

Geochronology, Petrology, and Genesis of Two Granitic Plutons of the Xianghualing Ore Field in South Hunan Province: Constraints from Zircon U–Pb Dating, Geochemistry, and Lu–Hf Isotopic Compositions

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Table S1: LA-ICP-MS zircon U–Pb isotopic compositions of granites from Laiziling (No. Lzl-1) and Jianfengling (No. Ds-6) plutons.

Spot	Th(μg/g)	U(μg/g)	Th/U	²⁰⁷ Pb/ ²⁰⁶ Pb		²⁰⁷ Pb/ ²³⁵ U		²⁰⁶ Pb/ ²³⁸ U		²⁰⁸ Pb/ ²³² Th		²⁰⁷ Pb/ ²⁰⁶ Pb		²⁰⁷ Pb/ ²³⁵ U		²⁰⁶ Pb/ ²³⁸ U	
				Ratio	±1σ	Ratio	±1σ	Ratio	±1σ	Ratio	±1σ	Age(Ma)	±1σ	Age(Ma)	±1σ	Age(Ma)	±1σ
Lzl-1																	
3	496	1086	0.46	0.0523	0.0009	0.1785	0.0040	0.0247	0.0004	0.0086	0.0001	301.9	39	166.8	3	157.2	3
4	761	1743	0.44	0.0490	0.0012	0.1647	0.0040	0.0242	0.0004	0.0076	0.0002	150.1	53	154.8	4	154.5	2
6	564	776	0.73	0.0480	0.0014	0.1625	0.0051	0.0243	0.0004	0.0076	0.0002	98.2	68	152.9	4	154.9	2
10	712	1581	0.45	0.0486	0.0016	0.1626	0.0057	0.0241	0.0005	0.0078	0.0002	127.9	78	153.0	5	153.7	3
11	487	788	0.62	0.0493	0.0011	0.1694	0.0042	0.0248	0.0004	0.0075	0.0002	166.8	54	158.9	4	157.8	2
14	892	1992	0.45	0.0505	0.0008	0.1737	0.0038	0.0248	0.0004	0.0079	0.0001	220.4	34	162.7	3	157.7	3
15	279	426	0.66	0.0492	0.0011	0.1711	0.0041	0.0252	0.0005	0.0064	0.0001	166.8	54	160.3	4	160.6	3
18	232	402	0.58	0.0491	0.0010	0.1778	0.0039	0.0261	0.0005	0.0074	0.0002	153.8	53	166.2	3	166.4	3
21	544	888	0.61	0.0516	0.0022	0.1757	0.0074	0.0246	0.0004	0.0072	0.0002	264.9	101	164.4	6	156.5	2
22	2132	4683	0.46	0.0506	0.0011	0.1722	0.0055	0.0245	0.0005	0.0083	0.0002	233.4	50	161.3	5	155.9	3

