.47	3.03	2.78	0.31	15.92	6.15	84.32	35.48	175.77	39.71	405.54	82.71	0.11	42.03	131.29
54	0.00	10.24	0.03	0.60	1.32	0.48	8.26	3.05	38.46	15.70	76.92	18.03	197.75	43.24	0.34	42.35	135.14
55	1.56	46.55	0.45	3.32	4.33	0.61	17.23	5.53	58.49	21.63	96.24	20.93	210.03	41.40	0.19	19.44	43.66
56	0.08	16.81	0.19	2.10	4.21	0.26	23.21	8.64	106.28	41.32	179.57	36.37	334.78	61.53	0.06	21.45	71.57

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
58	0.31	18.47	0.16	1.65	2.94	0.61	14.91	5.70	72.10	29.70	144.16	33.08	355.10	75.34	0.23	40.88	108.70
59	65.00	133.69	11.99	42.66	6.18	1.01	7.81	1.96	22.96	9.13	47.46	11.85	138.79	32.78	0.44	33.96	20.21
61	0.53	9.61	1.41	11.39	10.44	2.07	26.76	8.87	101.63	38.90	178.96	38.01	362.27	69.29	0.36	20.95	31.23
63	0.00	12.42	0.09	1.45	3.11	0.50	18.69	7.86	100.82	42.35	200.37	43.85	446.54	87.53	0.15	37.89	129.22
65	0.04	55.01	0.25	3.79	6.17	1.86	24.69	7.40	78.03	27.59	121.06	25.23	249.89	50.20	0.40	16.45	36.45
66	0.02	25.45	0.11	1.77	4.02	1.60	21.56	8.56	111.10	46.00	223.71	51.26	532.67	111.52	0.42	41.85	119.25
67	7.07	38.52	2.59	12.21	5.67	0.45	22.49	8.55	109.54	44.86	209.53	45.14	445.03	87.62	0.11	31.52	70.64
68	0.00	9.76	0.01	0.30	0.97	0.28	5.91	2.49	31.55	13.08	67.46	15.84	172.51	36.93	0.27	50.56	160.39
69	11.53	38.23	3.17	13.25	4.00	0.67	13.04	4.96	59.99	24.10	121.69	29.02	314.80	69.12	0.26	42.88	70.83
71	0.02	35.31	0.17	2.25	4.27	0.80	17.09	5.58	58.76	20.05	84.55	17.29	164.53	30.50	0.25	14.44	34.68
73	0.01	13.37	0.16	2.65	5.97	2.69	33.91	12.59	157.10	64.25	295.60	62.03	606.57	121.03	0.46	28.88	91.44
74	12.08	45.94	4.01	19.16	7.36	1.57	16.49	5.46	59.97	22.92	107.42	24.89	262.86	54.62	0.42	26.80	32.14
75	0.02	1.13	0.06	1.35	4.12	0.04	28.44	12.92	171.12	68.64	326.68	69.84	659.74	124.17	0.01	35.32	144.12
77	0.07	10.45	0.07	1.00	2.44	0.16	18.90	7.83	104.21	43.32	207.12	45.05	441.24	85.85	0.05	36.75	162.75
79	0.10	4.24	0.32	3.07	5.72	2.49	22.72	7.64	70.52	18.29	57.72	9.46	75.13	12.04	0.58	4.29	11.82
80	0.59	18.89	1.60	22.50	30.09	2.80	102.29	27.99	271.98	87.75	340.35	62.71	550.88	98.62	0.14	7.80	16.48
84	0.10	34.94	0.86	13.21	18.27	1.50	78.56	25.45	287.40	104.46	447.45	88.78	814.50	152.29	0.10	15.68	40.12
85	2.99	18.51	0.89	5.13	4.17	0.72	22.24	8.34	101.69	39.85	181.32	38.37	368.85	72.38	0.18	26.33	79.61
87	0.04	27.72	0.49	7.99	12.67	2.30	41.22	11.89	115.84	37.95	153.15	29.53	270.49	49.38	0.28	9.69	19.21
90	0.01	5.33	0.13	2.10	4.21	0.29	21.02	7.41	84.50	31.54	135.39	26.85	245.76	46.50	0.08	17.90	52.54

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
91	6.60	26.17	2.02	12.33	6.52	0.32	19.49	5.58	57.54	19.72	83.12	16.68	159.63	31.41	0.08	13.04	22.03
93	0.02	11.53	0.06	1.00	2.34	0.41	12.91	5.01	65.43	26.49	128.35	28.30	288.10	58.24	0.18	36.50	110.81
94	0.00	10.92	0.03	1.14	2.41	0.22	15.15	5.40	68.72	27.07	130.24	29.37	306.28	62.36	0.09	33.30	114.38
97	0.01	30.87	0.07	1.23	3.21	0.98	16.75	6.45	84.65	35.02	171.46	39.71	416.85	87.50	0.33	42.26	116.87
99	3.38	27.10	1.03	5.39	2.95	0.45	11.85	4.24	50.99	19.72	90.05	19.76	195.94	38.95	0.20	26.59	59.78
101	2.23	64.93	0.73	5.31	6.00	2.10	32.72	12.84	163.44	66.60	317.97	70.12	711.37	144.84	0.37	35.81	106.71
103	3.43	33.16	3.12	20.86	16.92	4.79	45.89	16.91	180.53	59.07	237.51	46.30	412.76	72.47	0.49	12.78	21.96
104	0.00	5.27	0.05	1.11	3.22	0.28	17.04	6.33	76.04	29.44	132.40	27.60	264.41	51.77	0.09	24.58	73.90
105	0.43	33.88	1.13	10.41	13.63	2.29	48.61	16.60	185.62	66.20	285.89	57.99	544.99	99.19	0.24	16.51	35.99
106	0.07	36.75	0.76	10.76	13.68	5.36	42.83	11.90	118.31	40.65	179.49	39.41	404.08	84.04	0.62	15.88	26.58
107	0.01	13.21	0.13	2.29	4.49	0.32	21.40	7.21	80.42	30.46	133.01	27.29	255.98	49.72	0.08	18.80	51.31
108	0.04	6.96	0.38	6.16	9.68	0.75	41.63	13.20	148.82	53.95	232.21	47.19	448.32	86.62	0.10	16.83	41.68
109	6.87	94.61	21.52	168.00	149.25	46.66	276.86	72.84	531.63	116.16	346.85	60.38	517.91	88.03	0.69	2.57	3.12
110	0.09	52.90	0.09	1.09	2.83	0.34	18.35	7.96	110.28	46.12	225.17	50.53	504.20	96.49	0.11	42.54	160.35
112	0.89	8.95	0.43	3.26	3.99	0.27	18.43	6.33	77.49	29.55	134.02	27.88	266.21	51.55	0.08	22.63	60.05
114	0.02	34.79	0.35	5.89	10.49	3.14	46.18	15.88	183.06	68.48	313.71	67.27	671.00	132.25	0.37	23.17	57.57
115	0.05	16.01	0.18	1.60	2.34	0.46	10.91	4.34	54.47	21.87	105.43	23.85	242.51	49.69	0.23	36.85	93.27
116	3.53	97.53	10.44	81.74	75.09	25.08	152.89	44.24	351.61	88.50	313.82	59.86	567.63	105.69	0.70	5.59	6.80
117	0.08	2.55	0.16	2.27	3.63	0.76	13.70	4.44	49.36	17.26	76.17	16.63	170.92	34.18	0.29	20.19	42.38
118	0.04	6.97	0.11	1.14	2.70	0.97	13.79	5.82	65.28	23.53	105.62	23.34	230.83	43.93	0.40	25.77	76.94
119	1.78	16.22	3.74	27.83	19.48	5.14	40.14	13.17	143.10	53.36	242.78	52.59	523.41	103.12	0.55	20.78	24.18

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
120	2.23	17.67	0.88	5.62	3.69	0.21	19.48	7.72	98.53	40.05	185.07	38.91	378.57	72.49	0.06	30.11	92.33

Table M11. Trace elements of detrital zircons of sandstone sample (DLH-1) from Dameigou Formation

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
1	0.01	72.87	0.10	1.61	3.83	1.04	20.60	8.51	113.76	49.56	246.66	57.51	601.63	121.02	0.29	47.53	141.38
2	0.01	10.43	0.02	0.38	1.03	0.40	5.17	1.89	23.56	9.45	45.71	10.87	116.25	24.91	0.43	38.98	101.18
3	7.85	34.68	4.04	22.23	8.38	0.53	20.49	6.63	77.60	31.14	142.81	30.67	299.22	58.35	0.12	23.04	32.14
4	0.02	20.38	0.12	1.57	3.28	0.22	14.92	5.59	66.18	26.04	121.38	26.66	255.89	48.14	0.08	26.10	70.21
5	67.35	168.87	21.78	104.59	25.12	1.13	38.50	9.70	99.68	34.97	147.93	29.26	271.66	49.92	0.11	10.49	9.73
6	1.55	63.60	0.54	2.93	3.09	0.66	16.07	6.48	85.37	37.05	184.84	42.70	443.99	90.39	0.23	45.51	129.32
7	13.85	63.68	3.39	14.48	4.51	0.51	14.23	5.40	67.50	27.16	131.47	29.74	312.23	63.18	0.18	35.92	62.31
8	0.00	12.15	0.06	1.14	2.07	0.58	9.66	3.22	36.10	13.99	64.37	13.84	140.17	28.41	0.33	23.79	60.94
10	0.07	23.28	0.25	5.03	8.48	2.20	37.61	11.30	123.02	43.69	181.41	36.46	333.16	63.30	0.32	13.62	35.36
12	0.00	12.71	0.03	0.59	1.48	0.45	9.06	3.33	41.53	16.18	78.14	17.41	177.59	35.81	0.29	31.98	107.99
14	12.60	48.89	4.30	20.37	6.36	0.59	16.98	5.18	59.33	22.73	101.48	21.37	206.87	40.22	0.16	19.16	29.27
15	0.50	18.73	0.20	1.42	2.11	0.41	12.83	4.87	60.54	24.20	110.48	23.46	225.57	43.67	0.19	27.54	96.21
16	0.10	71.66	0.28	2.52	3.89	1.51	18.25	7.01	85.39	33.13	157.61	35.65	368.54	75.61	0.46	33.52	85.27
17	0.00	10.19	0.06	1.30	3.18	0.86	18.08	6.85	89.43	37.32	180.49	41.15	423.79	87.93	0.27	39.35	119.94
18	0.05	19.75	0.26	4.91	8.90	0.95	39.01	11.33	119.69	41.74	167.00	32.18	287.55	51.70	0.13	10.72	29.08
19	0.00	21.02	0.08	1.39	2.52	0.34	11.13	3.73	43.09	16.19	71.31	15.16	148.33	28.64	0.17	20.82	52.98
22	0.01	31.67	0.10	1.72	2.51	0.63	9.08	3.11	34.38	12.29	55.65	11.67	114.33	23.02	0.36	20.51	40.99
23	0.00	2.73	0.08	1.64	3.00	0.41	11.08	3.16	31.24	10.46	42.27	8.16	75.90	14.99	0.19	10.95	22.77
24	0.00	6.20	0.00	0.11	0.16	0.10	1.17	0.39	5.28	2.42	13.39	3.66	49.46	13.84	0.52	95.70	273.09

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
25	0.73	35.76	0.35	3.55	5.42	0.56	31.94	12.37	155.63	59.55	258.49	51.69	465.08	82.38	0.10	20.87	77.23
26	0.06	15.26	0.36	5.49	9.90	1.01	43.04	13.78	145.00	49.65	199.72	38.05	336.13	60.80	0.13	11.43	30.56
27	0.00	9.04	0.05	0.67	1.84	0.29	9.64	3.79	51.81	22.42	113.67	26.65	279.98	58.47	0.17	49.07	136.95
28	0.01	7.36	0.08	1.94	3.34	0.46	16.65	5.63	64.94	24.02	101.23	20.05	186.63	34.92	0.16	16.97	50.29
29	0.01	3.04	0.05	1.29	3.87	0.07	27.17	11.10	137.99	55.11	246.75	50.99	479.71	89.67	0.02	26.70	111.56
30	0.02	9.62	0.05	0.62	1.74	0.29	8.32	3.33	43.14	17.86	85.73	18.84	187.54	37.52	0.19	36.49	97.00
32	0.02	5.23	0.22	3.85	7.09	0.52	36.81	13.03	153.11	57.44	246.13	49.14	446.56	80.64	0.08	17.72	56.69
33	0.08	20.86	0.03	0.52	0.71	0.42	4.79	1.81	24.11	11.44	64.91	17.17	208.23	51.91	0.52	87.68	265.83
34	0.07	19.53	0.12	1.41	1.96	0.53	9.39	3.46	43.61	17.25	83.96	19.59	205.72	42.92	0.31	36.98	94.46
36	12.08	61.34	3.49	14.60	4.86	1.08	13.02	4.93	61.43	25.32	127.97	30.14	322.49	68.69	0.39	42.68	59.72
38	0.00	8.79	0.03	0.55	1.10	0.32	5.55	1.86	21.96	8.95	44.19	10.26	111.91	24.55	0.32	35.79	91.40
44	32.84	118.36	9.29	39.50	8.34	1.42	15.10	4.12	45.02	17.16	79.57	17.77	182.72	37.52	0.38	20.10	19.72
46	0.01	24.13	0.09	1.83	2.81	0.50	11.22	3.55	37.91	14.00	62.12	13.28	130.26	24.95	0.23	17.99	41.72
47	0.01	27.29	0.11	2.06	4.92	1.58	28.78	10.92	136.18	55.21	254.62	53.31	516.41	100.22	0.32	28.17	94.47
48	0.02	7.21	0.05	1.05	3.87	0.11	24.47	10.28	133.72	53.55	242.32	50.88	471.52	86.80	0.03	28.70	109.66
50	0.12	34.67	0.22	2.37	3.89	0.55	21.62	8.94	114.91	46.77	229.91	53.21	542.87	106.90	0.14	40.00	125.60
52	0.01	18.01	0.14	2.56	5.63	0.55	26.48	8.85	100.94	36.02	153.01	30.66	281.31	52.21	0.12	15.95	44.97
53	0.00	25.25	0.04	0.91	1.98	0.58	10.80	3.88	50.11	20.36	98.96	22.94	239.36	49.77	0.30	37.28	108.80
54	0.18	23.47	0.11	1.37	2.37	0.68	13.84	5.32	66.46	26.34	124.00	27.76	282.32	57.24	0.28	33.46	107.21
55	202.54	528.66	65.22	298.44	68.11	1.83	88.34	20.51	199.38	69.09	300.41	59.46	553.47	101.84	0.07	9.33	7.31

