Miller et al. CALE C Supplementary Data: Geochronologic data: Methods and Data Tables

Polar Urals Samples: Enganape Uplift, Timanian basement beneath Cambro-Ordovician unconformity

Sample	Rock type	Latitude	Longitude	Location	Method
ELM 09-U13	sandstone	67 11.258'	64 31.39' E	Table 1	LA-ICPMS
ELM 09-U16	sandstone	67 13.424'	64 30.948'E	Table 1	LA-ICPMS
ELM 09-U17	tuff	67 12.733'	64 32.278'E	Table 2	SHRIMP-RG
ELM 09-U18	tuff	67 12.628'	64 32.278'E	Table 2	SHRIMP-RG
ELM 09-31-09	tuff	67 11.786'	64 30.234'E	Table 2	SHRIMP-RG
ELM 09-43-09	rhyolite	67 12.923'	64 32.881'	Table 2	SHRIMP-RG
Western Chukotka: Jura-Cretaceous syn-orogenic deposits (Pogynden Formation)					
ELM 04-CH22D	sand/cong	68 59.5998'	166 2.9616'E	Table 2	SHRIMP-RG
Western Chukotka: Carboniferous					
JT-04-CH18	sandstone	68 55.266'	166 0.54'E	Table 2	SHRIMP-RG

METHODS

LA-ICPMS:

Zircon was extracted from rock samples by hand crushing of rocks in a large mortar, sieving, washing and bromoform heavy liquid separation of the heavy fraction of the sample. These procedures were carried out by N. Kuznetsov at GINRAS, Moscow, with final moderate magnetic separation and methylene iodide heavy liquid separation at Stanford University. Pyrite in some samples was dissolved with nitric acid. A representative aliquot of the final > 98% pure zircon fractions was dump-mounted onto tape covered by paper with a cut slot measuring 1cm long x 1mm wide. We were interested in determining the degree of roundness (as a proxy for reworking) so we imaged most of the mounted zircons with a JEOL JSM 5600 Scanning Electron Microscope after carbon coating the mount and prior to embedding the samples in epoxy.

Standards were added to the mounts and epoxy was poured following the protocol of the LaserChron Center at University of Arizona. The samples were polished and imaged at the LaserChron Center. U-Pb geochronology of zircons was conducted by laser ablation multi-collector inductively coupled plasma mass spectrometry (LA-MC-ICPMS) at the Arizona LaserChron Center (Gehrels et al., 2006, 2008). The analyses involve ablation of zircon with a New Wave DUV193 Excimer laser (operating at a wavelength of 193 nm) using a spot diameter of 30 microns. The ablated material is carried in helium into the plasma source of a Nu HR ICPMS, which is equipped with a flight tube of sufficient width that U, Th, and Pb isotopes are measured simultaneously. All measurements are made in static mode, using Faraday detectors with 3e11 ohm resistors for the major isotopes and an ion-counting channel for mass 202 and 204 (Pb and Hg). Ion yields are ~0.7 mv per ppm. Each analysis consists of one 15-second integration on peaks with the laser off (for backgrounds), 15 one-second integrations with the laser firing, and a 30 second delay to purge the previous sample and prepare for the next analysis. The ablation pit is ~12 microns in depth. For each analysis, the errors in determining $^{206}Pb/^{238}U$ and $^{206}Pb/^{204}Pb$ result in a measurement error of ~1-2% (at 2- sigma level) in the $^{206}Pb/^{238}U$ age. The errors in measurement of $^{206}Pb/^{207}Pb$ and $^{206}Pb/^{204}Pb$ also result in ~1-2% (at 2- sigma level) uncertainty in age for grains that are >1.0 Ga, but are substantially larger for younger grains due to low intensity of the ^{207}Pb signal. For most analyses, the crossover in precision of $^{206}Pb/^{238}U$ and $^{206}Pb/^{207}Pb$ ages occurs at ~1.0 Ga. Common Pb correction is accomplished by using the measured ^{204}Pb and assuming an initial Pb composition from Stacey and Kramers (1975) (with uncertainties of 1.0 for $^{206}Pb/^{204}Pb$ and 0.3 for $^{207}Pb/^{204}Pb$). Interference from ^{204}Hg is subtracted based on measurement of ^{202}Hg and the natural isotope composition of Hg. The impact of this correction is negligible given the low abundance of Hg (generally <200 cps on mass 204). Inter-element fractionation of Pb/U is generally ~10%, whereas apparent fractionation of Pb isotopes is generally <2%. In-run analysis of fragments of a large Sri Lanka zircon crystal (generally every fifth measurement) with known age of 563.5 ± 3.2 Ma (2-sigma error) is used to correct for this fractionation. The uncertainty resulting from the calibration correction is generally 1-2% (2-sigma) for both $^{206}Pb/^{207}Pb$ and $^{206}Pb/^{238}U$ ages. Concentrations of U and Th are calibrated relative to U and Th in our Sri Lanka zircon standard.

The analytical data are reported in Appendix DR1E. Uncertainties shown in the data tables are at the 1-sigma level, and include only measurement errors. Interpreted ages are based on $^{206}Pb/^{238}U$ for <1000 Ma grains and on $^{206}Pb/^{207}Pb$ for >1000 Ma grains, but for some samples with multiple grains around 1 Ga and older, the cutoff was made at 900 Ma and this is noted in the header "best age". This division at 1000 Ma results from the increasing uncertainty of $^{206}Pb/^{238}U$ ages and the decreasing uncertainty of $^{206}Pb/^{207}Pb$ ages as a function of age. Analyses that are >30% discordant or >5% reverse discordant (by comparison of $^{206}Pb/^{238}U$ and $^{206}Pb/^{207}Pb$ ages) are not included. Inclusion of ages with up to 30% discordance is essential to avoid biasing the proportions of different ages given that older ages will tend to have greater degrees of Pb loss. Concordia plots, histograms and age-probability diagrams were generated using Isoplot (Ludwig, 1999); cumulative probability plots and K-S analyses using routines available from www.laserchron.org

SHRIMP-RG:

Zircon was extracted from rock samples by hand crushing of rocks in a large mortar, sieving, washing and lithium metatungstate heavy liquid separation of the heavy fraction of the sample followed by magnetic separation and methylene iodide heavy liquid separation. Hand-picked grains from the final > 98% pure zircon fraction were mounted onto tape in rows (except for JT-04-18 which was dump-mounted on tape covered by paper with a cut slot measuring 1cm long x 1mm wide) along with aliquots of age standard R33 and concentration standard MAD–Green. Zircons were embedded in epoxy and polished to expose grain interiors. Polished mounts photographed under reflected light and imaged in a scanning electron microscope using a cathode luminescence (CL) detector.

Zircons were analyzed by Sensitive High Resolution Ion MicroProbe – Reverse Geometry (SHRIMP-RG) at the Stanford-USGS Micro Analysis Center using standard methodology and instrument configuration for zircon U-Th-Pb geochronology. The methodology description in Chapman et al. (2015) is reproduced and slightly modified here. Using reflected light and CL imagery as a guide for analysis, a primary oxygen source was ionized, tuned and focused through an 100 µm Kohler lens to produce a –5nA O_2^- beam that sputtered ~30 µm diameter by 2-3 µm deep pits into gold-coated, polished interiors of zircon grains. Positively-charged secondary ions extracted by sputtering were accelerated into the reverse geometry mass spectrometer for measurement at relevant mass stations on an electron multiplier. Each analysis consisted of ~3 minutes of pre-measurement (primary beam rastering to locally remove the gold coat followed by optimization of steering of the primary and secondary ion beams) and five cycles (~2.5 minute/cycle) of measuring relevant mass stations. Squid and Isoplot add–ins for Excel (Ludwig, 1999) were used to reduce raw data to isotopic ratios for calculating U-Pb and Pb-Pb ages. Ages were standardized against the R33 zircon standard (419 Ma ID-TIMS age; Black et al., 2004). Isotopic data and analytical uncertainties (1s) for SHRIMP–RG analyses are provided in Supplementary Table 2.

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TABLE 1. LA-ICPMS Analyses of sandstone turbidites, Enganape Uplift, Polar Urals (Samples ELM09-U-13 and U-16