23	482	776	0.62	0.0491	0.0013	0.1626	0.0042	0.0239	0.0004	0.0074	0.0002	153.8	63	153.0	4	152.5	2
25	270	491	0.55	0.0486	0.0017	0.1615	0.0057	0.0239	0.0004	0.0073	0.0002	127.9	83	152.0	5	152.5	3
29	260	472	0.55	0.0517	0.0016	0.1787	0.0060	0.0248	0.0004	0.0085	0.0002	272.3	66	167.0	5	158.1	3
30	498	822	0.61	0.0486	0.0012	0.1650	0.0047	0.0245	0.0004	0.0074	0.0002	127.9	61	155.1	4	155.7	3
Ds-6																	
1	568	1138	0.50	0.0487	0.0020	0.1753	0.0086	0.0258	0.0005	0.0083	0.0003	131.6	101	164.0	7	164.0	3
4	708	1125	0.63	0.0507	0.0019	0.1844	0.0075	0.0262	0.0005	0.0077	0.0003	233.4	85	171.8	6	166.8	3
5	94.2	177	0.53	0.0503	0.0034	0.1794	0.0122	0.0259	0.0007	0.0080	0.0005	209.3	156	167.6	10	165.1	4
7	183	252	0.73	0.0504	0.0038	0.1814	0.0146	0.0262	0.0008	0.0070	0.0004	213.0	181	169.3	13	166.5	5
8	1732	2275	0.76	0.0506	0.0014	0.1855	0.0055	0.0265	0.0005	0.0061	0.0002	233.4	60	172.7	5	168.8	3
10	334	631	0.53	0.0505	0.0021	0.1786	0.0080	0.0259	0.0005	0.0083	0.0009	216.7	94	166.9	7	164.6	3
11	743	1727	0.43	0.0494	0.0018	0.1828	0.0069	0.0268	0.0007	0.0085	0.0003	164.9	87	170.4	6	170.7	4
12	253	464	0.55	0.0510	0.0034	0.1806	0.0113	0.0257	0.0007	0.0087	0.0004	242.7	152	168.6	10	163.7	4
13	410	601	0.68	0.0516	0.0025	0.1880	0.0094	0.0262	0.0004	0.0079	0.0003	333.4	113	174.9	8	166.9	3
14	432	594	0.73	0.0503	0.0017	0.1800	0.0065	0.0259	0.0005	0.0086	0.0002	209.3	80	168.0	6	164.8	3
15	549	812	0.68	0.0509	0.0019	0.1785	0.0074	0.0253	0.0007	0.0080	0.0003	239.0	85	166.8	6	161.3	4
17	436	915	0.48	0.0506	0.0018	0.1803	0.0067	0.0258	0.0005	0.0088	0.0003	220.4	51	168.3	6	164.0	3
20	735	1797	0.41	0.0486	0.0014	0.1775	0.0053	0.0263	0.0005	0.0078	0.0002	127.9	67	165.9	5	167.4	3
21	425	1122	0.38	0.0497	0.0014	0.1748	0.0054	0.0254	0.0005	0.0082	0.0002	189.0	67	163.6	5	161.9	3
22	332	582	0.57	0.0479	0.0018	0.1706	0.0067	0.0257	0.0005	0.0079	0.0003	100.1	106	160.0	6	163.8	3
24	368	668	0.55	0.0500	0.0024	0.1770	0.0090	0.0256	0.0005	0.0080	0.0003	194.5	111	165.5	8	162.9	3
25	226	368	0.62	0.0515	0.0028	0.1819	0.0090	0.0259	0.0006	0.0089	0.0004	261.2	94	169.7	8	164.8	3
26	1077	2779	0.39	0.0523	0.0018	0.1918	0.0063	0.0266	0.0008	0.0076	0.0002	301.9	78	178.1	5	169.5	5
27	653	1593	0.41	0.0515	0.0015	0.1863	0.0054	0.0262	0.0005	0.0076	0.0002	261.2	69	173.5	5	166.7	3
28	229	559	0.41	0.0497	0.0018	0.1780	0.0069	0.0259	0.0006	0.0080	0.0003	183.4	83	166.4	6	165.1	4
29	212	384	0.55	0.0501	0.0025	0.1750	0.0081	0.0258	0.0006	0.0078	0.0003	211.2	121	163.8	7	164.3	4
30	261	422	0.62	0.0501	0.0025	0.1736	0.0093	0.0252	0.0008	0.0077	0.0003	198.2	115	162.5	8	160.1	5

Table S2: LA-ICP-MS zircon trace element compositions (ppm) of granites from Laiziling (No. Lzl-1) and Jianfengling (No. Ds-6) plutons