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
56	0.33	31.89	0.14	1.29	1.99	0.61	11.60	4.91	65.67	28.49	146.22	35.96	384.91	82.80	0.30	57.75	174.08
59	0.00	1.90	0.04	0.79	1.72	0.17	9.93	3.63	45.22	16.79	75.35	16.00	156.18	29.12	0.10	23.73	81.72
60	0.02	19.89	0.02	0.44	1.39	0.55	10.30	4.16	53.67	22.27	108.42	25.06	266.43	55.23	0.32	43.38	172.51
61	0.07	2.13	0.06	0.60	1.40	0.68	7.87	2.58	22.75	6.68	26.21	5.53	55.19	9.91	0.50	10.19	35.48
62	1.95	23.67	0.95	5.25	4.81	0.33	19.09	6.97	81.98	30.82	136.63	28.62	276.35	51.78	0.09	21.94	51.71
63	0.00	14.42	0.08	1.82	3.71	0.14	20.46	7.91	100.11	40.30	185.23	39.77	377.58	68.52	0.04	27.10	91.60
66	0.01	6.81	0.04	1.09	2.35	0.13	11.53	3.88	44.19	16.83	71.74	14.43	137.42	26.01	0.06	18.25	52.63
67	0.02	16.95	0.08	1.60	3.38	0.33	17.20	6.21	74.62	28.83	131.37	27.43	265.85	50.98	0.11	23.98	70.79
68	0.00	14.31	0.03	0.71	2.16	0.19	18.01	8.25	114.46	49.19	239.04	53.00	526.17	102.19	0.06	45.91	219.24
69	0.01	6.12	0.19	3.73	7.21	1.32	35.06	11.31	125.54	44.84	183.01	35.72	324.14	59.13	0.21	13.65	40.46
70	3.51	28.06	1.20	5.50	3.85	0.66	11.41	4.62	56.90	23.08	117.79	28.47	303.73	64.90	0.28	46.02	71.00
73	0.03	11.18	0.05	1.02	2.87	1.42	20.26	7.61	93.67	37.08	169.03	35.99	362.73	73.52	0.42	29.36	113.75
75	0.13	43.75	0.43	3.07	4.67	0.64	22.51	8.68	102.78	38.60	175.10	36.81	350.14	65.30	0.16	23.47	67.48
76	0.01	5.13	0.06	1.24	3.28	0.13	21.22	8.75	111.78	44.94	204.50	43.07	406.36	75.06	0.04	28.62	111.50
78	3.63	37.54	1.28	8.40	4.55	2.68	15.75	4.52	48.72	17.85	77.01	15.96	155.10	31.50	0.87	16.18	30.68
79	0.00	6.91	0.05	0.82	1.72	0.32	8.85	3.24	41.65	17.30	85.17	19.07	194.21	39.77	0.20	36.36	101.62
80	0.01	23.72	0.15	2.82	5.61	2.20	27.72	10.14	122.96	47.91	226.51	50.65	513.65	105.14	0.44	30.69	82.40
81	0.65	42.14	0.19	1.96	3.17	0.75	15.88	6.27	78.76	31.78	149.58	33.37	333.62	66.21	0.26	33.73	94.72
83	0.00	10.34	0.02	0.44	0.93	0.33	5.47	2.27	30.13	13.04	70.36	17.53	198.41	44.08	0.35	65.20	192.01
84	0.19	11.53	0.24	2.11	4.65	0.35	27.04	11.94	156.64	62.96	289.81	61.29	567.70	102.91	0.07	30.79	109.88

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
85	0.72	17.19	0.26	1.72	2.02	0.37	13.22	5.33	70.61	30.84	155.81	37.28	397.18	84.60	0.16	51.77	176.96
86	13.25	53.95	3.38	15.41	4.95	0.48	14.14	4.70	55.60	21.86	108.61	25.89	272.98	56.03	0.16	32.06	49.63
87	121.47	286.12	31.92	134.55	23.81	1.33	31.46	8.06	86.34	32.45	147.50	31.99	320.20	62.57	0.15	16.09	12.10
88	0.01	5.71	0.18	3.37	6.37	0.37	31.45	11.04	124.11	45.19	187.04	37.04	329.47	57.89	0.07	14.89	46.55
89	14.89	52.56	4.70	21.51	7.60	0.81	23.38	8.22	96.45	36.99	168.96	36.53	353.45	66.56	0.17	23.03	41.86
90	0.05	39.20	0.07	1.15	2.61	0.74	14.50	5.40	71.01	29.61	149.65	35.23	374.76	78.40	0.29	43.74	129.23
91	0.24	15.51	0.11	1.09	1.90	0.37	10.29	3.62	46.32	18.19	83.83	18.19	178.76	34.51	0.21	27.13	84.68
94	0.01	9.83	0.08	1.64	3.36	0.19	16.64	5.71	64.84	23.63	102.76	20.24	190.18	35.09	0.06	17.06	50.94
95	0.00	6.37	0.07	1.59	4.36	0.16	29.00	12.19	155.41	61.43	276.04	57.43	534.10	95.77	0.03	26.72	110.25
97	0.83	7.22	0.24	2.22	3.40	1.16	15.38	5.08	59.09	24.08	115.17	26.27	275.83	57.26	0.41	30.12	73.01
98	2.83	28.57	0.97	6.62	6.39	1.10	26.01	8.76	99.46	37.50	164.74	34.31	330.11	63.19	0.22	19.66	46.49
99	4.93	32.18	2.94	14.77	4.35	0.63	9.38	2.84	30.67	11.94	55.80	12.38	126.79	24.78	0.29	21.37	26.23
101	0.04	35.88	0.21	2.32	3.23	0.70	16.40	6.27	76.55	30.48	140.95	30.64	302.59	58.65	0.24	28.93	84.31
102	0.00	17.19	0.13	2.54	4.61	0.17	23.05	8.21	97.23	37.00	163.51	34.08	316.35	57.66	0.04	20.24	61.76
103	0.01	18.81	0.07	1.42	3.07	0.81	19.17	7.36	93.38	36.42	168.40	35.95	353.33	67.30	0.25	28.40	103.58
106	1.81	53.07	0.88	5.16	4.52	1.76	21.17	7.95	92.92	35.61	159.89	33.96	329.92	62.70	0.46	23.96	65.69
108	0.00	4.02	0.02	0.33	1.39	0.24	9.09	3.54	41.25	14.89	63.34	13.21	123.91	23.70	0.15	21.09	80.23
110	0.08	15.18	0.22	3.43	8.31	2.31	40.19	11.09	92.05	23.81	74.00	11.52	84.79	12.97	0.32	2.61	9.18
111	0.01	7.99	0.06	1.23	2.69	0.44	13.65	4.80	57.81	22.26	102.84	22.05	218.76	44.26	0.18	26.23	73.19
112	0.00	10.54	0.02	0.27	0.70	0.25	4.48	1.74	22.91	9.96	52.03	13.23	151.76	34.38	0.33	62.09	195.68

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
113	0.01	4.45	0.07	1.40	3.39	0.11	21.35	8.34	101.18	38.67	171.73	35.89	332.12	60.80	0.03	23.04	88.17
114	0.01	5.63	0.07	1.45	4.00	0.56	24.43	9.72	121.21	46.80	210.33	44.39	420.87	78.60	0.13	26.03	94.70
115	0.03	87.67	0.34	5.74	8.13	2.57	34.01	10.26	113.04	41.21	179.19	37.60	366.21	70.81	0.41	16.84	40.54
116	49.56	133.46	13.89	61.21	13.71	1.26	22.00	6.24	74.87	29.41	143.21	33.72	351.46	72.87	0.22	26.80	23.07
118	31.94	143.99	13.63	70.49	21.73	1.57	46.83	15.10	183.38	73.61	351.50	79.42	811.44	157.17	0.15	27.15	33.61
119	0.00	8.03	0.03	0.50	1.26	0.34	6.66	2.40	29.52	11.85	56.33	13.03	136.96	27.73	0.29	33.69	98.22
120	0.18	42.36	0.39	4.03	5.03	1.58	21.83	7.02	75.60	27.40	119.57	25.25	246.02	47.85	0.39	17.73	44.02

Table M12. Trace elements of detrital zircons of sandstone sample (YCZG-2) from Caishiling Formation

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu}/\text{Gd})_{\text{N}}$	$(\text{Yb}/\text{Sm})_{\text{N}}$
2	54.89	146.90	16.34	73.59	17.17	0.62	28.57	8.55	95.80	38.21	179.33	39.40	388.35	77.32	0.08	21.90	20.36
3	0.00	11.37	0.03	0.65	1.36	0.39	7.49	2.87	39.80	17.10	88.07	21.63	237.38	52.52	0.57	89.70	157.09
5	25.14	75.05	6.66	28.27	6.60	0.93	14.19	4.28	52.38	20.02	97.02	22.21	236.65	49.16	0.28	28.03	32.27
6	0.29	23.96	0.14	1.84	3.40	0.62	19.27	6.85	87.02	33.97	158.17	34.05	339.51	67.50	0.19	28.34	89.87
7	6.16	24.94	2.09	10.57	4.32	0.20	15.35	6.01	79.11	33.51	165.25	37.43	382.36	77.80	0.07	41.01	79.66
8	0.16	124.85	0.57	4.98	6.45	2.74	32.77	11.20	129.45	49.11	228.10	49.78	509.73	103.18	0.47	25.47	71.13
9	0.05	7.38	0.08	1.44	3.28	0.62	21.72	8.21	104.70	42.45	195.61	41.40	398.56	78.39	0.17	29.20	109.36
10	0.44	44.45	1.07	6.70	5.34	2.11	12.27	4.18	43.92	15.29	70.98	16.47	179.10	39.36	0.77	25.95	30.19
11	0.03	35.74	0.14	1.53	2.87	0.51	13.08	4.45	52.53	19.86	90.05	19.11	190.31	38.19	0.22	23.62	59.68
12	0.07	58.87	0.58	7.40	9.55	4.53	32.91	10.31	108.90	38.36	166.79	35.00	334.83	63.65	0.70	15.65	31.55
13	2.19	77.77	1.11	7.51	7.23	2.23	31.24	11.38	138.61	54.26	248.20	53.49	529.49	106.23	0.39	27.51	65.91
14	0.01	18.75	0.02	0.45	1.09	0.23	5.50	1.97	25.55	10.86	55.59	13.69	150.43	32.52	0.23	47.84	124.44
15	0.02	0.69	0.05	0.94	3.29	0.05	23.95	10.25	123.75	44.91	186.27	36.83	337.56	62.42	0.01	21.09	92.34
16	0.39	63.29	1.02	7.95	8.77	2.27	32.24	11.59	136.01	49.54	213.98	43.00	397.67	72.63	0.37	18.23	40.81
17	0.15	29.84	0.17	2.80	4.30	1.09	18.25	5.84	63.17	24.19	110.92	23.38	233.42	46.77	0.32	20.73	48.86
18	2.50	23.50	0.78	4.16	2.81	0.52	14.97	5.18	65.68	25.82	118.62	26.36	261.40	52.18	0.20	28.20	83.72
19	0.00	12.86	0.07	1.37	3.47	0.54	21.59	9.01	119.46	50.17	240.86	51.38	505.40	99.44	0.15	37.26	131.08
20	0.00	14.13	0.02	0.53	1.25	0.24	7.63	3.13	43.02	19.42	101.93	25.60	283.92	62.22	0.19	65.98	204.10
22	14.07	67.16	5.21	27.80	8.45	0.78	17.51	5.01	51.94	19.37	88.84	19.90	205.96	41.97	0.19	19.39	21.94

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
25	7.80	46.66	1.73	7.14	3.39	1.29	13.69	4.99	63.20	26.37	130.75	31.22	340.53	75.62	0.50	44.69	90.41
27	0.01	29.02	0.04	0.98	1.61	0.35	8.40	2.84	32.97	12.52	58.72	13.35	137.40	28.05	0.24	27.02	76.66
28	2.02	47.44	0.89	5.65	5.61	1.81	20.75	7.23	89.52	35.87	176.16	42.52	469.54	102.57	0.45	39.99	75.33
29	0.32	23.33	0.94	7.46	8.69	1.89	33.62	11.54	133.24	48.25	207.73	42.30	389.37	71.35	0.30	17.17	40.33
30	0.01	4.51	0.01	0.49	1.54	0.06	9.84	4.51	61.67	26.81	136.42	32.31	335.05	67.47	0.03	55.47	196.32
31	59.89	148.88	15.98	69.36	16.13	1.37	27.21	7.74	89.76	35.57	168.91	37.02	376.00	75.78	0.20	22.53	20.98
32	2.73	27.57	1.17	5.64	5.57	0.82	24.50	8.73	101.67	37.76	168.31	34.85	333.38	63.83	0.18	21.08	53.87
33	0.02	12.11	0.08	1.76	3.74	0.16	18.39	6.52	77.16	29.82	132.37	27.45	264.07	50.46	0.05	22.20	63.55
34	0.01	6.42	0.13	3.52	5.99	0.45	32.26	11.06	128.36	47.21	200.40	39.37	351.45	64.39	0.08	16.15	52.81
35	0.03	16.44	0.28	4.06	5.53	1.95	19.98	5.96	63.96	24.35	114.48	25.52	263.89	55.27	0.50	22.38	42.95
36	0.01	14.51	0.07	1.23	2.83	0.16	11.74	3.94	44.10	16.81	76.47	15.79	152.18	29.20	0.07	20.12	48.40
37	0.07	47.66	0.08	1.28	2.29	1.15	12.22	4.18	49.91	19.77	97.94	22.01	245.28	58.36	0.53	38.64	96.52
38	0.00	25.59	0.01	0.49	1.28	0.17	5.66	2.10	26.64	10.72	54.94	12.86	139.39	29.45	0.17	42.10	97.70
39	1.49	31.85	0.94	7.38	6.55	1.50	23.18	7.31	82.27	31.76	143.37	30.41	295.41	59.12	0.33	20.63	40.59
40	0.01	2.27	0.09	1.29	3.03	0.87	12.22	3.08	27.25	7.24	23.46	3.68	31.11	5.24	0.38	3.47	9.24
41	1.06	22.99	0.36	2.41	2.90	0.55	14.84	5.48	64.50	25.07	111.25	23.84	235.77	45.59	0.21	24.86	73.17
42	0.16	16.28	0.36	2.62	2.72	0.75	9.21	3.29	39.72	16.26	80.99	19.19	212.94	47.62	0.41	41.83	70.46
44	1.46	24.06	0.58	3.41	3.38	1.26	11.35	3.88	43.82	16.49	73.65	15.68	155.29	31.53	0.56	22.48	41.35
46	0.03	14.03	0.12	1.32	3.03	0.26	18.24	6.69	72.70	25.56	105.12	20.22	190.39	36.31	0.08	16.11	56.55
47	42.52	108.53	8.72	35.17	8.68	1.81	17.28	5.25	59.48	22.46	103.97	23.38	246.76	52.55	0.44	24.60	25.59