						Isotope ratios					Apparent ages (Ma)								
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U*	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U*	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
ELMU13-2	37	1880	1.7	21.6766	15.9	0.6882	15.9	0.1082	0.8	0.05	662.3	5.1	531.7	65.8	4.5	383.9	662.3	5.1	#####
ELMU13-3	86	2958	1.8	17.3562	6.1	0.7764	6.6	0.0977	2.5	0.37	601.1	14.1	583.4	29.2	515.2	133.9	601.1	14.1	116.7
ELMU13-5	308	21351	1.1	16.1174	1.5	0.9978	2.2	0.1166	1.5	0.71	711.2	10.4	702.7	11.1	675.7	33.1	711.2	10.4	105.3
ELMU13-6	129	5681	1.7	17.9964	7.7	0.6963	8.1	0.0909	2.6	0.32	560.8	13.9	536.6	34.0	435.1	172.3	560.8	13.9	128.9
ELMU13-7	164	34072	2.9	9.0542	0.6	4.9637	2.6	0.3260	2.5	0.98	1818.7	39.6	1813.2	21.6	1806.7	10.2	1806.7	10.2	100.7
ELMU13-8	82	4978	1.5	17.6559	7.7	0.8086	8.8	0.1035	4.3	0.49	635.1	26.3	601.6	40.2	477.5	170.5	635.1	26.3	133.0
ELMU13-9	221	5676	2.2	15.2900	14.8	0.8930	15.3	0.0990	3.9	0.26	608.7	22.8	648.0	73.6	787.3	312.8	608.7	22.8	77.3
ELMU13-10	120	7303	1.2	17.5047	4.6	0.7310	4.9	0.0928	1.8	0.36	572.1	9.6	557.1	21.1	496.4	101.4	572.1	9.6	115.2
ELMU13-11	95	11820	3.3	12.9772	2.7	2.0817	3.2	0.1959	1.7	0.54	1153.4	18.1	1142.8	21.7	1122.7	53.2	1122.7	53.2	102.7
ELMU13-12	240	29324	3.1	10.3739	0.8	3.5258	2.4	0.2653	2.3	0.94	1516.8	30.7	1533.0	19.2	1555.5	15.8	1555.5	15.8	97.5
ELMU13-13	198	18202	1.8	11.7764	1.0	2.7797	1.6	0.2374	1.2	0.77	1373.3	14.7	1350.1	11.6	1313.6	19.4	1313.6	19.4	104.5
ELMU13-15	120	6454	1.5	16.3239	5.1	0.8551	5.2	0.1012	1.1	0.22	621.6	6.7	627.4	24.3	648.4	108.7	621.6	6.7	95.9
ELMU13-16	237	57713	1.5	9.8797	0.5	4.0537	2.4	0.2905	2.3	0.97	1643.9	33.4	1645.0	19.3	1646.5	10.0	1646.5	10.0	99.8
ELMU13-17	139	32181	1.6	8.7112	0.8	5.5999	1.3	0.3538	1.0	0.80	1952.7	16.9	1916.1	10.8	1876.7	13.5	1876.7	13.5	104.1
ELMU13-18	200	9313	2.0	16.7612	2.4	0.7309	3.1	0.0889	1.9	0.63	548.8	10.1	557.1	13.1	591.3	51.5	548.8	10.1	92.8
ELMU13-19	501	916	1.0	16.2857	4.2	0.8555	4.8	0.1011	2.3	0.49	620.6	13.9	627.7	22.5	653.4	89.9	620.6	13.9	95.0
ELMU13-20	172	8825	1.4	16.9938	6.0	0.8340	6.1	0.1028	1.1	0.18	630.8	6.7	615.8	28.1	561.4	130.2	630.8	6.7	112.4
ELMU13-21	83	4424	2.3	18.2075	11.9	0.7044	12.0	0.0930	0.8	0.07	573.4	4.5	541.4	50.3	409.0	268.1	573.4	4.5	140.2
ELMU13-22	62	3477	2.0	16.9338	7.9	0.8785	8.3	0.1079	2.3	0.28	660.5	14.7	640.2	39.3	569.1	173.2	660.5	14.7	116.1
ELMU13-23	92	6239	2.4	17.5161	8.9	0.7212	9.2	0.0916	2.5	0.27	565.1	13.5	551.4	39.2	495.0	195.4	565.1	13.5	114.2
ELMU13-24	626	36292	2.6	10.9734	0.3	3.1574	2.7	0.2513	2.7	0.99	1445.1	34.6	1446.8	20.7	1449.3	5.8	1449.3	5.8	99.7
ELMU13-25	122	8221	1.5	16.2159	4.0	0.9145	4.3	0.1076	1.6	0.38	658.5	10.1	659.5	20.8	662.6	85.3	658.5	10.1	99.4
ELMU13-26	145	8511	0.7	17.0255	8.0	0.8308	8.1	0.1026	1.0	0.12	629.5	6.0	614.0	37.3	557.3	175.4	629.5	6.0	113.0
ELMU13-27	114	5255	2.1	17.7911	5.9	0.8047	6.2	0.1038	1.8	0.29	636.8	10.7	599.5	28.0	460.6	131.4	636.8	10.7	138.3
ELMU13-28	78	4218	1.5	18.4680	7.6	0.6760	7.8	0.0905	1.5	0.20	558.7	8.2	524.3	31.9	377.2	172.0	558.7	8.2	148.1
ELMU13-29	102	10904	1.3	13.0323	3.5	2.1049	6.3	0.1990	5.2	0.82	1169.7	55.2	1150.4	43.1	1114.2	70.8	1114.2	70.8	105.0
ELMU13-31	89	5220	1.8	17.6439	8.3	0.7236	8.9	0.0926	3.1	0.36	570.9	17.2	552.8	37.8	479.0	183.5	570.9	17.2	119.2
ELMU13-32	107	6994	2.2	17.7370	7.7	0.7017	8.0	0.0903	2.1	0.26	557.1	11.0	539.8	33.4	467.4	170.8	557.1	11.0	119.2
ELMU13-33	58	5157	2.5	12.5764	5.2	2.2748	5.5	0.2075	1.7	0.31	1215.4	19.0	1204.5	38.8	1185.0	103.2	1185.0	103.2	102.6
ELMU13-34	222	4895	2.9	15.3758	8.8	0.8254	10.8	0.0920	6.3	0.58	567.6	34.4	611.1	49.8	775.5	185.4	567.6	34.4	73.2
ELMU13-35	123	6710	1.5	16.9763	7.3	0.8594	8.5	0.1058	4.4	0.52	648.4	27.1	629.8	39.9	563.6	158.6	648.4	27.1	115.0
ELMU13-36	364	30396	1.9	14.1366	0.9	1.5841	1.6	0.1624	1.3	0.83	970.2	11.9	964.0	9.9	949.9	18.1	970.2	11.9	102.1
ELMU13-39	86	15089	1.3	9.9692	1.9	4.0448	2.9	0.2925	2.2	0.75	1653.8	31.8	1643.3	23.8	1629.8	36.1	1629.8	36.1	101.5
ELMU13-40	100	6980	1.8	17.2220	5.3	0.8665	6.3	0.1082	3.3	0.53	662.4	20.9	633.7	29.6	532.3	116.8	662.4	20.9	124.5
ELMU13-41	165	7881	1.3	16.7150	6.3	0.7276	6.5	0.0882	1.8	0.27	544.9	9.3	555.1	27.9	597.3	135.9	544.9	9.3	91.2
ELMU13-42	269	19774	1.1	16.8404	2.0	0.7792	2.6	0.0952	1.7	0.66	586.1	9.7	585.1	11.6	581.1	42.5	586.1	9.7	100.9
ELMU13-43	92	5804	1.5	18.0713	8.6	0.7067	8.7	0.0926	1.4	0.16	571.0	7.5	542.8	36.6	425.8	192.1	571.0	7.5	134.1
ELMU13-44	196	11652	1.4	16.6138	1.8	0.8002	4.7	0.0964	4.3	0.92	593.4	24.2	596.9	21.0	610.4	40.0	593.4	24.2	97.2
ELMU13-45	90	5418	1.4	16.7378	6.7	0.7024	7.1	0.0853	2.3	0.33	527.5	11.9	540.2	29.9	594.3	146.3	527.5	11.9	88.8
ELMU13-47	88	5200	1.7	18.2391	8.4	0.6922	8.5	0.0916	1.3	0.15	564.8	7.0	534.1	35.5	405.2	189.2	564.8	7.0	139.4
ELMU13-48	89	4850	1.8	17.1609	4.3	0.7379	5.7	0.0918	3.7	0.66	566.4	20.3	561.2	24.6	540.0	94.3	566.4	20.3	104.9
ELMU13-49	330	19900	3.4	12.7698	0.9	2.1206	3.1	0.1964	2.9	0.96	1155.9	31.0	1155.5	21.1	1154.7	16.9	1154.7	16.9	100.1
ELMU13-50	243	36197	4.6	12.1320	0.8	2.4784	2.1	0.2181	1.9	0.92	1271.7	22.4	1265.7	15.2	1255.7	15.9	1255.7	15.9	101.3
ELMU13-52	121	18453	1.3	13.1669	3.0	1.9565	3.3	0.1868	1.5	0.44	1104.2	14.9	1100.7	22.2	1093.7	59.2	1093.7	59.2	101.0
ELMU13-53	122	8443	1.6	16.8943	6.4	0.7391	6.7	0.0906	2.1	0.31	558.8	11.3	561.9	29.0	574.2	139.0	558.8	11.3	97.3

