Appendix C. Results of the LAM-ICP-MS Lu-Hf isotope analysis and equivalent SIMS $\delta^{18}O$ values for the same grains.

Spot	Age(Ma)[a]	$^{176}Hf/^{177}Hf$	1SE	$^{176}Lu/^{177}Hf$	1SE	$^{176}Yb/^{177}Hf$	1SE	$^{177}Hf/^{176}Hf(t)$	2SE	$\varepsilon_{Hf}(t)$	2SE	Sample ID	$\delta^{18}O$
A118-02	1640	0.281774 ± 0.000018		0.00177 ± 0.00009		0.0757 ± 0.0023		0.281719 ± 0.000036		-0.8 ±	1.1	n3606ox-02	6.7
A118-03	1640	0.281806 ± 0.000017		0.00110 ± 0.00001		0.0491 ± 0.0005		0.281772 ± 0.000034		1.1 ±	1.2	n3606ox-03	6.3
A118-04	1640	0.281780 ± 0.000014		0.00082 ± 0.00005		0.0363 ± 0.0033		0.281754 ± 0.000028		0.5 ±	0.9	n3606ox-04	7.0
A118-07	1640	0.281783 ± 0.000015		0.00088 ± 0.00006		0.0319 ± 0.0009		0.281756 ± 0.000030		0.5 ±	0.9	n3606ox-07	6.8
A118-11	1640	0.281773 ± 0.000015		0.00039 ± 0.00002		0.0156 ± 0.0003		0.281761 ± 0.000030		0.7 ±	1.0	n3606ox-11	6.9
A118-14	1640	0.281761 ± 0.000014		0.00090 ± 0.00002		0.0389 ± 0.0015		0.281733 ± 0.000028		-0.3 ±	1.0	n3606ox-14	6.6
A118-14b	1640	0.281777 ± 0.000016		0.00094 ± 0.00001		0.0389 ± 0.0004		0.281748 ± 0.000032		0.3 ±	1.1	n3606ox-14	6.6
A118-16	1640	0.281782 ± 0.000023		0.00155 ± 0.00003		0.0674 ± 0.0014		0.281734 ± 0.000046		-0.2 ±	1.6	n3606ox-16	7.0
A118-17	1640	0.281767 ± 0.000012		0.00072 ± 0.00001		0.0314 ± 0.0003		0.281745 ± 0.000024		0.2 ±	0.8		
A118-18	1640	0.281820 ± 0.000014		0.00127 ± 0.00000		0.0548 ± 0.0007		0.281780 ± 0.000028		1.4 ±	1.0		
A118-19	1640	0.281778 ± 0.000013		0.00058 ± 0.00001		0.0253 ± 0.0008		0.281760 ± 0.000026		0.7 ±	0.9		
A118-01												n3606ox-01	7.1
A118-05												n3606ox-05	7.0
A118-06												n3606ox-06	7.0
A118-08												n3606ox-08	7.1
A118-09												n3606ox-09	7.1
A118-10												n3606ox-10	6.7
A118-12												n3606ox-12	7.2
A118-13												n3606ox-13	6.6
A118-15												n3606ox-15	6.7

[a]Age used in calculation of $^{176}Hf/^{177}Hf(t)$ and $\varepsilon_{Hf}(t)$ (Alviola *et al.* 1999; Heinonen *et al.* 2010).

Spot	Age(Ma)[a]	^{176}Hf/^{177}Hf	1SE	^{176}Lu/^{177}Hf	1SE	^{176}Yb/^{177}Hf	1SE	^{177}Hf/^{176}Hft	2SE	$\varepsilon_{Hf}(t)$	2SE	Sample ID	δ^{18}O
A1271-03	1636	0.281823 ±	0.000011	0.00133 ±	0.00001	0.0604 ±	0.0002	0.281782 ±	0.000022	1.4 ±	0.8	n3602ox-03	6.0
A1271-04	1636	0.281741 ±	0.000015	0.00097 ±	0.00005	0.0397 ±	0.0031	0.281711 ±	0.000030	-1.1 ±	1.0	n3602ox-04	6.0
A1271-05	1636	0.281820 ±	0.000018	0.00268 ±	0.00004	0.1199 ±	0.0039	0.281737 ±	0.000036	-0.2 ±	1.2	n3602ox-05	5.6
A1271-08a	1636	0.281854 ±	0.000011	0.00156 ±	0.00001	0.0729 ±	0.0007	0.281806 ±	0.000022	2.2 ±	0.8	n3602ox-08	5.4
A1271-08b	1636	0.281843 ±	0.000017	0.00155 ±	0.00001	0.0715 ±	0.0006	0.281795 ±	0.000034	1.8 ±	1.2	n3602ox-08	5.4
A1271-08c	1636	0.281886 ±	0.000018	0.00153 ±	0.00001	0.0708 ±	0.0006	0.281839 ±	0.000036	3.4 ±	1.3	n3602ox-08	5.4
A1271-10	1636	0.281863 ±	0.000017	0.00175 ±	0.00005	0.0822 ±	0.0037	0.281809 ±	0.000034	2.3 ±	1.1	n3602ox-10	5.6
A1271-14	1636	0.281828 ±	0.000015	0.00110 ±	0.00003	0.0500 ±	0.0005	0.281794 ±	0.000030	1.8 ±	1.0	n3602ox-14	6.4
A1271-17	1636	0.281809 ±	0.000018	0.00134 ±	0.00002	0.0621 ±	0.0002	0.281767 ±	0.000036	0.9 ±	1.2		
A1271-01												n3602ox-01	6.0
A1271-02												n3602ox-02	5.7
A1271-06												n3602ox-06	5.8
A1271-07												n3602ox-07	5.4
A1271-09												n3602ox-09	6.6
A1271-11												n3602ox-11	6.0
A1271-12												n3602ox-12	5.9
A1271-13a												n3602ox-13a	7.0
A1271-13b												n3602ox-13b	5.8