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
48	0.13	15.44	0.27	4.45	7.73	1.57	40.37	13.77	161.26	61.22	272.62	57.05	562.09	110.91	0.22	22.23	65.44
49	2.70	55.79	1.40	8.95	8.44	1.19	30.68	9.64	108.67	39.54	173.06	35.94	350.77	69.84	0.20	18.42	37.40
50	1.81	23.28	0.65	4.50	4.03	0.81	19.29	6.67	81.31	31.62	147.77	32.41	321.83	65.30	0.23	27.39	71.87
51	23.39	61.36	5.93	27.67	10.23	2.46	31.94	9.96	114.37	43.09	196.27	43.13	434.68	89.22	0.38	22.60	38.24
52	0.00	17.38	0.06	1.84	3.73	0.37	16.61	5.28	59.86	21.61	94.83	19.66	188.55	36.26	0.12	17.66	45.49
53	0.21	22.62	0.49	4.60	4.23	2.17	14.14	4.33	45.19	16.50	73.20	16.57	172.55	36.39	0.78	20.82	36.71
55	0.02	30.32	0.03	0.90	2.49	0.22	14.24	5.24	66.63	27.05	130.65	29.04	292.63	56.95	0.09	32.36	105.77
56	0.02	19.85	0.13	2.88	6.24	0.90	26.55	8.48	94.55	33.71	145.62	29.39	276.65	52.73	0.18	16.07	39.90
58	0.05	4.21	0.11	1.71	3.90	0.14	23.13	8.79	105.11	39.59	173.31	35.87	329.08	60.64	0.03	21.21	75.94
59	0.82	111.42	2.10	14.81	11.25	4.85	27.14	8.09	81.77	25.31	104.30	21.70	214.45	43.64	0.81	13.01	17.16
60	0.01	15.84	0.08	1.65	2.50	1.51	11.27	3.43	37.97	14.31	64.92	14.11	137.26	27.23	0.73	19.55	49.41
62	0.06	9.96	0.04	1.18	1.77	0.41	9.88	3.47	42.28	16.84	76.97	16.17	157.21	31.77	0.24	26.02	79.94
63	0.01	25.12	0.09	1.13	2.47	0.25	10.86	3.64	42.61	16.23	73.43	15.90	163.20	33.34	0.12	24.84	59.47
64	0.01	15.69	0.10	2.07	3.42	0.18	18.46	6.40	78.55	29.82	132.56	28.07	264.21	49.62	0.05	21.75	69.53
65	19.88	93.56	10.05	51.69	14.67	1.89	26.09	7.42	84.57	32.61	158.10	35.92	366.82	75.72	0.29	23.48	22.50
66	0.08	10.14	0.04	0.32	1.25	0.12	8.21	3.19	41.89	17.32	84.64	18.99	195.45	39.48	0.08	38.91	140.95
67	0.04	12.13	0.10	0.93	1.10	0.39	4.82	1.77	21.20	8.65	43.28	10.66	119.36	27.46	0.44	46.09	97.84
68	0.01	45.44	0.11	2.68	6.04	1.29	34.97	13.01	155.34	61.03	279.67	57.49	552.77	107.55	0.21	24.88	82.37
69	0.01	16.10	0.06	1.14	2.08	0.22	8.16	2.80	32.96	13.11	59.01	13.28	143.00	30.73	0.14	30.47	61.99
70	0.03	31.43	0.38	5.31	6.83	1.62	25.13	7.02	69.84	25.10	107.66	22.32	220.34	44.28	0.33	14.26	29.03

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
71	0.01	9.43	0.04	0.74	1.18	0.51	6.49	2.25	28.73	12.00	58.28	13.87	152.27	34.84	0.45	43.43	116.63
72	0.80	15.82	0.37	3.16	4.45	0.10	25.37	9.23	110.84	41.47	179.91	36.40	334.30	62.41	0.02	19.90	67.61
73	0.00	6.75	0.02	0.46	1.31	0.25	9.13	4.60	69.55	30.26	157.61	39.35	418.21	82.36	0.16	72.98	287.32
74	0.25	22.21	0.54	4.88	5.64	1.07	22.09	7.27	82.17	30.41	134.61	28.42	272.12	53.04	0.25	19.43	43.42
75	0.23	65.59	0.57	5.15	6.01	2.01	18.31	5.78	59.97	21.28	93.71	20.26	206.76	40.53	0.54	17.91	30.96
76	0.63	3.24	0.27	2.38	3.19	0.14	15.85	5.84	67.42	25.33	111.60	22.33	211.63	41.48	0.05	21.17	59.71
77	2.64	110.72	2.97	21.27	14.62	5.56	35.34	10.17	99.78	32.22	135.62	29.99	304.56	61.42	0.72	14.06	18.75
78	0.01	22.35	0.10	1.70	3.48	1.66	17.94	6.55	79.93	31.96	147.67	31.63	319.47	64.59	0.52	29.13	82.62
79	0.01	13.58	0.16	2.49	4.47	1.21	22.68	7.87	99.06	40.97	195.30	45.15	472.52	98.58	0.30	35.17	95.14
80	0.01	33.17	0.16	2.85	5.75	1.51	22.61	7.45	81.81	29.96	128.49	25.97	248.92	47.84	0.35	17.12	38.96
81	0.01	15.70	0.06	1.14	2.17	0.93	10.18	3.20	36.89	13.86	64.15	14.26	148.78	32.21	0.50	25.60	61.76
84	0.01	6.15	0.10	1.78	3.03	0.37	17.98	6.18	70.37	26.63	114.92	23.22	220.10	41.56	0.12	18.70	65.38
85	0.01	17.53	0.17	4.41	7.06	0.04	32.57	9.91	107.20	38.12	156.78	30.13	277.26	52.30	0.01	12.99	35.34
86	0.03	8.08	0.09	0.92	3.60	0.28	18.24	6.33	63.41	19.54	78.09	15.21	139.16	25.51	0.09	11.32	34.79
87	0.01	40.03	0.10	1.66	3.46	0.78	19.49	7.03	86.11	33.63	153.08	33.59	333.18	65.16	0.23	27.05	86.67
88	1.15	11.06	0.47	3.55	4.46	0.46	19.72	6.69	74.66	27.43	115.93	22.58	209.01	38.25	0.13	15.69	42.18
90	0.22	19.16	1.04	15.57	24.64	1.33	111.51	33.52	339.75	113.91	431.02	75.89	622.73	108.33	0.07	7.86	22.75
91	0.12	13.10	0.38	2.91	4.40	0.69	17.74	5.95	59.18	21.03	90.84	19.74	201.27	40.37	0.21	18.41	41.17
92	0.34	24.15	0.13	1.29	2.37	0.51	10.83	3.55	38.18	14.68	68.24	15.00	152.60	30.93	0.26	23.11	57.95
93	0.02	3.29	0.07	1.44	3.92	0.17	29.59	12.92	171.40	66.68	299.62	61.01	566.27	105.39	0.04	28.82	130.01
94	0.01	23.08	0.09	1.62	3.07	0.50	12.21	3.49	41.03	14.63	64.86	13.66	133.79	26.54	0.22	17.59	39.22

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
95	0.01	36.06	0.05	1.23	2.72	0.69	14.96	5.58	69.90	27.79	135.37	30.91	316.25	65.94	0.26	35.66	104.64
96	0.01	21.71	0.06	1.06	2.44	1.13	13.96	5.12	71.59	31.07	157.71	38.01	420.31	92.34	0.46	53.52	155.03
97	3.93	25.69	1.82	8.35	5.91	2.36	21.59	6.88	75.81	27.04	118.66	26.08	281.67	58.59	0.57	21.96	42.89
98	0.03	16.00	0.05	0.90	2.37	0.32	14.26	5.26	62.70	24.67	114.05	24.68	244.23	47.87	0.13	27.16	92.75
99	10.14	47.91	4.42	21.63	10.72	1.58	27.92	8.42	95.08	36.33	162.76	34.01	335.56	66.00	0.26	19.13	28.17
100	0.00	4.08	0.05	1.27	3.47	0.49	18.33	6.21	75.11	28.74	126.48	26.24	262.41	51.98	0.15	22.94	68.06
101	0.35	50.49	0.67	5.67	6.78	2.10	22.34	7.70	88.40	32.03	145.52	31.78	308.68	59.73	0.47	21.63	40.98
102	9.45	75.83	3.69	17.95	8.95	2.63	34.50	12.09	137.46	53.03	243.23	52.24	521.23	107.29	0.40	25.16	52.41
104	0.24	18.19	0.35	2.21	2.59	1.12	10.43	4.00	52.81	22.94	119.47	29.06	326.88	72.64	0.57	56.35	113.59
105	56.75	159.05	17.96	82.89	17.97	1.35	21.01	4.92	49.21	17.71	79.31	16.51	164.12	32.07	0.21	12.35	8.22
106	0.01	12.07	0.08	1.85	3.27	0.18	15.55	5.25	58.81	21.72	92.95	18.51	175.80	34.28	0.06	17.84	48.39
107	0.03	40.36	0.15	2.18	3.87	0.50	15.90	5.17	54.29	19.99	89.17	19.33	193.61	38.91	0.17	19.80	45.03
108	0.15	16.62	0.50	8.87	13.31	0.74	56.19	18.60	209.27	74.81	305.74	58.05	511.36	91.40	0.07	13.16	34.58
109	0.01	11.48	0.05	1.13	2.25	0.45	12.93	4.61	53.62	20.42	89.59	18.44	175.47	33.82	0.20	21.16	70.19
110	3.72	76.67	1.77	9.89	6.66	2.10	25.71	9.58	115.11	45.53	216.99	48.51	493.92	97.30	0.43	30.62	66.75
112	0.02	6.88	0.03	0.50	1.76	0.12	10.54	4.26	53.16	21.80	104.20	23.08	231.07	44.65	0.06	34.27	118.36
113	0.79	78.79	1.99	13.86	12.66	4.76	39.30	14.88	174.07	62.38	278.36	57.73	538.34	100.08	0.60	20.60	38.27
114	10.15	43.98	3.69	17.66	6.47	0.57	20.02	7.44	94.82	39.25	187.75	41.27	415.94	80.35	0.14	32.47	57.86
115	9.35	52.88	2.11	8.94	3.36	0.95	11.31	3.44	37.60	14.42	67.51	15.99	162.42	34.20	0.42	24.46	43.51
117	4.45	24.20	1.23	8.30	5.75	0.36	20.71	6.18	68.75	24.96	108.10	21.80	207.28	40.51	0.09	15.83	32.44
118	0.23	33.85	0.35	3.09	4.60	0.40	26.11	9.91	122.72	46.58	209.27	42.68	403.19	75.31	0.09	23.34	78.89

Content (ppm)															Calculation		
Spot	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	δEu	$(\text{Lu/Gd})_{\text{N}}$	$(\text{Yb/Sm})_{\text{N}}$
120	0.03	44.09	0.27	4.53	7.16	2.25	26.43	7.20	77.90	28.44	132.64	30.27	323.40	68.48	0.44	20.96	40.65

Table M1. Th/U ratios of detrital zircons of sandstone sample (QYG-1) from Xiaomeigou Formation

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
1	67.67	80.14	0.84		32	93.83	1389.92	0.07		61	272.53	470.93	0.58
2	117.85	393.63	0.30		33	445.44	900.51	0.49		63	244.77	639.91	0.38
3	314.13	747.44	0.42		34	301.70	547.52	0.55		64	116.35	121.95	0.95
4	530.34	521.36	1.02		35	296.79	775.24	0.38		65	391.97	680.35	0.58
5	74.68	164.53	0.45		37	445.62	567.81	0.78		66	131.65	259.18	0.51
6	119.88	454.31	0.26		40	75.78	111.61	0.68		68	397.81	708.35	0.56
7	671.42	852.67	0.79		41	402.70	437.46	0.92		69	386.79	319.38	1.21
8	492.00	920.20	0.53		42	418.18	410.91	1.02		71	134.97	434.85	0.31
9	210.75	716.21	0.29		43	304.29	813.94	0.37		72	976.46	481.46	2.03
10	311.90	613.72	0.51		46	292.27	300.67	0.97		73	416.72	403.92	1.03
11	996.32	742.54	1.34		47	258.60	638.69	0.40		74	490.62	494.88	0.99
12	232.86	769.24	0.30		48	515.54	827.89	0.62		75	76.86	199.92	0.38
15	110.48	91.43	1.21		49	207.80	369.50	0.56		76	410.58	683.77	0.60
16	394.27	623.00	0.63		50	180.46	485.98	0.37		77	60.16	96.83	0.62
21	104.60	950.51	0.11		51	29.40	83.91	0.35		79	502.38	987.23	0.51
23	139.58	617.34	0.23		53	113.21	229.38	0.49		80	200.88	407.41	0.49
24	70.98	148.18	0.48		54	128.87	332.05	0.39		81	375.49	1138.45	0.33
26	39.24	130.43	0.30		55	80.57	169.06	0.48		82	65.28	152.30	0.43
27	243.89	512.90	0.48		57	249.52	351.72	0.71		83	146.02	616.57	0.24
28	91.35	207.49	0.44		58	100.43	532.16	0.19		88	79.31	272.90	0.29
29	556.99	1239.76	0.45		59	833.97	552.58	1.51		90	97.20	245.26	0.40
30	241.01	617.90	0.39		60	362.67	586.71	0.62		91	78.55	105.34	0.75

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
93	108.95	203.52	0.54		102	22.00	31.05	0.71		111	374.45	576.66	0.65
94	450.56	1036.46	0.43		103	87.00	266.37	0.33		116	256.00	612.04	0.42
97	115.25	314.71	0.37		104	130.65	271.34	0.48		118	99.54	527.39	0.19
98	291.52	985.24	0.30		106	82.15	126.50	0.65		120	629.04	1261.21	0.50
99	260.12	512.83	0.51		108	435.23	821.63	0.53					
101	144.25	556.62	0.26		109	77.30	178.57	0.43					

Table M2. Th/U ratios of detrital zircons of sandstone sample (SN-1) from Dameigou Formation

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
2	507.08	566.91	0.89		31	141.86	416.88	0.34		57	141.14	287.06	0.49
3	255.86	471.53	0.54		32	63.58	221.17	0.29		58	1896.77	1861.35	1.02
4	234.73	254.70	0.92		33	346.77	589.42	0.59		59	644.51	1193.42	0.54
5	1755.45	1171.03	1.50		34	2152.48	984.29	2.19		60	264.64	517.38	0.51
6	352.71	1737.78	0.20		35	223.98	487.85	0.46		61	469.61	630.74	0.74
8	202.80	385.04	0.53		36	205.35	336.49	0.61		62	191.04	270.11	0.71
9	476.32	559.36	0.85		37	676.69	1162.52	0.58		63	182.26	323.14	0.56
10	257.79	303.31	0.85		38	352.55	584.68	0.60		64	355.07	771.62	0.46
11	764.51	871.84	0.88		39	704.11	962.42	0.73		65	211.70	326.81	0.65
12	277.43	311.17	0.89		40	246.48	402.10	0.61		66	519.58	778.46	0.67
13	112.07	200.32	0.56		41	713.05	855.12	0.83		67	340.10	989.10	0.34
14	354.69	1353.61	0.26		42	203.23	581.84	0.35		68	468.51	554.15	0.85
15	292.66	464.38	0.63		43	246.59	392.05	0.63		69	283.50	346.35	0.82
16	899.02	559.47	1.61		44	173.36	402.62	0.43		70	319.34	740.06	0.43
18	331.25	634.43	0.52		45	387.88	573.51	0.68		71	438.36	484.75	0.90
19	335.27	426.00	0.79		47	645.36	742.40	0.87		72	494.94	550.46	0.90
23	269.99	475.70	0.57		48	661.96	852.31	0.78		73	288.91	589.11	0.49
25	585.79	670.29	0.87		50	240.93	644.37	0.37		74	228.18	518.52	0.44
26	382.43	450.17	0.85		52	275.18	455.56	0.60		75	332.10	795.77	0.42
27	192.25	280.23	0.69		53	237.65	478.89	0.50		76	379.05	1129.01	0.34
28	138.22	378.70	0.36		54	244.25	499.25	0.49		77	203.52	440.83	0.46
29	357.41	470.45	0.76		55	193.05	231.50	0.83		78	352.53	1149.04	0.31