ELMU13-54	72	14457	2.0	10.0118	1.6	3.9192	2.2	0.2846	1.5	0.68	1614.4	21.6	1617.7	18.1	1621.9	30.7	1621.9	30.7	99.5
ELMU13-55	175	14045	0.9	16.0046	3.5	0.9065	3.6	0.1052	0.7	0.20	644.9	4.5	655.2	17.2	690.7	74.4	644.9	4.5	93.4
ELMU13-57	98	6448	2.1	17.2022	3.4	0.7260	4.2	0.0906	2.5	0.58	559.0	13.2	554.2	18.1	534.8	75.4	559.0	13.2	104.5
ELMU13-58	258	47585	1.3	10.5638	0.5	3.4277	2.2	0.2626	2.1	0.97	1503.2	28.0	1510.8	16.9	1521.4	10.0	1521.4	10.0	98.8
ELMU13-60	467	64329	2.4	13.0838	0.8	2.0046	2.0	0.1902	1.8	0.92	1122.6	18.8	1117.1	13.4	1106.4	15.1	1106.4	15.1	101.5
ELMU13-61	186	11919	1.6	17.3781	6.8	0.7376	7.5	0.0930	3.2	0.43	573.1	17.5	561.0	32.3	512.4	149.3	573.1	17.5	111.8
ELMU13-62	143	9893	2.5	17.1291	10.1	0.8482	10.3	0.1054	2.1	0.20	645.8	12.9	623.7	48.0	544.0	220.7	645.8	12.9	118.7
ELMU13-63	132	9225	1.8	16.8818	5.0	0.8157	6.0	0.0999	3.3	0.55	613.7	19.3	605.7	27.4	575.8	109.5	613.7	19.3	106.6
ELMU13-64	80	14182	2.1	11.3947	1.6	2.8411	2.1	0.2348	1.3	0.61	1359.6	15.3	1366.5	15.4	1377.2	31.4	1377.2	31.4	98.7
ELMU13-65	165	9152	2.3	16.9611	3.1	0.8144	3.3	0.1002	1.3	0.38	615.5	7.5	604.9	15.1	565.5	66.9	615.5	7.5	108.8
ELMU13-66	139	10766	2.4	16.9090	5.0	0.8099	5.0	0.0993	0.8	0.17	610.4	4.9	602.4	22.9	572.3	108.0	610.4	4.9	106.7
ELMU13-67	132	20850	2.2	9.6314	1.2	3.8735	3.3	0.2706	3.1	0.94	1543.7	42.3	1608.2	26.6	1693.6	21.5	1693.6	21.5	91.2
ELMU13-68	301	13169	3.5	17.0465	1.8	0.7440	2.1	0.0920	1.1	0.53	567.2	6.1	564.7	9.1	554.6	38.8	567.2	6.1	102.3
ELMU13-69	193	12113	1.4	17.0757	2.7	0.7342	2.9	0.0909	1.1	0.38	561.0	5.9	559.0	12.5	550.9	58.5	561.0	5.9	101.8
ELMU13-70	270	48910	3.6	10.5163	0.7	3.5793	1.7	0.2730	1.6	0.92	1556.0	21.7	1544.9	13.6	1529.9	12.7	1529.9	12.7	101.7
ELMU13-71	323	20731	1.3	16.5479	1.5	0.8223	1.9	0.0987	1.2	0.64	606.7	7.2	609.3	8.8	619.0	31.7	606.7	7.2	98.0
ELMU13-72	304	19178	1.5	16.7383	1.9	0.8081	2.2	0.0981	1.2	0.53	603.3	6.8	601.4	10.1	594.3	41.1	603.3	6.8	101.5
ELMU13-73	577	69872	4.6	12.2044	0.3	2.5017	1.1	0.2214	1.0	0.95	1289.5	12.0	1272.5	7.8	1244.0	6.6	1244.0	6.6	103.7
ELMU13-74	96	20594	3.2	10.0303	1.5	4.0421	2.0	0.2941	1.3	0.64	1661.7	18.5	1642.7	16.2	1618.4	28.6	1618.4	28.6	102.7
ELMU13-75	69	16058	1.1	10.3231	1.9	3.7778	2.1	0.2828	1.0	0.46	1605.7	14.1	1588.0	17.2	1564.7	35.5	1564.7	35.5	102.6
ELMU13-76	237	15190	1.8	16.6661	3.4	0.8140	4.5	0.0984	2.9	0.65	605.0	16.9	604.7	20.6	603.6	74.5	605.0	16.9	100.2
ELMU13-78	127	12939	0.9	17.0504	5.6	0.8654	5.7	0.1070	1.2	0.20	655.4	7.2	633.0	26.8	554.1	121.7	655.4	7.2	118.3
ELMU13-79	111	2000	1.6	15.9119	5.3	0.8519	5.3	0.0983	0.7	0.14	604.5	4.3	625.7	24.8	703.0	112.1	604.5	4.3	86.0
ELMU13-81	60	5595	1.7	16.7496	7.9	0.7358	8.1	0.0894	1.8	0.22	551.9	9.4	560.0	35.1	592.8	172.5	551.9	9.4	93.1
ELMU13-84	156	27460	3.7	13.6514	0.9	1.7850	2.8	0.1767	2.6	0.94	1049.1	25.5	1040.0	18.2	1020.9	19.0	1020.9	19.0	102.8
ELMU13-85	216	34681	2.3	10.6122	0.7	3.3907	1.3	0.2610	1.1	0.85	1494.8	15.0	1502.3	10.3	1512.7	12.9	1512.7	12.9	98.8
ELMU13-86	137	39671	5.0	10.4566	0.8	3.6720	2.1	0.2785	1.9	0.92	1583.7	27.1	1565.3	16.8	1540.6	15.8	1540.6	15.8	102.8
ELMU13-88	175	15451	5.9	15.9933	1.8	0.9689	2.5	0.1124	1.7	0.70	686.6	11.4	687.9	12.5	692.2	38.3	686.6	11.4	99.2
ELMU13-89	114	24019	1.5	10.4395	1.0	3.6418	2.3	0.2757	2.1	0.90	1569.9	28.7	1558.7	18.2	1543.6	18.6	1543.6	18.6	101.7
ELMU13-90	927	35969	3.6	11.9452	0.4	2.6248	1.2	0.2274	1.2	0.94	1320.8	14.0	1307.6	9.2	1285.9	8.3	1285.9	8.3	102.7
ELMU13-91	70	5557	1.4	18.0559	11.1	0.7319	11.2	0.0958	1.8	0.16	590.0	10.2	557.7	48.3	427.7	248.0	590.0	10.2	137.9
ELMU13-92	127	12434	2.4	16.9306	4.8	0.8140	5.3	0.1000	2.4	0.45	614.1	14.0	604.7	24.3	569.5	103.7	614.1	14.0	107.8
ELMU13-93	42	3649	1.7	19.5593	17.1	0.6400	17.2	0.0908	1.5	0.09	560.2	7.9	502.3	68.2	246.5	396.6	560.2	7.9	227.2
ELMU13-94	106	20867	1.7	9.9337	1.5	4.0851	2.3	0.2943	1.7	0.75	1663.1	25.3	1651.3	18.9	1636.4	28.6	1636.4	28.6	101.6
ELMU13-95	54	3794	1.7	17.3824	13.3	0.7216	13.3	0.0910	1.6	0.12	561.2	8.5	551.6	56.9	511.9	292.4	561.2	8.5	109.6
ELMU13-96	86	6330	2.4	17.0496	9.6	0.7377	9.7	0.0912	1.3	0.13	562.7	7.0	561.1	41.8	554.2	210.2	562.7	7.0	101.5
ELMU13-98	43	6548	1.2	13.2144	4.4	2.0121	4.8	0.1928	1.8	0.38	1136.7	19.0	1119.6	32.2	1086.5	88.0	1086.5	88.0	104.6
ELMU13-99	170	14973	3.2	16.5355	6.2	0.7698	7.0	0.0923	3.3	0.46	569.3	17.8	579.7	31.1	620.6	134.5	569.3	17.8	91.7
ELMU13-100	114	10685	2.2	17.8520	6.8	0.7013	6.9	0.0908	1.4	0.20	560.3	7.4	539.6	29.0	453.0	150.6	560.3	7.4	123.7
ELMU13-101	145	235	2.2	14.3780	38.7	0.8756	39.6	0.0913	8.3	0.21	563.3	44.6	638.6	189.7	915.1	826.4	563.3	44.6	61.6
ELMU13-102	245	7295	1.2	16.6171	3.1	0.7415	7.3	0.0894	6.6	0.91	551.8	35.1	563.3	31.6	610.0	65.9	551.8	35.1	90.5
ELMU13-103	134	11594	1.9	16.8091	3.8	0.8109	4.2	0.0989	1.9	0.44	607.7	10.7	602.9	19.2	585.1	82.3	607.7	10.7	103.9
ELMU13-104	248	14436	1.8	16.5203	2.4	0.8093	4.7	0.0970	4.0	0.85	596.6	22.7	602.1	21.2	622.6	52.6	596.6	22.7	95.8
ELMU13-105	190	14123	3.0	17.2046	2.6	0.7466	3.0	0.0932	1.5	0.50	574.2	8.2	566.3	13.1	534.4	57.6	574.2	8.2	107.4
ELMU13-106	91	8506	1.7	15.8800	6.7	0.9670	7.3	0.1114	2.9	0.40	680.7	18.8	686.9	36.3	707.3	141.7	680.7	18.8	96.2
ELMU13-107	108	6343	3.5	16.7709	6.8	0.8064	7.3	0.0981	2.4	0.33	603.2	13.9	600.4	32.9	590.1	148.4	603.2	13.9	102.2
ELMU13-108	175	8873	2.8	18.3497	6.7	0.5358	7.0	0.0713	1.8	0.26	444.0	7.8	435.7	24.6	391.6	150.9	444.0	7.8	113.4
ELMU13-109	229	13889	3.9	9.9741	0.7	3.9523	2.1	0.2859	2.0	0.95	1621.0	28.6	1624.5	17.1	1628.9	12.9	1628.9	12.9	99.5
ELMU13-110	211	38074	5.4	10.4374	0.6	3.5539	2.1	0.2690	2.0	0.96	1535.9	27.9	1539.3	16.9	1544.0	11.2	1544.0	11.2	99.5