[a]Age used in calculation of ^{176}Hf/^{177}Hf(t) and $\varepsilon_{Hf}(t)$ (Alviola *et al.* 1999; Heinonen *et al.* 2010).

Spot	Age(Ma)[a]	^{176}Hf/^{177}Hf		1SE	^{176}Lu/^{177}Hf		1SE	^{176}Yb/^{177}Hf		1SE	^{177}Hf/^{176}Hft		2SE	$\varepsilon_{Hf}(t)$		2SE	Sample ID	δ^{18}O
A1933-01	1641	0.281780	±	0.000017	0.00028	±	0.00001	0.0138	±	0.0003	0.281771	±	0.000034	1.1	±	1.2	n3603ox-01	6.7
A1933-03	1641	0.281830	±	0.000016	0.00112	±	0.00004	0.0477	±	0.0006	0.281795	±	0.000032	2.0	±	1.0	n3603ox-03	7.5
A1933-11	1641	0.281789	±	0.000018	0.00077	±	0.00008	0.0350	±	0.0047	0.281765	±	0.000036	0.9	±	1.1	n3603ox-11	6.5
A1933-13	1641	0.281795	±	0.000018	0.00077	±	0.00004	0.0326	±	0.0008	0.281771	±	0.000036	1.1	±	1.2	n3603ox-13	7.8
A1933-16	1641	0.281793	±	0.000014	0.00021	±	0.00001	0.0086	±	0.0002	0.281787	±	0.000028	1.7	±	1.0	n3603ox-16	6.8
A1933-17	1641	0.281799	±	0.000025	0.00127	±	0.00005	0.0616	±	0.0008	0.281760	±	0.000050	0.7	±	1.7	n3603ox-17	6.9
A1933-02																	n3603ox-02	6.9
A1933-04																	n3603ox-04	7.5
A1933-05																	n3603ox-05	7.6
A1933-06																	n3603ox-06	7.0
A1933-07																	n3603ox-07	6.9
A1933-08																	n3603ox-08	7.4
A1933-09																	n3603ox-09	7.2
A1933-10																	n3603ox-10	7.5
A1933-12																	n3603ox-12	7.4
A1933-14																	n3603ox-14	7.7
A1933-15																	n3603ox-15	7.1
A1933-18																	n3603ox-18	7.3
A1933-19																	n3603ox-19	7.2
A1933-20																	n3603ox-20	7.1

[a]Age used in calculation of ^{176}Hf/^{177}Hf(t) and $\varepsilon_{Hf}(t)$ (Alviola *et al.* 1999; Heinonen *et al.* 2010).