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
79	228.03	380.42	0.60		93	316.78	497.60	0.64		107	690.76	455.42	1.52
80	220.00	981.51	0.22		94	309.99	360.21	0.86		108	120.82	223.70	0.54
81	223.45	505.17	0.44		95	422.58	472.74	0.89		110	1433.29	1320.60	1.09
82	336.38	456.23	0.74		96	476.93	520.60	0.92		111	160.39	355.67	0.45
83	103.47	194.33	0.53		97	211.91	382.90	0.55		112	278.32	428.86	0.65
84	276.18	486.95	0.57		98	309.80	462.02	0.67		113	277.23	449.19	0.62
85	306.12	946.20	0.32		99	863.95	1598.12	0.54		114	369.07	653.39	0.56
87	1349.64	828.64	1.63		100	305.37	417.82	0.73		115	749.76	609.14	1.23
88	209.24	252.65	0.83		102	1492.45	1033.59	1.44		117	489.31	760.49	0.64
89	127.63	293.05	0.44		103	417.60	813.43	0.51		118	400.57	642.99	0.62
90	413.91	534.42	0.77		104	193.18	303.67	0.64		119	462.46	678.85	0.68
91	262.48	473.92	0.55		105	432.92	523.92	0.83		120	374.33	590.60	0.63
92	157.05	374.68	0.42		106	211.94	754.28	0.28					

Table M3. Th/U ratios of detrital zircons of sandstone sample (QYG-2) from Caishiling Formation

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
1	343.75	689.56	0.50		33	148.99	114.38	1.30		57	199.32	980.43	0.20
2	139.25	405.09	0.34		34	63.93	321.14	0.20		58	231.16	832.96	0.28
3	305.65	825.73	0.37		35	324.61	705.76	0.46		59	113.43	177.40	0.64
4	341.54	499.08	0.68		36	198.76	605.95	0.33		61	128.42	297.92	0.43
5	74.59	707.62	0.11		37	182.85	158.76	1.15		62	304.47	438.74	0.69
6	4.44	7.63	0.58		38	67.47	92.60	0.73		63	150.27	249.52	0.60
7	241.13	381.65	0.63		39	379.90	496.12	0.77		66	106.46	141.92	0.75
9	22.25	39.83	0.56		40	109.58	295.27	0.37		67	497.47	860.39	0.58
10	70.33	136.55	0.52		42	442.73	930.61	0.48		68	75.33	132.05	0.57
11	74.59	147.04	0.51		43	488.93	740.81	0.66		69	56.41	113.90	0.50
12	112.37	159.50	0.70		44	278.48	491.43	0.57		71	165.86	207.89	0.80
13	162.44	231.80	0.70		45	13.24	53.48	0.25		72	419.75	794.02	0.53
16	501.65	769.27	0.65		47	283.43	400.17	0.71		73	28.24	292.55	0.10
17	110.80	226.55	0.49		48	37.13	210.39	0.18		74	93.73	1053.06	0.09
20	43.92	59.45	0.74		49	162.38	192.56	0.84		75	160.86	333.76	0.48
23	91.13	164.73	0.55		50	218.10	1170.37	0.19		78	610.79	519.31	1.18
24	241.55	381.05	0.63		51	151.73	415.72	0.36		79	307.82	535.95	0.57
25	349.49	1614.42	0.22		52	307.02	678.77	0.45		80	204.54	311.84	0.66
26	285.41	1020.01	0.28		53	153.86	200.54	0.77		81	340.51	808.17	0.42
28	188.28	587.31	0.32		54	389.32	663.41	0.59		85	140.36	183.95	0.76
30	218.42	1375.91	0.16		55	82.72	686.78	0.12		86	151.98	494.89	0.31
32	196.11	307.98	0.64		56	461.15	681.83	0.68		87	346.82	709.92	0.49

[illegible]

Table M4. Th/U ratios of detrital zircons of sandstone sample (bD-15) from Xiaomeigou Formation

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
8-1	233.17	256.81	0.91		76-1	214.66	290.67	0.74		24	14.31	31.04	0.46
9-1	151.59	222.00	0.68		78-1	140.23	216.57	0.65		27	46.06	53.08	0.87
11-1	108.01	126.00	0.86		84-1	184.67	285.78	0.65		28	68.02	81.09	0.84
13-1	237.26	316.58	0.75		86-1	65.05	71.92	0.90		30	79.79	97.97	0.81
16-1	194.85	192.63	1.01		88-1	162.43	281.60	0.58		31	171.91	243.33	0.71
20-1	238.24	314.25	0.76		89-1	157.89	200.99	0.79		39	211.21	237.68	0.89
21-1	148.19	215.86	0.69		100-1	132.67	292.55	0.45		44	176.07	279.90	0.63
22-1	87.70	133.13	0.66		102-1	286.77	396.22	0.72		47	32.89	48.56	0.68
23-1	102.10	105.44	0.97		108-1	185.43	234.49	0.79		54	35.73	46.68	0.77
34-1	169.91	295.70	0.57		110-1	85.34	138.82	0.61		55	75.55	86.16	0.88
36-1	154.57	98.31	1.57		111-1	353.47	371.45	0.95		59	95.12	140.68	0.68
41-1	84.16	142.37	0.59		115-1	98.28	224.06	0.44		71	81.60	97.30	0.84
46-1	100.22	115.37	0.87		118-1	274.98	291.35	0.94		74	119.29	99.95	1.19
51-1	212.13	341.10	0.62		2	137.87	186.19	0.74		76	172.30	113.34	1.52
53-1	157.35	365.12	0.43		4	106.34	94.85	1.12		80	162.63	195.18	0.83
54-1	150.16	136.76	1.10		6	220.00	138.45	1.59		83	144.49	115.67	1.25
55-1	140.94	236.61	0.60		7	29.27	20.31	1.44		88	146.54	217.32	0.67
59-1	189.50	232.47	0.82		10	68.11	105.68	0.64		90	150.84	160.89	0.94
65-1	104.60	209.68	0.50		13	66.76	72.16	0.93		95	123.88	154.15	0.80
72-1	156.30	184.98	0.84		15	184.84	174.30	1.06		96	99.97	188.10	0.53
73-1	126.22	237.83	0.53		17	79.13	97.54	0.81		101	165.33	211.72	0.78
74-1	215.29	203.37	1.06		22	36.11	191.99	0.19		102	26.83	56.46	0.48

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
103	299.85	640.53	0.47		105	50.01	74.39	0.67		118	39.57	75.84	0.52
104	19.94	22.47	0.89		106	67.13	109.44	0.61		120	145.39	103.72	1.40

Table M5. Th/U ratios of detrital zircons of sandstone sample (bD-49) from Xiaomeigou Formation

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
1	879.24	930.50	0.94		25	202.44	145.28	1.39		47	387.66	333.70	1.16
2	176.95	356.02	0.50		26	224.46	404.74	0.55		49	430.29	561.25	0.77
3	278.46	541.43	0.51		27	213.26	413.31	0.52		50	196.72	439.80	0.45
5	44.13	77.92	0.57		28	56.93	419.49	0.14		52	227.01	519.84	0.44
6	65.55	131.39	0.50		30	168.33	348.60	0.48		53	207.82	637.76	0.33
7	178.14	244.22	0.73		31	271.28	377.16	0.72		57	115.59	160.13	0.72
8	78.92	182.02	0.43		32	518.69	955.68	0.54		58	275.34	538.21	0.51
9	110.70	202.54	0.55		33	122.52	140.68	0.87		59	149.95	287.93	0.52
10	279.12	460.40	0.61		34	167.33	118.10	1.42		60	433.57	482.38	0.90
11	350.65	426.43	0.82		35	512.65	596.41	0.86		61	194.67	414.82	0.47
12	145.04	181.01	0.80		36	255.94	448.54	0.57		63	205.93	377.19	0.55
13	407.45	503.12	0.81		37	151.35	101.39	1.49		65	512.98	545.71	0.94
14	370.53	296.63	1.25		38	267.32	416.73	0.64		67	147.13	364.53	0.40
15	156.23	292.45	0.53		39	198.23	386.83	0.51		69	145.24	173.57	0.84
16	366.52	850.57	0.43		40	323.13	576.73	0.56		70	142.83	177.45	0.80
17	133.32	272.40	0.49		41	90.87	197.46	0.46		71	319.44	396.57	0.81
18	184.80	273.83	0.67		42	414.46	483.17	0.86		72	634.41	495.48	1.28
19	337.79	399.59	0.85		43	567.82	681.82	0.83		73	38.95	261.62	0.15
20	247.18	349.53	0.71		44	196.66	323.37	0.61		74	159.03	280.95	0.57
21	40.15	69.64	0.58		45	747.69	839.00	0.89		75	385.75	327.37	1.18
23	215.58	241.00	0.89		46	454.28	557.89	0.81		76	127.57	219.70	0.58
1	879.24	930.50	0.94		25	202.44	145.28	1.39		47	387.66	333.70	1.16

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
78	171.63	473.14	0.36		93	449.63	468.14	0.96		107	25.62	543.49	0.05
80	220.64	354.41	0.62		94	513.79	512.58	1.00		108	191.98	819.41	0.23
82	114.50	162.85	0.70		95	508.01	441.54	1.15		109	136.99	295.10	0.46
83	439.05	426.68	1.03		96	107.46	244.65	0.44		111	136.24	389.97	0.35
84	275.43	529.24	0.52		97	64.88	367.11	0.18		112	346.07	246.21	1.41
85	109.94	240.43	0.46		98	139.62	149.36	0.93		114	179.47	170.91	1.05
86	240.07	338.86	0.71		99	477.53	811.50	0.59		115	291.77	367.13	0.79
87	300.31	442.78	0.68		100	164.79	365.23	0.45		116	86.85	116.00	0.75
88	361.86	414.68	0.87		101	511.15	473.75	1.08		117	250.99	144.95	1.73
89	191.49	210.96	0.91		103	95.91	147.60	0.65		118	645.19	515.03	1.25
90	108.08	238.49	0.45		104	54.52	144.74	0.38		119	196.95	434.82	0.45
91	202.34	347.86	0.58		105	267.18	308.57	0.87		120	111.21	274.11	0.41
92	117.99	195.51	0.60		106	87.90	177.33	0.50					

Table M6. Th/U ratios of detrital zircons of sandstone sample (bD-212) from Dameigou Formation

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
1	104.12	109.73	0.95		48	66.73	84.14	0.79		93	64.63	196.38	0.33
5	69.51	153.05	0.45		49	80.7	136.47	0.59		94	62.96	121.81	0.52
8	49.47	40.25	1.23		52	49.69	86.47	0.57		95	103.96	190.82	0.54
10	61.99	68.96	0.90		59	49.84	48.99	1.02		96	67.37	110.67	0.61
11	29.15	34.74	0.84		61	64.15	98.56	0.65		97	110.95	89.64	1.24
12	49.26	86.71	0.57		62	123.69	177.98	0.69		99	133.36	152.85	0.87
16	52.74	96.89	0.54		64	52.12	62.69	0.83		100	32.17	62.93	0.51
17	143.94	163.96	0.88		67	144.07	139.16	1.04		101	24.54	61.92	0.40
18	60.85	134.3	0.45		68	154.14	261.66	0.59		102	109.7	131.49	0.83
20	117.91	176.44	0.67		69	153.61	241.25	0.64		103	88.66	113.64	0.78
24	145.97	156.91	0.93		70	100.76	152.38	0.66		105	174.95	186.24	0.94
26	45.37	78	0.58		71	64.93	79.95	0.81		106	61.14	62.91	0.97
28	43.93	30.08	1.46		72	52.06	49.54	1.05		108	70.4	318.3	0.22
29	82.08	88.06	0.93		74	59.6	104.09	0.57		110	104.19	165.98	0.63
31	57.11	99.36	0.57		76	114	140.63	0.81		111	35.19	134.6	0.26
32	48.72	63.87	0.76		79	93.94	146.04	0.64		112	38.95	40.64	0.96
33	94.76	102.99	0.92		82	54.26	240.47	0.23		113	63.62	73.92	0.86
36	84.4	126.35	0.67		83	203.46	240.77	0.85		114	70.99	87.59	0.81
38	88.6	148.01	0.60		84	122.23	170.83	0.72		115	56.45	60.26	0.94
39	59.29	108.13	0.55		88	87.77	97.19	0.90		116	98.85	261.38	0.38
41	125.07	155.69	0.80		90	74.54	103.82	0.72		117	76.48	108.84	0.70
45	92.97	99.91	0.93		91	66.73	84.14	0.79		119	45.47	32.88	1.38

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
120	122.03	166.66	0.73		40-1	166.60	220.65	0.76		90-1	133.90	237.67	0.56
3-1	247.01	352.35	0.70		42-1	129.14	203.63	0.63		92-1	142.14	225.07	0.63
18-1	19.26	20.66	0.93		43-1	170.84	257.60	0.66		93-1	78.52	265.90	0.30
19-1	28.04	33.42	0.84		45-1	179.74	303.87	0.59		95-1	134.11	133.21	1.01
20-1	101.04	113.11	0.89		49-1	231.67	292.63	0.79		100-1	131.85	298.20	0.44
26-1	91.90	140.21	0.66		54-1	222.45	332.22	0.67		109-1	219.65	233.06	0.94
27-1	107.65	188.16	0.57		58-1	124.82	187.60	0.67		111-1	166.73	299.84	0.56
29-1	152.83	220.47	0.69		69-1	125.27	121.49	1.03		117-1	62.47	64.74	0.96
30-1	146.65	191.39	0.77		84-1	74.87	64.93	1.15		120-1	90.91	113.38	0.80
31-1	87.04	115.90	0.75		85-1	201.60	657.37	0.31					

Table M7. Th/U ratios of detrital zircons of sandstone sample (LH-2) from Dameigou Formation

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
1	80.44	301.12	0.27		29	330.94	409.68	0.81		60	77.13	109.91	0.70
2	37.51	110.62	0.34		30	321.94	347.47	0.93		61	46.83	112.40	0.42
3	505.11	452.46	1.12		31	101.35	186.18	0.54		62	38.22	54.29	0.70
4	162.35	83.35	1.95		32	143.13	198.53	0.72		63	376.73	423.63	0.89
5	68.14	32.16	2.12		33	98.01	242.06	0.40		65	315.06	267.27	1.18
6	319.65	564.52	0.57		34	78.70	159.13	0.49		66	101.91	222.03	0.46
7	477.68	450.48	1.06		35	10.24	33.44	0.31		68	10.48	41.56	0.25
8	62.90	129.25	0.49		36	441.63	496.70	0.89		69	1225.56	664.91	1.84
9	43.53	123.16	0.35		38	60.42	142.28	0.42		70	238.10	324.23	0.73
10	71.35	110.97	0.64		41	362.45	411.68	0.88		72	165.73	235.06	0.71
11	232.03	496.09	0.47		42	301.27	104.81	2.87		73	250.52	354.13	0.71
12	26.79	83.48	0.32		43	271.05	350.18	0.77		75	77.10	195.19	0.39
13	83.96	187.94	0.45		44	381.83	395.94	0.96		76	421.60	461.08	0.91
16	179.53	270.33	0.66		45	16.71	58.21	0.29		77	158.32	435.39	0.36
17	239.25	302.58	0.79		47	307.85	341.82	0.90		78	308.92	410.89	0.75
21	74.47	133.10	0.56		49	53.02	78.65	0.67		80	7.52	27.91	0.27
22	98.34	204.26	0.48		50	259.64	222.19	1.17		82	253.86	369.67	0.69
23	334.08	357.62	0.93		54	125.65	199.50	0.63		83	307.83	386.60	0.80
24	220.74	227.38	0.97		55	280.90	129.92	2.16		84	136.17	1020.07	0.13
25	102.72	571.02	0.18		56	225.51	298.96	0.75		86	256.03	402.56	0.64
27	54.30	71.24	0.76		58	356.84	393.06	0.91		88	565.66	457.24	1.24
28	91.76	197.95	0.46		59	683.24	430.67	1.59		89	44.30	84.44	0.52