TABLE 1 continued. Sample ELM 09 U16

Analysis	U (ppm)	206Pb/204Pb	U/Th	206Pb*/207Pb*	± (%)	207Pb*/235U*	± (%)	206Pb*/238U	± (%)	error corr.	206Pb*/238U*	± (Ma)	207Pb*/235U	± (Ma)	206Pb*/207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
						Isotope ratios							Apparent ages (Ma)						
ELMU16-1	131	19707	2.1	18.3986	9.4	0.6910	9.9	0.0922	2.9	0.30	568.6	16.0	533.4	41.0	385.6	212.3	568.6	16.0	147.4
ELMU16-2	168	25500	2.4	16.8331	3.7	0.7648	4.8	0.0934	3.1	0.64	575.4	16.9	576.8	21.2	582.0	80.8	575.4	16.9	98.9
ELMU16-4	71	11092	1.0	18.4897	10.5	0.6605	11.9	0.0886	5.6	0.47	547.1	29.2	514.9	48.1	374.5	237.6	547.1	29.2	146.1
ELMU16-5	188	20849	2.5	17.4555	2.8	0.7223	4.4	0.0914	3.3	0.76	564.1	18.1	552.0	18.7	502.7	62.3	564.1	18.1	112.2
ELMU16-6	152	21252	0.9	17.0905	3.8	0.8129	4.1	0.1008	1.5	0.36	618.9	8.6	604.1	18.5	549.0	82.8	618.9	8.6	112.7
ELMU16-8	233	26494	1.0	17.0804	3.0	0.7115	3.5	0.0881	1.8	0.51	544.5	9.4	545.6	14.8	550.3	66.0	544.5	9.4	98.9
ELMU16-9	39	4493	2.4	19.1090	15.4	0.6249	15.6	0.0866	2.8	0.18	535.5	14.5	492.9	61.0	299.9	351.9	535.5	14.5	178.5
ELMU16-10	103	9820	1.4	16.4956	8.2	0.7282	8.6	0.0871	2.7	0.31	538.5	13.8	555.5	36.8	625.8	176.6	538.5	13.8	86.0
ELMU16-11	135	65286	1.3	10.0158	0.8	4.0026	1.3	0.2908	1.1	0.82	1645.3	16.0	1634.7	10.9	1621.1	14.4	1621.1	14.4	101.5
ELMU16-13	277	91895	1.5	9.0858	3.6	4.5710	3.6	0.3012	0.8	0.22	1697.3	12.0	1744.0	30.4	1800.4	64.7	1800.4	64.7	94.3
ELMU16-15	91	48723	2.7	8.1856	1.1	6.0707	2.1	0.3604	1.8	0.85	1984.1	30.4	1986.0	18.2	1988.1	19.5	1988.1	19.5	99.8
ELMU16-16	446	17479	1.2	16.8904	2.5	0.7291	3.0	0.0893	1.7	0.57	551.5	9.2	556.0	13.0	574.7	54.0	551.5	9.2	96.0
ELMU16-17	272	51805	2.3	17.1298	2.1	0.7206	3.5	0.0895	2.7	0.79	552.7	14.4	551.0	14.7	544.0	46.7	552.7	14.4	101.6
ELMU16-18	53	7328	1.3	17.3364	13.9	0.7330	14.1	0.0922	2.4	0.17	568.3	12.8	558.3	60.7	517.7	307.0	568.3	12.8	109.8
ELMU16-19	74	9618	1.4	17.4426	10.7	0.7735	10.8	0.0979	1.4	0.13	601.8	8.2	581.8	47.8	504.3	236.0	601.8	8.2	119.3
ELMU16-20	223	20819	2.5	17.4577	3.1	0.7092	3.4	0.0898	1.3	0.39	554.3	7.1	544.3	14.3	502.4	69.0	554.3	7.1	110.3
ELMU16-21	213	52233	3.3	15.6938	2.6	1.0783	3.4	0.1227	2.1	0.63	746.3	14.9	742.8	17.7	732.4	55.4	746.3	14.9	101.9
ELMU16-22	266	28855	2.1	16.8371	2.5	0.7534	3.4	0.0920	2.3	0.68	567.4	12.7	570.2	15.0	581.5	55.0	567.4	12.7	97.6
ELMU16-23	311	31573	1.9	16.7910	2.4	0.7630	4.0	0.0929	3.2	0.80	572.8	17.4	575.8	17.4	587.5	51.1	572.8	17.4	97.5
ELMU16-24	201	4359	2.4	16.5242	7.9	0.7194	8.1	0.0862	1.8	0.22	533.1	9.1	550.3	34.5	622.1	171.3	533.1	9.1	85.7
ELMU16-25	86	7879	1.7	16.4326	8.5	0.7369	9.1	0.0878	3.1	0.34	542.7	16.1	560.6	39.2	634.1	184.2	542.7	16.1	85.6
ELMU16-26	315	92744	7.1	9.2174	1.2	4.6341	2.3	0.3098	2.0	0.86	1739.7	30.3	1755.4	19.3	1774.2	21.6	1774.2	21.6	98.1
ELMU16-28	425	5325	2.0	16.6782	3.4	0.7885	3.7	0.0954	1.3	0.37	587.3	7.6	590.3	16.5	602.1	74.3	587.3	7.6	97.5
ELMU16-29	116	14832	1.7	16.1966	4.2	0.9422	4.4	0.1107	1.5	0.34	676.7	9.8	674.0	21.8	665.2	89.2	676.7	9.8	101.7
ELMU16-30	495	47293	1.6	16.6989	1.3	0.7674	1.7	0.0929	1.0	0.63	572.9	5.7	578.3	7.3	599.4	27.9	572.9	5.7	95.6
ELMU16-31	156	22322	3.5	16.0560	4.7	0.8651	4.7	0.1007	0.4	0.08	618.7	2.1	632.9	22.1	683.8	99.8	618.7	2.1	90.5
ELMU16-32	395	39672	1.6	16.9338	1.6	0.7156	2.0	0.0879	1.1	0.57	543.0	5.9	548.1	8.4	569.1	35.4	543.0	5.9	95.4
ELMU16-33	423	44384	3.5	17.0430	1.4	0.7348	2.6	0.0908	2.2	0.85	560.4	11.9	559.3	11.3	555.0	30.4	560.4	11.9	101.0
ELMU16-34	484	77750	2.2	12.5724	0.8	2.1550	2.1	0.1965	1.9	0.93	1156.5	20.5	1166.7	14.5	1185.6	15.7	1185.6	15.7	97.5
ELMU16-35	182	21224	2.6	17.1882	3.9	0.7656	4.2	0.0954	1.6	0.37	587.6	8.7	577.2	18.6	536.5	85.8	587.6	8.7	109.5
ELMU16-36	78	9932	1.7	16.9442	9.9	0.7532	10.2	0.0926	2.4	0.23	570.6	12.9	570.1	44.4	567.8	215.8	570.6	12.9	100.5
ELMU16-37	571	99923	1.4	16.8318	0.8	0.7579	1.7	0.0925	1.5	0.87	570.4	8.1	572.8	7.4	582.2	18.1	570.4	8.1	98.0
ELMU16-38	145	16585	2.8	17.2886	3.4	0.7855	3.7	0.0985	1.4	0.37	605.5	8.0	588.6	16.6	523.7	75.7	605.5	8.0	115.6
ELMU16-41	271	28564	1.4	17.3888	2.9	0.7328	3.8	0.0924	2.4	0.63	569.8	13.2	558.2	16.3	511.1	64.6	569.8	13.2	111.5
ELMU16-42	559	144345	3.6	11.3455	0.4	2.9538	1.5	0.2431	1.4	0.96	1402.5	17.6	1395.8	11.0	1385.5	7.5	1385.5	7.5	101.2
ELMU16-43	223	23870	1.9	17.0211	3.0	0.7178	4.3	0.0886	3.1	0.71	547.3	16.1	549.4	18.3	557.9	66.1	547.3	16.1	98.1
ELMU16-44	105	18541	1.8	16.0423	3.6	0.9749	4.2	0.1134	2.2	0.51	692.6	14.2	691.0	21.2	685.6	77.5	692.6	14.2	101.0
ELMU16-45	315	40766	2.4	16.9267	2.2	0.7511	2.5	0.0922	1.3	0.52	568.6	7.3	568.9	11.1	570.0	47.2	568.6	7.3	99.8
ELMU16-46	129	13691	1.5	17.8358	3.2	0.7102	3.6	0.0919	1.7	0.46	566.6	9.1	544.9	15.4	455.0	71.7	566.6	9.1	124.5
ELMU16-47	490	17134	2.7	16.8988	1.7	0.7037	6.8	0.0863	6.5	0.97	533.3	33.5	541.0	28.3	573.6	36.5	533.3	33.5	93.0
ELMU16-48	1071	16460	1.7	17.0131	0.7	0.6983	1.6	0.0862	1.5	0.91	532.8	7.4	537.8	6.7	558.9	14.7	532.8	7.4	95.3
ELMU16-49	345	49706	1.4	16.6803	3.1	0.8206	3.3	0.0993	1.3	0.38	610.2	7.3	608.4	15.1	601.8	66.1	610.2	7.3	101.4
ELMU16-50	122	27883	4.0	12.5158	2.1	2.2386	3.1	0.2032	2.3	0.75	1192.5	25.4	1193.2	22.0	1194.5	41.1	1194.5	41.1	99.8
ELMU16-51	101	17400	2.5	17.1509	7.5	0.7415	8.2	0.0922	3.2	0.39	568.8	17.5	563.3	35.3	541.3	164.5	568.8	17.5	105.1
ELMU16-52	338	24268	1.7	16.7733	4.5	0.6749	5.4	0.0821	2.9	0.55	508.7	14.4	523.7	21.9	589.8	97.0	508.7	14.4	86.2
ELMU16-55	82	12149	4.2	16.4883	6.6	0.7842	6.8	0.0938	1.6	0.24	577.9	8.8	587.9	30.2	626.8	142.0	577.9	8.8	92.2