Spot	3	4	6	10	11	14	15	18	21	22	23	25	29	30
Ti	7.25	11.99	9.98	5.67	6.99	4.09	9.82	10.05	9.46	8.71	8.37	7.78	7.96	9.67
Nb	13.09	25.69	5.74	17.27	8.71	22.82	6.73	4.86	5.49	8.26	16.55	8.72	16.78	14.36
Ta	6.42	12.77	2.96	6.81	4.18	10.91	2.93	2.13	2.53	3.94	5.81	4.03	6.91	8.49
La	0.08	0.62	0.30	0.26	0.13	0.14	0.03	0.43	1.02	0.04	0.70	0.33	0.37	0.74
Ce	24.58	25.39	22.67	22.16	24.12	23.54	19.51	17.20	17.09	22.21	30.54	25.28	22.74	12.92
Pr	0.23	0.54	0.50	0.35	0.34	0.26	0.17	0.32	0.31	0.29	0.54	0.36	0.28	0.22
Nd	2.26	4.22	5.87	2.63	3.35	2.36	1.81	3.02	1.89	2.72	4.56	2.93	2.55	1.47
Sm	5.21	8.40	11.38	7.09	7.07	6.03	4.04	6.28	3.60	6.44	9.49	6.46	5.90	3.11
Eu	0.07	0.12	0.28	0.12	0.15	0.02	0.09	0.28	0.17	0.21	0.15	0.14	0.17	0.19
Gd	25.75	38.92	52.64	37.87	30.08	30.45	20.68	28.63	18.10	30.52	40.98	29.20	30.08	17.27
Tb	9.71	15.87	17.89	14.50	10.65	12.54	7.33	10.04	6.45	10.94	15.30	10.54	11.53	6.64
Dy	120.45	202.85	207.35	186.20	124.38	160.89	88.46	117.73	80.68	133.09	184.34	129.57	146.60	84.74
Ho	43.14	68.27	72.41	68.52	43.35	61.37	32.45	41.83	28.89	47.01	64.78	44.17	55.02	31.59
Er	178.14	292.23	290.25	296.30	181.84	275.66	137.65	172.49	122.34	200.63	275.58	189.33	241.91	140.45
Tm	41.97	68.74	60.33	69.24	39.83	62.17	29.95	37.28	26.77	44.62	60.47	44.15	55.26	32.81
Yb	388.71	606.02	507.37	630.07	349.96	557.18	263.50	322.02	242.12	399.46	529.06	378.27	480.12	302.62
Lu	59.54	94.09	89.96	104.42	62.05	101.81	48.50	58.16	43.93	67.04	91.22	63.56	83.35	55.23
ΣREE	900	1426	1339	1440	877	1294	654	816	593	965	1308	924	1136	690
LREE	32.44	39.28	40.99	32.61	35.17	32.34	25.65	27.53	24.08	31.90	45.99	35.51	32.01	18.65
HREE	867	1387	1298	1407	842	1262	629	788	569	933	1262	889	1104	671
LREE/HREE	0.04	0.03	0.03	0.02	0.04	0.03	0.04	0.03	0.04	0.03	0.04	0.04	0.03	0.03
δEu	0.02	0.02	0.03	0.02	0.03	0.00	0.02	0.05	0.05	0.04	0.02	0.03	0.03	0.06
δCe	26.60	9.48	10.68	14.30	18.01	21.83	30.52	10.15	7.03	20.52	10.86	14.81	15.70	7.41
logfO ₂	−16.78	−15.71	−16.10	−17.30	−16.86	−18.00	−16.13	−16.08	−16.21	−16.39	−16.47	−16.63	−16.58	−16.17
T(°C)	713	757	741	693	710	668	739	741	736	729	726	719	721	738