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
91	89.95	183.29	0.49		103	124.80	273.10	0.46		111	180.26	274.49	0.66
93	380.32	437.09	0.87		104	328.10	393.66	0.83		112	393.93	357.81	1.10
94	234.98	222.38	1.06		106	134.84	174.85	0.77		114	347.80	421.26	0.83
95	180.51	403.57	0.45		107	199.77	372.81	0.54		115	377.38	270.84	1.39
96	206.20	408.08	0.51		108	365.83	566.04	0.65		117	154.97	244.62	0.63
97	456.28	945.85	0.48		99	196.46	532.48	0.37		118	423.09	315.05	1.34
98	434.53	331.05	1.31		100	73.98	120.71	0.61					
102	217.29	902.84	0.24		109	244.57	540.41	0.45					

Table M8. Th/U ratios of detrital zircons of sandstone sample (JLS-1) from Dameigou Formation

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
2	87.21	124.40	0.70		28	143.69	410.14	0.35		54	222.68	161.60	1.38
4	365.80	545.28	0.67		29	120.89	353.19	0.34		56	119.67	390.83	0.31
5	301.31	495.08	0.61		30	214.54	360.90	0.59		57	354.30	399.30	0.89
6	442.82	647.21	0.68		32	289.03	125.42	2.30		58	352.69	285.54	1.24
7	183.22	290.60	0.63		33	371.04	744.52	0.50		60	251.21	323.86	0.78
8	64.88	216.48	0.30		34	353.09	376.91	0.94		62	403.05	524.44	0.77
9	328.27	516.95	0.64		35	416.36	353.56	1.18		63	1170.16	695.78	1.68
11	147.55	167.31	0.88		36	280.43	313.91	0.89		64	455.66	441.27	1.03
12	128.57	194.48	0.66		37	1762.78	1332.92	1.32		65	128.04	1538.52	0.08
13	109.81	106.76	1.03		38	1095.27	722.83	1.52		66	94.86	91.22	1.04
14	823.45	653.20	1.26		39	134.17	82.13	1.63		68	93.19	1790.97	0.05
15	234.26	311.26	0.75		40	526.14	560.08	0.94		69	209.36	307.45	0.68
18	408.45	477.15	0.86		41	434.22	453.09	0.96		70	1082.71	804.77	1.35
19	357.12	254.18	1.40		42	146.14	113.02	1.29		71	908.55	806.82	1.13
20	139.41	262.16	0.53		44	465.16	259.25	1.79		72	371.38	303.71	1.22
21	59.73	253.07	0.24		46	215.97	345.46	0.63		73	479.26	430.31	1.11
22	48.64	208.17	0.23		47	692.86	699.93	0.99		74	389.48	645.09	0.60
23	244.22	344.75	0.71		48	112.90	347.76	0.32		75	165.75	123.56	1.34
24	178.39	128.19	1.39		49	44.28	248.49	0.18		78	1458.08	1741.45	0.84
25	333.73	367.06	0.91		50	531.92	682.57	0.78		79	751.02	689.45	1.09
26	214.65	291.95	0.74		51	529.21	521.66	1.01		80	431.09	327.57	1.32
27	92.87	130.17	0.71		53	554.20	521.16	1.06		81	2465.80	1100.19	2.24

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
82	756.58	501.56	1.51		94	550.43	432.59	1.27		106	1091.43	581.43	1.88
84	427.13	374.36	1.14		96	956.63	806.16	1.19		107	1020.05	893.39	1.14
85	265.18	180.89	1.47		97	4504.39	1033.21	4.36		110	762.95	166.94	4.57
86	623.07	633.63	0.98		99	1545.79	1187.48	1.30		112	2181.45	539.75	4.04
88	1385.37	695.81	1.99		100	433.87	289.48	1.50		113	3235.21	746.12	4.34
89	1105.59	800.94	1.38		101	1792.13	1198.21	1.50		114	4091.34	519.69	7.87
90	752.82	576.83	1.31		102	1148.70	445.59	2.58		115	6276.50	1226.27	5.12
91	1799.37	844.85	2.13		103	1760.03	928.40	1.90		118	3408.38	619.14	5.51
92	26.34	1495.50	0.02		104	1889.98	807.34	2.34		119	14237.33	2858.29	4.98
93	261.33	232.38	1.12		105	994.74	256.16	3.88		120	19495.81	1810.34	10.77

Table M9. Th/U ratios of detrital zircons of sandstone sample (KYX-1) from Dameigou Formation

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
1	684.99	420.19	1.63		24	220.61	375.07	0.59		57	161.08	241.70	0.67
2	319.26	502.42	0.64		26	2.26	181.93	0.01		58	70.93	429.17	0.17
3	261.56	352.32	0.74		27	523.60	795.39	0.66		59	388.86	844.74	0.46
4	197.51	348.26	0.57		29	275.91	660.74	0.42		60	284.01	1317.41	0.22
5	251.11	308.29	0.81		30	351.38	480.8	0.73		61	747.54	1871.54	0.40
6	756.41	944.52	0.80		33	195.92	372.12	0.53		62	290.12	383.61	0.76
7	211.43	265.42	0.80		36	652.28	771.19	0.85		67	204.82	244.79	0.84
8	68.06	88.09	0.77		37	282.85	393.10	0.72		68	365.02	361.24	1.01
9	644.39	504.86	1.28		38	915.55	976.87	0.94		69	95.90	359.06	0.27
10	279.14	438.28	0.64		39	159.57	285.51	0.56		70	370.93	456.73	0.81
11	169.24	234.17	0.72		40	605.34	553.44	1.09		72	248.67	371.95	0.67
12	303.05	377.92	0.80		42	54.54	184.25	0.30		73	127.41	420.30	0.30
13	892.35	963.27	0.93		43	459.95	996.89	0.46		74	85.65	403.33	0.21
14	474.09	1006.38	0.47		44	164.45	321.63	0.51		75	663.58	840.78	0.79
15	264.7	403.95	0.66		45	958.05	1042.55	0.92		79	262.51	371.74	0.71
16	293.03	303.27	0.97		46	162.1	159.54	1.02		80	329.25	247.21	1.33
17	151.11	266.35	0.57		48	296.07	361.20	0.82		81	1565.25	969.16	1.62
18	100.83	413.09	0.24		49	293.00	819.00	0.36		82	339.95	773.72	0.44
19	47.73	88.32	0.54		50	332.63	426.5	0.78		83	452.32	592.51	0.76
20	286.99	618.31	0.46		53	239.83	377.05	0.64		84	51.02	317.73	0.16
22	13.13	948.18	0.01		54	422.78	581.76	0.73		85	440.52	588.49	0.75
23	80.61	196.58	0.41		56	130.34	264.22	0.49		86	267.70	284.02	0.94

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
87	269.88	328.86	0.82		100	481.10	605.63	0.79		111	508.41	640.36	0.79
88	128.81	291.57	0.44		101	366.45	519.06	0.71		112	1093.31	1193.16	0.92
90	123.31	296.41	0.42		102	132.09	322.60	0.41		113	545.45	380.33	1.43
91	497.96	733.85	0.68		103	221.68	296.17	0.75		114	54.47	112.35	0.48
93	116.12	250.75	0.46		104	299.27	513.08	0.58		115	357.19	1368.65	0.26
94	350.26	563.57	0.62		105	85.09	188.44	0.45		116	544.64	522.45	1.04
96	279.32	579.99	0.48		106	147.27	359.31	0.41		117	252.34	453.56	0.56
97	1008.32	1090.01	0.93		107	317.98	819.31	0.39		118	177.55	578.32	0.31
98	175.00	118.82	1.47		108	54.80	113.35	0.48		119	142.63	235.95	0.60
99	59.53	800.90	0.07		109	212.26	256.38	0.83		120	116.31	364.44	0.32

Table M10. Th/U ratios of detrital zircons of sandstone sample (KG-1) from Dameigou Formation

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
1	186.52	385.69	0.48		30	45.40	99.43	0.46		63	398.56	540.44	0.74
2	134.47	293.18	0.46		31	133.59	215.33	0.62		65	90.00	253.24	0.36
3	110.68	163.78	0.68		32	333.97	629.36	0.53		66	156.76	278.81	0.56
5	232.79	435.19	0.53		36	85.72	353.27	0.24		67	326.05	654.66	0.50
6	494.46	578.36	0.85		37	183.70	315.72	0.58		68	113.35	281.08	0.40
7	241.79	173.24	1.40		38	133.25	536.86	0.25		69	242.61	737.42	0.33
8	216.71	337.14	0.64		39	184.36	402.13	0.46		71	338.69	526.85	0.64
10	75.71	87.43	0.87		40	828.12	941.65	0.88		73	106.91	126.71	0.84
12	413.28	412.44	1.00		41	152.17	331.36	0.46		74	429.94	1345.04	0.32
13	195.61	313.91	0.62		42	59.64	433.97	0.14		75	87.81	558.10	0.16
14	397.17	529.84	0.75		43	263.17	446.61	0.59		77	321.26	1201.24	0.27
15	174.18	326.20	0.53		44	380.41	525.01	0.72		79	62.46	986.59	0.06
17	173.95	230.99	0.75		46	83.93	118.66	0.71		80	134.01	142.24	0.94
18	101.93	478.04	0.21		48	255.11	586.55	0.43		84	132.03	162.04	0.81
19	605.90	852.64	0.71		49	262.06	412.09	0.64		85	316.60	543.97	0.58
21	182.50	254.07	0.72		50	276.83	533.58	0.52		87	437.31	612.40	0.71
23	161.79	152.77	1.06		54	106.44	279.47	0.38		90	81.85	122.71	0.67
24	73.08	364.29	0.20		55	257.23	447.87	0.57		91	159.85	175.67	0.91
25	335.97	553.95	0.61		56	157.59	286.37	0.55		93	209.19	435.44	0.48
27	269.98	398.28	0.68		58	534.88	949.33	0.56		94	275.46	813.37	0.34
28	42.20	31.72	1.33		59	92.24	151.81	0.61		97	230.91	372.27	0.62
29	91.13	148.93	0.61		61	270.89	1026.60	0.26		99	328.97	642.35	0.51

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
101	533.66	675.11	0.79		108	234.99	355.81	0.66		116	1340.65	1358.06	0.99
103	145.46	664.79	0.22		109	982.01	1736.73	0.57		117	161.77	609.24	0.27
104	131.46	302.49	0.43		110	476.03	511.44	0.93		118	86.13	1050.76	0.08
105	516.07	329.99	1.56		112	262.72	690.58	0.38		119	50.76	873.20	0.06
106	234.91	201.78	1.16		114	302.03	377.01	0.80		120	211.86	474.57	0.45
107	121.51	287.47	0.42		115	274.47	466.56	0.59					

Table M11. Th/U ratios of detrital zircons of sandstone sample (DLH-1) from Dameigou Formation

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
1	276.14	277.97	0.99		25	116.13	221.88	0.52		50	434.36	915.40	0.47
2	61.75	96.91	0.64		26	297.43	445.83	0.67		51	57.44	69.08	0.83
3	140.56	316.86	0.44		27	207.73	458.98	0.45		52	201.83	341.72	0.59
4	73.47	215.71	0.34		28	45.91	80.98	0.57		53	275.36	355.06	0.78
5	215.46	516.56	0.42		29	80.53	166.84	0.48		54	146.65	234.76	0.62
6	366.55	426.16	0.86		30	119.15	223.31	0.53		55	688.54	1299.82	0.53
7	217.99	279.87	0.78		31	334.99	479.53	0.70		56	370.58	429.77	0.86
8	47.14	47.40	0.99		32	134.71	133.16	1.01		58	70.70	433.91	0.16
9	133.39	172.34	0.77		33	208.03	321.61	0.65		59	48.07	102.30	0.47
10	87.05	97.77	0.89		34	284.27	1205.78	0.24		60	148.72	316.88	0.47
11	46.97	138.68	0.34		35	91.73	176.03	0.52		61	68.96	664.84	0.10
12	81.23	129.26	0.63		36	147.51	331.98	0.44		62	251.57	1202.89	0.21
14	146.05	338.25	0.43		37	81.67	214.46	0.38		63	220.78	559.80	0.39
15	103.65	146.62	0.71		38	74.91	209.39	0.36		65	43.54	79.67	0.55
16	360.85	1125.01	0.32		40	88.37	164.56	0.54		66	24.72	41.27	0.60
17	121.38	238.66	0.51		41	134.20	324.13	0.41		67	214.71	513.14	0.42
18	49.59	65.97	0.75		43	61.23	184.60	0.33		68	125.35	291.60	0.43
19	47.93	68.84	0.70		44	125.36	117.12	1.07		69	83.87	104.16	0.81
21	211.90	840.28	0.25		46	58.37	93.05	0.63		70	355.93	654.59	0.54
22	46.24	41.13	1.12		47	152.76	194.13	0.79		73	102.30	184.64	0.55
23	12.74	17.36	0.73		48	257.31	566.10	0.45		75	229.40	1080.38	0.21
24	12.75	74.31	0.17		49	95.89	143.59	0.67		76	89.89	165.89	0.54

[illegible]

Table M12. Th/U ratios of detrital zircons of sandstone sample (YCZG-2) from Caishiling Formation