ELMU16-56	111	37840	3.2	9.8120	0.9	4.0962	2.6	0.2915	2.5	0.93	1649.0	35.7	1653.5	21.5	1659.3	17.6	1659.3	17.6	99.4
ELMU16-57	1386	195909	18.9	13.4514	1.7	1.8051	1.9	0.1761	0.8	0.43	1045.6	7.8	1047.3	12.2	1050.8	34.0	1050.8	34.0	99.5
ELMU16-58	468	22094	2.0	16.9873	1.8	0.7050	4.2	0.0869	3.8	0.90	536.9	19.4	541.8	17.6	562.2	40.1	536.9	19.4	95.5
ELMU16-59	379	59033	3.3	16.9897	1.4	0.7618	2.3	0.0939	1.8	0.77	578.4	9.7	575.1	10.0	561.9	31.5	578.4	9.7	102.9
ELMU16-60	182	21191	3.3	17.0863	3.5	0.7025	3.7	0.0871	1.2	0.31	538.1	6.0	540.3	15.6	549.5	77.1	538.1	6.0	97.9
ELMU16-61	53	6479	1.5	15.9386	11.5	0.7923	11.6	0.0916	1.4	0.12	564.9	7.4	592.5	52.2	699.4	246.6	564.9	7.4	80.8
ELMU16-62	105	36688	1.7	8.0562	0.7	6.2970	2.4	0.3679	2.3	0.95	2019.6	39.1	2018.0	20.8	2016.4	12.9	2016.4	12.9	100.2
ELMU16-63	182	31403	0.7	17.1156	6.1	0.7391	6.4	0.0917	2.0	0.31	565.8	10.7	561.9	27.6	545.8	133.2	565.8	10.7	103.7
ELMU16-64	99	4915	1.3	16.4515	16.6	0.6600	18.3	0.0787	7.5	0.41	488.6	35.5	514.6	73.8	631.6	360.4	488.6	35.5	77.4
ELMU16-66	155	15785	2.9	17.4564	4.9	0.6976	7.0	0.0883	5.0	0.72	545.6	26.3	537.3	29.2	502.5	107.6	545.6	26.3	108.6
ELMU16-68	101	11687	2.2	17.1886	2.8	0.7096	3.5	0.0885	2.2	0.62	546.4	11.3	544.5	14.7	536.5	60.2	546.4	11.3	101.9
ELMU16-69	246	70387	3.2	10.6390	1.0	3.4802	1.7	0.2685	1.4	0.82	1533.4	19.2	1522.7	13.6	1508.0	18.9	1508.0	18.9	101.7
ELMU16-70	173	14056	1.7	16.9186	4.4	0.6988	4.6	0.0857	1.3	0.29	530.3	6.8	538.1	19.3	571.0	96.0	530.3	6.8	92.9
ELMU16-71	158	5605	1.3	5.4112	1.4	11.7747	3.3	0.4621	3.0	0.90	2448.9	60.5	2586.7	30.7	2696.4	23.1	2696.4	23.1	90.8
ELMU16-72	411	50896	2.9	17.0782	2.8	0.7460	4.0	0.0924	2.8	0.71	569.7	15.4	565.9	17.3	550.5	61.7	569.7	15.4	103.5
ELMU16-73	133	12438	1.5	17.0618	2.8	0.7704	2.9	0.0953	0.9	0.32	587.0	5.2	580.0	12.8	552.7	60.0	587.0	5.2	106.2
ELMU16-74	117	14302	2.0	16.8612	5.9	0.7636	6.7	0.0934	3.2	0.48	575.5	17.8	576.1	29.6	578.4	128.5	575.5	17.8	99.5
ELMU16-75	244	34030	2.0	16.7627	2.0	0.7393	2.4	0.0899	1.3	0.56	554.8	7.0	562.0	10.2	591.1	42.4	554.8	7.0	93.9
ELMU16-76	90	8739	2.0	17.6113	6.0	0.7303	6.4	0.0933	2.2	0.34	574.9	12.1	556.7	27.4	483.1	132.9	574.9	12.1	119.0
ELMU16-77	480	62864	2.1	16.7338	1.4	0.7922	3.2	0.0961	2.8	0.89	591.8	16.0	592.4	14.2	594.9	30.8	591.8	16.0	99.5
ELMU16-78	395	50575	1.3	17.1250	2.7	0.7165	3.5	0.0890	2.2	0.64	549.6	11.8	548.6	14.8	544.6	58.9	549.6	11.8	100.9
ELMU16-79	179	20529	1.8	16.9201	3.9	0.7452	4.1	0.0915	1.0	0.24	564.1	5.2	565.4	17.6	570.8	85.7	564.1	5.2	98.8
ELMU16-80	226	28324	2.7	16.9662	3.6	0.7398	4.1	0.0910	1.9	0.47	561.7	10.4	562.3	17.6	564.9	78.3	561.7	10.4	99.4
ELMU16-81	151	25846	1.9	16.4499	7.5	0.7923	8.2	0.0945	3.4	0.41	582.3	18.8	592.5	37.0	631.9	161.8	582.3	18.8	92.1
ELMU16-82	228	36403	3.3	16.1267	1.4	0.8887	2.6	0.1039	2.1	0.83	637.5	12.8	645.7	12.2	674.4	30.7	637.5	12.8	94.5
ELMU16-83	310	41891	2.2	16.8502	2.5	0.7753	3.1	0.0947	1.8	0.60	583.5	10.3	582.8	13.6	579.8	53.4	583.5	10.3	100.6
ELMU16-84	130	34380	1.8	17.0346	6.2	0.7498	6.3	0.0926	0.8	0.12	571.1	4.2	568.1	27.4	556.2	136.3	571.1	4.2	102.7
ELMU16-85	124	15996	1.1	16.9731	5.3	0.8735	5.3	0.1075	0.6	0.10	658.3	3.5	637.4	25.3	564.0	115.9	658.3	3.5	116.7
ELMU16-86	127	11838	1.8	16.4602	4.3	0.7704	4.4	0.0920	0.9	0.21	567.2	5.0	580.0	19.6	630.5	93.4	567.2	5.0	90.0
ELMU16-87	102	8897	2.0	16.9850	3.0	0.7497	3.4	0.0923	1.6	0.47	569.4	8.8	568.0	14.8	562.5	65.0	569.4	8.8	101.2
ELMU16-89	146	46444	2.2	9.3142	1.1	4.5501	3.1	0.3074	2.8	0.93	1727.8	42.9	1740.2	25.4	1755.1	21.0	1755.1	21.0	98.4
ELMU16-90	171	26167	1.0	16.8096	4.4	0.7660	5.1	0.0934	2.7	0.52	575.5	14.8	577.5	22.5	585.1	94.5	575.5	14.8	98.4
ELMU16-91	180	13262	1.1	17.5215	3.6	0.7425	4.1	0.0944	2.0	0.48	581.3	11.1	563.9	17.9	494.3	79.8	581.3	11.1	117.6
ELMU16-92	104	9528	1.3	17.4147	4.8	0.7688	5.0	0.0971	1.5	0.30	597.4	8.5	579.1	22.0	507.8	104.7	597.4	8.5	117.6
ELMU16-93	97	11001	1.8	17.6821	5.7	0.7048	5.8	0.0904	1.2	0.21	557.8	6.5	541.6	24.4	474.2	125.6	557.8	6.5	117.6
ELMU16-94	234	23728	1.1	16.4181	3.5	0.8610	3.9	0.1025	1.7	0.43	629.2	10.1	630.7	18.2	636.0	75.2	629.2	10.1	98.9
ELMU16-95	26	15992	1.2	8.1434	2.8	6.0963	3.4	0.3601	1.9	0.56	1982.5	32.5	1989.7	29.4	1997.3	49.5	1997.3	49.5	99.3
ELMU16-96	114	11387	1.1	17.6539	6.0	0.6882	6.3	0.0881	1.9	0.31	544.4	10.1	531.7	26.2	477.7	133.0	544.4	10.1	114.0
ELMU16-97	320	37716	1.9	16.6728	2.4	0.8223	3.6	0.0994	2.7	0.75	611.1	15.9	609.3	16.7	602.8	52.3	611.1	15.9	101.4
ELMU16-98	325	43266	1.5	17.1061	2.4	0.7300	2.8	0.0906	1.5	0.53	558.9	8.0	556.6	12.1	547.0	52.2	558.9	8.0	102.2
ELMU16-100	155	36339	1.9	16.6300	4.9	0.7196	5.1	0.0868	1.7	0.32	536.6	8.6	550.5	21.9	608.3	105.3	536.6	8.6	88.2
ELMU16-101	57	6688	1.8	19.3231	9.1	0.6264	9.3	0.0878	2.1	0.22	542.4	10.8	493.8	36.5	274.4	208.9	542.4	10.8	197.7
ELMU16-102	146	17613	1.3	17.7442	5.3	0.6762	5.8	0.0870	2.2	0.39	537.9	11.5	524.4	23.7	466.5	118.3	537.9	11.5	115.3
ELMU16-103	304	40695	3.7	11.7067	2.1	2.0493	6.0	0.1740	5.7	0.94	1034.1	54.1	1132.1	41.3	1325.1	41.3	1325.1	41.3	78.0
ELMU16-104	130	20453	2.1	17.0932	6.3	0.7275	7.6	0.0902	4.2	0.55	556.7	22.3	555.1	32.4	548.7	137.9	556.7	22.3	101.5
ELMU16-105	311	39515	1.1	16.2227	1.5	0.8884	1.6	0.1045	0.6	0.37	640.9	3.6	645.5	7.6	661.7	31.8	640.9	3.6	96.9
ELMU16-106	289	45833	1.3	16.1330	1.5	0.9110	1.8	0.1066	1.0	0.56	652.9	6.4	657.6	8.8	673.6	32.4	652.9	6.4	96.9
ELMU16-107	156	17248	1.7	16.5842	4.9	0.9101	5.6	0.1095	2.7	0.48	669.7	16.9	657.1	26.9	614.3	105.4	669.7	16.9	109.0
ELMU16-108	199	19004	1.3	17.2123	5.5	0.7353	6.0	0.0918	2.4	0.40	566.1	12.8	559.7	25.6	533.4	119.9	566.1	12.8	106.1
ELMU16-109	176	48978	1.6	16.9302	3.9	0.8329	4.3	0.1023	1.7	0.41	627.7	10.3	615.2	19.6	569.5	84.6	627.7	10.3	110.2
ELMU16-110	360	20021	1.3	16.9629	1.8	0.7373	3.8	0.0907	3.3	0.88	559.7	17.9	560.8	16.3	565.3	38.8	559.7	17.9	99.0
ELMU16-111	43	8028	2.4	16.1463	8.3	0.9779	8.3	0.1145	0.9	0.11	698.9	6.0	692.5	41.8	671.8	177.1	698.9	6.0	104.0
ELMU16-112	49	14983	4.6	11.5076	3.7	2.7070	3.9	0.2259	1.2	0.30	1313.1	14.1	1330.4	29.1	1358.2	72.0	1358.2	72.0	96.7

ELMU16-115	94	12609	1.4	17.5245	10.4	0.7063	10.5	0.0898	1.1	0.11	554.2	6.0	542.6	44.1	494.0	230.2	554.2	6.0	112.2
ELMU16-116	93	12147	1.2	17.0789	7.9	0.7256	8.3	0.0899	2.5	0.30	554.8	13.3	553.9	35.4	550.5	173.0	554.8	13.3	100.8
ELMU16-118	163	57995	3.1	10.2172	1.4	3.7201	3.3	0.2757	3.0	0.91	1569.5	41.7	1575.7	26.5	1584.0	26.3	1584.0	26.3	99.1
ELMU16-119	286	129634	1.6	8.5204	0.3	5.5713	2.8	0.3443	2.8	1.00	1907.2	46.7	1911.7	24.5	1916.5	5.1	1916.5	5.1	99.5
ELMU16-120	229	52272	48.2	5.5083	0.4	10.4718	1.8	0.4184	1.8	0.98	2253.0	33.7	2477.4	16.8	2667.0	6.3	2667.0	6.3	84.5
ELMU16-121	305	179913	2.6	7.9553	0.3	6.4994	2.6	0.3750	2.6	0.99	2052.9	45.6	2045.8	23.0	2038.7	6.0	2038.7	6.0	100.7
ELMU16-122	214	59282	4.3	10.3907	0.6	3.6005	1.4	0.2713	1.2	0.89	1547.6	17.1	1549.6	11.1	1552.4	12.0	1552.4	12.0	99.7
ELMU16-123	234	32758	2.1	16.0705	1.4	0.9375	2.3	0.1093	1.8	0.79	668.5	11.6	671.6	11.4	681.9	30.3	668.5	11.6	98.0
ELMU16-124	162	86137	3.6	10.4024	0.9	3.6004	1.8	0.2716	1.5	0.85	1549.1	20.9	1549.6	14.2	1550.3	17.8	1550.3	17.8	99.9

Notes:
Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <500 Ma.
Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age of younger than 900-1000 Ma, and from 206Pb/207Pb age for analyses with 206Pb/238Uage older than 900-1000 Ma.
The actual age cutoff used is indicated in the Best Age column header for each sample.
Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <600 Ma because of large uncertainty in 206Pb/207Pb age.
Analyses with 206Pb/238U age > 500 Ma and with >30% discordance (<70% concordance) are not included.
Analyses with 206Pb/238U age > 500 Ma and with >5% reverse discordance (<105% concordance) are not included.
All uncertainties are reported at the 1-sigma level, and include only measurement errors.
Systematic uncertainties for 206Pb/238U and 206Pb/207Pb range from 1% to 2%.
U concentration and U/Th are calibrated relative to Sri Lanka zircon and are accurate to ~20%.
Common Pb correction is from 204Pb, with composition interpreted from Stacey and Kramers (1975).
Uncertainties of 1.5 for 206Pb/ 204Pb, 0.3 for 207Pb/ 204Pb, and 2.0 for 208Pb/ 204Pb are applied to common Pb composition.
U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of a large Sri Lanka zircon of 563.5 ± 3.2 Ma (2-sigma).
U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.88
Analytical methods as described by Gehrels et al. (2008).

Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductivelydoi:10.1029/2007GC001805.
coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017,

Spot	204/206	% err (1s)	U (ppm)	Th (ppm)	232Th/238U	7c 6/8 Age (M	±1s (abs)	4c 7/6 age	±1s (abs)	% disc	238/206	% err (1s)	207/206	% err (1s)	238/206* (4c	% err (1s)	207*/206* (4	% err (1s)	207*/235 (4c	% err (1s)	206*/238 (4c	% err (1s)	rho	comments
Sample U17 (tuff)																								
~~**U171.3**~~	~~6.9E-4~~	~~33~~	~~116~~	~~59~~	~~0.53~~	~~424.7~~	~~5.6~~	~~173~~	~~175~~	~~-59~~	~~14.61~~	~~1.3~~	~~.0597~~	~~2.3~~	~~14.79~~	~~1.4~~	~~.0495~~	~~7.5~~	~~0.46~~	~~7.6~~	~~.0676~~	~~1.4~~	~~.184~~	***Rejected Pb loss***
~~**U17-1.1**~~	~~1.4E-4~~	~~45~~	~~145~~	~~85~~	~~0.61~~	~~428.4~~	~~5.4~~	~~489~~	~~59~~	~~14~~	~~14.49~~	~~1.3~~	~~.0589~~	~~2.1~~	~~14.52~~	~~1.3~~	~~.0569~~	~~2.7~~	~~0.54~~	~~3.0~~	~~.0688~~	~~1.3~~	~~.433~~	***Rejected Pb loss***
~~**U17-1.2**~~	~~3.6E-4~~	~~41~~	~~128~~	~~69~~	~~0.56~~	~~448.6~~	~~6.0~~	~~358~~	~~108~~	~~-20~~	~~13.82~~	~~1.3~~	~~.0590~~	~~2.2~~	~~13.91~~	~~1.4~~	~~.0537~~	~~4.8~~	~~0.53~~	~~5.0~~	~~.0719~~	~~1.4~~	~~.276~~	***Rejected Pb loss***
~~**U17-2.2**~~	~~5.5E-4~~	~~33~~	~~99~~	~~48~~	~~0.49~~	~~514.4~~	~~6.9~~	~~356~~	~~141~~	~~-30~~	~~11.98~~	~~1.3~~	~~.0617~~	~~3.2~~	~~12.10~~	~~1.4~~	~~.0536~~	~~6.2~~	~~0.61~~	~~6.4~~	~~.0827~~	~~1.4~~	~~.217~~	***Rejected Pb loss***
U17-2.1	1.4E-4	41	193	121	0.65	521.1	5.9	518	47	-1	11.85	1.1	.0597	1.5	11.88	1.2	.0577	2.2	0.67	2.4	.0842	1.2	.471	
U17-4.1	2.3E-4	51	105	52	0.51	546.0	7.2	514	82	-6	11.28	1.3	.0609	2.1	11.32	1.4	.0576	3.7	0.70	4.0	.0883	1.4	.342	
U17-3.1	1.4E-4	62	108	55	0.53	548.0	7.1	540	66	-2	11.25	1.3	.0603	2.0	11.27	1.3	.0583	3.0	0.71	3.3	.0887	1.3	.401	
U17-7.1	3.6E-4	41	121	63	0.54	554.4	7.1	356	104	-35	11.13	1.3	.0589	2.0	11.20	1.3	.0536	4.6	0.66	4.8	.0893	1.3	.277	
U17-12.1	4.9E-4	35	112	61	0.56	561.2	7.3	233	128	-58	11.01	1.3	.0580	2.1	11.10	1.4	.0508	5.6	0.63	5.7	.0901	1.4	.238	
U17-3.2	8.6E-5	55	243	180	0.76	556.1	6.1	546	42	-2	11.09	1.1	.0597	1.5	11.10	1.1	.0584	1.9	0.73	2.2	.0901	1.1	.510	
U17-6.1	1.8E-4	33	208	166	0.83	557.3	6.3	534	49	-4	11.05	1.2	.0608	1.5	11.08	1.2	.0581	2.2	0.72	2.5	.0902	1.2	.461	
U17-9.1	5.3E-5	64	127	79	0.64	555.7	7.1	677	46	21	11.05	1.3	.0629	2.0	11.06	1.3	.0621	2.1	0.77	2.5	.0904	1.3	.521	
U17-11.1	1.4E-4	47	131	78	0.62	560.4	7.0	431	60	-23	11.03	1.3	.0575	1.9	11.06	1.3	.0555	2.7	0.69	3.0	.0905	1.3	.431	
U17-8.2	-1.6E-4	58	116	57	0.50	556.3	7.2	664	64	19	11.09	1.3	.0593	2.1	11.05	1.3	.0617	3.0	0.77	3.3	.0905	1.3	.406	
U17-13.1	6.4E-5	50	207	179	0.89	559.4	6.3	566	38	1	11.02	1.1	.0599	1.5	11.03	1.1	.0590	1.8	0.74	2.1	.0907	1.1	.547	
U17-10.1	4.2E-4	33	153	96	0.65	563.6	6.9	473	92	-16	10.90	1.2	.0627	1.8	10.98	1.3	.0565	4.2	0.71	4.4	.0911	1.3	.292	
U17-8.1	1.3E-4	45	124	71	0.59	567.9	7.3	476	57	-16	10.87	1.3	.0585	2.0	10.89	1.3	.0566	2.6	0.72	2.9	.0918	1.3	.454	
U17-5.1	---	0	316	272	0.89	567.2	6.1	545	29	-4	10.88	1.1	.0584	1.3	10.88	1.1	.0584	1.3	0.74	1.7	.0919	1.1	.630	
U17-14.1	2.1E-4	52	170	113	0.69	568.3	6.7	496	74	-13	10.84	1.2	.0602	1.7	10.88	1.2	.0571	3.4	0.72	3.6	.0919	1.2	.341	
Sample U18 (tuff)																								
U18-1.1	5.1E-5	50	199	88	0.45	548.3	6.1	595	36	8	11.24	1.1	.0605	1.5	11.25	1.1	.0598	1.7	0.73	2.0	.0889	1.1	.565	
U18-4.1	9.4E-5	33	648	383	0.61	548.6	5.2	604	37	10	11.22	1.0	.0614	1.5	11.24	1.0	.0600	1.7	0.74	2.0	.0890	1.0	.488	
U18-3.1	5.9E-5	64	106	37	0.36	551.1	7.2	556	51	1	11.19	1.3	.0596	2.1	11.20	1.3	.0587	2.3	0.72	2.7	.0893	1.3	.493	
U18-9.1	2.2E-5	64	388	210	0.56	554.2	5.6	571	25	3	11.13	1.0	.0594	1.1	11.13	1.0	.0591	1.2	0.73	1.5	.0898	1.0	.666	
U18-8.1	4.2E-5	41	674	391	0.60	556.1	5.3	562	20	1	11.09	1.0	.0595	0.8	11.10	1.0	.0589	0.9	0.73	1.4	.0901	1.0	.717	
U18-2.1	3.0E-4	41	128	45	0.36	562.3	7.0	384	87	-31	10.97	1.3	.0586	1.9	11.03	1.3	.0543	3.9	0.68	4.1	.0906	1.3	.316	
U18-7.1	2.8E-4	50	83	30	0.37	563.3	7.8	343	104	-39	10.97	1.4	.0574	2.3	11.03	1.4	.0533	4.6	0.67	4.8	.0907	1.4	.298	
U18-3.2	1.4E-4	44	289	171	0.61	563.5	6.0	455	47	-19	10.96	1.1	.0581	1.3	10.99	1.1	.0561	2.1	0.70	2.4	.0910	1.1	.453	
U18-5.1	1.1E-4	50	143	59	0.42	565.6	6.9	504	52	-11	10.91	1.2	.0590	1.8	10.93	1.2	.0573	2.4	0.72	2.7	.0915	1.2	.468	
U18-6.1	8.3E-4	12	521	253	0.50	566.6	5.5	510	60	-10	10.74	1.0	.0696	0.9	10.91	1.0	.0575	2.7	0.73	2.9	.0917	1.0	.346	
Sample 31-09 (tuff)																								
31-09-3.1	9.6E-5	35	431	235	0.56	541.6	5.3	528	30	-2	11.40	1.0	.0593	1.0	11.42	1.0	.0580	1.3	0.70	1.7	.0876	1.0	.598	
31-09-6.1	4.6E-4	26	178	80	0.46	547.3	6.2	334	85	-39	11.27	1.2	.0599	1.6	11.36	1.2	.0531	3.8	0.64	3.9	.0880	1.2	.298	
31-09-2.1	1.2E-4	70	242	117	0.50	552.0	5.9	447	64	-19	11.20	1.1	.0576	1.9	11.22	1.1	.0559	2.9	0.69	3.1	.0891	1.1	.356	
31-09-4.1	2.9E-4	38	317	150	0.49	554.8	5.7	450	69	-19	11.11	1.0	.0601	1.2	11.16	1.1	.0559	3.1	0.69	3.3	.0896	1.1	.324	
31-09-7.1	1.7E-4	41	223	85	0.39	555.1	6.1	485	51	-13	11.11	1.1	.0593	1.4	11.15	1.1	.0568	2.3	0.70	2.6	.0897	1.1	.437	
31-09-9.1	8.0E-5	45	274	127	0.48	557.2	5.9	475	36	-15	11.09	1.1	.0577	1.3	11.11	1.1	.0566	1.6	0.70	2.0	.0900	1.1	.551	
31-09-1.1	5.0E-5	45	292	130	0.46	558.3	5.8	495	31	-11	11.07	1.1	.0578	1.3	11.08	1.1	.0571	1.4	0.71	1.8	.0903	1.1	.604	
31-09-5.1	7.7E-5	33	646	485	0.78	559.1	5.3	543	24	-3	11.03	1.0	.0595	0.9	11.04	1.0	.0584	1.1	0.73	1.5	.0906	1.0	.665	