Continue Table S2

Spot	1	4	5	7	8	10	11	12	13	14	15	17	20	21	22	24	25	26	27	28	29	30
Ti	8.04	7.31	9.16	18.3	12.9	14.0	8.90	3.71	10.0	6.97	13.2	14.9	6.04	6.67	9.88	12.7	7.37	11.8	7.29	10.7	11.7	14.4
Nb	17.0	27.7	22.6	3.40	4.77	2.51	6.90	20.0	6.06	19.5	10.2	7.63	17.1	12.7	6.68	7.39	7.18	13.8	17.4	5.28	5.24	8.99
Ta	6.13	18.0	11.3	1.35	1.74	1.10	3.31	10.9	2.82	5.19	4.95	3.87	9.15	6.63	3.16	3.16	3.65	5.17	9.08	2.43	2.25	2.81
La	0.52	1.32	0.40	0.01	0.02	0.16	0.01	0.06	0.04	0.79	1.24	0.22	0.21	0.22	0.21	0.02	0.09	0.37	0.15	0.04	0.05	0.14
Ce	25.7	27.5	24.4	11.2	13.5	10.8	21.3	19.9	21.9	20.1	17.2	17.8	22.9	19.5	21.8	20.4	22.2	14.1	22.5	6.98	15.1	13.8
Pr	0.48	0.77	0.65	0.098	0.15	0.29	0.18	0.15	0.22	0.49	0.46	0.32	0.21	0.13	0.18	0.25	0.23	0.34	0.18	0.19	0.18	0.55
Nd	3.94	4.53	5.52	1.23	1.62	2.95	1.79	1.87	2.61	3.07	3.40	2.77	1.86	1.58	2.05	1.97	2.32	2.89	1.69	2.39	1.84	4.90
Sm	8.48	8.00	10.0	2.72	3.27	6.95	4.57	4.16	5.47	7.35	6.91	7.18	4.84	3.75	5.15	6.07	5.12	6.08	4.83	5.87	4.18	10.1
Eu	0.16	0.11	0.24	0.24	0.19	0.54	0.11	0.044	0.23	0.30	0.28	0.23	0.054	0.051	0.14	0.19	0.10	0.25	0.063	0.24	0.23	0.78
Gd	37.5	36.3	47.3	12.1	15.7	30.6	21.4	20.0	25.5	26.8	35.6	33.2	23.0	18.3	21.7	22.4	21.9	27.0	24.4	26.5	19.1	45.6
Tb	14.3	13.8	18.0	4.55	5.97	10.3	7.63	8.20	9.01	11.5	15.7	13.5	9.52	7.32	7.85	8.95	7.60	10.7	9.49	9.59	6.72	16.0
Dy	176	181	228	58.4	73.7	120	95.2	113	110	157	184	167	126	96.5	97.0	109	99.5	137	126	119	82.1	190
Ho	63.0	66.3	80.3	21.9	26.7	42.4	34.3	44.7	40.5	57.6	63.0	56.5	47.9	36.1	34.8	38.8	35.7	49.3	48.3	43.5	29.9	64.1
Er	276	293	344	95.5	110	177	148	208	174	272	272	232	221	164	149	159	155	215	222	183	128	262
Tm	64.6	67.6	80.1	22.5	25.4	38.3	32.6	50.0	39.3	68.7	61.9	51.0	51.5	38.6	33.6	35.9	34.4	50.7	52.9	40.9	28.9	56.4
Yb	589	618	735	211	239	342	296	463	347	683	545	412	479	358	300	317	315	458	478	366	255	494
Lu	98.6	104	118	37.4	40.3	61.1	51.3	80.9	62.1	99.7	89.5	68.1	82.0	61.3	53.3	57.4	54.8	75.3	85.0	62.1	45.2	78.8
ΣREE	1358	1422	1691	479	556	843	714	1014	838	1407	1296	1061	1070	805	726	777	754	1048	1076	866	617	1237
LREE	39	42	41	16	19	22	28	26	30	32	30	29	30	25	30	29	30	24	29	16	22	30
HREE	1319	1380	1650	463	537	821	686	987	807	1375	1266	1032	1040	780	697	749	724	1024	1046	850	595	1206
LREE/HREE	0.03	0.03	0.02	0.03	0.03	0.03	0.04	0.03	0.04	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.02	0.03	0.02	0.04	0.03
δEu	0.02	0.02	0.03	0.11	0.07	0.10	0.03	0.01	0.05	0.06	0.04	0.04	0.01	0.02	0.03	0.04	0.03	0.05	0.01	0.05	0.07	0.09
δCe	10.91	6.25	8.79	31.17	24.67	8.73	34.21	33.33	26.91	7.32	5.35	12.68	22.92	26.95	24.17	22.43	23.73	8.42	27.39	9.69	22.30	6.60
logfO ₂	−16.6	−16.8	−16.3	−14.8	−15.6	−15.4	−16.3	−18.2	−16.1	−16.9	−15.5	−15.3	−17.2	−17.0	−16.1	−15.6	−16.7	−15.7	−16.8	−16.0	−15.8	−15.3
T(°C)	722	714	733	797	764	772	731	661	741	710	766	777	699	707	740	762	715	756	714	747	755	774

Table S3: Major and trace element compositions of the granites from the Jianfengling (sample number titled by DS) and Laiziling (sample number titled by LZL) plutons.