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
2	266.94	490.72	0.54		27	161.22	384.00	0.42		50	253.24	311.05	0.81
3	235.70	410.38	0.57		28	401.25	491.11	0.82		51	314.85	399.02	0.79
4	78.88	169.12	0.47		29	227.18	499.94	0.45		52	97.71	167.88	0.58
5	335.79	554.49	0.61		30	58.56	367.34	0.16		53	101.34	227.45	0.45
6	355.83	461.38	0.77		31	283.37	324.03	0.87		54	34.00	312.56	0.11
7	315.94	780.59	0.40		32	141.37	188.37	0.75		55	225.88	371.59	0.61
8	631.45	589.09	1.07		33	126.25	246.90	0.51		56	109.76	178.65	0.61
9	215.36	392.04	0.55		34	57.82	75.41	0.77		57	99.24	233.83	0.42
10	103.17	495.83	0.21		35	163.48	248.32	0.66		58	138.15	376.88	0.37
11	129.39	170.23	0.76		36	41.11	69.25	0.59		59	346.89	530.35	0.65
12	302.15	161.39	1.87		37	350.46	291.33	1.20		60	56.97	72.28	0.79
13	489.73	393.95	1.24		38	56.01	49.66	1.13		61	270.10	550.00	0.49
14	93.44	228.75	0.41		39	129.15	123.08	1.05		62	26.98	61.02	0.44
15	44.59	252.83	0.18		40	40.58	83.86	0.48		63	79.35	158.55	0.50
16	119.34	321.79	0.37		41	150.29	201.62	0.75		64	85.06	128.11	0.66
17	321.02	351.51	0.91		42	335.35	703.28	0.48		65	253.28	591.93	0.43
18	270.97	419.16	0.65		43	173.88	256.58	0.68		66	104.97	279.95	0.37
19	209.41	511.62	0.41		44	62.80	61.52	1.02		67	80.87	236.63	0.34
20	254.61	524.61	0.49		46	146.31	266.82	0.55		68	199.29	194.77	1.02
22	156.20	290.70	0.54		47	519.22	905.27	0.57		69	34.41	130.99	0.26
23	104.89	302.49	0.35		48	420.36	627.42	0.67		70	273.11	285.74	0.96
25	360.84	368.50	0.98		49	444.48	627.19	0.71		71	88.42	204.44	0.43

Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U		Spot	Th (ppm)	U (ppm)	Th/U
72	196.35	335.58	0.59		89	171.23	132.75	1.29		105	161.73	199.87	0.81
73	20.96	571.08	0.04		90	92.67	106.72	0.87		106	22.53	61.00	0.37
74	210.94	453.98	0.46		91	142.71	582.81	0.24		107	190.20	304.09	0.63
75	367.67	384.42	0.96		92	129.10	173.70	0.74		108	80.35	97.51	0.82
76	67.23	202.89	0.33		93	94.78	574.66	0.16		109	48.17	85.50	0.56
77	324.20	990.21	0.33		94	130.51	196.76	0.66		110	376.91	442.42	0.85
78	96.58	101.30	0.95		95	334.73	300.27	1.11		112	84.82	120.97	0.70
79	389.28	606.82	0.64		96	261.13	339.63	0.77		113	287.51	1233.91	0.23
80	132.29	188.76	0.70		97	236.10	434.53	0.54		114	235.98	694.69	0.34
81	102.35	185.04	0.55		98	220.99	401.07	0.55		115	204.45	280.43	0.73
84	71.92	118.57	0.61		99	193.48	380.38	0.51		116	102.81	252.67	0.41
85	121.38	131.91	0.92		100	162.31	531.05	0.31		117	124.35	108.38	1.15
86	92.31	880.28	0.10		101	245.30	652.38	0.38		118	261.69	552.49	0.47
87	180.08	236.52	0.76		102	725.24	493.82	1.47		119	37.47	524.67	0.07
88	37.09	66.55	0.56		104	179.27	435.02	0.41		120	360.84	363.44	0.99

Table M1. Lu–Hf isotopic data for zircons from the sample bD-15 (Early Jurassic)

Hf spot	Age spot	$^{176}\text{Hf}/^{177}\text{Hf}$	1 σ	$^{176}\text{Lu}/^{177}\text{Hf}$	1 σ	$^{176}\text{Yb}/^{177}\text{Hf}$	1 σ	Age (Ma)	Hf _i	$\varepsilon\text{Hf}(t)$	$T_{\text{DM1}}(\text{Ma})$	$T_{\text{DM2}}(\text{Ma})$	$f_{\text{Lu/Hf}}$
2	2	0.281392	0.000028	0.002405	0.000027	0.086290	0.001490	2414	0.28128	1.43	2695	2847	-0.93
4	4	0.281364	0.000024	0.001155	0.000010	0.039408	0.000244	2389	0.28131	1.90	2646	2798	-0.97
6	6	0.281437	0.000022	0.001614	0.000007	0.049220	0.000285	2373	0.28136	3.41	2577	2694	-0.95
7	7	0.281394	0.000024	0.000835	0.000006	0.023154	0.000127	2380	0.28136	3.30	2583	2705	-0.97
10	10	0.281343	0.000021	0.000702	0.000002	0.022524	0.000144	2399	0.28131	2.12	2643	2792	-0.98
13	102	0.281425	0.000025	0.000462	0.000001	0.014359	0.000068	1775	0.28141	-8.66	2517	2977	-0.99
14	105	0.281582	0.000024	0.000728	0.000015	0.023351	0.000448	1758	0.28156	-3.78	2320	2663	-0.98
15	106	0.281434	0.000023	0.000852	0.000001	0.027960	0.000090	1748	0.28141	-9.40	2530	3002	-0.97

Table M2. Lu–Hf isotopic data for zircons from the sample bD-49 (Early Jurassic)

Hf spot	Age spot	$^{176}\text{Hf}/^{177}\text{Hf}$	1 σ	$^{176}\text{Lu}/^{177}\text{Hf}$	1 σ	$^{176}\text{Yb}/^{177}\text{Hf}$	1 σ	Age (Ma)	Hf _i	$\varepsilon\text{Hf}(t)$	$T_{\text{DM1}}(\text{Ma})$	$T_{\text{DM2}}(\text{Ma})$	$f_{\text{Lu/Hf}}$
1	1	0.282217	0.000030	0.000466	0.000001	0.019286	0.000067	205	0.28222	-15.20	1439	2206	-0.99
2	2	0.282486	0.000031	0.001131	0.000009	0.044080	0.000156	231	0.28248	-5.21	1086	1594	-0.97
3	3	0.282705	0.000024	0.000729	0.000001	0.027684	0.000062	234	0.28270	2.65	770	1096	-0.98
7	10	0.282675	0.000031	0.000963	0.000006	0.041932	0.000487	247	0.28267	1.86	816	1157	-0.97
8	15	0.282554	0.000031	0.001667	0.000035	0.060529	0.000408	224	0.28255	-3.02	1005	1450	-0.95
9	16	0.282566	0.000029	0.001366	0.000013	0.043570	0.000678	204	0.28256	-3.00	980	1433	-0.96
4	6	0.282763	0.000038	0.000805	0.000005	0.029469	0.000273	227	0.28276	4.54	690	971	-0.98
20	59	0.282223	0.000024	0.001246	0.000018	0.041342	0.000654	229	0.28222	-14.56	1460	2183	-0.96
38	116	0.282605	0.000028	0.000904	0.000009	0.023685	0.000232	212	0.28260	-1.37	913	1336	-0.97
40	99	0.282602	0.000026	0.001891	0.000002	0.048331	0.000039	221	0.28259	-1.43	942	1346	-0.94
5	7	0.282342	0.000040	0.001192	0.000008	0.053373	0.000392	444	0.28233	-5.79	1292	1792	-0.96
11	27	0.282654	0.000038	0.000496	0.000003	0.014722	0.000061	415	0.28265	4.82	836	1097	-0.99
13	30	0.282154	0.000046	0.000787	0.000011	0.019924	0.000259	453	0.28215	-12.13	1538	2197	-0.98
17	53	0.282187	0.000023	0.000664	0.000001	0.021960	0.000051	423	0.28218	-11.55	1487	2139	-0.98
21	67	0.282262	0.000028	0.000632	0.000002	0.019681	0.000047	434	0.28226	-8.68	1384	1967	-0.98
26	85	0.282163	0.000023	0.000489	0.000001	0.013605	0.000042	431	0.28216	-12.21	1515	2187	-0.99
27	90	0.282223	0.000023	0.000638	0.000003	0.017913	0.000030	443	0.28222	-9.86	1437	2047	-0.98
37	111	0.282245	0.000020	0.000810	0.000002	0.021579	0.000056	456	0.28224	-8.87	1413	1994	-0.98
39	100	0.282429	0.000024	0.000847	0.000002	0.021816	0.000055	380	0.28242	-4.00	1159	1630	-0.97
10	21	0.282243	0.000039	0.000703	0.000001	0.022002	0.000052	898	0.28223	0.75	1412	1725	-0.98
12	28	0.282217	0.000023	0.000771	0.000008	0.026092	0.000199	888	0.2822	-0.44	1450	1792	-0.98
14	31	0.282066	0.000033	0.000936	0.000003	0.027136	0.000064	978	0.28205	-3.94	1666	2080	-0.97
22	69	0.281660	0.000024	0.000505	0.000001	0.015134	0.000074	841	0.28165	-21.09	2202	3045	-0.98
23	78	0.281934	0.000025	0.002643	0.000003	0.069945	0.000172	815	0.28189	-13.08	1936	2527	-0.92

Hf spot	Age spot	$^{176}\text{Hf}/^{177}\text{Hf}$	1 σ	$^{176}\text{Lu}/^{177}\text{Hf}$	1 σ	$^{176}\text{Yb}/^{177}\text{Hf}$	1 σ	Age (Ma)	Hf _i	$\epsilon\text{Hf}(t)$	$T_{\text{DM1}}(\text{Ma})$	$T_{\text{DM2}}(\text{Ma})$	$f_{\text{Lu/Hf}}$
24	80	0.281870	0.000024	0.000570	0.000002	0.016539	0.000035	767	0.28186	-15.28	1919	2630	-0.98
25	82	0.282231	0.000024	0.000439	0.000001	0.013146	0.000066	939	0.28222	1.35	1419	1718	-0.99
32	107	0.282256	0.000022	0.000381	0.000010	0.010945	0.000307	665	0.28225	-3.77	1383	1831	-0.99
30	104	0.282437	0.000024	0.000909	0.000001	0.023667	0.000094	973	0.28242	9.11	1149	1255	-0.97
35	119	0.282228	0.000018	0.000598	0.000002	0.015650	0.000022	586	0.28222	-6.55	1428	1947	-0.98
36	120	0.282250	0.000022	0.000782	0.000018	0.023236	0.000505	778	0.28224	-1.68	1405	1785	-0.98
16	37	0.281332	0.000030	0.000801	0.000006	0.023650	0.000276	1538	0.28131	-17.59	2664	3348	-0.98
28	92	0.281757	0.000026	0.000772	0.000001	0.020641	0.000058	1647	0.28173	-0.09	2084	2350	-0.98
29	97	0.281508	0.000020	0.000625	0.000004	0.017499	0.000090	1709	0.28149	-7.36	2414	2847	-0.98
34	117	0.281493	0.000022	0.000444	0.000001	0.012070	0.000019	1555	0.28148	-11.13	2424	2964	-0.99
18	50	0.281010	0.000025	0.000621	0.000003	0.019963	0.000168	2628	0.28098	-4.41	3086	3367	-0.98
19	57	0.281304	0.000023	0.000726	0.000007	0.023264	0.000266	2337	0.28127	-0.69	2697	2917	-0.98
31	106	0.280774	0.000024	0.000674	0.000001	0.019365	0.000070	2672	0.28074	-11.89	3405	3853	-0.98
6	9	0.281057	0.000035	0.000824	0.000002	0.037468	0.000345	2706	0.28101	-1.30	3038	3238	-0.98
15	34	0.281357	0.000031	0.001268	0.000006	0.036160	0.000204	2413	0.28130	2.00	2663	2810	-0.96

Table M3. Lu–Hf isotopic data for zircons from the sample bD-106 (Middle Jurassic)

Hf spot	Age spot	$^{176}\text{Hf}/^{177}\text{Hf}$	1 σ	$^{176}\text{Lu}/^{177}\text{Hf}$	1 σ	$^{176}\text{Yb}/^{177}\text{Hf}$	1 σ	Age (Ma)	Hf _i	$\varepsilon\text{Hf}(t)$	$T_{\text{DM1}}(\text{Ma})$	$T_{\text{DM2}}(\text{Ma})$	$f_{\text{Lu/Hf}}$
2	3	0.282380	0.000019	0.000776	0.000015	0.016938	0.000328	219	0.28238	-9.18	1225	1837	-0.98
6	9	0.282424	0.000029	0.001241	0.000010	0.028760	0.000222	254	0.28242	-6.93	1177	1720	-0.96
12	15	0.282482	0.000034	0.001353	0.000008	0.030416	0.000211	291	0.28247	-4.12	1099	1570	-0.96
21	30	0.282503	0.000021	0.000774	0.000013	0.020805	0.000325	264	0.2825	-3.87	1054	1534	-0.98
26	42	0.282693	0.000024	0.001186	0.000006	0.034248	0.000158	204	0.28269	1.54	795	1144	-0.96
27	45	0.282597	0.000024	0.001532	0.000026	0.039468	0.000463	242	0.28259	-1.14	941	1343	-0.95
7	8	0.282344	0.000033	0.001774	0.000005	0.041109	0.000192	389	0.28233	-7.03	1309	1828	-0.95
8	12	0.282551	0.000032	0.001278	0.000015	0.032716	0.000397	407	0.28254	0.79	999	1347	-0.96
11	14	0.282272	0.000038	0.001328	0.000025	0.032154	0.000699	360	0.28226	-10.09	1395	1999	-0.96
23	33	0.282474	0.000161	0.002101	0.000021	0.052090	0.000536	358	0.28246	-3.16	1133	1560	-0.94
25	41	0.282681	0.000026	0.000952	0.000008	0.026371	0.000432	447	0.28267	6.35	808	1024	-0.97
28	48	0.282334	0.000038	0.000497	0.000004	0.013439	0.000084	422	0.28233	-6.36	1280	1811	-0.99
30	50	0.282634	0.000060	0.002698	0.000018	0.081251	0.000674	367	0.28262	2.55	916	1204	-0.92
31	56	0.282479	0.000051	0.001922	0.000015	0.052218	0.000478	436	0.28246	-1.32	1120	1502	-0.94
33	61	0.282298	0.000027	0.000994	0.000018	0.029908	0.000425	449	0.28229	-7.18	1346	1883	-0.97
34	64	0.282537	0.000019	0.000642	0.000002	0.017855	0.000033	382	0.28253	-0.08	1002	1383	-0.98
38	72	0.282263	0.000021	0.000537	0.000003	0.015210	0.000082	407	0.28226	-9.20	1378	1979	-0.98
39	73	0.282229	0.000020	0.000960	0.000002	0.029264	0.000093	399	0.28222	-10.69	1441	2067	-0.97
3	4	0.282264	0.000044	0.001161	0.000030	0.031066	0.000713	881	0.28224	0.81	1400	1707	-0.97
1	1	0.282079	0.000025	0.000860	0.000027	0.022916	0.000728	808	0.28207	-7.15	1645	2152	-0.97
18	24	0.282496	0.000073	0.001309	0.000060	0.037506	0.001606	864	0.28247	8.59	1078	1204	-0.96
10	13	0.281347	0.000027	0.000153	0.000004	0.003493	0.000060	1898	0.28134	-8.28	2601	3047	-1.00
13	16	0.281741	0.000039	0.001183	0.000004	0.028297	0.000081	1680	0.2817	-0.36	2128	2393	-0.96
15	19	0.281527	0.000075	0.000383	0.000005	0.010618	0.000142	1872	0.28151	-2.77	2375	2688	-0.99