31-09-8.1	2.2E-4	38	173	71	0.42	562.4	6.4	499	59	-11	10.95	1.2	.0604	1.6	10.99	1.2	.0572	2.7	0.72	2.9	.0910	1.2	.401	
~~**31-09-10.1**~~	~~5.5E-5~~	~~45~~	~~474~~	~~223~~	~~0.49~~	~~573.4~~	~~5.7~~	~~553~~	~~26~~	~~-3~~	~~10.75~~	~~1.0~~	~~.0594~~	~~1.0~~	~~10.76~~	~~1.0~~	~~.0586~~	~~1.2~~	~~0.75~~	~~1.6~~	~~.0930~~	~~1.0~~	~~.646~~	***Rejected by Isoplot***
Sample 43-09 (rhyolite)																								
~~**43-09-6.1**~~	~~3.0E-4~~	~~36~~	~~303~~	~~128~~	~~0.44~~	~~486.9~~	~~5.3~~	~~365~~	~~74~~	~~-25~~	~~12.72~~	~~1.1~~	~~.0582~~	~~1.5~~	~~12.79~~	~~1.1~~	~~.0539~~	~~3.3~~	~~0.58~~	~~3.5~~	~~.0782~~	~~1.1~~	~~.325~~	***Rejected by Isoplot***
43-09-5.1	1.2E-4	47	198	184	0.96	535.5	6.3	533	48	-1	11.52	1.2	.0598	1.7	11.55	1.2	.0581	2.2	0.69	2.5	.0866	1.2	.476	
43-09-7.1	1.8E-4	45	149	78	0.54	537.6	6.6	523	62	-3	11.47	1.2	.0604	1.9	11.50	1.3	.0578	2.8	0.69	3.1	.0869	1.3	.407	
43-09-8.1	2.1E-4	50	123	105	0.88	544.0	6.8	437	77	-19	11.35	1.3	.0587	1.9	11.40	1.3	.0556	3.4	0.67	3.7	.0878	1.3	.352	
43-09-3.2	4.5E-4	29	249	110	0.45	548.3	6.3	434	86	-21	11.21	1.2	.0621	1.5	11.30	1.2	.0555	3.9	0.68	4.1	.0885	1.2	.292	
43-09-4.1	8.2E-4	32	118	66	0.57	554.5	7.5	118	200	-78	11.11	1.4	.0605	2.2	11.27	1.5	.0484	8.5	0.59	8.6	.0887	1.5	.168	
43-09-3.1	4.3E-5	50	257	136	0.55	549.3	6.1	532	35	-3	11.24	1.1	.0587	1.5	11.25	1.1	.0581	1.6	0.71	2.0	.0889	1.1	.575	
43-09-2.1	1.2E-4	57	280	152	0.56	556.3	6.0	455	50	-18	11.11	1.1	.0577	1.4	11.13	1.1	.0561	2.2	0.69	2.5	.0898	1.1	.442	
43-09-9.1	2.6E-5	50	448	270	0.62	556.2	5.5	524	23	-6	11.10	1.0	.0582	1.0	11.11	1.0	.0579	1.1	0.72	1.5	.0900	1.0	.688	
~~**43-09-1.1**~~	~~4.6E-5~~	~~50~~	~~289~~	~~121~~	~~0.43~~	~~591.4~~	~~6.3~~	~~595~~	~~31~~	~~1~~	~~10.40~~	~~1.1~~	~~.0604~~	~~1.3~~	~~10.41~~	~~1.1~~	~~.0598~~	~~1.4~~	~~0.79~~	~~1.8~~	~~.0961~~	~~1.1~~	~~.605~~	***Rejected by Isoplot***
Sample ELM04-CH22D (volcanic lithic sandstone/pebble conglomerate)																								
0422d-11	---	0	928	750	0.84	135.7	1.3	261	49	92	46.84	1.0	.0515	2.1	46.84	1.0	.0515	2.1	0.15	2.3	.0213	1.0	.410	
0422d-15	1.0E-4	66	778	182	0.24	143.4	1.4	35	79	-76	44.51	1.0	.0482	2.4	44.59	1.0	.0467	3.3	0.14	3.4	.0224	1.0	.291	
0422d-5	5.9E-5	66	676	406	0.62	146.0	1.5	89	66	-39	43.68	1.0	.0487	2.4	43.73	1.0	.0478	2.8	0.15	2.9	.0229	1.0	.344	
0422d-4	---	0	686	415	0.63	147.1	1.5	180	55	23	43.30	1.0	.0497	2.4	43.30	1.0	.0497	2.4	0.16	2.6	.0231	1.0	.389	
0422d-1	7.1E-4	35	299	82	0.28	147.7	1.9	-447	287	-407	43.14	1.3	.0491	3.7	43.71	1.3	.0386	10.9	0.12	11.0	.0229	1.3	.122	
0422d-2	6.7E-5	50	1234	499	0.42	148.9	1.3	125	49	-16	42.78	0.9	.0495	1.8	42.83	0.9	.0485	2.1	0.16	2.3	.0233	0.9	.396	
0422d-8	4.0E-5	65	1008	474	0.49	148.9	1.4	135	50	-9	42.78	0.9	.0493	2.0	42.81	0.9	.0487	2.1	0.16	2.3	.0234	0.9	.396	
0422d-12	1.3E-4	65	326	182	0.58	149.1	1.8	268	95	79	42.51	1.2	.0534	3.3	42.61	1.2	.0516	4.1	0.17	4.3	.0235	1.2	.285	
0422d-10	1.1E-4	66	375	139	0.38	150.2	1.8	150	93	0	42.32	1.2	.0507	3.2	42.41	1.2	.0490	4.0	0.16	4.1	.0236	1.2	.286	
0422d-7	---	0	1031	528	0.53	153.4	1.4	206	46	34	41.46	0.9	.0502	2.0	41.46	0.9	.0502	2.0	0.17	2.2	.0241	0.9	.426	
0422d-9	4.9E-5	66	809	251	0.32	154.4	1.5	51	59	-67	41.33	1.0	.0478	2.2	41.36	1.0	.0470	2.5	0.16	2.6	.0242	1.0	.365	
0422d-13	3.6E-5	66	681	219	0.33	242.7	2.2	240	56	-1	26.05	0.9	.0515	2.3	26.07	0.9	.0510	2.4	0.27	2.6	.0384	0.9	.359	
0422d-14	---	0	138	182	1.36	287.4	4.0	258	84	-10	21.96	1.4	.0514	3.7	21.96	1.4	.0514	3.7	0.32	3.9	.0455	1.4	.359	
0422d-3	1.1E-4	50	483	209	0.45	345.7	3.3	336	54	-3	18.12	1.0	.0548	1.8	18.16	1.0	.0532	2.4	0.40	2.6	.0551	1.0	.374	
0422d-6	6.3E-5	60	162	236	1.51	1680.0	19.1	1642	21	-2	3.36	1.2	.1018	1.0	3.37	1.2	.1010	1.1	4.13	1.6	.2970	1.2	.719	
Sample JT04-CH14 Devonian or Carboniferous sandstone/Chukotka																								
JT-18-1	1.9E-05	64	1545	1513	1.01	532.2	4.1	580.3	16.6	9	11.60	0.8	0.0596	0.7	11.60	0.8	0.0594	0.8	0.71	1.1	0.086	0.8	0.71	
JT-18-2	1.4E-04	64	136	47	0.35	450.1	7.1	437.7	80.9	-3	13.80	1.6	0.0577	2.6	13.83	1.6	0.0556	3.6	0.55	4.0	0.072	1.6	0.40	
JT-18-3	5.5E-05	41	398	118	0.31	1843.7	16.6	1739.0	11.9	-5	3.04	0.9	0.1072	0.6	3.05	0.9	0.1064	0.7	4.82	1.1	0.328	0.9	0.81	
JT-18-4	1.4E-04	2	111	201	1.86	1506.1	18.6	1474.3	25.5	-2	3.80	1.3	0.0943	1.3	3.81	1.3	0.0923	1.3	3.34	1.8	0.263	1.3	0.68	
JT-18-5	3.0E-05	38	366	87	0.25	1198.9	10.6	1171.1	16.7	-2	4.90	0.9	0.0794	0.8	4.90	0.9	0.0790	0.8	2.22	1.2	0.204	0.9	0.73	
JT-18-6	4.2E-05	50	246	112	0.47	1493.8	14.3	1485.0	16.8	-1	3.83	1.0	0.0934	0.8	3.84	1.0	0.0929	0.9	3.34	1.3	0.261	1.0	0.74	
JT-18-8	7.2E-04	32	162	189	1.21	544.8	6.7	462.5	169.3	-15	11.22	1.2	0.0667	3.5	11.37	1.3	0.0563	7.6	0.68	7.7	0.088	1.3	0.17	
JT-18-9	8.1E-05	73	312	312	1.03	448.5	4.8	394.3	56.2	-12	13.88	1.1	0.0557	1.9	13.90	1.1	0.0546	2.5	0.54	2.7	0.072	1.1	0.40	
JT-18-10	6.1E-05	64	648	498	0.79	447.4	3.9	459.2	36.0	3	13.89	0.9	0.0571	1.2	13.91	0.9	0.0562	1.6	0.56	1.9	0.072	0.9	0.48	
JT-18-11	4.1E-05	45	774	111	0.15	1036.7	8.2	1021.2	14.9	-1	5.73	0.8	0.0738	0.6	5.74	0.8	0.0733	0.7	1.76	1.1	0.174	0.8	0.74	
JT-18-12	5.3E-05	36	416	100	0.25	1052.5	9.2	1051.9	19.0	0	5.63	0.9	0.0751	0.8	5.64	0.9	0.0744	0.9	1.82	1.3	0.177	0.9	0.69	
JT-18-13	3.7E-04	50	78	66	0.87	630.5	9.7	615.1	118.3	-2	9.67	1.6	0.0657	2.7	9.74	1.6	0.0603	5.5	0.85	5.7	0.103	1.6	0.28	