Spot	Age(Ma)[a]	^{176}Hf/^{177}Hf	1SE	^{176}Lu/^{177}Hf	1SE	^{176}Yb/^{177}Hf	1SE	^{177}Hf/^{176}Hft	2SE	$\varepsilon_{Hf}(t)$	2SE	Sample ID	δ^{18}O
A1306-02	1642	0.281751 ±	0.000026	0.00109 ±	0.00009	0.0369 ±	0.0025	0.281717 ±	0.000052	-0.8 ±	1.7	n3605ox-02	7.1
A1306-03	1642	0.281703 ±	0.000020	0.00052 ±	0.00002	0.0249 ±	0.0007	0.281687 ±	0.000040	-1.8 ±	1.4	n3605ox-03	7.2
A1306-05	1642	0.281759 ±	0.000023	0.00085 ±	0.00007	0.0312 ±	0.0011	0.281733 ±	0.000046	-0.2 ±	1.5	n3605ox-05	6.8
A1306-06	1642	0.281795 ±	0.000020	0.00044 ±	0.00000	0.0234 ±	0.0006	0.281781 ±	0.000040	1.5 ±	1.4	n3605ox-06	6.6
A1306-09	1642	0.281783 ±	0.000025	0.00160 ±	0.00010	0.0562 ±	0.0025	0.281733 ±	0.000050	-0.2 ±	1.6	n3605ox-09	7.2
A1306-11	1642	0.281800 ±	0.000019	0.00082 ±	0.00003	0.0401 ±	0.0007	0.281774 ±	0.000038	1.3 ±	1.3	n3605ox-11	7.4
A1306-15	1642	0.281778 ±	0.000020	0.00066 ±	0.00006	0.0329 ±	0.0009	0.281757 ±	0.000040	0.7 ±	1.3	n3605ox-15	7.3
A1306-16	1642	0.281742 ±	0.000022	0.00063 ±	0.00002	0.0316 ±	0.0006	0.281722 ±	0.000044	-0.6 ±	1.5	n3605ox-16	6.9
A1306-01												n3605ox-01	7.0
A1306-04												n3605ox-04	6.9
A1306-07												n3605ox-07	7.6
A1306-08												n3605ox-08	6.9
A1306-10												n3605ox-10	7.1
A1306-12												n3605ox-12	7.5
A1306-13												n3605ox-13	7.5
A1306-14												n3605ox-14	6.8

[a]Age used in calculation of ^{176}Hf/^{177}Hf(t) and $\varepsilon_{Hf}(t)$ (Alviola *et al.* 1999; Heinonen *et al.* 2010).

Spot	Age(Ma)[a]	$^{176}Hf/^{177}Hf$		1SE	$^{176}Lu/^{177}Hf$		1SE	$^{176}Yb/^{177}Hf$		1SE	$^{177}Hf/^{176}Hft$		2SE	$\varepsilon_{Hf}(t)$		2SE	Sample ID	$\delta^{18}O$
A1360-02a	1636	0.281779	±	0.000021	0.00072	±	0.00001	0.0404	±	0.0011	0.281757	±	0.000042	0.5	±	1.5	n3604ox-02a	7.8
A1360-03a	1636	0.281727	±	0.000016	0.00094	±	0.00005	0.0326	±	0.0012	0.281698	±	0.000032	-1.6	±	1.0	n3604ox-03a	8.2
A1360-03b	1636	0.281723	±	0.000016	0.00124	±	0.00002	0.0421	±	0.0012	0.281685	±	0.000032	-2.1	±	1.1	n3604ox-03b	7.4
A1360-04	1636	0.281737	±	0.000021	0.00082	±	0.00003	0.0417	±	0.0014	0.281712	±	0.000042	-1.1	±	1.4	n3604ox-04	8.0
A1360-05	1636	0.281758	±	0.000016	0.00063	±	0.00004	0.0262	±	0.0004	0.281738	±	0.000032	-0.2	±	1.1	n3604ox-05	7.9
A1360-06	1636	0.281784	±	0.000014	0.00084	±	0.00005	0.0369	±	0.0011	0.281758	±	0.000028	0.5	±	0.9	n3604ox-06	7.6
A1360-07	1636	0.281775	±	0.000018	0.00091	±	0.00006	0.0472	±	0.0014	0.281747	±	0.000036	0.1	±	1.2	n3604ox-07	7.7
A1360-09a	1636	0.281741	±	0.000014	0.00157	±	0.00007	0.0568	±	0.0017	0.281692	±	0.000028	-1.8	±	0.8	n3604ox-09a	7.5
A1360-10a	1636	0.281772	±	0.000023	0.00124	±	0.00008	0.0520	±	0.0011	0.281734	±	0.000046	-0.3	±	1.5	n3604ox-10a	7.8
A1360-10b	1636	0.281772	±	0.000023	0.00151	±	0.00003	0.0485	±	0.0010	0.281725	±	0.000046	-0.6	±	1.6	n3604ox-10b	8.6
A1360-11	1636	0.281747	±	0.000025	0.00110	±	0.00010	0.0488	±	0.0025	0.281713	±	0.000050	-1.1	±	1.6	n3604ox-11	8.1
A1360-12	1636	0.281764	±	0.000020	0.00068	±	0.00003	0.0358	±	0.0005	0.281743	±	0.000040	0.0	±	1.3	n3604ox-12	8.3
A1360-01																	n3604ox-01	7.7
A1360-02b																	n3604ox-02b	7.4
A1360-08																	n3604ox-08	8.1
A1360-09b																	n3604ox-09b	7.9

[a]Age used in calculation of $^{176}Hf/^{177}Hf(t)$ and $\varepsilon_{Hf}(t)$ (Alviola *et al.* 1999; Heinonen *et al.* 2010).

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