Hf spot	Age spot	$^{176}\text{Hf}/^{177}\text{Hf}$	1σ	$^{176}\text{Lu}/^{177}\text{Hf}$	1σ	$^{176}\text{Yb}/^{177}\text{Hf}$	1σ	Age (Ma)	Hf_i	$\varepsilon\text{Hf}(t)$	$T_{\text{DM1}}(\text{Ma})$	$T_{\text{DM2}}(\text{Ma})$	$f_{\text{Lu/Hf}}$
16	18	0.282072	0.000264	0.000585	0.000015	0.015870	0.000696	1701	0.28205	12.52	1643	1607	-0.98
22	31	0.281605	0.000042	0.000839	0.000048	0.021379	0.001206	1991	0.28157	2.10	2295	2479	-0.97
24	40	0.282148	0.000033	0.001528	0.000011	0.040667	0.000204	1390	0.28211	7.39	1578	1686	-0.95
35	67	0.281805	0.000018	0.001445	0.000010	0.046553	0.000228	1531	0.28176	-1.63	2054	2357	-0.96
32	60	0.281365	0.000025	0.000980	0.000004	0.025532	0.000074	1986	0.28133	-6.75	2633	3020	-0.97
14	17	0.281246	0.000027	0.000734	0.000003	0.017445	0.000090	2344	0.28121	-2.61	2776	3040	-0.98
17	20	0.281431	0.000019	0.000936	0.000012	0.027544	0.000545	2281	0.28139	2.22	2540	2695	-0.97
19	25	0.281449	0.000039	0.001039	0.000021	0.026729	0.000572	2367	0.28140	4.63	2521	2613	-0.97
20	27	0.281490	0.000037	0.001563	0.000042	0.044253	0.001093	2257	0.28142	2.81	2500	2640	-0.95
29	29	0.281599	0.000107	0.000579	0.000008	0.014130	0.000207	2259	0.28157	8.26	2288	2307	-0.98
36	69	0.281265	0.000041	0.001237	0.000012	0.028880	0.000274	2457	0.28121	-0.22	2787	2980	-0.96
37	70	0.281388	0.000029	0.001823	0.000034	0.050151	0.000789	2484	0.28130	3.76	2659	2758	-0.95
4	110	0.282005	0.000037	0.000175	0.000002	0.005115	0.000043	2314	0.28200	24.57	1716	1338	-0.99

Table M4. Lu–Hf isotopic data for zircons from the sample JLS-1(Middle Jurassic)

Hf spot	Age spot	$^{176}\text{Hf}/^{177}\text{Hf}$	1 σ	$^{176}\text{Lu}/^{177}\text{Hf}$	1 σ	$^{176}\text{Yb}/^{177}\text{Hf}$	1 σ	Age (Ma)	Hf _i	$\varepsilon\text{Hf}(t)$	$T_{\text{DM1}}(\text{Ma})$	$T_{\text{DM2}}(\text{Ma})$	$f_{\text{Lu/Hf}}$
7	12	0.282563	0.000021	0.000783	0.000002	0.020033	0.000075	251	0.28256	-2.01	969	1406	-0.98
14	23	0.282565	0.000022	0.000545	0.000001	0.015197	0.000015	226	0.28256	-2.44	960	1414	-0.98
15	24	0.282558	0.000023	0.001078	0.000005	0.030847	0.000178	227	0.28255	-2.73	984	1434	-0.97
11	19	0.282676	0.000023	0.001223	0.000001	0.035663	0.000032	273	0.28267	2.37	821	1144	-0.96
22	33	0.282331	0.000019	0.000548	0.000002	0.016926	0.000080	211	0.28233	-11.05	1285	1948	-0.98
23	34	0.282431	0.000025	0.001256	0.000018	0.036698	0.000498	217	0.28243	-7.46	1168	1726	-0.96
25	40	0.282598	0.000022	0.000693	0.000001	0.017666	0.000033	236	0.28259	-1.10	919	1336	-0.98
34	58	0.282704	0.000020	0.001042	0.000001	0.028292	0.000099	263	0.28270	3.19	777	1084	-0.97
45	112	0.282569	0.000034	0.001483	0.000027	0.035040	0.000652	223	0.28256	-2.48	979	1415	-0.96
1	2	0.282581	0.000069	0.001616	0.000020	0.043603	0.000684	417	0.28257	1.99	965	1278	-0.95
3	5	0.282696	0.000022	0.001258	0.000011	0.033620	0.000144	422	0.28269	6.27	793	1010	-0.96
10	18	0.282556	0.000022	0.001900	0.000025	0.052652	0.000568	382	0.28254	0.27	1009	1361	-0.94
16	25	0.282516	0.000036	0.001444	0.000006	0.038218	0.000083	417	0.28251	-0.26	1053	1421	-0.96
17	26	0.282297	0.000021	0.000709	0.000002	0.021413	0.000026	457	0.28229	-6.96	1337	1875	-0.98
21	32	0.282313	0.000021	0.001091	0.000009	0.032431	0.000338	435	0.28230	-6.98	1329	1860	-0.97
24	35	0.282223	0.000022	0.001933	0.000018	0.057619	0.000285	428	0.28221	-10.56	1487	2079	-0.94
27	46	0.282670	0.000025	0.000947	0.000013	0.023507	0.000361	425	0.28266	5.46	824	1063	-0.97
31	54	0.282718	0.000023	0.000911	0.000006	0.025483	0.000112	410	0.28271	6.86	755	963	-0.97
33	57	0.282196	0.000026	0.000711	0.000008	0.015141	0.000170	449	0.28219	-10.72	1478	2106	-0.98
35	60	0.282305	0.000022	0.000780	0.000006	0.021188	0.000064	440	0.28230	-7.06	1329	1869	-0.98
39	86	0.282219	0.000024	0.001135	0.000018	0.030288	0.000413	445	0.28221	-10.12	1462	2065	-0.97
44	110	0.282212	0.000023	0.001086	0.000002	0.028292	0.000081	411	0.28220	-11.07	1470	2099	-0.97
46	113	0.282516	0.000020	0.001260	0.000022	0.030005	0.000461	398	0.28251	-0.65	1048	1431	-0.96
48	118	0.282337	0.000022	0.001139	0.000001	0.030928	0.000060	440	0.28233	-6.03	1296	1803	-0.97

Hf spot	Age spot	$^{176}\text{Hf}/^{177}\text{Hf}$	1 σ	$^{176}\text{Lu}/^{177}\text{Hf}$	1 σ	$^{176}\text{Yb}/^{177}\text{Hf}$	1 σ	Age (Ma)	Hf _i	$\epsilon\text{Hf}(t)$	$T_{\text{DM1}}(\text{Ma})$	$T_{\text{DM2}}(\text{Ma})$	$f_{\text{Lu/Hf}}$
4	6	0.282165	0.000019	0.001859	0.000012	0.058962	0.000382	692	0.28214	-7.04	1567	2058	-0.94
5	7	0.282214	0.000021	0.001405	0.000007	0.045290	0.000079	902	0.28219	-0.64	1480	1815	-0.96
13	22	0.282276	0.000020	0.001270	0.000004	0.038167	0.000069	882	0.28225	1.21	1387	1683	-0.96
19	28	0.282191	0.000020	0.001357	0.000012	0.039757	0.000474	765	0.28217	-4.35	1510	1944	-0.96
20	29	0.282208	0.000028	0.001746	0.000015	0.048567	0.000398	849	0.28218	-2.18	1502	1871	-0.95
30	51	0.282222	0.000017	0.000909	0.000029	0.027419	0.000895	932	0.28221	0.57	1449	1761	-0.97
32	56	0.282142	0.000018	0.001453	0.000003	0.041250	0.000164	981	0.28211	-1.55	1583	1932	-0.96
40	90	0.282246	0.000021	0.001486	0.000013	0.043902	0.000213	933	0.28222	1.11	1437	1728	-0.96
43	107	0.282026	0.000033	0.001227	0.000014	0.029042	0.000330	755	0.28201	-10.36	1736	2313	-0.96
47	115	0.282067	0.000018	0.000849	0.000005	0.020648	0.000210	733	0.28206	-9.17	1661	2222	-0.97
9	15	0.281666	0.000021	0.000793	0.000006	0.023921	0.000200	1730	0.28164	-1.52	2210	2502	-0.98
38	85	0.282097	0.000023	0.001017	0.000007	0.027714	0.000127	1362	0.28207	5.47	1626	1784	-0.97
18	27	0.282233	0.000022	0.000321	0.000002	0.009958	0.000076	1653	0.28222	17.44	1412	1260	-0.99
37	75	0.281464	0.000025	0.000236	0.000001	0.006822	0.000013	1856	0.28146	-5.18	2450	2825	-0.99
41	94	0.282023	0.000020	0.000601	0.000003	0.017100	0.000108	1224	0.28201	0.14	1712	2012	-0.98
42	97	0.281833	0.000023	0.001286	0.000003	0.037534	0.000091	1655	0.28179	2.22	2007	2213	-0.96
6	8	0.281288	0.000018	0.000527	0.000001	0.015193	0.000049	2395	0.28126	0.35	2706	2898	-0.98
8	13	0.280981	0.000022	0.000401	0.000001	0.010637	0.000078	2454	0.28096	-9.02	3107	3514	-0.99
12	20	0.281221	0.000019	0.001130	0.000002	0.033293	0.000068	2468	0.28117	-1.37	2839	3059	-0.97
28	48	0.281307	0.000019	0.000533	0.000001	0.014124	0.000014	2431	0.28128	1.82	2681	2835	-0.98
29	49	0.281380	0.000020	0.000441	0.000001	0.011464	0.000058	2268	0.28136	0.89	2576	2767	-0.99
36	62	0.281347	0.000023	0.001027	0.000003	0.027156	0.000101	2415	0.28130	2.08	2661	2807	-0.97

Table M5. Lu–Hf isotopic data for zircons from the sample DLH-1 (Middle Jurassic)

Hf spot	Age spot	$^{176}\text{Hf}/^{177}\text{Hf}$	1 σ	$^{176}\text{Lu}/^{177}\text{Hf}$	1 σ	$^{176}\text{Yb}/^{177}\text{Hf}$	1 σ	Age (Ma)	Hf _i	$\varepsilon\text{Hf}(t)$	$T_{\text{DM1}}(\text{Ma})$	$T_{\text{DM2}}(\text{Ma})$	$f_{\text{Lu/Hf}}$
1	1	0.282862	0.000032	0.001739	0.000003	0.054346	0.000113	270	0.28285	8.82	563	730	-0.95
9	17	0.282587	0.000022	0.001346	0.000010	0.039658	0.000505	281	0.28258	-0.63	950	1340	-0.96
26	56	0.282526	0.000016	0.000763	0.000005	0.021448	0.000071	235	0.28252	-3.66	1021	1499	-0.98
29	60	0.282589	0.000021	0.000819	0.000005	0.024881	0.000122	230	0.28259	-1.54	934	1361	-0.98
31	65	0.282954	0.000034	0.000860	0.000006	0.021732	0.000140	281	0.28295	12.46	420	505	-0.97
36	70	0.282567	0.000022	0.001001	0.000006	0.030961	0.000219	287	0.28256	-1.14	970	1378	-0.97
37	73	0.282896	0.000021	0.000980	0.000005	0.028519	0.000135	257	0.28289	9.88	504	652	-0.97
2	2	0.282553	0.000025	0.000629	0.000020	0.018546	0.000607	455	0.28255	2.06	980	1303	-0.98
7	12	0.282779	0.000026	0.000447	0.000001	0.014269	0.000032	458	0.28277	10.19	661	788	-0.99
8	16	0.282531	0.000021	0.000880	0.000002	0.026312	0.000075	360	0.28252	-0.83	1017	1414	-0.97
14	27	0.282348	0.000022	0.000821	0.000002	0.022813	0.000033	440	0.28234	-5.55	1271	1774	-0.98
16	31	0.282528	0.000023	0.000467	0.000005	0.011986	0.000144	413	0.28252	0.34	1010	1381	-0.99
17	33	0.282520	0.000022	0.000766	0.000003	0.017938	0.000106	458	0.28251	0.95	1029	1376	-0.98
18	37	0.282281	0.000024	0.000865	0.000001	0.026274	0.000044	424	0.28227	-8.29	1365	1934	-0.97
24	53	0.282556	0.000019	0.000692	0.000002	0.020611	0.000154	429	0.28255	1.59	977	1312	-0.98
28	59	0.282594	0.000021	0.000353	0.000001	0.010990	0.000012	500	0.28259	4.59	916	1176	-0.99
35	69	0.282225	0.000023	0.000934	0.000001	0.030347	0.000044	450	0.28222	-9.71	1445	2043	-0.97
38	75	0.282578	0.000020	0.000861	0.000003	0.029275	0.000079	433	0.28257	2.41	950	1263	-0.97
39	76	0.282356	0.000020	0.000958	0.000007	0.030400	0.000288	453	0.28235	-5.02	1264	1750	-0.97
3	3	0.282177	0.000021	0.001068	0.000005	0.034618	0.000194	999	0.28216	0.34	1518	1827	-0.97
4	8	0.281639	0.000024	0.000424	0.000001	0.012799	0.000029	768	0.28163	-23.36	2225	3132	-0.99
13	26	0.282115	0.000022	0.000818	0.000011	0.026217	0.000462	934	0.28210	-3.11	1594	1994	-0.98
15	28	0.281970	0.000025	0.000618	0.000007	0.018552	0.000088	984	0.28196	-7.03	1785	2278	-0.98
20	43	0.282321	0.000097	0.001684	0.000039	0.048336	0.000839	907	0.28229	3.10	1338	1583	-0.95

Hf spot	Age spot	$^{176}\text{Hf}/^{177}\text{Hf}$	1 σ	$^{176}\text{Lu}/^{177}\text{Hf}$	1 σ	$^{176}\text{Yb}/^{177}\text{Hf}$	1 σ	Age (Ma)	Hf _i	$\epsilon\text{Hf}(t)$	$T_{\text{DM1}}(\text{Ma})$	$T_{\text{DM2}}(\text{Ma})$	$f_{\text{Lu/Hf}}$
22	48	0.282167	0.000020	0.000843	0.000002	0.027046	0.000148	1850	0.28215	-3.60	1534	1949	-0.97
6	11	0.281555	0.000023	0.000634	0.000002	0.017419	0.000044	1862	0.28153	-2.84	2364	2675	-0.97
10	18	0.281462	0.000033	0.000385	0.000002	0.011532	0.000034	1791	0.28144	-5.62	2478	2856	-0.98
11	19	0.281441	0.000024	0.000813	0.000008	0.027183	0.000292	1718	0.28143	-7.63	2490	2926	-0.99
30	63	0.281516	0.000020	0.000355	0.000001	0.011620	0.000043	1778	0.28149	-7.12	2416	2839	-0.98
32	66	0.281505	0.000021	0.001201	0.000004	0.038059	0.000192	1578	0.28149	-5.63	2402	2793	-0.99
34	68	0.281972	0.000019	0.000843	0.000002	0.027046	0.000148	1850	0.28194	5.56	1809	1946	-0.96
5	10	0.281407	0.000028	0.001029	0.000002	0.033055	0.000105	2253	0.28136	0.60	2579	2773	-0.97
12	24	0.281282	0.000025	0.000696	0.000027	0.018163	0.000832	2514	0.28125	2.55	2726	2855	-0.98
19	38	0.281273	0.000030	0.000789	0.000023	0.020357	0.000365	2477	0.28124	1.24	2744	2907	-0.98
21	44	0.280874	0.000024	0.001134	0.000008	0.032075	0.000181	2487	0.28082	-13.31	3311	3799	-0.97
23	52	0.281212	0.000019	0.000766	0.000000	0.024671	0.000046	2396	0.28118	-2.70	2824	3085	-0.98
27	58	0.281295	0.000018	0.000400	0.000002	0.012348	0.000089	2242	0.28128	-2.67	2688	2966	-0.99
33	67	0.281163	0.000022	0.000833	0.000003	0.026314	0.000172	2443	0.28112	-3.48	2895	3169	-0.97
40	78	0.281543	0.000031	0.001047	0.000002	0.032229	0.000224	2282	0.28150	6.07	2393	2459	-0.97