JT-18-14	8.5E-06	54	398	213	0.55	1610.6	14.0	1638.9	11.1	2	3.52	0.9	0.1009	0.6	3.52	0.9	0.1008	0.6	3.95	1.1	0.284	0.9	0.83	
JT-18-15	---	0	209	124	0.62	1730.2	17.5	1782.3	13.8	3	3.24	1.0	0.1090	0.8	3.24	1.0	0.1090	0.8	4.64	1.3	0.309	1.0	0.80	
JT-18-16	2.0E-04	50	116	40	0.36	1030.2	12.7	1007.1	52.7	-2	5.76	1.3	0.0755	1.6	5.78	1.3	0.0728	2.6	1.74	2.9	0.173	1.3	0.44	
JT-18-17	1.1E-04	32	273	179	0.68	441.3	4.8	510.0	46.8	15	14.05	1.1	0.0591	1.8	14.08	1.1	0.0575	2.1	0.56	2.4	0.071	1.1	0.46	
JT-18-18	1.1E-04	39	1065	471	0.46	443.5	3.8	396.2	34.9	-11	14.04	0.9	0.0562	1.0	14.06	0.9	0.0546	1.6	0.54	1.8	0.071	0.9	0.49	
JT-18-19	4.9E-05	66	286	66	0.24	1106.8	10.6	1061.8	24.3	-4	5.35	1.0	0.0754	1.0	5.35	1.0	0.0747	1.2	1.93	1.6	0.187	1.0	0.63	
JT-18-20	3.1E-05	50	424	121	0.30	1674.9	14.8	1641.0	12.1	-2	3.38	0.9	0.1013	0.6	3.38	0.9	0.1009	0.7	4.12	1.1	0.296	0.9	0.81	
JT-18-21	9.2E-05	50	523	203	0.40	449.6	4.1	366.8	43.0	-18	13.86	0.9	0.0552	1.4	13.88	0.9	0.0539	1.9	0.54	2.1	0.072	0.9	0.44	
JT-18-22	1.3E-04	18	172	83	0.50	492.4	6.0	456.1	53.3	-7	12.58	1.2	0.0580	2.2	12.61	1.2	0.0561	2.4	0.61	2.7	0.079	1.2	0.46	
JT-18-23	1.4E-04	27	231	105	0.47	453.9	5.3	402.2	56.7	-11	13.70	1.2	0.0568	2.2	13.73	1.2	0.0548	2.5	0.55	2.8	0.073	1.2	0.43	
JT-18-24	3.0E-05	50	828	246	0.31	1259.0	10.2	1235.7	13.1	-2	4.64	0.8	0.0820	0.6	4.64	0.8	0.0816	0.7	2.42	1.1	0.215	0.8	0.78	
JT-18-25	2.5E-05	45	984	486	0.51	1332.7	10.3	1313.7	9.8	-1	4.36	0.8	0.0853	0.5	4.36	0.8	0.0849	0.5	2.69	0.9	0.229	0.8	0.84	
JT-18-27	4.7E-05	16	379	194	0.53	1544.5	13.7	1530.5	12.8	-1	3.69	0.9	0.0958	0.7	3.70	0.9	0.0951	0.7	3.55	1.1	0.270	0.9	0.80	
JT-18-28	9.5E-05	41	274	105	0.40	1274.8	12.2	1265.4	22.8	-1	4.57	1.0	0.0842	0.9	4.58	1.0	0.0828	1.2	2.50	1.5	0.219	1.0	0.64	
JT-18-29	2.0E-04	38	159	128	0.83	1152.7	13.3	1069.3	42.9	-7	5.11	1.2	0.0779	1.4	5.13	1.2	0.0750	2.1	2.02	2.4	0.195	1.2	0.49	
JT-18-30	3.4E-04	35	72	46	0.66	1266.6	18.2	1242.9	60.3	-2	4.58	1.5	0.0867	2.0	4.61	1.5	0.0819	3.1	2.45	3.4	0.217	1.5	0.43	
JT-18-31	2.0E-04	38	558	291	0.54	435.7	3.9	316.6	60.0	-27	14.30	0.9	0.0557	1.3	14.35	0.9	0.0527	2.6	0.51	2.8	0.070	0.9	0.33	
JT-18-32	3.9E-05	58	311	257	0.85	1422.9	13.1	1471.4	16.0	3	4.03	0.9	0.0927	0.8	4.04	0.9	0.0922	0.8	3.15	1.3	0.248	0.9	0.75	
JT-18-33	2.6E-05	27	465	97	0.22	947.4	8.1	950.4	17.8	0	6.31	0.9	0.0711	0.8	6.32	0.9	0.0708	0.9	1.54	1.2	0.158	0.9	0.71	
JT-18-34	3.2E-04	35	316	95	0.31	435.7	4.5	296.8	89.1	-32	14.28	1.1	0.0569	1.8	14.36	1.1	0.0523	3.9	0.50	4.0	0.070	1.1	0.27	
JT-18-35	1.2E-04	37	961	520	0.56	432.0	3.6	423.9	35.8	-2	14.40	0.8	0.0570	1.0	14.43	0.8	0.0553	1.6	0.53	1.8	0.069	0.8	0.47	
JT-18-36	1.2E-04	64	351	145	0.43	445.6	4.5	400.6	59.6	-10	13.96	1.0	0.0564	1.7	13.99	1.0	0.0547	2.7	0.54	2.9	0.071	1.0	0.36	
JT-18-37	3.1E-04	32	347	338	1.01	478.0	5.3	322.2	77.0	-32	12.98	1.1	0.0573	1.6	13.05	1.1	0.0528	3.4	0.56	3.6	0.077	1.1	0.32	
JT-18-38	6.1E-05	33	403	179	0.46	1803.5	16.0	1757.1	11.4	-2	3.11	0.9	0.1083	0.6	3.11	0.9	0.1075	0.6	4.77	1.1	0.322	0.9	0.82	
JT-18-39	2.6E-04	32	394	197	0.52	436.9	4.3	341.0	66.5	-22	14.24	1.0	0.0570	1.6	14.30	1.0	0.0533	2.9	0.51	3.1	0.070	1.0	0.32	
JT-18-40	6.4E-05	33	375	103	0.28	1717.0	15.3	1749.4	12.2	2	3.26	0.9	0.1079	0.6	3.27	0.9	0.1070	0.7	4.51	1.1	0.306	0.9	0.80	
JT-18-41	6.1E-05	50	250	141	0.58	1683.7	16.4	1795.3	15.1	6	3.32	1.0	0.1106	0.7	3.32	1.0	0.1098	0.8	4.56	1.3	0.301	1.0	0.76	
JT-18-42	1.1E-04	50	191	56	0.30	1736.3	18.9	1600.4	23.1	-7	3.26	1.1	0.1003	0.9	3.27	1.1	0.0987	1.2	4.17	1.7	0.306	1.1	0.66	
JT-18-43	1.9E-04	38	518	8	0.02	719.2	6.4	609.1	46.7	-15	8.48	0.9	0.0629	1.1	8.51	0.9	0.0602	2.2	0.98	2.3	0.118	0.9	0.39	
JT-18-44	---	0	90	55	0.63	1029.1	14.5	1066.1	39.0	3	5.77	1.4	0.0749	1.9	5.77	1.4	0.0749	1.9	1.79	2.4	0.173	1.4	0.60	
JT-18-45	1.5E-04	38	919	631	0.71	427.9	3.7	368.1	46.1	-14	14.56	0.9	0.0561	1.2	14.60	0.9	0.0539	2.0	0.51	2.2	0.069	0.9	0.40	
JT-18-46	1.3E-04	58	431	310	0.74	416.2	4.5	390.1	64.9	-6	14.97	1.1	0.0564	1.9	15.01	1.1	0.0545	2.9	0.50	3.1	0.067	1.1	0.36	
JT-18-47	4.3E-05	20	464	164	0.36	1608.8	14.3	1626.8	12.1	1	3.52	0.9	0.1007	0.6	3.52	0.9	0.1001	0.7	3.92	1.1	0.284	0.9	0.81	
JT-18-48	3.9E-04	35	347	229	0.68	445.7	4.8	302.8	104.4	-32	13.93	1.1	0.0581	1.9	14.03	1.1	0.0524	4.6	0.51	4.7	0.071	1.1	0.24	
JT-18-49	1.3E-04	23	2681	1123	0.43	370.8	2.8	397.7	26.2	7	16.84	0.8	0.0565	0.7	16.88	0.8	0.0546	1.2	0.45	1.4	0.059	0.8	0.55	
JT-18-50	5.8E-05	45	753	331	0.45	1187.2	9.7	1166.2	20.4	-2	4.95	0.8	0.0796	0.9	4.95	0.8	0.0788	1.0	2.19	1.3	0.202	0.8	0.63	
JT-18-51	3.9E-04	45	46	23	0.51	1639.4	28.6	1565.0	60.7	-4	3.45	1.8	0.1023	1.8	3.47	1.8	0.0969	3.2	3.85	3.7	0.288	1.8	0.48	
JT-18-52	6.2E-05	31	224	121	0.56	1827.5	20.2	1882.9	16.6	3	3.03	1.1	0.1160	0.9	3.04	1.1	0.1152	0.9	5.23	1.4	0.329	1.1	0.77	
JT-18-53	8.9E-05	59	260	80	0.32	1229.7	12.2	1142.1	28.9	-7	4.77	1.0	0.0791	1.1	4.78	1.0	0.0778	1.5	2.24	1.8	0.209	1.0	0.58	
JT-18-54	1.5E-04	44	488	270	0.57	431.0	4.0	351.6	54.7	-18	14.46	0.9	0.0557	1.4	14.50	1.0	0.0535	2.4	0.51	2.6	0.069	1.0	0.37	
JT-18-55	1.2E-04	35	498	299	0.62	716.6	6.4	768.2	30.6	7	8.47	0.9	0.0665	1.1	8.49	0.9	0.0648	1.5	1.05	1.7	0.118	0.9	0.53	
JT-18-56	2.0E-04	38	119	100	0.87	1695.1	24.2	1576.5	31.0	-6	3.34	1.4	0.1003	1.2	3.35	1.4	0.0975	1.7	4.01	2.2	0.298	1.4	0.66	
JT-18-57	2.3E-04	72	351	166	0.49	485.2	4.9	315.9	113.3	-35	12.80	1.0	0.0561	1.7	12.86	1.1	0.0527	5.0	0.57	5.1	0.078	1.1	0.21	