Sample	DS-1	DS-3	DS-4	DS-7	DS-8	DS-9-1	DS-9-3	DS-10	DS-11	LZL-1	LZL-2	LZL-3	LZL-4	LZL-5
Major element (%)														
SiO ₂	74.87	74.71	74.61	75.38	74.84	74.07	74.39	75.26	74.95	74.61	74.39	74.59	74.3	73.92
TiO ₂	0.01	0.03	0.03	0.01	0.02	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03
Al ₂ O ₃	13.46	13.53	13.57	13.19	13.33	13.7	13.86	13.24	13.22	13.65	13.8	13.62	14.18	14.26
TF ₂ O	2.77	2.84	2.95	2.01	2.93	1.62	1.31	1.29	1.42	1.52	1.76	1.61	1.32	1.73
MnO	0.18	0.17	0.17	0.08	0.16	0.09	0.06	0.05	0.05	0.05	0.06	0.06	0.05	0.06
MgO	0.01	0.07	0.06	0.01	0.01	0.06	0.05	0.07	0.07	0.09	0.08	0.09	0.06	0.09
CaO	1.14	0.94	1.16	1.17	1.14	0.69	0.7	0.78	0.75	0.67	0.65	0.68	0.63	0.68
Na ₂ O	2.37	2.42	2.15	2.61	2.25	4.59	5.08	3.47	3.5	3.66	3.87	3.76	3.8	3.95
K ₂ O	2.38	2.43	2.42	2.85	2.45	3.52	3.23	4.2	4.21	4.08	3.64	3.94	4.2	3.61
P ₂ O ₅	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
LOI	1.78	1.65	1.69	1.76	1.79	1.02	0.8	0.99	0.98	0.86	0.98	0.95	0.9	1.04
Total	98.96	98.8	98.82	99.07	98.91	99.41	99.52	99.39	99.19	99.23	99.27	99.34	99.47	99.38
A/CNK	1.575	1.626	1.642	1.388	1.582	1.086	1.056	1.134	1.132	1.171	1.201	1.165	1.187	1.225
A/NK	2.079	2.046	2.204	1.788	2.098	1.206	1.169	1.291	1.282	1.308	1.339	1.303	1.313	1.37
DI	85.05	85.53	84.15	87.43	84.86	93.11	93.92	92.61	92.61	92.39	91.86	92.28	92.7	91.42
T(°C)	715	718	719	708	715	749	748	727	730	738	741	739	747	751
Trace element (ppm)														
V	9	14	11	11	12	13	12	13	10	15	15	17	23	12
Cr	20	20	20	10	10	10	10	10	10	30	10	20	20	10
Cs	100.5	94.6	99.9	54.9	100.5	43.1	34.5	36	36.7	71	79.4	75.1	64.5	76.5
Ga	33	33.8	32.9	32.5	33	32.9	32.4	31.2	30.5	32.4	32.1	32.1	30	30.9
Rb	1465	1415	1465	1115	1485	956	824	1020	1020	1350	1305	1340	1250	1295
Sr	16.2	13.8	14.9	17.5	14.7	9.7	9.1	14.3	12.2	5.3	4.6	4.9	11.1	4.9
Ba	2.8	2.4	2.5	4	2.4	11.6	11	14	13	15.4	12.6	15	25.3	13.3
Th	39.6	37.7	42.4	37.4	41.3	49.4	41.8	36.5	37.3	37.6	39.4	37.1	42.3	43.2
U	71	43.1	46.5	32.5	53.6	42.5	37.7	33.2	32.8	33.7	53.2	35.6	52.8	58.9
Ta	19.2	19.6	22.6	22.9	20.7	29.1	35.4	21	22.9	26	19.5	23.3	27.4	19.2
Nb	54.6	56.9	59.1	60.5	55.6	81.7	79	59.5	63.1	75.2	61.3	65.7	77.4	59.5
Zr	76	78	86	79	84	95	85	80	89	81	83	92	77	89
Hf	7.2	6.5	7.8	5.4	7.4	7.4	7.3	5.8	6.4	6.7	7.1	7.4	6.5	7.7
W	392	253	375	129	493	128	155	84	84	82	63	70	125	62
La	43.1	42.2	47.8	44	44.8	62.7	54.5	43.9	43.6	54.4	48.5	55.8	55.8	54.3
Ce	104.5	103	117.5	106.5	108.5	156	140.5	108	105.5	130	122.5	135.5	129	133
Pr	12.4	12.2	13.85	12.8	13.2	18.75	16.15	12.65	12.55	15.2	14.5	15.7	15.1	15.95
Nd	42.9	41	45.6	43.4	43.7	62.1	52.6	43.4	42.5	50.8	49.5	51.8	51.6	52.5