Table M6. Lu–Hf isotopic data for zircons from the sample bD-303(Late Jurassic)

Hf spot	Age spot	$^{176}\text{Hf}/^{177}\text{Hf}$	1 σ	$^{176}\text{Lu}/^{177}\text{Hf}$	1 σ	$^{176}\text{Yb}/^{177}\text{Hf}$	1 σ	Age (Ma)	Hf _i	$\varepsilon\text{Hf}(t)$	$T_{\text{DM1}}(\text{Ma})$	$T_{\text{DM2}}(\text{Ma})$	$f_{\text{Lu/Hf}}$
7	7	0.282620	0.000023	0.000703	0.000004	0.020711	0.000184	249	0.28262	-0.01	888	1278	-0.98
10	10	0.282635	0.000022	0.000864	0.000003	0.024990	0.000032	238	0.28263	0.24	871	1253	-0.97
13	15	0.282605	0.000020	0.000650	0.000002	0.019560	0.000142	239	0.28260	-0.77	908	1318	-0.98
15	19	0.282669	0.000023	0.001195	0.000002	0.033673	0.000118	246	0.28266	1.56	830	1175	-0.96
18	26	0.282488	0.000021	0.000922	0.000007	0.025838	0.000117	233	0.28248	-5.07	1078	1587	-0.97
19	27	0.282652	0.000022	0.000705	0.000001	0.018790	0.000056	229	0.28265	0.67	843	1219	-0.98
21	36	0.282590	0.000020	0.000601	0.000001	0.016960	0.000028	229	0.28259	-1.51	928	1358	-0.98
22	38	0.282557	0.000023	0.000853	0.000006	0.023853	0.000181	218	0.28255	-2.93	979	1439	-0.97
25	46	0.282630	0.000021	0.000607	0.000001	0.016472	0.000034	217	0.28263	-0.35	872	1275	-0.98
27	49	0.282656	0.000022	0.000944	0.000005	0.026317	0.000190	229	0.28265	0.77	843	1212	-0.97
28	51	0.282641	0.000022	0.001020	0.000013	0.029128	0.000512	242	0.28264	0.51	866	1239	-0.97
30	55	0.282549	0.000017	0.000639	0.000004	0.017076	0.000070	240	0.28255	-2.71	985	1442	-0.98
31	56	0.282579	0.000020	0.000811	0.000003	0.020755	0.000109	250	0.28258	-1.46	948	1370	-0.98
37	67	0.282705	0.000022	0.001437	0.000006	0.037630	0.000104	237	0.28270	2.59	785	1102	-0.96
39	74	0.282596	0.000020	0.000816	0.000006	0.022493	0.000213	226	0.28259	-1.39	924	1347	-0.98
40	76	0.282574	0.000021	0.000648	0.000001	0.017925	0.000032	232	0.28257	-2.02	951	1392	-0.98
43	80	0.282596	0.000022	0.000909	0.000002	0.025894	0.000075	241	0.28259	-1.07	926	1338	-0.97
44	81	0.282613	0.000019	0.000708	0.000003	0.018009	0.000080	238	0.28261	-0.52	898	1301	-0.98
46	89	0.282526	0.000018	0.000990	0.000002	0.027478	0.000085	241	0.28252	-3.56	1026	1497	-0.97
6	119	0.282731	0.000023	0.001082	0.000006	0.030995	0.000321	441	0.28272	7.96	739	917	-0.97
8	8	0.282273	0.000022	0.000651	0.000001	0.020046	0.000012	421	0.28227	-8.57	1368	1949	-0.98
12	14	0.282445	0.000017	0.000293	0.000015	0.009474	0.000450	420	0.28244	-2.41	1120	1560	-0.99
23	40	0.281911	0.000021	0.000058	0.000000	0.001847	0.000016	418	0.28191	-21.27	1838	2745	-1.00
33	61	0.282239	0.000016	0.000345	0.000003	0.010782	0.000120	578	0.28224	-6.24	1404	1921	-0.99

Hf spot	Age spot	$^{176}\text{Hf}/^{177}\text{Hf}$	1 σ	$^{176}\text{Lu}/^{177}\text{Hf}$	1 σ	$^{176}\text{Yb}/^{177}\text{Hf}$	1 σ	Age (Ma)	Hf _i	$\epsilon\text{Hf}(t)$	$T_{\text{DM1}}(\text{Ma})$	$T_{\text{DM2}}(\text{Ma})$	$f_{\text{Lu/Hf}}$
41	77	0.282280	0.000022	0.000609	0.000005	0.017278	0.000076	456	0.28227	-7.54	1357	1911	-0.98
1	1	0.282276	0.000022	0.001425	0.000002	0.045963	0.000235	913	0.28225	1.76	1393	1672	-0.96
2	2	0.281598	0.000020	0.000827	0.000006	0.024806	0.000332	825	0.28158	-23.81	2305	3202	-0.98
3	3	0.282210	0.000016	0.000809	0.000014	0.025304	0.000538	944	0.28220	0.48	1462	1776	-0.98
4	4	0.282226	0.000021	0.000972	0.000007	0.029157	0.000123	945	0.28221	0.97	1446	1747	-0.97
5	5	0.282039	0.000019	0.000795	0.000018	0.025805	0.000518	933	0.28202	-5.80	1698	2162	-0.98
14	17	0.282155	0.000021	0.001590	0.000006	0.050595	0.000220	847	0.28213	-4.00	1570	1984	-0.95
11	11	0.282239	0.000019	0.001309	0.000004	0.043476	0.000277	826	0.28222	-1.33	1440	1800	-0.96
20	31	0.282215	0.000018	0.001395	0.000006	0.043621	0.000072	884	0.28219	-0.98	1478	1823	-0.96
26	47	0.282294	0.000018	0.000303	0.000004	0.007984	0.000119	897	0.28229	2.75	1327	1598	-0.99
34	117	0.282263	0.000021	0.000846	0.000006	0.025708	0.000206	743	0.28225	-2.00	1389	1780	-0.97
36	66	0.282259	0.000016	0.001108	0.000004	0.029760	0.000168	900	0.28224	1.08	1405	1705	-0.97
47	94	0.281908	0.000017	0.000449	0.000001	0.013114	0.000014	742	0.28190	-14.41	1861	2557	-0.99
24	44	0.282055	0.000020	0.000633	0.000001	0.017594	0.000069	1160	0.28204	-0.16	1669	1981	-0.98
48	96	0.281525	0.000015	0.000755	0.000006	0.019958	0.000140	1702	0.28150	-7.07	2400	2824	-0.98
42	79	0.281415	0.000019	0.000225	0.000000	0.006771	0.000010	1829	0.28141	-7.50	2514	2947	-0.99
16	22	0.281446	0.000017	0.000729	0.000004	0.022043	0.000041	2161	0.28142	0.40	2505	2715	-0.98
17	23	0.281300	0.000017	0.000947	0.000005	0.027124	0.000122	2299	0.28126	-2.05	2719	2971	-0.97
29	53	0.281330	0.000023	0.000479	0.000006	0.012205	0.000214	2432	0.28131	2.76	2646	2779	-0.99
32	58	0.281301	0.000022	0.000879	0.000005	0.022755	0.000159	2278	0.28126	-2.38	2712	2975	-0.97
35	118	0.280874	0.000024	0.000558	0.000001	0.015517	0.000122	2526	0.28085	-11.44	3262	3716	-0.98
38	73	0.281255	0.000019	0.000746	0.000002	0.019738	0.000059	2420	0.28122	-0.61	2765	2976	-0.98
45	85	0.281220	0.000019	0.000763	0.000003	0.022319	0.000107	2502	0.28118	-0.01	2813	3003	-0.98

Table M7. Lu–Hf isotopic data for zircons from the sample YCZG-2(Late Jurassic)

Hf spot	Age spot	$^{176}\text{Hf}/^{177}\text{Hf}$	1 σ	$^{176}\text{Lu}/^{177}\text{Hf}$	1 σ	$^{176}\text{Yb}/^{177}\text{Hf}$	1 σ	Age (Ma)	Hf _i	$\varepsilon\text{Hf}(t)$	$T_{\text{DM1}}(\text{Ma})$	$T_{\text{DM2}}(\text{Ma})$	$f_{\text{Lu/Hf}}$
2	2	0.282649	0.000020	0.000965	0.000003	0.026680	0.000101	241	0.28264	0.78	854	1221	-0.97
3	3	0.282624	0.000020	0.000947	0.000005	0.023506	0.000130	239	0.28262	-0.12	887	1277	-0.97
4	7	0.282164	0.000022	0.001062	0.000002	0.030462	0.000091	258	0.28216	-16.03	1536	2297	-0.97
7	13	0.282660	0.000027	0.002429	0.000013	0.070127	0.000715	292	0.28265	1.99	872	1183	-0.93
13	19	0.282640	0.000025	0.001770	0.000006	0.052109	0.000423	262	0.28263	0.79	884	1236	-0.95
25	42	0.282554	0.000022	0.000610	0.000003	0.015516	0.000118	224	0.28255	-2.88	978	1441	-0.98
28	54	0.282261	0.000021	0.001423	0.000016	0.040314	0.000411	262	0.28225	-12.56	1413	2081	-0.96
42	95	0.282599	0.000017	0.000974	0.000004	0.024740	0.000058	275	0.28259	-0.25	924	1312	-0.97
6	9	0.282365	0.000025	0.001078	0.000006	0.030547	0.000136	450	0.28236	-4.83	1256	1735	-0.97
15	25	0.282732	0.000022	0.001048	0.000003	0.026494	0.000102	476	0.28272	8.75	738	893	-0.97
29	59	0.282713	0.000022	0.000384	0.000001	0.009335	0.000029	492	0.28271	8.65	751	912	-0.99
32	71	0.282517	0.000017	0.000438	0.000002	0.010744	0.000055	430	0.28251	0.31	1025	1395	-0.99
33	72	0.282605	0.000023	0.000777	0.000001	0.022234	0.000071	392	0.28260	2.51	911	1226	-0.98
34	75	0.282507	0.000023	0.001058	0.000013	0.031981	0.000513	441	0.28250	0.03	1055	1421	-0.97
37	87	0.282307	0.000020	0.000953	0.000006	0.026258	0.000162	503	0.28230	-5.71	1333	1831	-0.97
48	119	0.282139	0.000018	0.000142	0.000005	0.003876	0.000148	519	0.28214	-11.02	1534	2178	-1.00
11	15	0.282134	0.000018	0.000916	0.000020	0.028029	0.000595	918	0.28212	-2.84	1572	1965	-0.97
35	84	0.282209	0.000019	0.000514	0.000002	0.014718	0.000059	905	0.28220	-0.22	1452	1791	-0.98
45	113	0.282162	0.000022	0.001258	0.000008	0.034927	0.000278	644	0.28215	-7.91	1546	2076	-0.96
46	117	0.281795	0.000024	0.000721	0.000001	0.018626	0.000050	762	0.28178	-18.14	2030	2804	-0.98
41	93	0.282003	0.000019	0.001086	0.000003	0.031453	0.000051	1154	0.28198	-2.47	1761	2122	-0.97
9	12	0.281454	0.000022	0.000537	0.000007	0.015635	0.000247	1795	0.28144	-7.27	2482	2907	-0.98
21	34	0.282128	0.000021	0.000681	0.000005	0.021372	0.000226	1183	0.28211	2.92	1570	1807	-0.98

Hf spot	Age spot	$^{176}\text{Hf}/^{177}\text{Hf}$	1 σ	$^{176}\text{Lu}/^{177}\text{Hf}$	1 σ	$^{176}\text{Yb}/^{177}\text{Hf}$	1 σ	Age (Ma)	Hf _i	$\epsilon\text{Hf}(t)$	$T_{\text{DM1}}(\text{Ma})$	$T_{\text{DM2}}(\text{Ma})$	$f_{\text{Lu/Hf}}$
30	60	0.281381	0.000024	0.000312	0.000003	0.008526	0.000083	1859	0.28137	-8.17	2566	3010	-0.99
36	80	0.281563	0.000018	0.000508	0.000004	0.014005	0.000074	1860	0.28155	-1.90	2333	2626	-0.98
40	90	0.281787	0.000030	0.002003	0.000004	0.065938	0.000204	1653	0.28172	-0.27	2111	2366	-0.94
44	112	0.282515	0.000051	0.001324	0.000006	0.037136	0.000180	1866	0.28247	31.02	1051	575	-0.96
5	8	0.281350	0.000021	0.001143	0.000006	0.033464	0.000261	2500	0.28130	3.89	2664	2762	-0.97
8	11	0.281555	0.000019	0.000407	0.000001	0.011716	0.000066	2000	0.28154	1.09	2338	2549	-0.99
10	14	0.281233	0.000022	0.000481	0.000001	0.012619	0.000056	1932	0.28122	-11.97	2776	3299	-0.99
12	17	0.281277	0.000021	0.001080	0.000004	0.031831	0.000247	2430	0.28123	-0.15	2759	2955	-0.97
14	14	0.282185	0.000020	0.000433	0.000001	0.012802	0.000033	1932	0.28217	21.91	1481	1200	-0.99
16	22	0.281328	0.000031	0.000512	0.000003	0.014594	0.000193	2403	0.28130	2.00	2650	2803	-0.98
17	29	0.281562	0.000019	0.000995	0.000009	0.031103	0.000366	2067	0.28152	2.02	2364	2543	-0.97
18	30	0.281161	0.000017	0.000729	0.000002	0.021448	0.000086	2205	0.28113	-8.75	2891	3309	-0.98
20	33	0.281231	0.000022	0.000808	0.000004	0.024422	0.000106	2380	0.28119	-2.47	2803	3059	-0.98
22	35	0.281209	0.000023	0.000938	0.000007	0.025158	0.000191	2485	0.28116	-1.11	2842	3056	-0.97
23	37	0.281259	0.000019	0.000495	0.000003	0.010700	0.000078	2510	0.28123	1.99	2743	2887	-0.99
26	49	0.281192	0.000019	0.000519	0.000002	0.013125	0.000070	2301	0.28117	-5.17	2834	3163	-0.98
27	52	0.281094	0.000032	0.000651	0.000008	0.017501	0.000173	2156	0.28107	-12.10	2975	3476	-0.98
31	62	0.281333	0.000022	0.000706	0.000001	0.018896	0.000028	2500	0.28130	4.05	2656	2752	-0.98
47	118	0.281307	0.000040	0.001040	0.000002	0.026825	0.000070	2030	0.28127	-7.92	2715	3125	-0.97