Sm	13.9	13.2	14.3	13.9	14.3	20.2	16.05	13.7	13.65	15.7	15.3	16.15	15.75	16.75
Eu	0.05	0.04	0.03	0.04	0.03	0.03	0.03	0.05	0.04	0.03	0.03	0.03	0.05	0.03
Gd	13.9	13.55	14.5	14.55	14.45	19.3	15.35	13.95	13.45	16.05	15.35	15.35	15.65	16.65
Tb	3.21	3.07	3.36	3.2	3.29	4.2	3.37	2.98	2.93	3.53	3.56	3.4	3.46	3.8
Dy	22	21.5	22.9	21.2	22.6	27.2	22.3	19.75	19.55	23.3	23.2	23.2	23.5	24.6
Ho	4.96	4.72	5.07	4.49	5.06	5.56	4.8	4.27	4.16	4.97	4.89	4.79	4.89	5.28
Er	17.6	16.7	18.2	14.9	17.9	18.8	16.8	14.6	14.8	16.8	16.5	16.5	16.3	18.0
Tm	3.1	2.85	3.19	2.49	3.11	3.15	3.09	2.55	2.53	2.91	2.85	2.85	2.69	3
Yb	23.4	21.7	24.1	18.25	24	23.9	23.1	19.3	19.25	21.5	21	21.3	20.6	22.7
Lu	3.43	3.06	3.42	2.56	3.41	3.44	3.33	2.77	2.8	3.13	2.99	3.06	2.9	3.29
Y	150	140	159	124	154	145	128	116	112	129	129	128	120	137
ΣREE	308	299	334	302	318	425	372	302	297	358	341	365	357	370
LREE	217	212	239	221	225	320	280	222	218	266	250	275	267	273
HREE	91.6	87.1	94.7	81.6	93.8	105.5	92.1	80.2	79.4	92.2	90.3	90.5	89.9	97.3
LREE/HREE	2.37	2.43	2.52	2.70	2.39	3.03	3.04	2.77	2.74	2.89	2.77	3.04	2.97	2.80
LaN/YbN	1.24	1.31	1.34	1.63	1.26	1.77	1.59	1.54	1.53	1.71	1.56	1.77	1.83	1.62
δEu	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
δCe	1.05	1.05	1.06	1.04	1.04	1.06	1.10	1.06	1.05	1.05	1.08	1.06	1.03	1.05

Table S4: Zircon Lu–Hf isotopic compositions of granites from Laiziling (No. Lzl-1) and Jianfengling (No. Ds-6) plutons.

Spot	$^{176}\text{Yb}/^{177}\text{Hf}$	$\pm 2\sigma$	$^{176}\text{Lu}/^{177}\text{Hf}$	$\pm 2\sigma$	$^{176}\text{Hf}/^{177}\text{Hf}$	$\pm 2\sigma$	Hf _i	$\varepsilon_{\text{Hf}}(\text{t})$	T _{DM} (Ga)	T _{CDM} (Ga)
Lzl-1(156.4±1.4Ma)										
3	0.115660	0.003689	0.002758	0.000052	0.282622	0.000029	0.282614	−2.16	0.94	1.35
4	0.191683	0.007507	0.004166	0.000141	0.282588	0.000033	0.282576	−3.50	1.03	1.43
6	0.136995	0.004255	0.003254	0.000082	0.282618	0.000024	0.282608	−2.37	0.96	1.36
10	0.130731	0.000872	0.002952	0.000018	0.282599	0.000021	0.282591	−2.98	0.98	1.40
11	0.047138	0.000229	0.001077	0.000003	0.282580	0.000019	0.282576	−3.49	0.95	1.43
14	0.035364	0.000782	0.000824	0.000013	0.282622	0.000022	0.282620	−1.96	0.89	1.33
15	0.031919	0.000348	0.000901	0.000008	0.282591	0.000023	0.282588	−3.06	0.93	1.40
18	0.361270	0.032664	0.007548	0.000654	0.282658	0.000037	0.282636	−1.38	1.02	1.30
21	0.075554	0.000938	0.001705	0.000015	0.282611	0.000022	0.282606	−2.42	0.92	1.36
22	0.044065	0.000639	0.001011	0.000019	0.282562	0.000021	0.282559	−4.10	0.98	1.47
23	0.072200	0.002158	0.001556	0.000043	0.282568	0.000022	0.282563	−3.96	0.98	1.46
25	0.034043	0.000321	0.000820	0.000007	0.282579	0.000024	0.282577	−3.47	0.95	1.43
29	0.023353	0.000660	0.000572	0.000013	0.282618	0.000025	0.282616	−2.09	0.89	1.34
30	0.065712	0.001151	0.001467	0.000036	0.282570	0.000022	0.282566	−3.86	0.98	1.45
Ds-6(165.2±1.4Ma)										
1	0.040313	0.000219	0.000925	0.000008	0.282624	0.000024	0.282621	−1.70	0.89	1.32

2	0.063981	0.000436	0.001431	0.000009	0.282630	0.000027	0.282625	−1.57	0.89	1.32
3	0.050010	0.001486	0.001171	0.000039	0.282549	0.000024	0.282545	−4.41	1.00	1.49
4	0.029170	0.000258	0.000643	0.000003	0.282581	0.000027	0.282579	−3.20	0.94	1.42
5	0.036843	0.000299	0.000806	0.000002	0.282584	0.000025	0.282581	−3.12	0.94	1.41
6	0.018662	0.000291	0.000429	0.000008	0.282553	0.000026	0.282551	−4.18	0.98	1.48
7	0.118926	0.009795	0.002188	0.000163	0.282573	0.000023	0.282567	−3.64	0.99	1.45
8	0.138369	0.001504	0.003164	0.000023	0.282597	0.000021	0.282587	−2.92	0.98	1.40
9	0.077375	0.000959	0.001475	0.000013	0.282592	0.000025	0.282588	−2.89	0.95	1.40
10	0.037171	0.000864	0.000826	0.000011	0.282609	0.000023	0.282606	−2.23	0.91	1.36
11	0.030152	0.000364	0.000679	0.000003	0.282580	0.000022	0.282578	−3.25	0.94	1.42
12	0.104913	0.000970	0.002250	0.000030	0.282627	0.000026	0.282620	−1.75	0.92	1.33
13	0.110377	0.008661	0.002370	0.000186	0.282529	0.000024	0.282522	−5.22	1.06	1.55
14	0.038041	0.000372	0.000863	0.000012	0.282570	0.000021	0.282568	−3.61	0.96	1.44
15	0.045272	0.001546	0.001030	0.000038	0.282600	0.000025	0.282597	−2.58	0.93	1.38
16	0.035126	0.001656	0.000743	0.000006	0.282578	0.000028	0.282576	−3.31	0.95	1.43
17	0.035725	0.000956	0.000712	0.000015	0.282541	0.000020	0.282539	−4.62	1.00	1.51
18	0.034717	0.000127	0.000798	0.000006	0.282591	0.000023	0.282589	−2.86	0.93	1.40
19	0.088020	0.000935	0.001913	0.000008	0.282606	0.000020	0.282601	−2.44	0.94	1.37
20	0.031203	0.001333	0.000728	0.000029	0.282616	0.000024	0.282614	−1.98	0.89	1.34
21	0.060252	0.000757	0.001373	0.000020	0.282520	0.000021	0.282516	−5.44	1.05	1.56
22	0.058702	0.001315	0.001446	0.000048	0.282597	0.000021	0.282592	−2.74	0.94	1.39